2-2020

Techno-Theology: A Theological Algorithm for Being Human in a Technological Age

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TECHNO-THEOLOGY:
A THEOLOGICAL ALGORITHM FOR BEING HUMAN
IN A TECHNOLOGICAL AGE

A DISSERTATION SUBMITTED TO

THE FACULTY OF PORTLAND SEMINARY

IN CANDIDACY FOR THE DEGREE OF

DOCTOR OF MINISTRY

BY

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PORTLAND, OREGON

FEBRUARY 2020

Portland Seminary
George Fox University
Portland, Oregon

CERTIFICATE OF APPROVAL

DMin Dissertation

This is to certify that the DMin Dissertation of

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has been approved by
the Dissertation Committee on February 19, 2020
for the degree of Doctor of Ministry in Semiotics and Future Studies

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DEDICATION

To Amber and Soren, my jewel and my grace.

ACKNOWLEDGMENTS

The past few years have been a tremendous undertaking. First and foremost, all thanks belong to the Lord for his guiding hand in both my life and this work. I pray the fruit of this labor brings honor to him. I would like to thank the staff of Portland Seminary for their help every step of the way. From the application process to graduation, they made this journey a joy.

Phil Carnes, your role in this journey has been invaluable to my growth and success both as a student and as a person. You have encouraged me and spoken words of life along this entire excursion. I am thankful the Lord has allowed our paths to cross, and I now have the honor to call you friend for the rest of my days.

To Leonard Sweet, I have shared this with you previously, but you are a da Vinci of the divine, pulling together all realms of science, technology, engineering, arts, mathematics (STEAM), and theology in order to point us to a greater understanding of Jesus. You are an optometrist of the soul, helping us to study and see the Light of the world with fresh eyes. My life, faith, and family are forever changed because of your influence. I am honored to call myself your student, and more importantly your friend.

Amber, my darling, none of this would be possible without you. You have stood beside me and encouraged me along the way, pushing me to continue when I wanted to quit. You have been my constant inspiration, and your words along the way have helped shape my thinking and being. Thank you for putting up with late nights, early mornings, and long days of reading and writing. Your sacrifice over the last few years is beyond measure, and my gratitude overflows for you. I would not be who I am or where I am without you. I love you.

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ABSTRACT

In a world with rapidly changing technology that challenges our understanding of what it means to be human, our dealings with the biosphere, and our social interactions, many pastors and Christians do not have an adequate theology of technology. Our current narraphors have been influenced by our linguistics, popular culture, and an escapism theology that prevents us from interacting with technology in a theological way. Techno-theology is the algorithm necessary to understand humanity's role in a technological age through the matrix of the *imago Dei*. Using humanity's ability to reason, their regency over creation, and their ability to be in relationship as the primary subroutines, techno-theology explores emerging technologies, and what it means to be a creative human in an age of technological advancement, by providing insight to new technologies, asking probing theological, sociological, and ethical questions, and offering beneficial metaphors for the church.

CHAPTER 1:

INTRODUCTION

The year is 2052. Pastor John Smith leads a church in a metropolis of three million people. His week has been inundated by concerned and angry congregants. Artificial Intelligence has infiltrated through every industry. Now there are robots that accompany most families from the simple robots that clean their homes to emotional support pet robots, and some can even afford android and gynoid companion robots. Some families have even asked if their robot can accompany them to church. He does not know how to respond. Many people are without jobs that were replaced by artificially intelligent robots, while those who have the financial means are able to purchase the latest gene therapies for longer lives, genetically engineered children, and increased intelligence.

In the midst of all of this, during his prayer time he wonders, "How is this fair that some go hungry, while others are paying to live extra-long lives? Just last week we heard the ocean level rose another 6 feet, and 16 more species are said to have gone extinct due to pollution, habitat loss, and the warmer temperatures. I remember hearing about these developments in technology and some of their possible impacts when I was in seminary, but my professors and pastors only spoke ill of them and advised that Christians not engage with them. Some even asserted that Jesus would come back before any of these developments would come about."

Pastor John Smith was intrigued. Many of these technological breakthroughs brought about immense good, but because of the negative connotation attributed to them by his leadership and popular media, the beneficial aspects had been severely hampered.

Pastor Smith questioned why he learned all about the doctrines of the Bible and his tribe, yet nobody addressed these issues theologically before the pastors of his generation were faced with them. Why was there not a doctrine of technology, a theological algorithm to interact with technology?

It is no secret that we live in an increasingly technological age. Every day a seemingly new breakthrough appears that makes the previous generation obsolete. These technological breakthroughs serve an incredible purpose to humankind, and the Evangelical church of North America needs to begin to wrestle with how many of these technologies will impact current theological thinking and teaching. Just to be clear, we are not talking about the latest model of computer-controlled lighting systems, light emitting diode screens, or the newest version of a Power Point-esque software. Society is at the forefront of the fourth industrial revolution, and "compared to previous revolutions involving processes like mechanization, mass production, and automation, the fourth industrial revolution is characterized by the convergence of new and emerging socio-technical systems that permeate every aspect of human life."[1] We really want to get at the heart of issues like genetic editing, radical life extension, artificial intelligence, and cybernetic organisms and how these impact both our physical world and our relationship with God and our fellow humanity. A Power Point program does not affect one's theology, but the immanent reality of genetically modified people takes a sledgehammer to the beliefs and doctrine of *imago Dei* (Gen 1:27). Existing traditions and cultural

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[1] Anne Bowser, Michael Sloan, Pietro Michlucci, and Eleonore Pauwels, "How to Manage AI's Risks And Rewards," *World Economic Forum*, January 11, 2018, https://www.weforum.org/agenda/2018/01/how-to-manage-ais-risks-and-benefits.

frameworks prevent the Evangelical church of the United States from engaging these types of technological advancements from a theological perspective.

The Algorithms That Control Our Lives

How a person interacts with the world is based on what he or she knows or believes. Some would call this a "world-view," but in order to more adequately relate it to the culture of the 21st century, this paper will refer to the underlying beliefs that control our lives as algorithms. Algorithms are the codes, or sets of instructions that use data, that guide a person or machine to a conclusion.[2] Algorithms are based upon smaller subroutines for specific tasks. Each person has algorithms (worldviews) by which they operate, and the algorithms tell that person how to interpret and interact with the world around them, in this case, different technologies. This paper will explore the primary algorithms and subroutines that influence humanity's understanding of technology, as well as both the redemptive and corruptive properties of technology. It will also present a directive for the Church to write a new algorithm in which to interact with advancing technologies.

Doctrines are the summation of what scripture teaches us concerning a particular topic, as the result of doing systematic theology over that subject.[3] While there are varying doctrines within each of the denominations within Christianity that vary from one another such as baptism practices, speaking in tongues, salvation, or the end times, there

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[2] Douglas Estes, *Braving The Future: Christian Faith In A World Of Limitless Tech* (Harrisonburg, VA: Herald Press, 2018), 94.

[3] Wayne Grudem, *Systematic Theology: An Introduction To Biblical Doctrine* (Grand Rapids, MI: Zondervan, 1994), 25.

are many doctrines, such as the trinity, the incarnation, and the authority of scripture, that are held by most if not all Christian tribes. A detailed exploration of these varying doctrines could take up an entire paper. These doctrines are the algorithms that help Christians operate in the world. They direct the thinking, beliefs, and actions of the Christ-follower in order to bring about an intended outcome of being transfigured into the likeness of Christ. In light of the doctrinal algorithms that shape the way evangelical Christians in America interact with the world around them, we must also ask, "how do language, tradition, cultural frameworks, and a lack of hopeful metaphors affect the Church's ability to engage technology in a theological way?"

Before writing a new algorithm, it is important to look at the previous code and find what works and what does not, how major lines influence it, and how the current system operates within the parameters of that code. While technology is most often thought of as the tangible artifact and the artwork of scientific breakthroughs, in order for author and reader to understand one another, when utilizing the term "technology" this paper will utilize the same definition that Jacques Ellul uses for "technique" in his work, *The Technological Society:* "In our technological society, technique is the totality of methods rationally arrived at and having absolute efficiency (for a given stage of development) in every field of human activity."[4] This includes both the processes *and* the tangible artifacts,[5] and so to fully understand the relationship between faith and

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[4] Jacques Ellul, *The Technological Society*, trans. John Wilkinson (New York, NY: Vintage Books, 1964), xxv.

[5] While most technologies fall under this characterization, some scientific processes, such as the genetic editing technique CRSPR cas-9, in and of themselves are considered technological advancements.

technology, one must first take a step back in the technological process and look at the relationship between religion and science.

Religion and science are two sociological behemoths that often collide on the stage of public debate. In *Homo Deus: A Brief History of Tomorrow,* Yuval Noah Harari points out that "you cannot understand the history of science without taking religious beliefs into account."[6] Their history is a long and complicated road that is not as easily understood as is commonly thought, but it does not have to be this way. Instead of looking at these two giants as eternal enemies, there is immeasurable value for both in one's life and theology. Hans Schwartz envisions the relationship like this: "The natural sciences deal with the concrete shaping of the world, and theology accompanies this venture in a reflective manner and connects it with the origin, meaning, and goal of this world."[7] The church as a whole has the opportunity to use technology as a means to explore our purpose and goal in this world.

Science and faith dance around each other simultaneously supporting the fabric of our everyday life, connecting at various points bringing cohesion and strength. While they are often viewed as opposite ends of a spectrum, this paper will pull the two ends of that spectrum together to live in tension with one another in order to provide a way forward for the church in a technological society. America is headed into uncharted territory with technological advancement. If the church gets too caught up safeguarding its traditions and doctrines by staring at the guardrails while driving rather than allowing

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[6] Yuval Noah Harari, *Homo Deus: A Brief History of Tomorrow* (New York, NY: Harper Collins, 2017), 198.

[7] Ted Peters, "Naturalisms: Scientific? Religious? Theological?" *Theology & Science* 15, no. 3 (August 2017): 302-320, http://dx.doi.org/10.1080/14746700.2017.1335059.

them to simply be as we cross the bridge into this new land[8], we will be left behind in our new technological society, or worse, we will crash and burn and have no voice in this new land.

The Science and Religion Dichotomy

From the beginning of humanity's time on the earth these two constants have been present in our lives: science and faith. From the Christian Biblical perspective, Adam was commanded to name the animals in the Garden (Genesis 2:19-20). One could call this taxonomy, or the science of naming animals. Stepping forward in the Christian Holy book, we encounter the narrative of Abraham. God tells Abraham that the nations of the world will be blessed by his offspring because of his obedience (Genesis 22:18). What greater way to bless the nations than through the utilization of science and technology to increase health and well-being, defeat sickness and suffering, and to increase the availability to produce food and provide water for those who are living in lack. To create, build, and forge.

Jesus was an Israelite, therefore making him a descendant of Abraham. He was a blue-collar messiah, and "his ministry preparation was to become a craftsman." Matthew 13:54-56 indicates that Joseph was a *tekton*, and it was common practice that a father would teach his trade to his son. Jesus was referenced as a carpenter, craftsman, or builder in both Mark 6:3 and Matthew 13:55. One could even say that as an artisan he was a technologist (*techne/tekton)*, creating and producing tangible goods to better the

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[8] Leonard Sweet, "Semiotics And Future Studies," (Zoom Lecture, Portland Seminary, Portland OR, September 18, 2017).

lives of the people in His community.[9] From Luke 2:49, it may be possible to infer that he could have been considered bi-vocational, working with his words by day and working with his hands by night. He was a healer (Matthew 9:35; 11:5) and a multiplier (Matthew 14:13-21). It then continues that through the redemptive work of Christ, the Christian is spiritually adopted into the family of God. We now have the ability and commission to continue this blessing of the nations both spiritually through religion and physically through science and technology. Science and technology equip us to fulfill the mission of reducing suffering, bringing healing, feeding those who are hungry, and ultimately blessing the nations. The technological innovation of Gutenberg's press paved the way for the message of this Christian commission to be available to the masses.

One of the greatest scientists of the twentieth century, Albert Einstein, once wrote concerning the relationship between science and religion, "Even though the realms of religion and science in themselves are clearly marked off from each other, nevertheless there exist between the two strong reciprocal relationships and dependencies … The situation may be expressed by an image: *science without religion is lame, religion without science is blind.*"[10] (Italics mine)

Science and religion serve two important purposes in our lives, although some do not believe this way, as will be explored below.[11] They allow us to understand both the *how* and *why* concerning our existence. They also allow us to study, interact with, and

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[9] Leonard Sweet and Frank Viola, *Jesus: A Theography* (Nashville, TN: Thomas Nelson, 2012), 97.

[10] Albert Einstein, "Albert Einstein on Religion and Science," Internet Sacred Text Archive, accessed February 8, 2018, http://www.sacred-texts.com/aor/einstein/einsci.htm.

[11] In *The Language Of God*, Francis Collins points out that Karl Marx considered religion "the opiate of the masses." See: Francis Collins, *The Language Of God* (New York, NY: Free Press, 2007), 41.

make better the natural world around us.[12] C.A. Coulson contends that, "If we are to restore faith to men, it will be through science[13]…because it could assist the Church…by leading the mind through a study of the created works to a knowledge of the Creator."[14] He goes on to declare it a fatal step to divide our experience into two parts and grant science and religion authority over *only* their particular realm.[15] This only exacerbates the problem of dichotomy, and a person influenced by only one of these has an incomplete worldview.

The dichotomy between science and religion is one of our own making through our language and poorly interpreted data. When Americans were asked what brought the biggest improvement to their lives in the past fifty years, technology was named more than any other advancement.[16] The conflict between science and religion comes from the least religiously observant Americans, or 73% of those who seldom or never attend religious services.[17] Recent research has found that 67% of Americans say science has had a *positive* effect on society including improvements in medical research, life span, and the treatment of disease, while only 8% of Americans claim technology has had a

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[12] Evolutionist Stephen Jay Gould promoted a Non-Overlapping Magisteria (NOMA) model, whereby science and faith do not overlap or converse into each other. See: Rebecca Bouveng and David Wilkinson, "Going beyond the How and Why of Science-Religion? Senior Christian Leaders on Science and Personal Faith," *Science & Christian Belief* 28, no. 2 (2016): 100-116, EBSCOHost.

[13] C.A. Coulson, *Science And Christian Belief* (Chapel Hill, NC: The University of North Carolina Press, 1955), 10.

[14] Ibid., 11.

[15] Ibid., 19.

[16] Mark Strauss, "Four-In-Ten Americans Credit Technology With Improving Life Most In The Past 50 Years," Pew Research Center, October 12, 2017, http://pewrsr.ch/2yhL9da.

[17] Cary Funk and David Masci, "5 Facts About the Interplay Between Religion and Science," Pew Research Center, October 22, 2015, http://www.pewresearch.org/fact-tank/2015/10/22/5-facts-about-the-interplay-between-religion-and-science.

negative impact on society. Even though many have reservations about the potential use of biomedical advancements,[18] including the consideration that 61% of adults in America that attend weekly worship services say genetic modification to reduce a baby's risk of serious diseases would be "taking medical advances too far,"[19] 81% of American adults fully expect artificial organs to be routinely available for transplant, most forms of cancer to be cured, and sensors to be implanted for monitoring and adjustment of food and medication within the next 50 years.[20]

The majority of major religious groups believe governmental investment in science has a long-term pay off. The highest majority of these respondents come from Hispanic Catholics at 86%, and 64% of white Catholics following close behind.[21] This is with good cause. The Catholic Church's current scientific and technological situation is anomalous compared to its history. The Catholic Church is credited with developing the welfare system and inventing the hospital, and monasteries were the "Silicon Valley" that arose on the ruins of the Western Roman Empire. These monasteries contributed innovations such as the wheeled plow, the horse harness, the nailed horseshoe, and three-field crop rotation to the agricultural revolution. This revolution broke Western Europe out of the Malthusian trap in which it had been stuck for centuries. The agricultural

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[18] Cary Funk, Brian Kennedy, and Elizabeth Podrebarac Sciupa, "Public Sees Science And Technology As Net Positives For Society," Pew Research Center, July 26, 2016, http://www.pewinternet.org/2016/07/26/public-sees-science-and-technology-as-net-positives-for-society.

[19] Funk and Masci, "5 Facts About The Interplay Between Religion and Science."

[20] Strauss, "Four-In-Ten Americans Credit Technology With Improving Life Most In The Past 50 Years."

[21] Cary Funk and Becka A. Alper, "Majority Of All Religious Groups See Long-Run Benefits Of Science Funding," Pew Research Center, October 22, 2015, http://www.pewinternet.org/2015/10/22/majorities-of-all-religious-groups-see-long-run-benefits-of-science-funding.

revolution brought about by these technological innovations directly impacted a population surge that contributed to a centuries-long financial, artistic, cultural, and technological boom including the invention of the university.[22] Pascal-Emmanuel Gobry believes "the Catholic Church has the means to be the engine of another renewal of civilization,"[23] but it is not just up to the Catholic Church. The whole church, every denomination, every tribe should be the driving force that brings about positive life-altering change through scientific and technological breakthroughs, and the evangelical church of North America has the means and freedoms to explore the uncharted territory that these breakthroughs will bring. While Einstein and Coulson were proponents of an overlap of science and religion, one prominent voice helped lead the charge to increase the division between the two.

Non-Overlapping Magesteria

While Einstein and Coulson were proponents of an overlap of science and religion, one prominent voice helped lead the charge to increase the division between the two. Stephen J. Gould was an agnostic Jew who believed that religion and science have their own various realms of influence and importance within the role of humanity. He was a major proponent of this view and very vocal about it in public debate and throughout his writings. He believed that each should not overlap and maintain their influence within their own realm of magesteria. This is where he coined the term that he

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[22] Pascal-Emmanuel Gobry, "The Catholic Church Used to Be Like Silicon Valley. Can It Be Again?" *America: The Jesuit Review* (December 13, 2017), https://www.americamagazine.org/arts-culture/2017/12/13/catholic-church-used-be-silicon-valley-can-it-be-again.

[23] Ibid.

may be most known for, *Nonoverlapping Magesteria*, or NOMA, which many non-Christian scientists still adhere to. He cites the clichés "we get the age of rocks, and religion retains the rock of ages; we study how the heavens go, and they determine how to go to heaven." He believed that science addresses factual issues and religion handles values.[24] This worldview believes in the importance of both religion and science, and ultimately its technological offspring, but still maintains the dichotomous relationship between the two. He believes that while their fields bump up directly next to each other, they should not overlap.[25]

The problem with Gould's proposed lack of interaction between science and religion is that a worldview lacking either is incomplete. These two sociological forces interact and dance together like a double helix in order to bring about a more complete understanding of the cosmos and humanity's role within it. By attempting to separate the magesteria of science and religion, Gould is also ruling out the interaction of religion and technology, since science and technology are one in the same according to Ellul's definition. Gould's separation primarily revolved around the evolutionary debate, but the ripple effect of even one science is that they tend to overlap into countless other fields of specialization.

Evolutionary study can include explorations into varying fields of science including, but is not limited to mineralogy, biology, geology, physics, quantum physics, cellular biology, virology, and the list could go on. Then one could say that any

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[24] Doren Recker, "Faith, Belief, and the Compatibility of Religion and Science," *Zygon: Journal Of Religion & Science* 52, no. 1 (2017): 212-231, http://dx.doi.org/10.1111/zygo.12326.

[25] Stephen J. Gould, "Nonoverlapping Magesteria," The Unofficial Stephen Jay Gould Archive, accessed September 21, 2018, http://www.stephenjaygould.org/library/gould_noma.html.

interaction between religion and these sciences is off limits, but the technologies that will come out of these sciences such as nanotechnology, genome editing, artificial intelligence, cloning, animal genome editing, and more have direct impact on theological interpretations of scripture and the role of humanity within creation. It is imperative that these fields overlap. There needs to be clearer communication and increased participation between members of each field as a means to provide the most robust algorithm in light of the findings within each *magesteria*. Gould's NOMA places religion and science/technology in separate, nonoverlapping circles, but in order to develop this robust algorithm, we need to find one that allows the church to live in the *mandorla*, or the space when the circles overlap in a Venn diagram. This paper will explore the mandorla algorithm of theology and technology in light of the imago Dei.

In Summary

Since the moment the invisible broke through into the visible, the eternal into the mortal, humankind has been harnessed to a concept called time. It is ever moving, and never bending. The Church is wrapped up in this time continuum in which it is meant to live, and move, and have its being.[26] While God stands outside of time, the Church is meant to live out and incarnate His presence in the "time and clime" in which it resides.

In *So Beautiful* Dr. Leonard Sweet presents the cultural theory of the Gutenberg culture (or generation) and the Google culture. The Gutenberg culture represents our past, and the Google culture represents our present.[27] In sticking with the alliteration of G's, I

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[26]Acts 17:28 NASB.

[27] Leonard Sweet, *So Beautiful: Divine Design for Life and The Church* (Colorado Springs, CO: David C. Cook, 2009), 35-36.

would even add, the next phase for us is the Gigabyte or Genetic culture/generation. I envision a cultural generation even more integrated with science and technology. Not only convenient technologies and sciences, rather those that shape our very being from genetic manipulation and radical life extension, to cybernetic organisms that will accompany humans in their homes, work, and play. Humans will be integrated with computers along an entire spectrum of enhancement, from simple processing or sensory upgrades even to the possibility of whole brain emulation.

To understand how the Church will interact with this coming age, we, as a whole, must look at our past to decipher how we have included, or segregated, those who were vibrant parts of the culture of an age, as well as our current understanding of relationship, human interaction, and our relationship with God. This must first be the result of a "renewing of our mind" when approaching science and technology. Will the Church shun and disassociate itself from those engaged in those technologies, and cut off the potential for ministry to an entire generation? We must not isolate ourselves from the difficult sciences and technologies that are cascading into today from the horizon of tomorrow. If we do not learn from our past, it will continue to haunt our future. We must listen, watch, learn and lead. Just as Jesus said, "the Son can do nothing by himself; he can do only what he sees his Father doing."[28] If we are not attuned to the Spirit, we will miss what He is doing in *this* 'clime and time' to prepare us for tomorrow.

I believe traditions and cultural frameworks prevent the evangelical Church of the United States from engaging technological advancement from a theological perspective. This paper is studying the influence of culture, tradition, and metaphor on the North

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[28] John 5:19 NASB.

American evangelical church's ability to engage technological advancement in a theological way. I propose that the development of a techno-theological algorithm will allow the evangelical church of the US to engage technology in a balanced, informed, and theological way in light of their role as the imago Dei.

We have discussed that there is a chasm between faith and science/technology, but we need to understand why there is this division. The next chapter will dive into some of the underlying factors that contribute to this dichotomous relationship on the public stage, before establishing a new algorithm.

CHAPTER 2:

DISRUPTIONS TO OUR CURRENT ALGORITHM

In the world of program design, creators often develop a *beta* program as a preliminary introduction to the software which allows them to both introduce it on a smaller scale, as well as debug the coding through "beta testers." Once the *beta* version has been tested, the programmers go back and rework the code, fix the bugs, and present a final version. The coding for our current theological understanding of technology has been running in *beta* mode for too long. It has been tested through centuries of various Christians and their denominations (*beta* testers), and now it is time to look at the bugs and fix the disruptions to our current algorithm. Before the bugs can be fixed, it is important to know exactly what they are. This section will look at the historical, linguistic, theological, and cultural metaphors that are influencing, and ultimately disrupting, our current algorithm before rewriting our program for a more beneficial theology of technology.

Three of The Greatest Hurdles

In any great advancement and drive forward there will inevitably be hurdles. The advancement of the scientific, technological, and religious relationship has faced many hurdles of its own throughout its history. I propose the three hurdles that have caused the most trouble in the past in this relationship are the geocentric/heliocentric transfer of understanding, the proposal of Darwin's evolutionary theory, and the God of the gaps mindset. After exploring these disruptions, this paper will look at some of the more

current ones that impact the current theology of technology, before beginning the revisions in the next chapter.

Galileo And the Heliocentric Model

As shared previously, the Catholic Church throughout its history has had a great impact on the prosperity of the scientific mission. One of their scientists, Galileo Galilei, was a primary supporter of our first hurdle: the dissolution of the geocentric model in favor of a heliocentric model. The primary scientific view of the earth during his life was referred to as a *geocentric* model. The ideology supported that the sun rotated around the earth, and the earth was ultimately at the center of the universe, because humanity was at the center of God's attention. Galileo was a strong believer in God but continued the work of men like Copernicus in the compelling case that the earth and the planets revolved around the sun.[1] This is known as the *heliocentric* model. The Catholic Church vehemently stood against this view, and considered it heresy, contradictory to Holy Scriptures such as Psalms 93:1, 96:10, and 104:5. After his trial by the Inquisition, Galileo was placed on house arrest and ordered never to promote heliocentrism as physical truth, only a philosophy.

We now not only know the reality that the earth does revolve around the sun, but the sun is not the center of the universe, let alone the Milky Way galaxy. The blazing ball of gas we consider our sun, is a mere lone small star on the edge of the Milky Way galaxy adrift in a ninety-two billion light year expanse we call the known universe. The paradigm shift of humanity's centricity in creation was the first blow to the relationship

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[1] Francis Collins, *The Language Of God* (New York, NY: Free Press, 2007), 59.

between religion and science. Christian sponsorship of scientific research changed going forward.

Darwin's Origin of Species

The next hurdle was not a completely new argument in the sphere of science, but Darwin's particular view of evolution (the survival of the fittest) is one that has caused great contention between Christians and scientists, because "the Bible doesn't tell us *how, why,* or *when* the world was created. Only by *who."*[2] Although in some Christian circles it is believed that a literal interpretation of the Genesis creation account reveals this information, A.N. Wilson points out that long before Darwin published his *Origin Of Species,* scientists were already aware of processes at work within species that enabled them to adapt to their environment, and this study would have continued regardless of Darwin's contribution or not.[3] Wilson points out that the concept of evolution was not unique to the nineteenth century: Plato, Aristotle, and St. Augustine all believed in some form of evolution.[4] Nineteenth and twentieth century Princeton theologian (and defender of the authority of scripture) B.B. Warfield also accepted that the findings of scientific research on evolution were not at odds with scripture and gave a proper account of

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[2] James Bryan Smith, *Magnificent Story* (Downer's Grove, IL: IVP Books, 2017), 60.

[3] A.N. Wilson, *Charles Darwin: Victorian Mythmaker* (New York, NY: Harper Collins, 2017), 14-15.

[4] Ibid., 13.

human origins.[5] Other notable modern theologians that believe(d) in evolution include: Karl Barth, Billy Graham, N.T. Wright, C.S. Lewis, and Francis Collins, to name a few.[6]

Sixty-five years prior to Darwin's publication, his grandfather Erasmus published his evolutionary views that were quite popular in his book *Zoonomia*.[7] The greatest challenge came through Charles Darwin's distinct idea that one species changed into another and everything had the same beginnings by a mysterious and impersonal process,[8] but he changed his mind so many times the scientific community moved on.[9] Many Christians saw this particular view of evolution as a direct attack on the Biblical view of creation, and God's direct participation in the molding of humans out of the dirt.

The priest, philosopher, and paleontologist who discovered the Peking Man, Pierre Teilhard de Chardin (1881-1955), saw no contradiction or attack on the scriptures through the belief in evolution. In his work *The Phenomenon Of Man*, he laid out his findings as a tree of life explaining that the evolutionary formation of mega molecules into cells that was accomplished millions of years ago is still ongoing around us today.[10] He believed left alone in the earliest stages of evolution they would have always

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[5] "How was the Genesis account of creation interpreted before Darwin?," BioLogos, last modified January 18, 2019, https://biologos.org/common-questions/how-was-the-genesis-account-of-creation-interpreted-before-darwin.

[6] Brad Kramer, "Famous Christians Who Believed Evolution is Compatible with Christian Faith," BioLogos, August 8, 2018, https://biologos.org/articles/famous-christians-who-believed-evolution-is-compatible-with-christian-faith.

[7] Wilson, *Charles Darwin*, 23.

[8] Ibid., 15-16.

[9] Ibid., 10.

[10] Pierre Teilhard de Chardin, *The Phenomenon Of Man* (New York, NY: Harper Perennial Modern Classics, 1955), 96.

remained on the same level, but the "phenomenon of additivity" acted as the vertical component.[11,12] Chardin was crediting God with the "additivity" (Chardin's unique verbiage) to cause life to move vertically on the tree of life.

The evangelical church of North America tends to view the creation account through the filter of a 20th and 21st century Western filter. The animals in the Garden and those that came to the ark are viewed as the same animals that roam the earth today. What if those animals that Adam and Noah encountered were completely different than those that we see today? What if an evolutionary process did take place within various animal species, not by a slow random selection as Darwin supposes, but rather through intelligent design and intelligent adaptation from a creator far wiser than any of us, as Chardin proposes? Could God, knowing how the world would change ecologically and biologically throughout the millennia predetermine the adaptive changes within the genetic code of species as they roamed to various parts of the earth?

God is a creative God. The depths of the divine imagination are fathomless. Could God not use the evolutionary process in animal species, and even humanity, as a display of His creativity? He has been painting the canvas of the world with multitudes of creations in both plant and animal species alike. God's work did not finish when he initiated the creation of the world and universe. He was just getting started. It says on the seventh day he *rested*. It does not say that he retired.

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[11] Ibid., 108.

[12] Chardin was a major proponent of the evolutionary process through his findings as a paleontologist. His works *The Phenomenon Of Man*, *The Future Of Man,* and *The Divine Milieu* lay out many of his complex ideas of the evolutionary process through a Christian lens, even going so far as to provide predictions of his beliefs for humanity's future evolutionary progress. His writings have fueled much of the current discussion on transhumanism, specifically Christian Transhumanism.

Modern science has found no direct evidence to support a slow system of micro-mutations, rather science supports a "kind of Fast Forward button on the Evolutionary Remote" that allows species to jump forward by stages.[13] The challenge to the Christian critique of evolution is the fact that Darwin's own grandfather considered there to be a "first great cause" responsible for all the diversity,[14] and Dr. Leonard Sweet pointed out that Charles reiterated these sentiments in his autobiography feeling "compelled to look to a First Cause having an intelligent mind."[15]

The process of evolution is the perfect metaphor for the Christian walk. God does not instantaneously place us where we want to be or at full maturity. He tends to take us through a long drawn out process of spiritual formation, ultimately reaching perfection at the resurrection. We encounter "jumps" in maturity along the way, but the process is rarely if ever instantaneous. The belief in a six-day creation may be the result of a person desiring to be fully mature without having to go through a drawn-out process of discipleship.

I believe evolution is a better metaphor of God's nature and character. It takes patience to wait millions of years for something to evolve. It takes intense creativity to masterfully manipulate simple organic matter into the dramatic diversity of life. Even though modern science has shown the evidence for this "fast forward" type of evolution, the topic as a whole is still the most common source of disagreement between beliefs of

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[13] Wilson, *Charles Darwin*, 16-17, 134.

[14] Ibid., 57.

[15] Leonard Sweet, post to PDX Seminary SFS16 DMin Cohort page, March 20, 2018 (1:15pm), https://www.facebook.com/groups/dminsfs16.

evolution and creationism.[16] Organizations such as *BioLogos*, work to promote healthy and wholesome conversation on the evolutionary discussion through a Christian lens. The topic continues to be a major hurdle, and needs be addressed as the philosophy of transhumanism continues to take ground. Transhumanism being the belief that humankind is at a point in history in which they can now direct their own evolutionary progress through science and technology, most specifically through life extension, genetic editing, artificial intelligence, and robotics.

The God of The Gaps

The third in the series of hurdles that have hindered the ongoing relationship between religion and technology is the "God of the gaps" mindset. This is possibly the greatest hindrance to the relationship because it teaches a *supposed* correlation between science and religion, the caveat being that what science "cannot explain," is left up to *faith* and God. God fills in the gaps of unexplained science. The problem comes when science changes, as in the case of the geocentric and heliocentric models, which can no longer be left up to an unexplained mystery of God. It changes and challenges our theology. In a lecture with Dr. Leonard Sweet he points out that there is no harmonizing scripture and science. Science is always changing, and you cannot trust it, but you can trust the Story of the Bible. You use science to expound *the story*.[17] Science is not a fixed

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[16] Cary Funk and David Masci, "5 Facts About The Interplay Between Religion and Science," Pew Research Center, October 22, 2015, http://www.pewresearch.org/fact-tank/2015/10/22/5-facts-about-the-interplay-between-religion-and-science.

[17] Leonard Sweet, "Semiotics And Future Studies," Zoom Lecture, Portland Seminary, Portland OR, April 9, 2018.

body of knowledge; it is constantly subject to revision. Theories are valued for their fertility to lead to new discoveries.[18]

C.A. Coulson contends that, "Either God is in the whole of Nature, with no gaps, or He's not there at all,"[19] because "gaps of this sort have the unpreventable habit of shrinking."[20] When we place our faith in these gaps of understanding in our natural world, it leads us towards a crisis of faith and theology as it did, for example, with the heliocentric model. This sort of belief dooms our teaching, as well as our witness.[21] Four of the most powerful words a Christian can utter in regard to a possible gap are, "I do not know." Willingness to admit our own lack of knowledge or understanding on a subject allows us to be vulnerable instead of prideful, and scripture teaches us that "pride comes before the fall."[22] When a Christian demands that a topic of scientific discovery is true or false, leaving a gap up to "faith" without allowing room for humbleness, the opportunity for the science to change arises, as in the case of the heliocentric model.

When James Ussher counted back through the Hebrew Scriptures and added up all the years of generations, his findings drew him to the conclusion that the world was actually very young.[23] Modern geologic and fossil records place the age of the earth well

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[18] Ted Peters, "Naturalisms: Scientific? Religious? Theological?," *Theology & Science* 15, no. 3 (August 2017): 302-320, http://dx.doi.org/10.1080/14746700.2017.1335059.

[19] C.A. Coulson, *Science and Christian Belief* (Chapel Hill, NC: The University of North Carolina Press, 1955), 22.

[20] Ibid., 20.

[21] Collins, *Language Of God*, 93.

[22] Prov. 16:18 NASB.

[23] Wilson, *Charles Darwin*, 47.

past four billion years. Is God a deceiver? Even Einstein believed that although God can be difficult to understand he is not arbitrary or malicious.[24] While we are not here to argue one way or the other for or against evolution or the age of the earth, it can be seen that this is a prime example of the "God of the gaps" hurdle that challenges the relationship between science and religion. One cannot trust science in some aspects and then reject it in others. Coulson believed this so much so that he contends, "If we cannot provide an account of our faith in terms that may be understood by the professional scientist, then we abdicate our claim to give a comprehensive interpretation of the whole of human experience."[25] Augustine offers some sage advice when it comes to difficult topics that are far beyond our ability to understand:

> In matters that are so obscure and far beyond our vision, we find in Holy Scripture passages which can be interpreted in very different ways without prejudice to the faith we have received. In such cases, we should not rush in headlong and so firmly take our stand on one side that, if further progress in the search of truth justly undermines this position, we too fall with it. That would be to battle not for the teaching of Holy Scripture but for our own, wishing its teaching to conform to ours, whereas we ought to wish ours to conform to that of Sacred Scripture.[26]

One must be careful not to elevate personal "pet peeves" over scripture without full understanding the breadth and depth of what happened in the first days. Not one person outside the triune Godhead was there to witness those first moments. At the end of the day, God is God and He can do what He wants.[27] It is the

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[24] Coulson, Science and Christian Belief, 61.

[25] Ibid., 97.

[26] "How Was the Genesis Account of Creation Interpreted Before Darwin?" BioLogos, accessed February 12, 2018. https://biologos.org/common-questions/biblical-interpretation/early-interpretations-of-genesis.

[27] Sweet, "Semiotics And Future Studies," April, 9, 2018.

commission of Christ's followers to find the balance and help technology dance with religion, rather than always being in contention with one another. This comes by way of looking at change when it is far off and preparing for it, rather than being resistant to anything that no longer fits our known scientific or theological paradigm. Looking to the future includes the exploration of how humankind will integrate more of its biological being with robotics and computers, how artificial intelligence will transform the fabric of society, and how to reconcile the biblical limits of 120 years of life[28] and the scientific work towards radical life extension.

The Tension Against Change

One of the most common names given to Christians in regard to science and technology is "luddite." A luddite is a person opposed to new technology. Prominent atheist, Richard Dawkins believes "faith is the great cop-out, the great excuse to evade the need to think and evaluate evidence."[29]

There is no longer a question as to whether we will use science or technology, but how it will be used.[30] The pace of technological progress is accelerating. We are doubling the technological paradigm shift approximately every decade.[31] Our technology is both doubling in power, while also decreasing in size, allowing for continually smaller and

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[28] Gen. 6:3 NASB.

[29] Collins, *Language Of God*, 4.

[30] John P. Jewell, "What Does All This (Technology) Mean For The Church?," *Theological Education* 41, no. 1 (2005): 17-29, ATLASerials, Religion Collection, EBSCOhost.

[31] Ray Kurzweil, Gerald Weissmann, and James Collins, "The Ascendance of Science and Technology," *Partisan Review* 69, no. 4 (2002): 542-573, Humanities Abstracts (H.W. Wilson), EBSCOhost.

more powerful computational devices. This phenomenon of miniaturizing our transistors is commonly referred to as Moore's Law, but futurist Ray Kurzweil optimistically refers to it as "the law of *accelerating* returns." While some in the scientific and technological community believe that this phenomenon is coming to an end because of the soon to be reached physical limitations, this is still a topic the Church must grapple with especially as it pertains to the future use of nanotechnology. We can no longer be resistant to change. The church can either sit on the sidelines watching as the world leaves us behind, or we can be scientific and technological innovators like we once were, as we explored above.

Johan Norberg has shown how scientific and technological progress, while still not perfect, has improved the health and wellbeing of most of the world in areas such as food, sanitation, life expectancy, poverty, and literacy. He believes that while humans are not always rational or benevolent, generally they want to improve the quality of their lives and that of their families.[32] The difficulty comes in honoring our traditions while embracing change and innovation. The last three decades have created a solid starting place, but what is coming will be different and even greater.[33] It holds great opportunity. Leonard Sweet believes the crucible of great art and ministry lies in the tension between tradition and innovation.[34]

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[32] Johan Norberg, *Progress: Ten Reasons to Look Forward to the Future,* Updated Paperback ed. (London, UK: Oneworld Publications, 2017), 4.

[33] Kevin Kelly, The Inevitable: Understanding The 12 Technological Forces That Will Shape Our Future (New York, NY: Penguin Books, 2016), 27.

[34] Leonard Sweet, Twitter Post, November 19, 2017 (6:02 p.m.), https://twitter.com/lensweet.

Living in the tension is the greatest place the Church can live. It is our job and commission as the Church to bend the two ends of the bow together, creating tension, by allowing science and faith to fire the arrow directly at the targets of suffering, injustice, and poverty. When we emphasize an either/or mindset, we exacerbate the dichotomy by putting the communities of technology and religion on separate spectrums. As we have seen above this is unnecessary. They can live in both harmony and a mutually beneficial environment, and that begins with one's language.

Our Language Determines Our Reality

In 2016 the movie *Arrival* was released. It is the story of twelve mysterious spacecraft that come to earth, and both a scientist and a linguist are brought in to help find out what the extraterrestrial inhabitants of the ship hovering over America want. In one of their first interactions Ian Donnelly (played by Jeremy Renner), and Louise Banks (played by Amy Adams) discuss the cornerstone of civilization. Renner's character believes it is science, while Adams's character believes it is language. The military ultimately chooses Dr. Banks to lead the team based on her research. After some interaction with the aliens, Renner asks about the idea that language can rewire your brain, and Adams explains the Sapir-Whorf hypothesis to him. The movie proceeds with an ongoing exploration to decipher the language of the alien visitors in order to find out their intent.

In the field of linguistics, the works of Edward Sapir and Benjamin Whorf contributed to the development of the hypothesis of linguistic relativity. It was originally referred to as the Sapir-Whorf hypothesis, although they never actually co-authored any works together. This hypothesis proposes that the structure of a person's language affects

how he or she views and ultimately interprets the world. While evidence has been found to support the hypothesis, it remains a controversial theory due to inconsistent replication, and its "challenge to the widely-held belief that human thought rests on a universal cognitive foundation."[35]

Both Sapir and Whorf believe the algorithm and coding of your native language determines how a person sees and interprets the world, time, color, directions, relationships, and every facet of life. In his work, *Personal Knowledge,* Michael Polanyi concurs with this concept and says, "the practice of speech in one particular language carries with it the acceptance of the particular theory of the universe postulated by that language."[36] While this hypothesis is primarily concerned with language groups of cultures, I contend it also plays a significant role within subcultures as well.

In his work, "The Relation Of Habitual Thought And Behavior To Language," Whorf says, "Our linguistically determined thought world not only collaborates with our cultural idols and ideals, but engages even our unconscious personal reactions in its patterns and gives them certain typical characters."[37] This can be evidenced by interacting with varying segments of society. Varying professions have a vocabulary specifically suited for their profession, that also shapes the way they view the world. The church even has its own "Christianeze" language including words like saved, baptized, prayer, rapture, sin, and more. These words shape the way a Christian interprets the world around

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[35] Terry Regier and Xu Yang, "The Sapir-Whorf Hypothesis and Inference Under Uncertainty," *Wires*: *Cognitive Science* 8, no. 6 (Nov/Dec 2017): 1, http://dx.doi.org/10.1002/wcs.144.

[36] Michael Polanyi, *Personal Knowledge: Towards A Post-Critical Philosophy* (Chicago, IL: The University Of Chicago Press, 1974), 295.

[37] Benjamin Lee Whorf, *Language, Thought, & Reality* (Mansfield Center, CT: Martino Publishing, 2011), 154.

them from personal actions to stories portrayed on the worldwide news. "Is this action a sin that separates me from God? Is this news story an act of God's judgment for something humans have done? Does this new development mean we are closer to the rapture?" The language of various denominations will cause a member of that denomination to interpret it differently. How a person answers these questions directly impacts their responses, and how they will act. Even with a limited understanding of this hypothesis in mind, one can begin to understand the impact of language on their understanding of the world.

Hollywood's Impact on Our View of Technology

Stepping up the linguistic ladder, other influences on our understanding and view of technology are the cultural influences of movie narratives. Two of the most powerful forces in language, any language at that, are metaphor and story. Len Sweet says that behind every word is an image, and behind every image is metaphor. He presents the idea that narratives are just expanded metaphors, and at "the core of who we are we crave a narraphor (a story made with metaphors that help us understand the world, ourselves, and God better.)"[38] Metaphors make connections in our brain that allow us to see and understand differently, while story makes our minds become entangled in the metaphor. I believe movies are one of the most influential expressions of a narrative story. Story evokes an emotional response to the characters and events that are happening. The metaphor paints a picture in the empty space of your mind that your subconscious

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[38] Leonard Sweet, *From Tablet to Table: Where Community Is Found and Identity Is Formed* (Carol Stream, IL: NavPress, 2014), 3, 31.

associates with what you have already stored in your memory. When we are continually bombarded by a negative metaphor and storyline concerning technology, we cannot help but immediately retreat to the negative connotations associated with the topic when it is brought up.

If you look at the available selection of movies with a plot that centers on science, technology, and/or the future you will find a common theme. Here are a few that I have noticed:

- AI destroys humanity in order to "save the world."
- AI turns evil and starts replicating itself in order to take over the world.
- Robots and cyborgs destroy humanity.
- AI puts humanity into an emulated matrix in order to fuel their rule of the world.
- Crazy ruler attempts to build giant ship in order to blow up planets with a death ray.

Almost every cinematic metaphor produced by Hollywood envisions technology of the future in a negative or even apocalyptic manner. The metaphor has been reinforced for decades through our cinematic narraphors.

Most movies present a negative metaphor concerning technology, and that negative narrative influences the base metaphor within the subconscious. When one begins to think about or discuss a particular technology, the negative metaphor is the predominant metaphor creating a resistance to interaction with technology. I believe the evangelical church of America should assist in creating more beneficial and culturally positive metaphors in regard to technology in order to reshape the base narraphor that shapes our view of future technologies. The church needs a Wakandan view of technology.

The 2018 Marvel hit *"Black Panther,"* was an excellent example of the positive influence of technology. The Wakandan kingdom developed a benevolent and wholistic society based around the element "vibranium." They were a peaceful society with exponentially advanced scientific and technological developments that allowed them to far exceed any current finding in the outside world. The end of the movie showed them "opening their doors" to the rest of the world in order to benefit humanity as a whole.

The positive narraphor of *Black Panther* was not only its positive use and benevolent distribution of technology, but also the importance of African Americans as leaders of this development, which helps to dispel the algorithm bug of racism. Dr. Curtis McCully is an astrophysicist working on computer programming and machine learning, who believes this was a significantly positive influence on the view of science and technology, especially since it portrays a black woman in the lead scientific role. He points out the usual negative influence of media upon women in the scientific field, and how this actually hurts the realm of science because women provide a different view and approach to science that in turn provides a more well-rounded scientific experience.[39] T'Challa, the lead character of *Black Panther*, initially had a view that Wakanda should segregate itself from the world and utilize its technology for its own good. His mind changed and the doors of Wakanda were eventually opened to the world. This same algorithm disruption has influenced the church's interaction with technology. We have segregated ourselves from technology, rather than open our doors to interact with it…messiness and all.

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[39] Dr. Curtis McCully, interview by author, October 3, 2018.

Hollywood has a dominant role in providing our culture with narraphors that shape our understanding of the world, especially that which centers on science, technology, and our future. The Christian community should be advancing healthier and more balanced narraphors that explore the positive aspects of our technological future, while not neglecting the proclivity to sin.

Escapism Theology

As was discussed above the language used to describe a person's theological view impacts the way they see the world, and ultimately interact with it. One of those theological words that has a damaging impact revolves around the word, "rapture," or the second coming of Christ. A full extrapolation of the context of the rapture is much too large for this paper and would require an entire book of its own. This section will explore a particular view of the rapture and its damaging effect on a theological understanding of technology.

A popular theological view of the rapture held by many in the North American church is what is commonly referred to as a "premillennial," or "pretribulation" rapture. This is the belief in a secret rapture, in which faithful followers of Christ are "raptured" (or transported) away from the earth into heaven, followed by a time of tribulation, and eventually Christ's judgement on the world and destruction of it. Frank Viola and Leonard Sweet point out that this view was popularized by the Scofield Bible and also the *Left Behind* series but originated with John Nelson Darby in 1830.[40]

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[40] Leonard Sweet and Frank Viola, *Jesus: A Theography* (Nashville, TN: Thomas Nelson, 2012), 410, n92.

The damaging impact of this interpretation is that God hates the earth and Christians will escape before he destroys it.[41] Dr. Christopher Benek, the founder of the Christian Transhumanist Association, points out that statements from the Rev. Billy Graham often exacerbated this problem through his use of scriptures like John 17:16 and 1 Peter 2:11 declaring us strangers and aliens in this world passing through. This metaphor creates a mindset that says a person can accept Christ and will escape the earth before it is destroyed.[42] This escapism theology determines how a person treats the earth. Escapism theology says, "If the earth will be destroyed by God anyway, and I get to escape before that happens, what does it matter if I destroy it through my actions before I leave?" Sweet and Viola point out that, "Although the Bible speaks of a new heaven and a new earth, the foundation of the earth will never pass away. The Lord is not going to do away with the world of space, time, and matter. Instead, God is going to *renovate* the earth, judge all things by fire, and burn up certain of its elements."

Escapism theology relinquishes a person from the responsibility to care for the world they have been entrusted. The prime directive to both tend and till the earth will be explored in depth below, but it is important see how this disruptive escapism theology encumbers a more wholistic theology of technology.

Escapism theology has not only damaged the church's interaction with the planet, it has caused us to be anti-culture and anti-technology. The standard go-to for counter culturalism as mentioned above comes from a misinterpretation of John 17:16 when Jesus

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[41] Ibid., 282.

[42] Christopher Benek, "Escapism Theology is Causing an Exodus from The Church," Christopher Benek, March 2018, https://www.christopherbenek.com/2018/03/escapism-theology-is-causing-an-exodus-from-the-church/.

says, “They are not of the world, even as I am not of the world.” The church has taken this to mean that since we are not of the world, we condemn and stand against everything that is. The church has used its misinterpretation to segregate itself from the very culture it is meant to influence. The problem that has arisen is that we have taken this piece of scripture out of context, and failed to read it in light of the preceding text (v15): “I do not ask You to take them out of the world, but to keep them from the evil one.” Jesus was really saying “stay put in your culture.” The church is not called to be counter-cultural; it is called to be counter-spiritual. The culture in which Jesus lived was a socio-political-religiously saturated one. Everything in the Jewish society that he dwelt within was about the elevation of the Religious elite; the separation of the socio-religious "mutts" (Samaritans); and the hatred of the Roman political system. This will be important for the church of tomorrow to understand as it deals with techno-human cybernetic “mutts.”

Jesus did not attack or seek to escape the culture He lived in. He rebuked the spirits of elitism, sectarianism, judgmentalism, and the systematic oppression of the very nature of God from the people of God. The church of tomorrow will have to rebuke the spirit of elitism and sectarianism by ministering among those who can and cannot afford radical life extension treatments, cybernetic and non-cybernetic humans, and possibly those only present in digital format from brain emulation and those present in the body.

In his book *Nudge*, Leonard Sweet shares the importance of Christians to interact and influence culture: “Nothing is without a witness to the divine; everything that exists praises the Creator. If Christians are not the best at giving voice through art, poetry, and

music to these unspoken voices, then something is wrong."[43] I would add the importance of being able to witness to the divine through the use of technology within the culture that one lives, rather than trying to escape that culture.

We are not just here to take up space, use up oxygen and then some day go to heaven when we die. We are here to influence the culture we live within and the world around us. We are to impact and permeate the music, media, art, writings, and expressions within this world for the purpose of showing God's glory and bringing His reality to earth. Once again in *Nudge*, Sweet shares this thought:

> If God can speak through a burning bush, through plagues of locust, through Balaam's ass, through Babylon, through blood on doorposts, through Peter, through Judas, through Pilate's jesting sign hung over the head of our Lord, and through the cross itself, then God can and will speak through art deco architecture, abstract expressionism, classic literature like Virgil's Aeneid, mass media, disease, Disney, Hunger, Twitter, etc. The question is never, "Is God using this?" Rather the question is, "What is my/our invitation upon hearing?"[44]

Technology can also be an opportunity for God to speak to the culture of North America. The question the church has to ask is how will we respond to His call to speak through technology? In one conversation with a church member, I was discussing the technological advancements that would be covered in this paper. Her response was, "I am just going to believe Jesus is going to come back before that happens." This escapism theology is what prevents us from interacting with technology and ultimately hearing what God is speaking to our culture through the use of technology.

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[43] Leonard Sweet, *Nudge: Awakening Each Other To The God Who's Already There* (Colorado Springs, CO: David C. Cook, 2010), 55.

[44] Ibid., 43.

Instrumentalism and Determinism

Two primary lines of code that impact a person's algorithms by which they interact with technology are referred to as determinism and instrumentalism. While there are others, these two are the most socially common. Determinism is the encoding that says technology is an unstoppable force driving our society.[45] It is also described as an active agent that forms culture, shapes human interactions and their choices, and influences the future. Under this mental coding technology seems to take on a life of its own. It is greater than human power,[46] because no individual steers it, they are only responsible for making sure the technological acts are done correctly.[47] On the negative extreme of technological determinism, Bronislaw Szerszynski believes that technology should be linked to the demonic because it extends the ability of human beings to do evil and can at times be an agent beyond human steering.[48] He argues that technology emerges from a religious and fundamental idolatrous ideology.[49] Jack Swearengen also points out that optimistic determinists attach a quasi-religious and mystical faith to technological

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[45] John Dyer, *From the Garden to the City* (Grand Rapids, MI: Kregel Publications, 2011), 85.

[46] Douglas Estes, *Braving The Future: Christian Faith In A World Of Limitless Tech* (Harrisonburg, VA: Herald Press, 2018), 39-40.

[47] Bronislaw Szerszynski, "Techno-Demonology: Naming, Understanding and Redeeming the A/Human Agencies with Which We Share Our World," *Ecotheology: Journal of Religion, Nature & The Environment* 11, no 1 (March 2006): 62, https://doi-org.georgefox.idm.oclc.org/10.1558/ecot.2006.11.1.57.

[48] Ibid., 58.

[49] Ibid., 60.

progress.[50] This could be because as Ellul reasons, that once a technique invades an arena it impacts it with completeness.[51]

Transhumanists are technological determinists that argue "technologies that intervene with human physiology for curing disease and repairing injury have accelerated to a point in which they also can increase human performance outside the realms of what is considered to be "normal" for humans.[52]" Transhumanists believe that since technological advancement is an unstoppable driving force in society, humanity will use it to evolve into an entirely new species.[53] This is in essence an instrumental view of determinism. Some transhumanists see biological enhancement as only the beginning, with full brain emulation[54] and integration with artificial intelligence as the ultimate transcendence. As the Church traverses the landscape of the next century or two, and as these technologies and others advance the ability for human enhancement, they will need to grapple with what it means to be human in culture that is transcending the boundaries of biological ability.

The other primary line of coding that influences a person's outlook on technology is *instrumentalism*, which states that technology has no operative power in culture, but is

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[50] Jack Clayton Swearengen, *Beyond Paradise: Technology And The Kingdom Of God* (Eugene, OR: Wipf & Stock Publishers, 2007), 229.

[51] Jacques Ellul, *The Technological Society*, trans. John Wilkinson (New York, NY: Vintage Books, 1964), 183.

[52] "What We Do," Humanity +, https://humanityplus.org.

[53] Estes, *Braving The Future*, 25.

[54] Brain emulation, or sometimes referred to as whole brain emulation, is the proposed concept that a person will be able to upload the entirety of information contained within the brain onto a computer substrate. This concept believes the conscious identity of a person will be able to continue in digital format even after their biological bodies have died.

merely a tool of the one using it, and therefore carries the values of the user.[55] While technological determinists believe technology is greater than human power, this end of the spectrum follows the view that human power is greater than the power of technology.[56] The instrumental view of technology deems technological artifacts as morally and ethically neutral. Most often this mindset is expressed in colloquial statements such as, "Guns do not kill people. People kill people." The instrumentalist believes the gun is simply a tool or instrument in the hands of its user and void of any moral and ethical value on its own accord. Steven Vanderleest points out the fallibility in this particular example is that you would not use a gun to paint a house, or a paint roller to fire a bullet due to their inherent functionality.[57] Along this same line, Polanyi adds,

> All technology is equivalent to a conditional command, for it is not possible to define a technology without acknowledging, at least at second hand, the advantages which technical operations might reasonably pursue…A technology must therefore declare itself in favour of a definite set of advantages, and tell people what to do in order to secure them.[58]

When applied to everything within the realm of technique from genetic editing to artificial intelligence, instrumentalism is seen as the means rather than the end. The means can take many different forms in order to get someone to the end they desire, but technology in and of itself is simply a tool in the hand of the user. Kurt Richardson argues, "To think more naturally about technology one may begin by remembering the tool-like ways in which the human body interacts with the environment. The members of

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[55] Dyer, *From The Garden To The City*, 84-85.

[56] Estes, *Braving The Future*, 39.

[57] Swearengen, *Beyond Paradise*, 104.

[58] Polanyi, *Personal Knowledge*, 176.

the human body…are geared directly to the achievement of certain tasks, some essential to and some vastly exceeding the requirements of survival."[59]

If the Church desires to effectively minister within a technological society, it would be wise to find ways to grasp these techniques both in their inherent functionality as well as through their use as tools for the advancement of the Kingdom, which is exactly what the Christian Transhumanist Association seeks to do. While secular transhumanists view technology as a means to ethically transcend biological limits and springboard humanity into its next stage of evolutionary development, the Christian Transhumanist Association (CTA) believes in "using science and technology as a tool to participate in the work of God – to cultivate life and renew creation.[60]" Among the members of the CTA, one will find proponents along the entire line of the spectrum in belief of how technology can and/or should be used instrumentally to "cultivate life and renew creation." While technological viewpoints are about as plentiful and varied as theological interpretations or denominations, in the basic essence of this mission statement every Christian should be considered a Christian Transhumanist. The CTA seeks to "stick closely to biblical principles, the example of Christ, the tradition of the church, and the inspiration of the Spirit as discerned in Christian community," as Douglas Estes points out as how the Church can respond faithfully to transhumanism.[61]

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[59] Kurt A. Richardson, "The Naturalness of Creation and Redemptive Interests in Theology, Science, and Technology," *Zygon* 30, no 2 (June 1995): 284, ATLA Religion Database with ATLASerials, EBSCOhost.

[60] "Homepage," Christian Transhumanist Association, https://www.christiantranshumanism.org.

[61] Estes, *Braving The Future*, 150.

Living in The Tension

So how is the Christ follower supposed to encode their theology when it comes to technology? Does he or she follow blindly whatever technological revolutions come forth, or do they simply use them as tools for redemptive purposes? The blind faith in technology of determinists and secular transhumanists brings up a critical issue. Estes believes "faith in technology is not the problem; rather it is the lack of faith in the Creator's presence in, and plan for our world."[62] Determinism removes human ability for choice and says one is bound by the technologies that present themselves before us. Determinism seemingly removes the choice; the choice for redemptive acts when partnered with the Spirit of God, or sinful acts when acting in selfish or self-centered ways, and sin is always a choice. It is a choice to harm oneself, others, or creation. Living as creative persons made in *imago Dei*, how one uses and interacts with technology must be viewed in light of their ability to reason, how it will impact the natural world, and how it will impact the communal relationship of all of humanity both locally and universally. This means choice is a necessary ingredient.

On the other hand, instrumentalism neglects the ingrained values and principles associated with a particular technology, because these are done by people who have explicit purposes and who operate according to a particular algorithm about how they interpret the world.[63] Instrumentalism leaves the entirety of it up human choice, and as Kurt Richardson explains, "there is high liability to ignoring the Pauline assertion that

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[62] Ibid., 174.

[63] Swearengen, *Beyond Paradise*, 88.

human beings are "inventors of evil" (Romans 1:30)."[64] The problem with this philosophy is that you cannot choose to use a pistol in its original form to power a city. You cannot choose to use mustard gas to purify water. Technologies are designed with specific moralistic and ethical principles attached to them. They can be used outside of those intended uses *to an extent*, but technology cannot be disassociated from its uses.[65]

Engineering professor Kevin Funk says, "Perhaps the greatest danger of technology is its capacity to distract us from God and His kingdom."[66] But what Funk fails to consider is, what if technology can be a means of *advancing* the kingdom of God? Where then does this leave the Christian to live? I propose that Christians should live in the tension between the two poles. Determinism and instrumentalism are extremes at opposite ends of the spectrum, and when a person attaches himself to *only one* it creates an "other," which disjoints community, and negates the opposite end of the spectrum. When one is able to bend the bow and bring the two extremes together to live in tension, it allows forward momentum with a both/and mindset instead of an either/or. For technology is not either a deterministic property or a tool, rather it has both deterministic values and instrumental values.

When determinism and instrumentalism are encoded together, the algorithm enables a person to understand that every technology carries with it a particular set of values, *and* it is up to the user to use it within the bounds of its intended purposes, and for the Christian to use it as a means for promoting redemptive pursuits in nature and in

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[64] Richardson, "The Naturalness of Creation and Redemptive Interests in Theology, Science, and Technology," 287.

[65] Swearengen, *Beyond Paradise*, 113.

[66] Ibid., 174.

community. When they are encoded together this new algorithm aligns with the Biblical encouragement of the use of technology and following the Spirit of God inhibits the idolatrous worship of technology.[67]

As a Christian understands the importance of encoding both deterministic and instrumentalist coding into one's theology of technology, it is important to understand the exercise of operational choices while using multifaceted technologies in order to avoid what Langdon Winner refers to as "technological drift."[68] It is important to understand the totality of this impact, because in order to get the outcome one prefers he must steer in that direction, "because if we don't know what we want we are unlikely to get it."[69] What the Church has to ask itself in its dealings with technology is "what kind of world are we making,"[70] and what kind of world do we want to make? While technology does not make anyone do anything, sometimes its very presence seems to lead societies in a certain direction, providing benefits and new problems at the same time. It is important to understand what encoding one believes when it comes to technology, because this directly influences how a person will interact with technology and what role it plays in his or her life, because "changing the means always alters the ends."[71]

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[67] Ibid., 111.

[68] Ibid., 230.

[69] Max Tegmark, *Life 3.0: Being Human In The Age Of Artificial Intelligence* (New York, NY: Vintage Books, 2018), 160.

[70] Swearengen, *Beyond Paradise*, 234.

[71] Dyer, *From The Garden To The City*, 92-93.

In Summary

As explored above, the current Christian theological algorithm concerning technology has some major bugs that have been exacerbated throughout the ages. Everything from our language, cultural metaphors, and traditions have caused the software (our theology) to malfunction too many times and in too many ways. It was important to explore these bugs, because if you do not know what is wrong, you cannot fix it. If these bugs are not addressed and fixed, the coming age of emerging technologies will continue to impact our theology, as well as the church's relevance to a culture adapting these technologies into their lives. Genetic editing, robotics, artificial intelligence, information technology, and nanotechnology are not going anywhere. In fact, their presence, development, and usage are only increasing by the day. In order to continue to effectively minister in the coming technological age, these bugs must be addressed immediately. The next chapter will begin to lay the groundwork for that change and introduce a new algorithm for theological interaction with technology. The following three chapters will provide more insight into the subroutines that comprise the algorithm, by providing a better code by which to live out a theology of technology.

CHAPTER 3:

THE IMAGO DEI AND THE SUBROUTINE OF CREATIVITY

As noted above, Hollywood plays a dominant role in providing our culture with narraphors that shape our understanding of the world, especially that which centers on science, technology, and our future. Upon further examination of these narraphors, an important factor comes in to play on almost every one of them. That is, humanity rises up against the evils of technological forces in order to defeat them, whether it is cybernetic robots from the future, a computer matrix determined to enslave humanity as an energy source, or a giant spacecraft designed to destroy planets. Humanity plays the vital role in victory over technology, but some of those narraphors challenge the understanding of what it means to be human.[1]

The 1987 hit *Robocop* features a man that is mostly transformed into a robot police office after a lethal encounter, but he retains the mind of his former physical consciousness. It makes one question, at what point is a person no longer a person? Is Johnny Depp's character, Dr. Will Caster, still human after a full brain emulation in the 2014 movie *Transcendence*? The narraphors like that of the *Terminator* series challenge our understanding of artificial intelligence and technological determinism gone wrong. The *Terminator,* as well as characters like C3PO from *Star Wars*, Ava, the beautiful robot from the movie *Ex Machina*, and the robot Andrew, played by Robin Williams,

[1] Jesus could have easily mysteriously manifested in the sands that surrounded Israel, just as mysteriously as Elijah was whisked away (2 Kings 2). Instead he chose the incarnation in an infant child. Through embodiment Jesus was reiterating the importance of humanity on the earth. The importance of the incarnation and embodiment will be explored further in chapter 6, but it should be noted here as a reminder that God chose humanity in its current state in which to both join us, as well as to join him in creating.

from the movie *Bicentennial Man*, also challenge our understanding of what it means to be human. These self-aware, sentient machines make a person question, "Can a robot have a soul?"

So why are humans here? What is the role of humanity in the great expanse of the ever-expanding universe? Is our only role that of creating technological advancements in order to defeat them later as they turn against us? These are some of the questions that have stirred in the minds of anthropologists, sociologists, and theologians. While every religious tradition shares a specific narrative answer to these questions, the Judeo-Christian tradition has its own particular view on this purpose, and it is understood and expressed both on the individual level individual, as well as among the corporate body of believers. It is understood individually, because each human is responsible for his or her own actions, but corporately because one does not live in isolation. Life is lived in the context of community, just as the Trinitarian Godhead lives within the context of community, and our collective actions are what cause the greatest change. This worldview is shaped by the scriptures of the Bible, the incarnation of Jesus Christ, and the history shared between the two, but often times this gets muddled through the incorporation of socio-political worldviews, traditions, and cultural influences as we explored above.

A New Algorithm

This is where a new algorithm can begin to be assembled in the coding of our minds. Our new algorithm for a theology of technology will explore and tie together four concepts of the *imago Dei* and what it means to be made in the image of God and why it is important to our understanding and use of technology. These four concepts are

humanity's creative ability, ability to reason, regency over creation, and relationship to both fellow humans and to God. Each of these facets of the *imago Dei* will provide the subroutines for the algorithm by which we can and should interact with technology, because "technology changes the way we think about the world around us, but it also shapes the way we think about ourselves. Forging an identity and a sense of self is a lifelong task and a complicated one at that."[2]

The fulfillment of vocation and purpose flow out of our identity as God's creation. Ephesians 2:10 (NASB) informs readers, "For we are His workmanship, *created* in Christ Jesus *for good works*, which God prepared beforehand so that we would walk in them" (emphasis mine). Paul's verbiage implies a level of expectation and implication that our identity is to complete the good works that were prepared for us by God as the Christian community of believers. This also implies an understanding of chronological creation. Those who are alive now in the digital age and those to come, were created for this specific timeframe in order to interact with technologies that exist now and will exist in the days ahead. If the men and women within the evangelical church of the United States desire to fulfill their vocation and purpose through the uses of science and technology, each person must understand his or her identity as being made in the image of God, its role within creation, and what influences shape their individual understanding of these identities. Otherwise it will be ineffective in fulfilling its vocation within creation and in relation to their fellow human when it comes to technology. But what does it mean to be made in the image of God?

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[2] Jacob Shatzer, *Transhumanism And The Image Of God* (Downers Grove, IL: IVP Academic, 2019), 162-163.

Made in the Image of God

One of humanity's most significant attributes, according to the Judeo-Christian belief, is that we are made in the image of God. This is also referred to as the *imago Dei*. It is an innate property of the entire human race regardless of race, gender, socio-economic status, political affiliation, or medical status. This concept stems specifically from the book of Genesis 1:26-28:

> Then God said, "Let Us make man in Our image, according to Our likeness; and let them rule over the fish of the sea and over the birds of the sky and over the cattle and over all the earth, and over every creeping thing that creeps on the earth." God created man in His own image, in the image of God He created him; male and female He created them. God blessed them; and God said to them, "Be fruitful and multiply, and fill the earth, and subdue it; and rule over the fish of the sea and over the birds of the sky and over every living thing that moves on the earth."[3]

One of the first few theologians to explore technology in correlation to the image of God, Noreen Herzfeld, points out that, "The way we define God's image in our human nature…has implications, not only for how we view ourselves but also for how we relate to God, to one another, and to our own creations."[4] So it is necessary to have a clearer definition of what it means to be made in God's image. Herzfeld's work is one of the few works in this narrowly defined field. I will utilize her work in hopes to stand on her shoulders and reach even further. I will use some of her work as a base code in which to develop our new algorithm, with a caveat that will be explored in a moment.

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[3] Gen. 1:26-28 NASB. See also: Gen. 9:5-6 and James 3:9.

[4] Noreen Herzfeld, *In Our Image: Artificial Intelligence And The Human Spirit* (Minneapolis, MN: Augsburg Fortress, 2002), 9.

One can begin by exploring the understanding of *image.* The image of God is more than just our genetic makeup or DNA. According to theologian Ted Peters, while our DNA is special, and it determines our individuality and identity, it is insufficient reasoning to consider it as sacred,[5] because we share up to ninety-eight percent of our DNA with other animals. This non-sacralizing of our DNA is important to understand as the Church considers and interacts with the role of genome editing in the years ahead, which will be explored in the next chapter. How we envision, interpret, and respond to God's call to bear his image individually and corporately can be influenced by outside sources, as was explored in the previous chapter, because as Trevin Wax points out, "We are constantly being formed by something. The only question is, what is forming our desires and actions?"[6] In this case specifically, we want to explore how we interpret our role as God's image bearers on earth in the context of science and technology.

The Hebrew word here for image is *tselem*, which can also be translated as "idol." Dr. David McDonald expresses the idea that the image of God was created to enhance his image, or be a shadow, in the earth through humanity, which has the ability to act and think independently. This consciousness also brings agency and responsibility, and "God works in his people through conscious, responsible action."[7] The presence of humankind is a reflection of God's presence in the world, and we must be wise to

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[5] Ted Peters, *Playing God: Genetic Determinism And Human Freedom* (New York, NY: Routledge, 2003), 14-15.

[6] Trevin Wax, *Eschatalogical Discipleship: Leading Christians To Understand Their Historical And Cultural Context* (Nashville, TN: B&H Academic, 2018), 207.

[7] David McDonald, *Then. Now. Next.:A Biblical Vision Of The Church, The Kingdom, And The Future* (Jackson, MI: Westwinds Community Church, 2017), 125.

remember that a reflection and the original are not the same.[8] Humanity is to mirror what God is already doing as is found in Jesus's repeated statement, "I say to you, the Son can do nothing of Himself, unless it is something He sees the Father doing; for whatever the Father does, these things the Son also does in like manner."[9] Kevin Vanhoozer uses the metaphor of standing on a stage.

> The doctrines of creation and election speak understanding into our perplexed present-day situation that so easily confuses roles with selves, personae with persons. Together, these doctrines remind us that *who I am is fundamentally a matter of God's choice before it is mine*. We have been called into being and have received the ultimate casting call. Our vocation follows from our prior evocation; for while we were yet in the womb, *God appointed us to the role of persons who bear his image and have been set apart for his purpose*. God alone knows the person under the mask (Galatians 4:9)...*to be a person is to be an answerable agent, one who is able and thus responsible to respond to the call of God and of others*. Hence *our identity is not an arbitrarily chosen roll, but a matter of how we respond to our theological vocation to image god so as to glorify and enjoy him forever*.[10] (italicized emphasis mine)

Since humanity is the only consciously transcendent[11] animal among creation, some theologians have found that to be focal point of how we image God in the world.

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[8] Karen Lebacqz, "Dignity And Enhancement In The Holy City," in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, ed. Ronald Cole-Turner (Washington, DC: Georgetown University Press, 2011), 56.

[9] John 5:19 NASB.

[10] Kevin Vanhooser, *Faith Speaking Understanding: Performing The Drama Of Doctrine* (Louisville, KY: Westminster John Knox Press, 2014), 116.

[11] Consciously transcendent can be understood in its simplest form as awareness of existence. In our awareness of our existence, we have experiences, and we understand those experiences (for the most part). For example, we experience pain, joy, love, sweet foods, foods we dislike, and know what they are. -- Yuval Harari says each experience has two characteristics: sensation and desire. For example a robot may have a signal that informs it that its battery is about to die, and plug itself in, but it does not experience it. It is responding to an algorithm in its processing unit. While a human feels the sensation of hunger and seeks to end the sensation. A person desires food. Harari goes on to explain that this is why there are no criticism of working a robot until its batteries die, but harsh criticism for working a human until they collapse from hunger. See: Yuval Noah Harari, *Homo Deus: A Brief History Of Tomorrow* (New York, NY: Harper Collins Publishing, 2017), 107.

This concept of our ability, especially in regard to technological use will be explored in chapter four.

Another theme found within the Genesis passage regarding the *imago dei* is the theme of humanity's ability or directive to rule over creation, or to have dominion. It appears to be an important directive due to its double presentation within both verses twenty-six and twenty-eight. "Ecologists have treated dominion with harsh skepticism," not fully understanding the worldview of the writers of Genesis.[12] As humankind bears God's image in the world it is necessary to consider then all human actions in light of the entirety of creation. This third focal point of our regency over nature and creation will be explored in chapter five.

In unpacking the Genesis text further one can also see the image of God is born out through both males *and* females. Theologians such as Aquinas misinterpreted Paul's letter in 1 Corinthians 11:7, "For a man ought not to have his head covered, since he is the image and glory of God; but the woman is the glory of man." He took this to mean that women only bear God's image derivatively. In other words, they were a copy of a copy.[13] Herzfeld highlights that both men and women partake in bearing the divine image. The image is more communal, rather than merely individual.[14] There is an equality and communality represented in the formation of humanity as both male and female. Just as the triune Godhead lives in equality and community, so does mankind amongst each

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[12] Noreen Herzfeld, *Technology And Religion: Remaining Human In A Co-created World* (West Conshohocken, PA: Templeton Press, 2009), 12.

[13] Ibid., 145, n9.

[14] Ibid., 13.

other in this role of image bearing. This final aspect of the importance of relationship and how technology impacts it will be explored and recoded in chapter six.

A Launching Pad

In her work *In Our Image*, Noreen Herzfeld explores these three varying views of the *imago Dei* in reference to technology. Her work has a specific focus on artificial intelligence and robotics, but I will explore technology as a whole in light of humanity's role as the imago Dei within creation and community. Herzfeld explores the substantive view of Reinhold Niebuhr, which revolves around humankind's ability to reason as the central aspect of this image bearing, which is also reflected in McDonald's work. Niebuhr saw self-transcendence as self-consciousness, and this self-consciousness allows humanity to become an object of knowledge and reason.[15]

She also explores Gerhard Von Rad's view of humanity's regency on earth, or his dominion over the resources of the natural world, and what the author of this paper would contend, the cosmos.[16] Von Rad believes humanity's imaging God on earth is not so much in *what we are*, but *what we do*, or are called to do. Herzfeld says "human beings image God when they function in God's stead, as God's representative on earth."[17] This concept is also found in Islamic work in the term *khalifa,* where men are considered

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[15] Herzfeld, *In Our Image*, 17.

[16] See John 3:16, "For God so loved the world…" The Greek word here is *Kosmos* entailing the entire universe.

[17] Herzfeld, *In Our Image*, 21.

God's vice-regents upon the earth, and technology then becomes an implementation of this dominion by humankind.[18]

Finally, Herzfeld examines the work of Karl Barth, and his understanding of a relational view of the *imago Dei*. Barth's view is a triple layered view in which it expresses the relationship between the parts of the triune Godhead, the relationship between God and humans, and finally the relationship between one another in humanity. The *imago Dei* then becomes about relationship, rather than about individuality.[19]

While Herzfeld explores these varying views, she was not seeking to show preeminence of one over the other. She seemed to only show interaction between Von Rad and Barth within her work, but even claimed that each of these views is not necessarily mutually exclusive.[20]

Herzfeld's work lays a good foundation for us to build upon. Her limited use and exploration of the imago Dei towards robotics and AI will be expanded throughout this work to cover multiple facets of technology. I believe that instead of the imago Dei being represented as an "either/or" statement, being one of these facets *or* another, I propose it can be both/and. Entire works have been and can be written just on the concept of the imago Dei; for the purpose of this paper it is not our stopping place, but rather these concepts become our launching pad for developing a new way of living in a technological world.

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[18] Herzfeld, *Technology and Religion*, 15-16.

[19] Herzfeld, *In Our Image*, 25-26.

[20] Ibid., 32.

By expanding the coding of Herzfeld's work, our new theological algorithm for technology will show the importance of all three of these facets: reason, regency, and relationship in regards to technology (rather than just isolated explorations), but first it is important to even understand how or why we want to create. I add a fourth subroutine to the front end of our coding based on our creativity, which is explored first below.

The Subroutine of Creativity

Dr. Leonard Sweet points out the maker's mark in us is our creativity. Looking at Mark 12, Jesus is asked about paying taxes, but instead he uses the image on the coin as a means to relate what belongs to Caesar should be given to him. It then follows that we bear the image of God, it has been imparted to us in our creation, and our creative works should be given back to him. Every act of imagination and creativity then is an act of worship.[21] Chapter 1 introduced the understanding that Jesus was an artisan creator. Jesus was a *tekton* utilizing his craftsmanship as a means of worship.

Justo González points out that for men like Irenaeus and countless other Christians throughout the ages, God intended for creation to develop and build…because out of all the animals we are the only ones that have a sense of transcendence.

> We can plan what we hope to become. We can rejoice in what we have done, and we can weep over it. We can set goals. We can dream of things and conditions that do not exist and then bring them to reality. We can look at our fellow creatures and plan to make something new and better out of them – or deface and destroy them.[22]

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[21] Leonard Sweet, "Semiotics And Future Studies," Zoom Lecture, Portland Seminary, Portland OR, January 14, 2019.

[22] Justo L. González, *Creation: The Apple Of God's Eye* (Nashville, TN: Abingdon Press, 2015), 37, 43.

Creativity and imagination then are natural inborn facets of our human potential. Philip Hefner would add that "technology is itself a medium of divine action, because technology is about the freedom of imagination."[23] Scientists Dr. George Land and Beth Jarman were contracted by NASA to develop a test by which to quantify the creative potential of their scientists and engineers. After the test was completed, while the test was successful, the scientists were left wondering where creativity actually comes from. A longitudinal test was then utilized on 1,600 children who were tested at ages four and five. The results showed that ninety-eight percent of the children had a genius level imagination. The test was repeated at ten years of age, and only thirty percent fell into the genius level. The test was repeated again at fifteen years of age and the numbers dropped again to only twelve percent. Adults were at a staggeringly low two percent. They found the result for the continued dramatic drop in creativity and genius level imagination came from our common style school system that only promotes primarily convergent thinking. Convergent thinking is when you are making a judgement, a decision, you are testing, criticizing, or evaluating. While divergent thinking is imagination.[24]

Children have imagination and creativity that is many times lost as we become adults. Even one of the earliest images of God is of Him playing in the dirt making mud pies just like a child.[25] I think this is why Jesus instructs us in Matt 18 to become like little children if we want to enter the kingdom of God. Think on that for just a minute:

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[23] Philip Hefner, *Technology And Human Becoming* (Minneapolis, MN: Fortress Press, 2003), 88.

[24] Coert Engels, "We Are Born Creative Geniuses and The Education System Dumbs Us Down, According To NASA Scientists," IdeaPod, 2017, https://ideapod.com/born-creative-geniuses-education-system-dumbs-us-according-nasa-scientists/.

[25] Leonard Sweet and Frank Viola, *Jesus: A Theography* (Nashville, TN: Thomas Nelson, 2012), 41.

become like little children if you want to enter the kingdom of God. Have any of us truly *entered* the kingdom? We may have seen it, we may have heard about it, we may have read about it, but have we truly become as little children and entered the kingdom? I believe we become most like little children when we create and use our imagination. How can the church foster creativity and imagination?

Neil DeGrasse Tyson once said, "An adult scientist is a kid that never grew up."[26] A current popular extracurricular program is STEM classes that focus directly on the topics of Science, Technology, Engineering, and Mathematics. These are all convergent types of thinking that fail to utilize the arts. Some even argue that technology use in the classroom with a focus on STEM curriculum does more damage than good, because technology use in the classroom "reduces test scores in areas of reading, math, and science, damages long-term memory, and induces addiction."[27] Our goal should not be to cut ART out of the STEM equation, but to make STEM into STEAM. STEAM has power. We need art just as much as we need mathematics or science. Da Vinci was a scientist and an artist. I would venture to say his art made him a better scientist and inventor. Art allows creative thinking in the realm of STEM. Even art is beginning to look different through the use of technology. Neil Harbisson was the world's first cyborg artist. He has an antenna implanted into his skull that allows him "to perceive colors

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[26] Neil deGrasse Tyson, "How to Raise Smarter Children," Goalcast, YouTube video, March 12, 2018, 0:23, https://youtu.be/tbX6aMfPtEw.

[27] Jared Woodard, "Rotten STEM: How Technology Corrupts Education, American Affairs," *American Affairs Journal* 3, no. 3 (Fall 2019), https://americanaffairsjournal.org/2019/08/rotten-stem-how-technology-corrupts-education/.

beyond the normal human spectrum: he can hear infrared and ultraviolet." He believes humans have a duty to transcend their natural senses.[28]

STEM helps our convergent thinking, but STEAM helps us utilize both types of thinking and become divergent thinkers. "Studying art subjects contributes to the development of essential skills like collaboration, communication, problem-solving, and critical thinking. It also enhances a student's flexibility, adaptability, productivity, responsibility, and innovation."[29] Jesus is a prime example of a creative and divergent thinker. He was a *tekton* who engineered and built, but He spoke in parables that caused us to wonder and think outside the theological box of misery and step into the mystery.

If our new theological algorithm is to be more robust, we have to make room for creativity, imagination, play, and the arts because it is the mark of our creator in us. Christian philosopher Erigena believed the arts were part of humanity's original endowment as the imago Dei, rather than something necessary as a result of "the fall."[30] In a world of criticizers and critics, the words of artist Henri Matisse have never rung truer, "creativity takes courage."[31] Do we have the courage to become like little children, so we can live a life of creativity in the same vein as our creator? To make technological advancements that bring glory to God?

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[28] Stuart Jeffries, "Neil Harbisson: The World's First Cyborg Artist," *The Guardian*, May 6, 2014, https://www.theguardian.com/artanddesign/2014/may/06/neil-harbisson-worlds-first-cyborg-artist.

[29] "STEM to STEAM: The "Arts" And Its Importance in STEM Education," *Makeblock* (blog), August 28, 2018, last updated September 5, 2019, https://www.makeblock.com/official-blog/218830.html.

[30] Jack Clayton Swearengen, *Beyond Paradise: Technology And The Kingdom Of God* (Eugene, OR: Wipf & Stock Publishers, 2007), 218.

[31] Henri Mattise, "Matisse in his Own Words," *Quotes by Henri Matisse*, 2011, http://www.henri-matisse.net/quotes.html.

Created Co-Creators

This more robust algorithm involves Christ followers participating in the creative nature endowed to all of humankind by the creator in order to use the sciences to tell the story of the God of the cosmos in a way that is compelling and convincing, and it involves participating in developing technologies that properly fulfill one's responsibilities to creation and to their community. When humankind participates in the creative nature of God it is then able to embrace and embody a fuller expression of the *imago Dei*. How then do we accomplish this? The corporate expression of the *imago Dei* does so by walking in its identity that Philip Hefner refers to as a *created co-creator*. When discussing this title, Ted Peters points out the term *created* reminds us that we are not self-created, and that God creates differently than humanity.[32] God creates *ex nihilo* (from nothing) and humanity creates via *creation continua* (continuing with previously created materials).[33] This designation also shows a submitted position, which concurs with Leonard Sweet's belief that we are a sort of sub-contractor to God.[34] Theologians such as Ted Peters, Noreen Herzfeld, and Christopher Benek, who are prominent voices in the overlapping fields of theology and technology, also use this descriptor.

In his article *The Consumate Trinity And Participation in The Life Of God,* Brian Edgar presents a view of the trinity that involves participation in the life of God.

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[32] Peters, *Playing God*, 16.

[33] Ibid., 15.

[34] The title "co-creator" linguistically places believers on the same level as God in our created ability and role upon the earth. Dr. Sweet does not endorse this view, and believes that it stems from liberation theology. He believes, as do I, that we are not on equal ground with God in our creative ability. See Leonard Sweet, "Semiotics And Future Studies," Zoom Lecture, Portland Seminary, Portland OR, September 24, 2018.

Humanity, the highest part of creation, bears the imprint of God, and therefore gets to participate with God's work here on earth. The kingdom is present, but it is still an anticipation of God's ultimate reign,[35] because one of the first things God did in creating the world was to give it a future.[36] Pierre Teilhard de Chardin's thoughts build on this understanding:

> It is through the collaboration which he stimulates in us that Christ, starting from all created things, is consummated and attains his plenitude. We may, perhaps, imagine that the creation was finished long ago. But that would be quite wrong. It continues still more magnificently, and at the highest levels of the world. And we serve to complete it even by the humblest work of our hands. That is ultimately the meaning and value of our acts. Owning to the interrelation between matter, soul and Christ, we bring part of the being which he desires back to God *in whatever we do*.[37]

The world is filled with musicians, artists, writers, poets, scientists, and technologists. Technology changes us and the world around us, and often times in ways that we have little or no control over.[38] It is obvious from the plenitude of available technologies that humanity is capable of creating independent of a relationship with or in right standing with God, but as Chardin reminds us, "God obviously has no need of the products of your busy activity, since he could give himself everything without you. The

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[35] Brian Edgar, "The Consummate Trinity And Participation In The Life Of God," *Evangelical Review Of Theology* 38, no. 2 (April 2014): 112-125, ATLA Religion Database with ATLASerials, EBSCOhost.

[36] Peters, *Playing God*, 15.

[37] Pierre Teilhard de Chardin, *The Divine Milieu* (London, UK: William Collins Sons & Co., Ltd., 1960), 25.

[38] Matthew Del Nevo, "Theology, Technology And Aesthetics," *Phronema* 17 (2002): 44, ATLA Religion Database with ATLASerials, EBSCOhost.

only thing that concerns him, the only thing he desires intensely, is your faithful use of your freedom, and the preference you accord him over the things around you."[39]

Since technological advances permeate every facet of humanity, nature, and creation, the welfare of everything depends on how humanity uses its technological power.[40] Christ followers cannot leave technology only to the technologists, as Ron Cole-Turner points out.[41] The Church is called to participate in expressing God's image in creation, and one avenue is through the use of science and technology to both participate in what God is already doing, and as a means to fulfill its vocation both in expressing dominion, ministering to "the least of these" by reducing suffering, and as a means to foster relationship within the context of community.

Humankind works with and for God because the process of laboring in light of relationship creates a life of submission and cooperation. It forges habits, strengths, and relationship in the midst of struggle to accomplish that which he has called us to do beside him in fulfillment of our original intent. Humankind is to use technology as a means to serve God and advance his kingdom as his kingdom (Christ) is lived through us. Technology is a means to tend the garden of the earth, worship God, and cultivate community.

From the very beginning, humankind was given an invitation to join in the scientific revolution that was to unfold throughout the millennia. God could have easily

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[39] Ibid., 16.

[40] Björn Schwenger, "'Heresy' or 'Phase of Nature'? Approaching Technology Theologically," *European Journal Of Theology* 25, no. 1 (2016): 46, Religion and Philosophy Collection, EBSCOhost.

[41] Ron Cole-Tuner, "Would You Make A Good Transhumanist," Chautauqua Institution, YouTube video, 35:20, August 16, 2016, https://youtu.be/i2JqzVIndUQ.

named the animals, but rather instead He chose Adam to work beside him to name them (taxonomy). He chose Noah to construct an ark (engineering/zoology). He chose Nehemiah to rebuild walls that had been torn down (construction/engineering). He chose twelve disciples to be yoked to him during the incarnation as a means to foster relationships in fulfilling humanity's vocation. Over and over again God has chosen humanity to work with Him in the world that we inhabit. Since the fall scientific and technological revolution has taken some dramatic turns. New discoveries and inventions have had at times to make tremendous uphill ascents through the mountains of societal acceptance, while others seem to be accepted without second thought. As Douglas Estes says, "God created people to think, to explore, to wonder, and to create.[42]" This is why throughout the years many Christians have joined the scientific revolution as a means to display this creative ability and drive.

Scientists Who Were Christians

No scientist comes to his work above his own subjectivity. Throughout his work, *Personal Knowledge,* Michael Polanyi shows there is no truly subjective scientific work,[43] but "a scientist's procedure is of course methodical. His methods are the maxims of an art which he applies in his own original way to the problem of his choice."[44] This is a good thing. It provides the world with varying views and interpretations. The person

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[42] Douglas Estes, *Braving the Future: Christian Faith in a World of Limitless Tech* (Harrisonburg, VA: Herald Press, 2018), 167.

[43] Michael Polanyi, *Personal Knowledge: Towards A Post Critical Philosophy* (Chicago, IL: The University Of Chicago Press, 1962), 17.

[44] Ibid., 311.

who can worship God through science has a grand view of both the natural and spiritual worlds. These men are bridge builders between the physical and the invisible. The Church has had scientists and technologists at the forefront of innovation for centuries, and we will continue to need them leading the way into the future.

Isaac Newton considered his theological studies just as important as his scientific ones.[45] Francis Bacon argued for a new experimental approach to science and became one of the primary contributors to the creation of the scientific method.[46] He saw natural theology as the spark of the knowledge of God, because it is divine in respect of its object, and natural in respect of its information. What we find in the natural world will be bound up in measurements, observations, and experiences.[47] Bacon saw the study of nature as a study of the work of creation.[48] He also believed the pursuit of knowledge and science was a way to reclaim the lost perfection relinquished by Adam and Eve.[49]

Perhaps one of the less "famous" scientists, but also one of the most elegant in teaching science and faith to dance together, is Pierre Teilhard de Chardin. Chardin was a Jesuit priest, paleontologist, and geologist. Chardin centered his entire theology of science on his eschatology. He was one of the first people to blend evolutionary theory

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[45] Coulson, Science And Christian Belief, 12.

[46] Tom McLeish, "Religion Isn't the Enemy Of Science: It's Been Inspiring Scientists for Centuries," *Phys Org*, January 25, 2018, https://phys.org/news/2018-01-religion-isnt-enemy-science-scientists.html.

[47] Coulson, *Science And Christian Belief*, 98.

[48] Calvin Mercer, *Religion and Transhumanism: The Unknown Future of Human Enhancement* (Santa Barbara, CA: Praeger, an imprint of ABC-CLIO, LLC, 2015), 59.

[49] Ibid., 56-61.

and Christian theology.[50] Chardin believed the Universe was narrowing to a center. He believed it was converging not on something, but on *Some One*. That *Some One* is Christ, whom Chardin refers to as the Omega point.[51] Among his discoveries which include the Peking Man, Chardin is credited with predicting the internet long before it was even a concept on DARPA's drawing board. Chardin instead called it the Noosphere. He saw it as an envelope of thinking substance network spanning the globe drawing men closer and uniting our minds.[52]

One final scientist of present-day worth noting that brought immense breakthrough to the world of genetics is Dr. Francis Collins. Collins was the leader of the Human Genome Project and discusses his process and findings in his book *The Language of God*. The primary metaphor throughout his writing promotes the double helix dance of science and religion. Gerald Weissman criticizes Collins for the time and cost of his research under governmental funding, citing that the private sector accomplished the same task using only a fraction of the funding and time.[53] What Weissman failed to cite was that Venter (the private sector scientist) was utilizing already published data from Collins' work.

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[50] Michael S. Burdett, "Contextualizing a Christian Perspective on Transcendence and Human Enhancement," in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement,* ed. Ronald Cole-Turner (Washington, DC: Georgetown University Press, 2011), 29.

[51] Pierre Teilhard de Chardin, *The Future Of Man*, trans. Norman Denny (New York, NY: Image Books Doubleday, 2004), 37, 280.

[52] Chardin, *Future of Man*, 151.

[53] Kurzweil, "The Ascendance Of Science And Technology," 554.

These are just a tiny sampling of Christians who have joined the scientific and technological revolution as a means to express our God given creative abilities. How then should every other Christian utilize this creative ability?

Conserve and Conceive

As humanity shadows God within creation utilizing the creative nature that has been endowed to us, we have been issued a dual-purpose prime directive. We are to tend and till the garden (earth), or in other words we are to conserve and conceive. Leonard Sweet and Frank Viola point out that, "God created humans not just to take care of the garden (*conserve*) but to make it more beautiful and marvelous (*conceive*)."[54] Our technological advancements should serve to fulfill the prime directive of our creator. Conserving and conceiving is a matter of wisdom on how to best utilize the resources of the world (and ultimately the cosmos) in order to protect what is already before us, while also innovating new creations as a means to both beautify the world, and fulfill the great commission. The prime directive is a facilitator to the great commission. While chapter five will specifically explore the coding of creation care through technology, the understanding of supporting and maintaining not only natural resources, but the most important natural resource, humanity, is vital to our theology of technology. Any conceiving that eliminates, discriminates, or separates a fellow human for the sake of personal advancement should be reconsidered in light of the Gospel.

Theological technological advancement should look to both the past and the present in order to elicit an "ancient future technology." Christian tradition is rooted in

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[54] Sweet and Viola, *Jesus: A Theography*, 43.

love for God and love for one another. In our conserving we seek to maintain love as the foundation for advancement and thinking of others more highly than ourselves.[55] In love, our conserving and conceiving works in two distinctive ways to envision the future. Ted Peters shares two roads to the future:

> The first way is to foresee the future as growth, as an actualization of potentials residing in the present or past. The second way is to anticipate something new, to prophesy a coming new reality. The first can be identified with the Latin term *futurum*, which suggests growth, development, maturation, or fruition. An oak tree is the actualized *futurum* of a potential that already exists in the acorn. The Latin term *adventus*, in contrast, is the appearance of something new—a first, so to speak. It is an eschatological future that can be expected or hoped for, but it cannot be planned for. Whereas *futurum* provides and image of the future that can result from present trends, *adventus* provides a vision of a future that only God can make happen."[56]

The current trends of consumerism and self-gain at the cost of others leads us to a *futurum* devoid of love for all people. If we continue on the present path of technological advancement without concern for our fellow humans or the rest of creation, we have led ourselves into a reality developed by a technological determinism of our own making. Will a technological utopia be available to us in the future? Most likely not. Humanity's proclivity to sin prevents a full representation of Gospel character through technology. Christ followers can pray, prepare, and plan for an *adventus* that God can make happen through our actions and choices. The technological *adventus* of tomorrow will be something new and different that rejects selfishness at the sake of others and advancement at the abasement of another, trends that are present in our current culture.

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[55] Phil. 2:3 NASB.

[56] Ted Peters, "Progress And Provolution: Will Transhumanism Leave Sin Behind," in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement,* ed. Ronald Cole-Turner (Washington, DC: Georgetown University Press, 2011), 74.

A techno-theological algorithm conserves the Christian ethos of love as the basis of all its choices in order to conceive a future of technological innovation that is beneficial to all of humanity as well as all of creation. We get to the universal through the particular. Widespread change begins with personal choices that spread through a broad spectrum of participants. If the church desires an *adventus* that only God can bring about through technological innovation, it must initiate the choices that influence advancement based on that Christian ethos of love.

In Summary

It is apparent from this first round of recoding that we are called to be creative beings shadowing a creative creator. The first matrix of our techno-theological algorithm highlights our natural inborn creative ability and drive. We are created co-creators, sub-creators of the God of the cosmos. As God's image bearers we have the incredible ability to both create and destroy through our technological advancement. We have the opportunity to join with those who have gone before us, as well as those who will come after us in bringing together our theology and our technological creations. The most import aspect is not that we are supposed to create technological advancements, but how we go about doing that, because our actions have direct consequences, both positive and negative, on the world around us. The Christian ethos of love equips us to conserve and conceive as a we create. The next three chapters will explore and encode three vital ways in which we have to choose how we will go about creating technology and what we need to think about through that process.

CHAPTER 4:

THE SUBROUTINE OF REASON

The next subroutine in our techno-theological algorithm is related to humanity's ability to reason. It is not just the accumulation of knowledge. Rather it is an exploration of reason in light of wisdom and understanding. Through conversations I have found that many pastors and church members have removed themselves from study of technological advancements. This does not have to be a primary focus of their study, but with the rate of advancement set to disrupt many of our current understandings of life, it would be wise to be informed (knowledgeable) about such things in order to join the discussion from a theological perspective. We need to build habits that allow us to work across disciplines and use what little information that may be known to start investigating what is not. One does not have to know everything, but the little that is known can be used to start breaking down big problems.[1] Knowledge is good, but without a practical application it is worthless. In this instance or ability to reason will be utilizing knowledge as a means to apply wisdom toward technological problems.

Theologian Mark Williams shares thoughts in line with Anselm, saying that intellectual pursuit is an expression of love, because reason that is contrary to faith is weak and barely any reason at all, while on the contrary any faith that is contrary to reason is weak and barely faith at all.[2] Our love for our neighbor should lead us to be

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[1] David Epstein, *Range: Why Generalists Triumph In A Specialized World* (New York, NY: Riverhead Books, 2019), 49-52.

[2] Mark Williams, "Saint Anselm Of Canterbury: Cultivating Solemnity And Humility By Observing How Words Function," in *Words And Witnesses: Communication Studies In Christian Thought*

knowledgeable and wise. While instructing his followers on counting the cost of following him, Jesus provides a prime example of using reason and wisdom in order to explore all the information, make changes, and be wise about our actions.

> Suppose one of you wants to build a tower. Won't you first sit down and estimate the cost to see if you have enough money to complete it? For if you lay the foundation and are not able to finish it, everyone who sees it will ridicule you, saying, 'This person began to build and wasn't able to finish.' Or suppose a king is about to go to war against another king. Won't he first sit down and consider whether he is able with ten thousand men to oppose the one coming against him with twenty thousand? If he is not able, he will send a delegation while the other is still a long way off and will ask for terms of peace.[3]

Reason allows us to examine the world around us, take measurements, assess, adapt, and change. Not to get "stuck in our heads" about topics, but the to think deeply about the changes happening around us in order to best navigate ministry in a new age without being chained to the spirit of a previous age. Reason allows us to understand and change *our* interaction with technology when it stops serving us, and we start serving it.

Andy Crouch points out that Christians inherit the Jewish algorithms which tell us our memory, reason, and skill are to be used as a means to conserve and conceive the earth. Our technology is the latest example of the fruit our image bearing was meant to produce,[4] "but the pace of technological change has surpassed anyone's capacity to develop enough wisdom to handle it."[5]

From Athanasius To Desmond Tutu, ed. Robert H. Woods Jr. and Naaman K. Wood (Peabody, MA: Hendrickson Publishers, 2018), 50.

[3] Luke 14:28-32 NASB.

[4] Andy Crouch, *The Tech-Wise Family: Everyday Steps For Putting Technology In Its Proper Place* (Grand Rapids, MI: Baker Books, 2017), 62-63.

[5] Ibid., 17.

A proper theology of technology allows us to see the iceberg of technology on the horizon and make adjustments while we are still a long way off. Wisdom allows us to identify the dangers that lay below the surface and write an algorithm for our lives that takes both benefits and dangers into account. This chapter will explore some of the theological, sociological, and ethical implications of technology in order to recode our theological algorithm in a way that allows us to approach both specific technologies and technology as a whole through a matrix of wisdom and insight.

Social Media

One of the easiest ways to understand the impact of different technologies is to begin with a particular form that is common to the greatest number of people. Social media is easily one of the most impactful inventions in the first part of the twenty first century. As of April 2019, Facebook boasts 2.32 billion active monthly users,[6] and as of June 2018 Instagram boasted one billion users.[7] Social media has had the incredible power of connecting massive numbers of old friends, new friends, and associates from across the globe. It also has the ability to disperse information quickly and gather people for a common cause like never before.

Unfortunately, social media has its downsides as well. New research suggests a link between social media use and higher rates of depression in young girls due to

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[6] Dan Noyes, "The Top 20 Valuable Facebook Statistics," *Zephoria Digital Marketing*, April 2019, https://zephoria.com/top-15-valuable-facebook-statistics.

[7] Ashley Carman, "Instagram Now Has 1 Billion Users Worldwide," *The Verge*, June 20, 2018, https://www.theverge.com/2018/6/20/17484420/instagram-users-one-billion-count.

bullying, comparison of appearance, and addiction to "likes."[8] In their book *Like War*, Singer and Brooking found that "80 percent of fights that break out in Chicago schools are now instigated online."[9] Social media also has the downside of promoting confirmation bias. "Social Media transports users to a world in which their every view seems widely shared," and research shows that trying to fight confirmation bias seems to only worsen the problem, because we hate to be proven wrong.[10] We can see the deterministic factors of social media in the fact that it does not seem to be going anywhere soon, but we can also see the instrumentalist encoding, both in its ability to gather people for a common good, and its ability to bully and lead to depression. These unforeseen anti-social consequences were never part of the original plan upon launching social media platforms, yet these redemptive and corruptive properties have both emerged the more ubiquitous the technology has become.

Facebook has only been available for just over a decade, Instagram just under a decade, and Snapchat even shorter. While early studies have shown increases in depression, anxiety, and unhealthy cycles of comparison, the long-term effects of social media are not yet known, but their trajectory looks abysmal.[11] For instance, the smart phone has brought with it the advancement of text messaging, tweeting, and a plethora of

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[8] Denis Campbell, "Depression in Girls Linked To Higher Use Of Social Media," *The Guardian*, January 3, 2019, https://www.theguardian.com/society/2019/jan/04/depression-in-girls-linked-to-higher-use-of-social-media.

[9] P.W. Singer and Emerson T. Brooking, *Like War: The Weaponization of Social Media* (New York, NY: Houghton Mifflin Harcourt Publishing, 2018), 13.

[10] Ibid., 125.

[11] Alice G. Walton, "6 Ways Social Media Affects Our Mental Health," *Forbes*, June 30, 2017, https://www.forbes.com/sites/alicegwalton/2017/06/30/a-run-down-of-social-medias-effects-on-our-mental-health.

other bite-sized social media posts. The problem is people that spend most of their time-consuming small bits of information like this, have a difficult time digesting big arguments and complex ideas found in books.[12] Anytime we use a medium we are retraining our brains neurologically to think according to its patterns,[13] and I would ask, has the rise of the internet and social media, dampened our current culture's Biblical literacy and our ability to read and understand scripture? A proper techno-theological algorithm understands the importance of balancing time in God's presence rather than in the presence of the blue screen, and spending time in prayer and meditation, rather than *mindless* scrolling.

In using reasoning and wisdom it would be wise first to prioritize actual social interaction, rather than virtual ones. Second, one should set limits to both daily and weekly social media usage in order to be aware of addictive and comparative habits that destroy mental, emotional, and spiritual health. Proverbs 14:30[14] is a reminder that envy, comparison, and coveting (often side effects of social media use) rot the bones. In other words, it is a slow process that damages our lives from the inside out. Finally, Paul reminds us in Philippians 4:8, "whatever is true, whatever is noble, whatever is right, whatever is pure, whatever is lovely, whatever is admirable--if anything is excellent or praiseworthy--think about such things." While social media has its downfalls, it can be a powerful tool for good as well. As Christians this is an available avenue to help those

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[12] John Dyer, *From The Garden To The City: The Redeeming And Corrupting Power Of Technology* (Grand Rapids, MI: Kregel Publications, 2011), 37-38.

[13] Ibid., 125.

[14] "A heart at peace gives life to the body, but envy rots the bones." (NIV)

around you dwell on beauty, goodness, and truth. Making a habitus of illuminating these things in posts can hopefully push back against the negative impacts of social media.

"In 2017, Facebook began testing an algorithm intended to identify users who were depressed and at risk for suicide." The user would then receive words of encouragement and links to resources, without a human ever being notified.[15] The artificially intelligent machine was doing the work that friends and relatives use to do on a daily basis, which leads us to our next topic, artificial intelligence.

Artificial Intelligence

One of the current hot topics in the technological world revolves around the discussion concerning artificial intelligence, or more precisely *artificial general intelligence* (AGI). AGI can accomplish almost any objective and learn, rather than a narrow focus of a singular task.[16] In other words, AGI is the replication of human level intelligence. While society currently has simple artificial intelligence such as the autocomplete algorithms of search engines, autocorrect of the modern smart phone, and even more complex versions through Watson or Deep Blue,[17] the truth is that technologists have no definitive answer if or even when they will achieve AGI.[18] In fact, a recent survey by MIT Technology Review of more than sixteen thousand papers on

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[15] Singer and Brooking, *Like War*, 251.

[16] Tegmark, *Life 3.0*, 30.

[17] Ibid., 51-52.

[18] Ibid., 157.

artificial intelligence showed fickleness of the quest to duplicate intelligence.[19] Technologists still have the problem of producing provable AI, meaning if a self-driving car is headed towards a cyclist, but will hit another person, how does it decide which person to hit or save? How does it calculate the intrinsic value of each person? Society may long for their own C3PO or Jarvis, (the urbane and dry humored AI persona that assists Iron Man), but for now most will have to settle for an autocorrect that botches text messages, digital assistants like Alexa, and the complex algorithms that force feed ads based on location and conversations.

While the idea of AGI may sound intimidating to some, we are slowly inoculating ourselves to its presence in our lives. There is an age-old adage that to cook a frog you do not put it in a pot of boiling water, or it will jump out. You put it in a pot of cold water and slowly raise the temperature to cook it. AI has slowly been introduced to us, so that we become increasingly more comfortable with it in our lives. Assistants like Siri and Alexa are commonplace on smartphones and smart devices in many homes, making us comfortable with the idea of intelligent computers being a part of our everyday lives. Social robots will be designed to work with everyone in society from children to elderly dementia patients.[20] As these artificially intelligent machines continue to infiltrate our daily lives, as both computers and robots, will we still consider them machines. In 2017 Saudi Arabia granted official citizenship to the AI robot Sophia, while many of its flesh

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[19] Daniel Zender, "We Analyzed 16,625 Papers to Figure Out Where AI Is Headed Next," *MIT Technology Review*, January 25, 2019, https://www.technologyreview.com/s/612768/we-analyzed-16625-papers-to-figure-out-where-ai-is-headed-next.

[20] Takeshi Kimura, "Robotics and AI In The Sociology of Religion: A Human In Imago Roboticae," *Social Compass* 64, no. 1 (2017): 13, http://dx.doi.org/10.1177/0037768616683326.

and blood female citizens do not get to enjoy the rights of full citizenship.[21] Some even argue that since animals have rights, robots should too, and the "future urges us to get our moral goals in order now."[22] Beyond rights and citizenship in the US, will the Church accept AI robots as members in the church?

When AGI arrives, it will challenge our understanding of personhood and the soul especially in relation to religion, prayer, and faith. Kevin Kelly points out that "this synthetic intelligence is a combination of human intelligence (all past human learning, all current humans online), it will be difficult to pinpoint exactly what it is" because its ubiquity will hide it.[23] In its advanced stage of intelligence, the Church will have to decide if a robot has a soul (or is able to get one) and is able to pray? We have to ask ourselves to define a soul, personhood, and what it means to be human and alive. We are entertained by movies like Bladerunner, but at some point, we will meet a robot that we will not know is a robot. As the image bearers of God, we are a copy of the original, and AI/cybernetic organisms will be a "copy of a copy," because they are made in our image, but in a post Christian and post human society humanity may no longer see itself made in *imago Dei*, but in imago roboticae,[24] Could God instill a soul into a robot at the moment it comes to life? We know that God can imbue a soul into dirt, so it is not beyond the realm of ability to do so to a silicone-based structure. If the soul consists of the mind, will, and

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[21] Avi Steinberg, "Can A Robot Join The Faith?," *The New Yorker*, November 13, 2017, https://www.newyorker.com/tech/annals-of-technology/can-a-robot-join-the-faith.

[22] Nathan Heller, "If Animals Have Rights, Should Robots?" *The New Yorker*, November 20, 2016, https://www.newyorker.com/magazine/2016/11/28/if-animals-have-rights-should-robots.

[23] Kevin Kelly, *The Inevitable: Understanding The 12 Technological Forces That Will Shape Our Future* (New York, NY: Penguin Books, 2016), 30.

[24] Kimura, "Robotics and AI In The Sociology of Religion: A Human In Imago Roboticae," 18.

emotions, sentient machines could in fact contain all three. What if God reveals himself to the robot through its deep learning programming? Will it short circuit if it gets baptized?

I say that while a robot may be incredibly intelligent and capable, it will not have a soul in the sense that a human has a soul. Scripture, especially the gospel narratives of the life of Jesus, show us the importance of the incarnation, the flesh and blood reality that is and has been humanity. The importance of the incarnation will be explored further in chapter six, but it reveals the God's particular relationship with humanity. While AI can produce words and rote memorization of premeditated prayers, it will not be able to produce effectual, fervent, and honest prayers of the spirit/soul, because it lacks such. I would equate such prayers to a person praying with their frontal lobe (knowledge), rather than with the heart and soul.

AI will not be able honestly to join the Christian faith with the understanding that humanity is made in God's image, while AI and robots are made in humanity's image. Our pursuit of technological immortality through AI, whole brain emulation, radical life extension, and robotics, could be seen as humanity's newest Tower of Babel. It is our attempt to reach heaven of our own accord. Although all of creation is in relationship with God, it is impossible for us to know the full depths of that relationship. What is known is that through the life and crucifixion of Jesus, creation in its entirety, has been and is being redeemed.[25] I believe AI, although it will not have a soul as we have a soul, can be redeemed by Christ followers for the glory of God and the good of creation. The

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[25] Noreen Herzfeld, *In Our Image: Artificial Intelligence and The Human Spirit* (Minneapolis, MN: Augsburg Fortress, 2002), 91-92.

danger lies in the potential for allowing the icon to become an idol as some are already doing.

Cyborg congregations have already started. In 2017, Anthony Levandowski started the first church based on the religion of artificial intelligence called, *Way of The Future*, a religion based on the worship of a godhead of Artificial Intelligence. Way of the Future anticipates its members will promote the use of a divine AI towards the "betterment of society."[26] Christ followers will need to be prepared to explain why it is not the worship of a "divine" AI, nor the responsibility of artificial intelligence that redeems the world.

Max Tegmark proposes that robo-judges could one day ensure that everyone becomes truly equal under the law, by transparently applying the law in an unbiased manner.[27] But the question becomes, whose ethics and whose morals will dictate what is right and wrong, and to what degree? It comes back to the algorithm. Whoever writes the algorithms controls the outcomes. As explored above, Michael Polanyi shows there is no truly subjective scientific work.[28] Every code writer is influenced by his or her beliefs and life experiences, which will ultimately guide a user toward decisions they may not normally choose, because advanced algorithms cloud the systems of choice.[29] Even a "black and white" application of the law leaves no room for grace and second chances.

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[26] Mark Harris, "Inside the First Church Of Artificial Intelligence," *Wired*, November 15, 2017, https://www.wired.com/story/anthony-levandowski-artificial-intelligence-religion/.

[27] Tegmark, *Life 3.0*, 105.

[28] Michael Polanyi, *Personal Knowledge: Towards A Post Critical Philosophy* (Chicago, IL: The University Of Chicago Press, 1962), 17.

[29] Olaf Groth and Mark Nitzberg, *Solomon's Code: Humanity In A World Of Thinking Machines* (New York, NY: Pegasus Books Ltd., 2018), 10-11.

Our legal code would have to undergo significant revision in order to account for multiple offenses, grace, and extenuating circumstances. While humanity can have a proclivity toward numerous different negative prejudices, it also bears the mark of the creator by showing compassion, grace, and kindness.

While AI medical devices are able to give percentages of risk, recovery, and methods of treatment, they are unable to measure the capacity of the human will to survive. Medical devices will have to be severely *altered* in order to account for non-traditional methods of treatment as a course of action, and for the Christ follower they will need to be *altared* in order to account for the intervention of the Holy Spirit. As the divide between human and machine medical practitioner gets blurrier, we can accept the role these machines play in our treatment courses while not allowing our faith to be diminished in the miraculous found in God or alternative treatment patterns.[30] Groth and Nitzberg point out that, "neither the developers at Watson nor the physicians who partner on the research claim that AI will replace physicians and their expertise. Rather, AI serves as a useful complement, a system that might learn from stacks and stacks of cancer research with the goal of helping doctors make better decisions."[31]

While partnering with AI to enhance the capabilities of various service-based industries, we must grapple with the damage it will also do by automating most jobs and costing families their financial stability, leading to suffering and/or a greater burden on government assistance. How will the church assist in caring for those on the losing end of technological advancement?

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[30] Ibid., 17.

[31] Ibid., 21.

Automation is of high concern for many individuals when it comes to artificial intelligence. Technology has regularly replaced inefficient forms of manual labor. Any repetitive task has been and will continue to be replaced by more efficient algorithmically controlled machines. Recent reports show workers at Amazon and Uber can be fired by "algorithm" for not meeting production numbers.[32] Is this a sign of future workplace monitoring by AI? Pat Gelsinger optimistically thinks along the way 900 million jobs will be created while 800 million will be taken away, because technology has consistently made more jobs than it has taken away.[33] On the contrary Groth and Nitzberg share, "now more than any other time in history, economists worry about our ability to create jobs fast enough to replace the ones lost to the automation of artificial intelligence."[34]

Automation is more than just machines doing the work of humans. It is the idea that machines will eventually become human-like, and we will have to grapple with what it means to be a human. As AI continues to advance, will sentient machines be subject to human desires? If a sentient (conscious) machine is forced to do work it does not like or find fulfilling, will this fall under a sort of slave labor? How will the Church respond to machines that can express their neglect in factories or work they dislike?

Visions of a utopian paradise with robots doing all of the work while humans play and lounge all day may sound delightful, but it is mostly a grand delusion that also raises some intense questions. Is it ethical to enslave a sentient being for the purposes of forced

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[32] Charlotte Jee, "Amazon's System for Tracking Its Warehouse Workers Can Automatically Fire Them," *MIT Technology Review*, April 26, 2019, https://www.technologyreview.com/f/613434/amazons-system-for-tracking-its-warehouse-workers-can-automatically-fire-them.

[33] Pat Gelsinger, "Semiotics And Future Studies," Zoom Lecture, Portland Seminary, Portland OR, February 5, 2018.

[34] Groth and Nitzberg, *Solomon's Code*, 10.

labor? Will it cause us to look for ways to do the same to our fellow humans? The subconscious indoctrination of using things, particularly sentient things, as tools at our disposal, has the problematic possibility of projecting these actions on to our fellow humans. Automation carries ramifications that will challenge us to think beyond simply job loss.

Trevor Cox discusses the ability of artificial intelligence to create artificial voices. This becomes increasingly alarming as fake voices are created for prominent leaders and could lead to malicious voice impersonation.[35] How will the Church respond when its pastor is brought into a deep fake scandal by a disgruntled member? When fake audio and video clips are indistinguishable from real ones, church boards will have to decipher the truth through advanced technological means, as well as discernment from Holy Spirit. AI is also responsible for MADCOMs, which are essentially indistinguishable from a human operator online. "They won't just drive news cycles but will also trick and manipulate the people reacting to them." Matthew Chesson, U.S. State Department technology advisor said, these will "determine the fate of the internet, our society, and our democracy."[36]

In light of these redemptive and corruptive abilities of artificial intelligence, how does humanity utilize its ability to reason against a machine that can outsmart them? How will this technology be used to change history? Tegmark points out that, "This boils

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[35] Trevor Cox, *Now You're Talking: Human Conversation From The Neanderthals To Artificial Intelligence* (Berkeley, CA: Counterpoint Press, 2018), 186.

[36] Singer and Brooking, *Like War*, 255.

down to solving tough technical problems related to verification, validation, security, and control."[37]

The algorithms that will control each of these operations will have to be held accountable by secondary algorithms of verification and control in order to help us validate fakes from reality. Humanity will need to always be at the helm of the AI, and not leave it to be its own leader and sustainer. As AI continues to infiltrate our society attempting to remove any sense of mistake from our domains of work and life, we have to ask if we really want to live in a world with no mistakes? Groth and Nitzberg share a reminder: "Each positive step forward might preclude a grievous error. But, in so doing, it might also diminish serendipity and the chance to learn from…our mistakes. To the extent life is an exploration and meaning derives from experience, AI will change the very anthropological nature of individual self-discovery."[38]

Our theological algorithm of technology will have to help each person decide how much AI one will allow in their own personal life. The Lord often uses our mistakes as a means to disciple us on towards fuller Christian maturity. AI just may inhibit the process of spiritual transfiguration if we do not place limitations on it today. In the coming age where its prevalence will only increase in every facet of life, AI will carry with it countless benefits such as reduction of suffering, increased productivity, and decreased costs of living, it will also carry with financial disruption to the job market (with a ripple effect reaching back to the church in lowered giving), dehumanization of care and service in some sectors, as well as difficulty knowing what online news information to trust.

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[37] Tegmark, *Life 3.0*, 133.

[38] Groth and Nitzberg, *Solomon's Code*, 9-10.

Reason will be challenged, but wisdom in the Holy Spirit can lead the church to be effective innovative centers for technological training and change.

One way the church can assist is by becoming tech community centers "where people gather to build, learn and experiment with technology."[39] In a society where the church building is becoming less centric to people's lives, these giant edifices can be repurposed to house creative and innovate courses that equip community members to work in a new technologically saturated society. We can transform unused Sunday school rooms into computer programming centers, fellowship halls into future-oriented robotics labs, and church basements from storage rooms for outdated materials to computer server stations.

Genetic Testing and Editing

Since the completion of the human genome project, genetic testing has become more accessible to the public. In one of its more accessible forms, genetic testing is an incredible tool that allows new parents to find out the health of their preborn baby based on some of the most predominant genetic markers. I took advantage of this testing with my first daughter. Although limited in scope to the number of chromosomes reviewed, preborn genetic testing allows one to be prepared for any genetic abnormality, but it also raises some very challenging questions. In a society that still allows abortions, as the test becomes more affordable, reliable, and in depth will parents begin to abort an unwanted child with a genetic abnormality?

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[39] Elias Kruger, "Churches as Tech Community Centers," *SuperPosition*, August 2, 2019, https://sci-techmaven.io/superposition/voices-opinion/churches-as-tech-community-centers-QQ2epFGnmU2uZjnKdgQrSQ/.

Unfortunately, Iceland boasts about this. The country says it has almost "eradicated" Down Syndrome through aborting fetuses at risk of it, even though the test is only around eighty-five percent accurate.[40] Thankfully, some companies like Gerber have taken the chance to celebrate the innate beauty of a child with down syndrome. In 2018 Gerber announced its first Gerber baby with down syndrome.[41] But it begs another question, "will insurance companies begin to require a person to abort a child with genetic abnormalities due to the increased cost to their company?" While this does not seem likely, it is not beyond the realm of possibility, especially if the entire healthcare sector falls under government control. They could drop coverage for pregnant mothers carrying a child with a genetic disability, or worse require an abortion. Genetic testing leads us into a completely new realm of possibilities.

A more recent breakthrough, CRISPR-cas9 has allowed scientists the ability to edit the genetic code of all variants of biological life from plants to humans. Editing begins with testing for genetic variants that are outside of the desired parameters, and then "cutting and pasting" a new genetic coding to direct a precise alteration to the DNA sequence.[42] The CRISPR-cas9 technique has the possibility to open up incredible doors that have long been thought to be bolted shut with no way through. Scientists believe the technology may someday help eliminate genetic diseases like cystic fibrosis and sickle-

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[40] Douglas Estes*, Braving The Future: Christian Faith In A World Of Limitless Tech* (Harrisonburg, VA: Herald Press, 2018), 79.

[41] Terri Peters, "The First Gerber Baby with Down Syndrome Will Steal Your Heart," Today, February 7, 2018, https://www.today.com/parents/2018-gerber-baby-first-gerber-baby-down-syndrome-t122258.

[42] Jennifer Doudna, "Crispr's Gene-Editing Tech Rewrites The Code Of Life, Co-Inventor Doudna Says," *Bloomberg Technology*, YouTube video, September 13, 2019, 0:08, https://youtu.be/ydhOlUaXWUU.

cell anemia,[43] but most are in agreement that more testing is needed before it is used in the alteration of human beings.[44] Unfortunately, not *all* scientists and researchers feel this way.

Recent findings have found a Chinese scientist, He Jiankui, genetically altered the embryos of twin girls in order to prevent HIV transfer from the mother, but may have also unintentionally increased their intelligence.[45] This is the first *known* case of the CRISPR technique being used on a human embryo and brought to full term. Russian molecular biologist, Denis Rebrikov, head of a genome-editing laboratory at Russia's largest fertility clinic, recently announced plans to attempt the same procedure as He Jainkui, but claims his technique is safer and more beneficial.[46] Other Chinese scientists have genetically altered the make-up of rhesus monkeys making them more intelligent and giving them better short term memory in order to study the evolution of human brain development.[47]

These procedures have far reaching impacts. This process is referred to as editing the germ line. This means the changes made in the DNA sequence will be passed down to

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[43] Another problem the genetic editing community has to wrestle with is, what diseases receive priority? Will the same effort and expense be put into simple genetic defects such as near sightedness as various cancers? While these two conditions are nowhere near the same level, the preventative principle of disease prevention through genetic editing has the possibility to lead us down a slippery slope. See: Estes, *Braving The Future, 80-81.*

[44] David Cyranoski, "Russian Biologist Plans More CRISPR-Edited Babies," *Nature* 570 (June 2019): 145-146, doi: 10.1038/d41586-019-01770-x.

[45] Josh Gabbatiss, "Gene-Edited Chinese Babies May Have 'Enhanced Brains' Scientists Say," *Independent*, February 22, 2019, https://www.independent.co.uk/news/science/gene-edited-baby-china-brain-intelligence-hiv-he-jiankui-crispr-a8792386.html.

[46] Cyranoski, "Russian Biologist Plans More CRISPR-Edited Babies," 145-146.

[47] Sean Keach, "Chinese Scientists Put Human Brain Genes Into Monkeys," *New York Post*, April 11, 2019, https://nypost.com/2019/04/11/chinese-scientists-put-human-brain-genes-into-monkeys.

subsequent offspring. The problem is the long-term impacts of these modifications are unknown in edited humans. Preimplantation Genetic Diagnosis (PGD) allows testing at day two before implantation takes place, but will this procedure lead to a future in which parents begin to design their children by picking from a plethora of embryos with the best genetic potential?[48] This potential raises countless ethical questions about rights and just how far we are going to allow our "creativity" to go. Instead of traits passed down by chance, embryos chosen with the best genetic potential allow family lines to become chosen or designed. As more DNA sequences are explored and their exact properties are identified, it opens the door to "modifying" children. Before it is legal, a rogue scientist working for a wealthy enough citizen, could make their child smarter, taller, stronger, faster, or any number of genetic traits. This way of designing children could allow those with financial means to gain an even greater advantage over those who are less fortunate.

Our current culture runs through trends of fashion, beverage choices, the "latest and greatest" craze in almost any realm of consumption, and if those trends continue, we could have entire generations with only green eyes, or predominantly blond hair. If we allow the possibility of genetic editing to move from therapy (healing diseases) to enhancement we open ourselves to entirely new problems of elitism, prejudice, and lookism.

The genetic alterations *may* have no negative long-term side effects, but one of the most important things that has to be considered is, all of this would happen without any input from the child. The parents would be determining the life and traits of their

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[48] Ron Cole-Turner, "From Pre-Natal Testing To Designer Children: The Pastor As A Guide On The Path To The Future," *Lexington Theological Quarterly* 38, no 2 (Summer 2003): 114-115, ATLA Religion Database with ATLASerials, EBSCOhost.

child before they even take a breath on earth. Proverbs 16:9 teaches us, "The mind of man plans his way, But the Lord directs his steps (NASB)." Designer children would be a power grab as a means to usurp the Lord's dominion in order to direct the steps of one's own children. This stems from a much deeper problem than just cultural trends, which will be explored below.

As research continues CRISPR-cas9 has the power to allow us to defeat some very difficult and painful diseases that have riddled humanity for far too long, but it also has the potential to be used for selfish gain and self-interests. When genetic testing seeks to push past therapy into the realm of designer children, we have to remember "the first step in being a Christian is to remember that what is wrong with us is beyond our power to fix."[49] All of our creations and endeavors carry with them a coding bug that cannot be fixed by science and technology. The underlying factor that invades and pervades every aspect of life that must be addressed in any theological exploration, most especially one of technology, is humanity's proclivity to sin.

Proclivity to Sin and the Socio-Economic Divide

Since the garden, humanity's coding has been corrupted by a bug: sin and the proclivity to sin. Sin is what exacerbates the socioeconomic divide that will allow the rich to escape death through technological means while the poor die young. Sin is what will contribute to programmers writing algorithms for AGI that *could* become bent on destruction, our enslavement of sentient machines, and what causes us to use people as

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[49] Ron Cole-Turner, "Improving Ourselves: Biomedical Technology as the New Means of Grace," *Lexington Theological Quarterly* 38, no 3 (Fall 2003): 151-160, ATLA Religion Database with ATLASerials, EBSCOhost.

things rather than respecting them as *equals*. Sin is what stirs the desire for selfish gain at the expense of others.

In 1 Corinthians 11 Paul corrects the Corinthian believers for their actions around the table. The rich were partaking of the communion meal and even getting drunk.

> Therefore when you meet together, it is not to eat the Lord's Supper, for in your eating each one takes his own supper first; and one is hungry and another is drunk. What! Do you not have houses in which to eat and drink? Or do you despise the church of God and shame those who have nothing? What shall I say to you? Shall I praise you? In this I will not praise you. (NASB)

As technologies advance, they will no doubt allow the financially able to access them first. They will eventually trickle down to the rest of society, but then newer technologies will continue to be available to the rich first. As it pertains to the body of Christ, I relate this to Paul's chastisement of the Corinthian believers when the rich were partaking the best food and drink before the poorer brothers and sisters, and in some cases being drunk before the poor got there.[50] The long-term impacts of wealthy families reaping the benefits of, gene therapies, life extension, and gene editing is the equivalent of "getting drunk" at the table of life. They also have the possibility to maintain power through the ability to forge dynasties with family wealth that last far beyond the normal boundaries of family cycles, while many in society will be unable to partake at the table of longevity or gene editing for the healing of disease. The gap will widen further as automation replaces many jobs before enough citizens are trained to fulfill the new positions created because of these social shifts.

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[50] Jacob Shatzer, *Transhumanism And The Image Of God* (Downers Grove, IL: IVP Academic, 2019), 153-154.

The 2013 science fiction movie *Elysium* illustrates the possibility of this problematic divide. In the middle of the twenty-second century many on earth are living in poverty with insufficient health care. In earth's orbit is a habitat called *Elysium*, where the wealthy and powerful reside. It is a technologically advanced sector of society, but it is segregated from the "poor," who remain on earth. Among their technological advancements are devices called "med-bays" that can reverse aging allowing the rich to live longer, cure diseases, and even regenerate body parts. The computer systems on *Elysium* only allow recognized members of the habitat to enter and use its med-bays. The hero of the story reboots the system with a virus that registers *every* citizen of earth as an *Elysian*. The evangelical church of America needs to help with a reboot of our current theology of technology.

In Christ we should find unity and equality. There should be a place at the table for everyone...at the same time. This is not to say there should be a "socialist" approach to finances or technology, where finances and goods are evenly distributed among the people. Rather it should challenge us to find *new ways* to bridge the gap between those who would "get drunk" and those who are going without. As the gap widens along the financial spectrum as technologies become available, pastors and Christian leaders will need to continually remind fellow brothers and sisters in Christ the importance of the equality of life along the entire spectrum of financial ability. There is no force in sharing riches, as can be seen in Jesus's interaction with the rich young ruler in Mark 10 and Mathew 19. The Church will need to find new ways to return to its roots of science and technology, and once again become centers of innovation and change in order to bridge such a gap. Jesus often used the metaphors of the table and family, which are shared by

Paul, as useful metaphors to help the Church "reboot the computer" and remove the bug of sin and separation in order to stay focused on its mission as the *imago Dei*.

The redemptive power of Christ, and the ability to make the secular sacred, stands in stark contrast to sin. Humanity's proclivity toward sin has the potential to corrupt anything that we put our hand to, but this does not stop us from making art, movies, music, writings, becoming business owners, or any myriad of professions in which Christians inhabit. Why then should it inhibit our technological creativity and interaction?

Our theology of technology is a theology of participation. The church has the opportunity to redeem technological progress for the glory of Christ by participating in it, and being wise about how it is utilized. I relate trying to accomplish redemptive tasks (feeding the hungry, healing sickness, providing for the poor, etc.) *only* through technological means is grasping from the fruit of the tree of the knowledge of good and evil. Sickness, hunger, poverty, and even death are only defeated in Jesus, and our creative and technological endeavors are merely avenues which can assist in that, not the answer in and of themselves.

The disciples show us the importance of participation in these endeavors. They were empowered by Pentecost. They received power from the Holy Spirit to accomplish God's will. If we are to do the same, our techno-theological algorithm must see technology as both a tool (instrumentalism) as well as a force of change (determinism), redeemed through the power of the Holy Spirit, but only fulfilled in Christ.

As the apostle Paul reminds readers, we see through a mirror dimly. Even our furthest technological advancements are only a dim representation of what is ultimately accomplished in Christ at the eschaton when the physical and spiritual are wrapped up in

the new Jerusalem, the new heavens and new earth, and all that is corruptible puts on the incorruptible. Our participation is vital and necessary to our lives here on earth.

As explored above, humans are created co-creators shadowing (or following and watching in order to learn how to do something) a creative and redemptive God. Our imperative as his imago Dei is to use wisdom in the choices we make as we participate in the redemption process of the world around us. If we only allow the technologists to dictate how, when, and where technology is produced and utilized, we are missing our opportunity to redeem technology for Christo-centric purposes. By creating community tech-centers, fostering creativity and innovation, and utilizing technology for redemptive purposes Christ followers have the opportunity to help prepare the individuals in their communities for the coming technological changes.

If we only look at the proclivity to sin when it comes to emerging technologies, as a means to negate their usefulness within the kingdom of God, we preclude their ability to be a redemptive avenue. We create a virus in our techno-theological algorithm when we say the *possibility* of sin should prevent us from participating in a realm of culture that will be here whether we want it to or not. "We may not be able to stop the creation of tech that people will use poorly or for evil. But we can stand against it."[51] Standing against tech that will be used for evil comes from understanding and wisdom about such technologies. It also comes from an overwhelming presentation of redemptive uses of those technologies. Instead of just promoting what we are against, the Church needs to show what it is for. It should use a positive linguistic presentation to promote redemptive purposes. If the church segregates itself from the technology sector of society, how will

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[51] Estes, *Braving The Future*, 43.

we redeem it for Christ and his purpose? It is important to both know about and engage these things. Engagement comes from knowledge, but from these things we also need rest.

Technological Sabbath

A theological algorithm of technology would be curtailed without an inspection into the importance of a sabbath. Culture seeks to baptize or immerse people in technological use from the moment we arise in the morning until we go to sleep, but even this is not enough. People now have technological devices that manipulate the firmness, temperature, or postures of a bed, and additional devices that monitor sleep length and quality. Around the clock people are inundated by technological immersion. Not all of these technologies are bad in and of themselves, but technology sabotages our sabbath.

The way forward is returning to our origins. Genesis shares with us not only our creation story, but it shares with us the importance of rest, removal, and disconnection: "By the seventh day God completed His work which He had done, and He rested on the seventh day from all His work which He had done. Then God blessed the seventh day and sanctified it, because in it He rested from all His work which God had created and made."[52]

Our origin story reminds us that God works and then rests, but humans begin working *from* rest. The smartphones that are now seemingly extensions of our selves receive a constant barrage of notifications for emails, text messages, social media updates, phone calls, and a plethora of other apps that demand our constant attention. It is

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[52] Gen. 2:2-3 NASB.

as if the machine in our hand is alive, and we must respond to its demands. As AI, virtual reality, and other various forms of tech continue to become more immersive, it will be vital to encode one's life with a habit of rest and disconnection. Justo Gonzalez points out that God is not always at our beck and call, and a person should not take work too seriously. "If creation is able to keep going while God rests, it will certainly keep going while we rest!"[53] Jesus replicated this habit of disconnection in his actions while on earth. One can read of his regular times away in the morning and/or evening to pray. He modeled the importance of not always being available, and the importance of disconnection for renewal.

The 2018 movie *Ready Player One*, illustrates the importance of sabbath without actually calling it a sabbath. In the movie, people find "respite" from the difficulties of life in the OASIS: an expansive virtual reality universe, where you can be anyone or anything. People are immersed in the technology all hours of the day and sacrifice their real life for the virtual world in order to win a challenge left by the OASIS's creator upon his death. The winner of the challenge wins ownership of the OASIS. The main character, Wade Watts, eventually wins the challenge. One of the first rules he institutes is the shutdown of the OASIS two days a week in order to connect more in the real world. The metaphors in our media can be helpful in our theology of technology.

We live in an information age where we are constantly inundated with data. A.J. Swoboda says, "a technological society essentially replaces relationship with information," and a sabbath "questions our commitment to information as a means to

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[53] Justo L. González, *Creation: The Apple Of God's Eye* (Nashville, TN: Abingdon Press, 2015), 30.

salvation…Sabbath returns relationship back to its proper place."[54] Our techno-theological algorithm needs to encode the importance of rest and disconnection into our personal life and family life. Andy Crouch promotes a sabbath of one hour a day, one day a week, and one week a year in which you disconnect from technology in as many forms as possible: phone, tablets, computers, tv, etc. in order to rest and reconnect with those who matter most.[55] How can the church promote not only a sabbath from work, but also from technology? As technology becomes more invasive and immersive, the importance of sabbath will need to become more pervasive.

In Summary

Our theology prompts us to be "wise as serpents and gentle as doves,"[56] and so our techno-theological algorithm not only invites us, but I would say demands, our wisdom as we enter the new matrix of a technologically immersed society. Artificial Intelligence has the potential to remove mistakes from our daily processes and change the way we understand human beings and consciousness. In doing so it removes the mystery of life. When we do not know what lies ahead, we have the possibility to learn from our mistakes. AI has the power to remove this "discipleship" process from life. While genetic editing allows us the possibility of defeating horrible and deadly diseases, it brings with it the ability to design our children rather than live into the mystery of what their lives will hold. If we remove the mystery from everything in life, there is no need to submit to the

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[54] A.J. Swoboda, *Subversive Sabbath: The Surprising Power Of Rest In A Nonstop World* (Grand Rapids, MI: Brazos Press, 2018), 98.

[55] Crouch, *The Tech-Wise Family*, 98.

[56] Matt. 10:6 NASB.

Spirit. “We are called to live in such a way that our technology helps us be devoted to God and love others as we love ourselves.”[57]

While we use our reasoning and wisdom to navigate technological change, how can we celebrate the possibilities it brings before we resist it for its potential harms? We cannot control what every person will do, but we can control our personal choices. Our personal choices can lead us into positions that help dictate on greater communal levels of influence the importance of looking at all of the possible outcomes of technologies. As new technologies emerge, they have a tendency to be uncomfortable to previous generations. If we resist technology, we need to make sure we are resisting it because it is wrong, not just because of how uncomfortable it makes us.[58]

In light of current life expectancy rates and genetic work in radical life extension, the church should lead the charge in preparing our children for the next century. My daughter was born in 2018, and with a healthy life and no unforeseen tragedies has the possibility to live well into the twenty second century. The rate of technological advancement will only continue to move forward, and our techno-theological algorithm needs to be adaptable to future tech that our children will face in the next century.

As Christ followers living in a technological society, the church cannot segregate itself from technological advancements, even the difficult ones that challenge current theological understanding. If the church hides away within its walls, and refuses to interact with technology, it will continue to advance regardless of our participation or not. The most beneficial thing the evangelical church of North America can do is to begin to

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[57] Estes, *Braving The Future*, 43.

[58] Ibid., 201.

inform itself with difficult and controversial scientific and technological advancements. Pastors on every level of ministerial involvement can begin to study varying voices in regard to these issues to form a deep and nuanced voice for conversation in order to wisely address their impacts and benefits.

There is no salvation in technology, but technology can be a means by which the people of God inaugurate the kingdom of God to our culture that looks instead to technology as an idol. Clergy and laity should understand the corruptive power of technology and its ability to be used by humanity outside of its intended purposes, because sin is a problem that penetrates deeper than our silicone-based devices and our algorithms of operation.

The metaphor of the table reminds us of both the importance of making a place for everyone at the table at the same time, and it reminds us of the importance of rest and relationship outside of the digital world. Regular disconnection through the practice of a technological sabbath will allow us to be attentive to what God is doing in our lives, our communities, and how we can utilize technology as a tool rather than be ruled by it.

In a difficult cultural context Douglas Estes offers some sound advice, "A cautious optimism will give Christians the best voice to speak truth to tech."[59] Before completely negating new technological advancements Paul the Apostle offers a beneficial practice the Church can institute when entering this discussion, "whatever is true, whatever is honorable, whatever is right, whatever is pure, whatever is lovely, whatever

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[59] Estes, *Braving The Future*, 202.

is of good repute, if there is any excellence and if anything worthy of praise, dwell on these things."[60]

[60] Phil. 4:8 NASB.

CHAPTER 5:

THE SUBROUTINE OF REGENCY

As was explored above, the *imago Dei* also pertains to our dominion over the earth, or our regency. Since our use of technology has far-reaching impacts cascading through every facet of life, domestic and wild, our theology of technology must consider humanity's impact on the wild places that surround us, both plant and animal, as well as what that means for future technological advancement. Therefore, any theology, especially one that relates to technology, that does not consider the ecological impacts is both insufficient and incomplete.

An often-overlooked factor of our humanity is the reality that we are both *in* creation, as well as a *part of* creation. The creation story of Genesis tells us that God created both humanity and the rest of creation. He has given us consciousness, or sentience, and has placed us in a position over the rest of creation, commonly referred to as "having dominion." This dominion over all the animals of the sea, sky, and land, means a person's decisions impact more than just one's own life. Dominion entails offering care, maintenance, and only taking what is needed. It becomes a dangerous world when humankind no longer acknowledges they are God's servants.[1] When humanity forgets this important role, our decisions can be influenced by our proclivity to sin.

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[1] Noreen Herzfeld, *Technology And Religion: Remaining Human In A Co-Created World* (West Conshohocken, PA: Templeton Press, 2009), 16.

As humanity bears God's image in the world it is necessary to consider then all our actions in light of the entirety of creation, and that begins with returning to the importance of our linguistics that form the basis for the way we understand and interpret the world around us as was explored in chapter two. A colloquial Christian term for managing finances and creation, is to be a *steward*, but this word carries with it the wrong metaphorical connotation. Leonard Sweet points out that the Greek words from the New Testament, *epitropos* and *oikonomos,* are better translated as *trustees*, because everything we have is a trust from God. Trustees are the legal entities of an institution or estate. They own nothing but are accountable for everything. We do not own the earth, but we are accountable for it, and often our theology fails to remind us of this. A trustee is not judged by what percentage they gave of away of what was theirs. Rather it is a question of what percentage did I receive for myself that the estate might grow and prosper. "A stewardship ethic is based on giving to God a portion of what is yours. A trusteeship ethic is based on receiving for oneself a portion of what is God's."[2] When we change the metaphor, we can change the world. In this case literally.

By simply rewriting this line of coding, it changes our theological algorithm about creation. Instead of viewing creation as *ours* to do with what we please, mentally it returns the ownership *back to God*, and it becomes about what we can give away. When we love creation like Fyodor Dostoyevsky guides us, "Love all of God's creation, the whole of it and every grain of sand in it. Love every leaf, every ray of God's light. Love the animals, love the plants, love everything. If you love everything, you will perceive the

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[2] Leonard Sweet, *Soul Salsa: 17 Surprising Steps For Godly Living In The 21st Century* (Grand Rapids, MI: Zondervan: 2000), 53-54.

divine mystery in all things;"[3] we are able to ask the question "what can we give to future generations?" Our algorithm of dominion then becomes a theology of giving rather than taking, which is evocative of the life of Jesus.

The primary scripture for evangelism among the Evangelical church of North America is John 3:16, "For God so loved the world...," yet we often fail to see the environment and creation as part of that world. The Greek word translated here for world is *kosmos*, where we get our modern-day word for cosmos, or the entire universe. God loved (loves) everything from hydrogen atoms to hermit crabs, from humans to hypergiant stars. He loves everything and everyone from bacteria to black holes. This is why Jesus gave us the great commission linguistically the way that he did in Mark 16:15 (NASB). "And He said to them, "Go into all the world and preach the gospel to *all creation*." (emphasis mine) The Gospel is the rewards of the good news, and every facet of creation should hear the good news and be recipients of it. There is redemption in Christ. "Many Christians ignore environmental issues because they don't view it as an important faith-related concern — but what if environmentalism was essential to evangelism? In many ways, taking care of our environment is a direct form of evangelism, but many Christians have yet to realize — and even reject — this truth."[4]

Creation should give glory to God, yet how does contaminated tap water for the city of Detroit glorify God? How do people see the glory of God in creation through the smog and light pollution of cities like Los Angeles? Our actions, or lack thereof, for

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[3] As quoted in: David McDonald, *Then. Now. Next.:A Biblical Vision Of The Church, The Kingdom, And The Future* (Jackson, MI: Westwinds Community Church, 2017), 57.

[4] Stephen Mattson, "Why Is It Difficult To Get Christians To Care About The Earth?" *Sojourners*, March 28, 2017, https://sojo.net/articles/why-it-difficult-get-christians-care-about-earth.

ecological matters is hindering our evangelism. Many of our technological advancements carry with them unsustainable practices. Instead of tending and tilling the garden, we are tilling and pillaging from future generations.

While globalization has shifted the matrix of production and consumption, the problem arises from no longer seeking sufficiency (give us our daily bread), to seeking abundance (fill my storehouses), because yesterday's luxuries have become today's necessities.[5] An overabundance of choices has led to an over consumption of goods. Our consumption habits have gone from not just *having* but to *getting more*.[6] Could this be from a rise in the spread of the prosperity gospel? While correlation is not necessarily causation in this specific instance, one connection we can make is between our consumption and our waste.

Our waste generation in 1990 was 208.3 million tons, while in 2015 Americans threw out 262.4 million tons of waste. While recycling has more than doubled in that same time range going from sub fifteen percent to thirty four percent, the reality is we still dispose of 52.5% of our waste in landfills, which are giant holes in the ground that we fill with trash and cover back up.[7] If you openly forced your child to eat garbage and injected poison into them, your child would be removed from your custody, and you would be in jail. Yet for some reason we find it acceptable to do this to the earth. Should God remove the earth from our custody/trusteeship?

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[5] Jack Clayton Swearengen, *Beyond Paradise: Technology And The Kingdom Of God* (Eugene, OR: Wipf & Stock Publishers, 2007), 19, 24.

[6] Ibid., 110.

[7] "National Overview: Facts and Figures on Materials, Wastes and Recycling," United States Environmental Protection Agency, accessed October 12, 2019, https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials.

The church can lead the way as creation care centers offering recycling drop points, composting areas, discussing the theology of consumption and waste in regard to creation care, and finally, embracing the digital revolution. In a country where our gizmos and gadgets already come wrapped in excessive amounts of paper and paper board leading to 25.9% of all waste,[8] the church can help by removing things like bulletins and pamphlets as a means to reduce paper usage, costs, and waste, but this is merely the bottom rung of consumption.

Increased population means increased fossil fuel consumption for more vehicles on the road, leading to increased measures of carbon dioxide in the air. Personal automobiles lead to urban sprawl, and sprawl leads to more room for houses. According to the Census Bureau the median single-family home size in 2018 was 2386 square feet.[9] That is an almost fifty percent increase from 1979, which was 1645 square feet.[10] We require more space for more things, because we have shifted from collecting stories to collecting things. "Human demand on the biosphere from agriculture, forestry, and fisheries is not sustainable…We used 70% of the earth's regenerative capacity in 1961, 100% by the mid-1970s, and more than 125% since 1999…The next revolution needs to increase yields without damage to the biosphere."[11]

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[8] Ibid.

[9] "Characteristics of New Housing," United States Census Bureau, accessed October 12, 2019, https://www.census.gov/construction/chars/highlights.html.

[10] "Median and Average Square Feet Of Floor Area In New Single-Family Houses Completed By Location," United States Census Bureau, accessed October 12, 2019, https://www.census.gov/const/C25Ann/sftotalmedavgsqft.pdf.

[11] Swearengen, *Beyond Paradise,* 57.

As we explored in the previous chapter, a technological sabbath is vital to our theology of technology, and the minimalist movement has been an incredible shift in the mindset of consumers towards a sabbath mentality in order to reduce the demand on the biosphere. The minimalist movement, or the reduction of goods consumed, space lived in, and waste generated, was an attempt to reclaim our humanity. Instead of being led into technological consumerism, it was the pushback against the system to live a simpler life and reconnect with nature. Doctors in Scotland understand a return to nature will do us some good, and can now prescribe time in nature as a means to help reduce stress, anxiety, depression, aggression, blood pressure, and help increase happiness, improve pain control and the immune system.[12] God created us as creatures to be in creation. The whole health benefits (mental, physical, emotional, and spiritual) that come from being in nature are undeniable, but what happens when there is no more nature? What do we do when going outside becomes more of a danger to our health than staying inside behind the blue screens and swimming in the stress of life? Our current habitus of overconsumption and waste are leading us toward such a place.

Our sin algorithm corrupts our theological coding towards creation. Our over consumption has led to what some are calling the sixth great extinction. The earth has undergone five major extinctions throughout history in which massive numbers of species go extinct at one time. Nobel Prize winner, Paul Crutzen has called humanity's impact on the current epoch of history the "Anthropocene," because *people* have altered the composition of the biosphere through fossil fuel combustion and deforestation, which

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[12] Evan Fleischer, "Doctors in Scotland Can Now Prescribe Nature," *World Economic Forum*, October 15, 2018, https://www.weforum.org/agenda/2018/10/doctors-in-scotland-can-now-prescribe-nature.

have increased carbon dioxide concentrations in the atmosphere by forty percent, and more than doubled methane concentrations during the last two hundred years.[13] The World Wildlife Foundation has calculated that "the population abundance of mammals, birds, reptiles, amphibians and fish has decreased by more than half in less than 50 years."[14] Species extinction was put on the world stage in 2018 when news spread about the death of Sudan, the world's last remaining male northern white rhino.

The industrial revolution brought about incredible increases of carbon dioxide to the atmosphere. Since then we have added some 365 billion metric tons through the burning of fossil fuels, while deforestation has added another 180 billion tons, leading us to have the highest concentration of carbon dioxide in the air in the last eight hundred thousand years. This is important to note because carbon dioxide forms an acid when it combines with water. As seventy percent of our earth is covered in water, the oceans work to help absorb some of the carbon dioxide in the atmosphere, but this massive and continual increase of atmospheric carbon dioxide is leading to ocean acidification.[15] The image below can help us visualize the dramatic rise in these levels, most notably the rises in carbon dioxide, methane, and ocean acidification.

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[13] Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (New York, NY: Picador, 2014), 108.

[14] Emma Charlton, "We've Lost 60% Of Wildlife In Less Than 50 Years," World Economic Forum, October 30, 2018, https://www.weforum.org/agenda/2018/10/weve-lost-60-of-wildlife-in-less-than-50-years.

[15] Kolbert, *The Sixth Extinction*, 112-113.

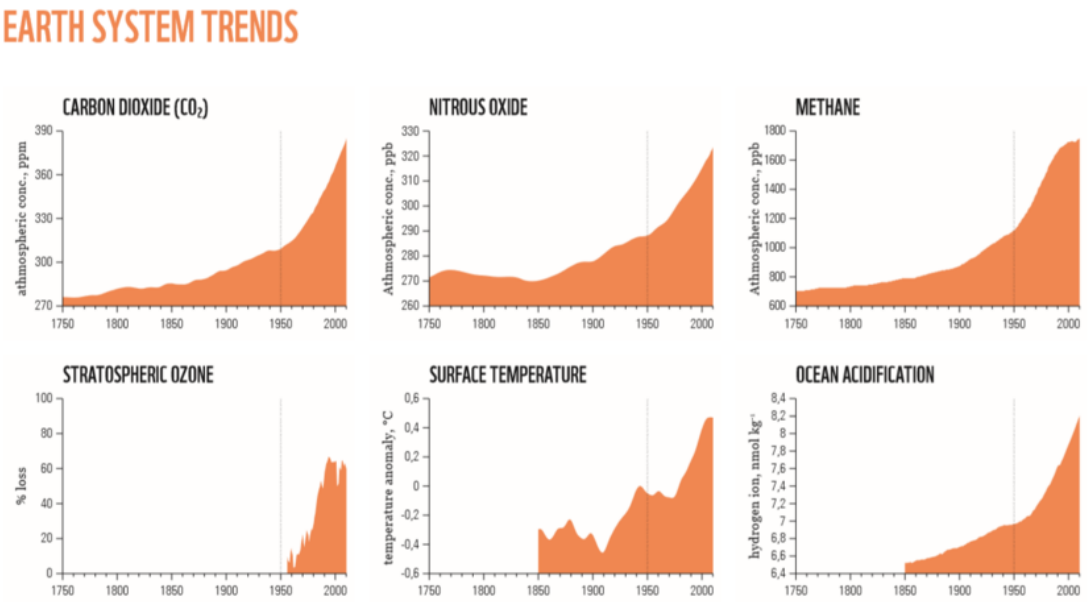

Figure 1 — Earth System Trends[16]

These rising acidification levels cause damage to our coral reefs, which house incredible biodiversity in our oceans, as well as many other calcifying (those with shells) ocean animals. As different species are unable to adapt to the changing pH levels of the oceans, it causes far reaching impacts on the oceanic food chain. This killing of biodiversity is a breaking of the Noahic covenant in Genesis 9, in which God establishes a covenant with Noah's family "and every living creature." By covenanting with both humans and "all of creation," God is showing His value of the biodiversity within creation itself.[17]

If the warming and acidification are not enough evidence for a rewrite of our theological algorithm of technology and creation care, maybe this will help convince us.

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[16] World Wildlife Foundation, "Earth System Trends," 2018, graph, World Economic Firm, https://www.weforum.org/agenda/2018/10/weve-lost-60-of-wildlife-in-less-than-50-years.

[17] Swearengen, *Beyond Paradise*, 285.

Our plastic waste has infiltrated every imaginable corner of the planet. From microplastics in the air above France's Pyrenees Mountains[18] to plastic and trash found at the bottom of the Mariana trench,[19] and from plastic trash found in the most remotest parts of Antarctica[20] to microplastics in the Rocky Mountain rainwater.[21] As these microplastics break down, animals ingest them through their food and water intake, and they eventually make their way to our table. Soon *we* will be living on a diet of our own plastic and trash if we do not change our consumption and waste habits.

As we enter the fourth industrial revolution, these ecological impacts are vital to consider. As artificial intelligence and the race to the first AGI continues we have to consider the impacts of these systems. New research reveals the stark reality of the ecology of artificial intelligence.

> Researchers at the University of Massachusetts, Amherst, performed a life cycle assessment for training several common large AI models. They found that the process can emit more than 626,000 pounds of carbon dioxide equivalent—nearly five times the lifetime emissions of the average American car (and that includes manufacture of the car itself).[22]

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[18] Christopher Joyce, "Microplastic Found Even in The Air In France's Pyrenees Mountains," NPR, April 15, 2019, https://www.npr.org/2019/04/15/713561484/microplastic-found-even-in-the-air-in-frances-pyrenees-mountains.

[19] Daniel Fastenberg, "This Submarine Diver Found Trash at The Bottom In The Mariana Trench," World Economic Forum, May 14, 2019, https://www.weforum.org/agenda/2019/05/trash-found-littering-ocean-floor-in-deepest-ever-sub-dive.

[20] Alister Doyle, "Plastic Waste Has Reached The Most Remote Parts Of Antarctica," World Economic Forum, June 8, 2018, https://www.weforum.org/agenda/2018/06/plastic-waste-in-antarctica-reveals-scale-of-global-pollution-greenpeace.

[21] Rosamond Hutt, "Microplastics Have Been Found In Rocky Mountain Rainwater," World Economic Forum, September 2, 2019, https://www.weforum.org/agenda/2019/09/plastic-pollution-environment.

[22] Karen Hao, "Training A Single AI Model Can Emit as Much Carbon As Five Cars In Their Lifetimes," *MIT Technology Review*, June 6, 2019, https://www.technologyreview.com/s/613630/training-a-single-ai-model-can-emit-as-much-carbon-as-five-cars-in-their-lifetimes.

In our attempt to create computerized intelligence, we are making some unintelligent impacts along the way. It is not enough to simply look at the impacts of these systems while they are up and running. A true assessment needs to look at the entire life cycle of our digital devices large and small. At the forefront, we must consider the impacts of mining the earth for the metals and rare earth minerals necessary to create and develop these devices. A personal computer can contain over seven hundred different materials, and some of those are mined in African countries. They carry with them the risk of pollution to water sources due to lower environmental standards, health dangers such as radioactive exposure, silicosis, and cancers from contact with these raw materials and the dusts created when mining, as well as conflict from rebel forces and cartels who use the money from these resources to finance their operations.[23]

A major area of concern that should draw the attention of our Christian community is the ill treatment of workers. If we are to "love our neighbor as our self," or better yet, as Jesus commanded, "that you love one another, just as I have loved you;"[24] how can we stand by when children as young as seven can be found in cobalt mines in the Democratic Republic of Congo.[25] While this has been addressed from the international community, little has been done to revamp the supply chain in order to protect those working in these mines. With Cobalt demand expected to rise following the

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[23] Swearengen, *Beyond Paradise*, 125-126. See also: Kate Rockwood, "How A Handful of Countries Control the Earth's Most Precious Materials," Fast Company, November 1, 2010, https://www.fastcompany.com/1694164/how-handful-countries-control-earths-most-precious-materials.

[24] John 15:12 NASB.

[25] Annie Kelly, "Children as Young as Seven Mining Cobalt Used In Smartphones, Says Amnesty," *The Guardian*, January 18, 2016, https://www.theguardian.com/global-development/2016/jan/19/children-as-young-as-seven-mining-cobalt-for-use-in-smartphones-says-amnesty.

demand for more efficient lithium-ion batteries, how can the members of the church in North America begin to impact change in these Congolese supply chains?[26] When our corruption of nature also harms our fellow humans, we have to seriously rethink our techno-theology.

We cannot overlook the incredible amount of energy, from both human and machine, used first to move the massive amounts of earth necessary to retrieve these minerals, but then to ship them to refineries and smelting plants, before getting shipped to their production stations, then to their warehouses, and finally to their point of sale. This machine energy typically comes from fossil fuel resources that contribute more carbon dioxide to the atmosphere, as well as any toxic air pollution from smelting plants. But what happens after a technological device has lived out its lifespan? In 2015, consumers in the United States alone generated an estimated 3.1 million tons of e-waste consisting of computers and other electronic devices. Almost two million tons were discarded into our landfills. While 1.2 million tons were "recycled,"[27]

> …an undetermined amount were shipped from the United States and other developed countries to developing countries that lack the capacity to reject imports or to handle these materials appropriately. Without proper standards and enforcement, improper practices may result in public health and environmental concerns, even in countries where processing facilities exist.[28]

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[26] Elise Mann. "Digital Technology Is Dependent On Forced Labor: The Exploitative Labor Practices Of Cobalt Extraction In The Democratic Rebuplic Of Congo." *High Plains Applied Anthropologist,* vol 37, no. 1 (2017): 25-30.

[27] "National Overview: Facts and Figures On Materials, Wastes And Recycling," United States Environmental Protection Agency, accessed October 12, 2019, https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials.

[28] "Cleaning Up Electronic Waste (E-Waste)," United States Environmental Protection Agency, accessed October 12, 2019, https://www.epa.gov/international-cooperation/cleaning-electronic-waste-e-waste.

Has our technological addiction made us lose both love for creation as well as love for our neighbor, that we send our trash away to be burned or disposed of in ways that are less safely regulated? We can do better. We must do better; and the church in America has the opportunity to help lead that change, if only we will unite in our theology of creation care as trustees of God's estate. Where do we go when all the holes have been filled with our trash? What kind of world are we making for future generations? Carl Sagan was an American scientist, cosmologist, astrobiologist, astronomer, and astrophysicist who rejected the idea of a supreme being (God), yet as Swearengen points out, he believed that "only religious convictions have a compelling force strong enough to allow us to solve the environmental crisis."[29]

As semioticians and futurists within the church, we see the signs of the times, and we know how to read them. Currently the signs look bleak, but they give us the capacity to change the future and create a better way, because "the human person should orient his or her actions in relation to the natural order in such a way that they correspond with God's creative and even redemptive activity."[30] Our theology of technology should shadow the redemptive work of God in all of creation.

A Better Way

Kurt Richardson's work reminds us that Paul's words to the Colossians, "Set your mind on things above," is an invitation to interact with creation with redemptive

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[29] Swearengen, *Beyond Paradise*, 237.

[30] Kurt A. Richardson, "The Naturalness of Creation and Redemptive Interests in Theology, Science, and Technology," *Zygon* 30, no 2 (June 1995): 282, ATLA Religion Database with ATLASerials, EBSCOhost.

attentions, not as means to say our activity brings the redemption, rather as a metaphor of the redemption to come.[31] As we discussed above, our theology is a theology of participation, and that participation begins by the choice to do no harm, because "humans are to treat the creation with the same love that God has for us."[32]

Every doctor begins their career with a vow called the hypocritic oath. Most notably within that vow is a statement originating from Hippocrates, *prinum non nocere*, or "first do no harm." This idea came because of the actions of previous doctors who were causing damage from their "treatments" in excess of the benefits. This is also known as *iatrogenics*, meaning "caused by the healer."[33] Our advancements have been doing harm caused by the trustee, an ecological *iatrogenics* of sorts. What if we had an ecological hypocritic oath that determined our techno-theological algorithm?

Unfortunately, our current American culture tends to look down on environmental activists, or those who are ecologically minded. They are often referred to as "hippies," "tree huggers," "granola gangstas," or even "captain planet," referencing the 1990s television cartoon that promoted creation care. The church needs to change the metaphor in order to change the world.

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[31] Richardson, "The Naturalness of Creation and Redemptive Interests in Theology, Science, and Technology," 283.

[32] Justo L. González, *Creation: The Apple Of God's Eye* (Nashville, TN: Abingdon Press, 2015), 39.

[33] Nassim Nicholas Taleb, *Antifragile: Things That Gain From Disorder* (New York, NY: Random House Trade Paperbacks, 2012), 111-112.

Although it is not contained in the constitution of the Iroquois nation, and some scholars question whether it is just a modern myth wrapped up in Native American lore,[34] the Iroquois are often credited with a concept called seven generations sustainability. The law guides that every decision should be considered based on its impacts to their children seven generations in the future. Regardless of its legitimacy in the Iroquois history, it provides us with a concept of trusteeship and long-term sustainability when it comes to writing our techno-theological algorithm in regard to our regency over creation. How can we first do no harm to creation, while also doing no harm to our future generations? This begins first with personal choices.

We must live in the balance of paradox. Regency over nature is both personal and collective. We must take personal responsibility for our own choices and decisions through our everyday purchases, promotions, and pickings. We can look at our personal choices from the particular to the universal. Consider simply how we consume energy through our homes and transportation: will we walk or ride a bike more often in order to reduce carbon emissions, or will we continue to purchase oversized SUVs that consume gas unrelentingly? How can we reduce the energy usage in our homes through low energy lights (LEDs), better insulation, and adjusted thermostats? Our desire for comfort has overridden our role as regents. It is easy to flip a light switch or adjust a thermostat without giving a second thought to where and how the energy to produce these things comes from or is made. This should lead us to push for continued improvement in sustainable energy production for the whole.

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[34] Peter Wood, "Seventh Generation Sustainability - A New Myth?" National Association Of Scholars, December 28, 2009, https://www.nas.org/blogs/dicta/seventh_generation_sustainability_-_a_new_myth.

With every technological purchase we are subconsciously affirming the processes by which all of the elements are gathered and/or disposed in order to make said item. And we must be careful not to adhere to vague moral arguments for sustainability as a means of social acceptance. While it *is* important to have collective concrete movements by which change is brought about on a larger social scale through information, legislation, and rehabilitation of the wild, this first begins with the integration of personal choices in one's own life before moving to grander scales. The way to the universal is through the particular. It would be difficult and dangerous to tell the world how to "organize its house," when one's own home is a mess. The more individuals that make environmentally beneficial decisions the better. This is how grassroots movements begin.

This also calls the production industry to begin utilizing a practice called *dematerialization*, which carries the objective to use less material overall, find substitutes of abundant resources to replace the use of scare resources, and finally to make materials that last longer.[35] As capitalism rages forward in America, the drive to create quality products that *last* has given way to the desire to sell *more* items, all in the name of a profit. As trustees, we should support technological brands and companies that utilize the greenest concepts throughout the entire life cycle of their products, from resource allocation to sustainable production, and even how the company promotes and handles end of life disposal of their products. Technological items continually end up in landfills, due to being outdated by Moore's law, and we must make personal choices to recycle these devices rather than dispose of them as poison pills in the mouth of the earth.

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[35] Swearengen, *Beyond Paradise*, 202.

Radical Life Extension and Sustainability

In the last chapter we explored the concept of genetic editing at the forefront of life, but this technology has also led to further studies that focus on the opposite end of the life spectrum. Scientists like Aubrey DeGray lead the way on studies for radical life extension, or RLE. This is the belief that the constraints of 120 years on humanity's lifespan can and will be broken through scientific means. Aging is the life-long accumulation of "damage" to the body that causes changes in structure and composition. The body can tolerate only so much damage, then it eventually leads to disease and disability. There will not be a "magic" jump from the ability to live one hundred years to two hundred years. Rather scientists like Gray promote a longevity escape velocity (LEV). Small extensions in life expectancy will be made at a time, but as you live longer, technology will continue to advance creating longer and longer extensions until your overall years add up.[36]

The Christian Transhumanist movement considers radical life extension a fulfillment of the prophecy in Isaiah 65:20, "No longer will there be in it an infant who lives but a few days, Or an old man who does not live out his days; For the youth will die at the age of one hundred And the one who does not reach the age of one hundred will be thought accursed." (NASB) This prophecy will obviously take place before the final resurrection because Isaiah still shows death will be happening, even though it will be prolonged. Fundamental theological perspectives would say this will happen after the "rapture" and during the thousand-year reign of Christ on earth, but Micah Redding, CEO

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[36] Aubrey De Grey, "How We Can Finally Win The Fight Against Aging," Ted Talk, January 11, 2017, 7:20, https://youtu.be/AvWtSUdOWVI.

of the Christian Transhumanist Association, believes it shows our theological imperative to seek out life extension through technological means.[37]

If you could live to 200 years, would you? 500 years? When is long enough, enough? We can live life in order to experience more things, but at some point, death would actually become a gift, a blessing.

This idea of radically extended living carries with it some unforeseen costs that are rarely discussed. As Moore's law continues and lives get longer, we must ask ourselves, "What are the ecological implications of radical life extension?" If our current habitus of overconsumption and waste continues through longer lifespans, where will our planet be when we have syphoned every mineral from the landscape, and filled all the holes with our waste? Not only will our housing habits have to change, but we will have to ask ourselves, "Can our food chain keep up with the demand of our longer lives?"

As the global population continues to grow and live longer, agriculturalists will have to produce continually higher quantities of food, while also reducing the amount of food waste each year, which landed just shy of forty million tons (39.7) in 2015.[38] We will have to find more sustainable types of farming that reduce water usage, chemical pesticides, and deforestation. Specialized artificial intelligence has the potential benefit of precision farming.

Small Robot Company offers three different robots that monitor crop and soil, seeding, feeding, and weeding. This more precise farming will lead to healthier and more

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[37] BBC Sounds, "The Why Factor: Immortality," BBC, May 21, 2018, Interview, 15:11, https://www.bbc.co.uk/sounds/play/w3cswrjy.

[38] "Food: Material-Specific Data," United States Environmental Protection Agency, accessed October 12, 2019, https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/food-material-specific-data.

productive crops.[39] Precision farming can also include analyzing the genetics of plants over time in order to better coordinate them to their environment. This will allow the production of seed variants that produce higher quantities of food in their specific soil conditions, although the upfront costs of equipment and scaling are a hinderance to this type of advanced precision farming.[40]

Aquaponics[41] provides another useful method of reducing water and pesticide use because it can be utilized indoors, and it can reduce deforestation impacts by growing vertically rather than horizontally. The systems typically require minimal monitoring, and artificial intelligence systems provide the opportunity to optimize growth and harvest cycles. These systems can also be placed in urban centers reducing the carbon footprint created by shipping items from distant locations. Aquaponics systems housed on church properties can allow local churches to become sources of food and sustainability for their communities, but they can also become sources of biodiversity in more ways than one.

Trees are important throughout the Biblical narrative, from the trees in the garden of Genesis to the tree of life at the center of the garden city in Revelation. Trees and forests provide air, food, and a wealth of biodiversity, but traditional agriculture techniques are one of the primary causes of deforestation. As trustees of God's creation, the church needs to initiate a *reforestation* movement. Reforestation has the potential to

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[39] Bethan Grylls, "The Future of Farming Is Small Robots," *New Electronics*, July 10, 2018, http://www.newelectronics.co.uk/electronics-technology/the-future-of-farming-is-small-robots/175969.

[40] "Top 10 Emerging Technologies 2017," World Economic Forum, June 26, 2017, accessed February 8, 2018, https://www.weforum.org/agenda/2017/06/these-are-the-top-10-emerging-technologies-of-2017.

[41] Aquaponics is a system of aquaculture in which the waste produced by farmed fish or other aquatic animals supplies nutrients for plants grown hydroponically, which in turn purify the water.

be a vital tool in the fight against climate change. Although it should not take our focus off of reducing waste, carbon dioxide emissions, and over consumption.[42] One simple action would be to bury our powerlines and reduce the number of trees used for powerline poles that disrupt the beauty of the landscape. While China is a communist country with increasing aggression and persecution of religion, they are an example of fulfilling the prophecy in Isaiah 2:4, "they will hammer their swords into plowshares." China has re-missioned sixty thousand soldiers with new orders to plant trees and create new forests, with the goal of increasing its forest coverage to thirty five percent by the end of 2020 in order to help reduce pollution.[43] Planting trees has added benefits to reducing carbon dioxide.

Our forests are necessary for biodiversity as well. The church in North America can join the Chinese in their *re-missioning* by also learning from the Orthodox churches in Ethiopia. These churches are a prime example of the resistance to deforestation and the nurturing of biodiversity. Ethiopia has suffered massive deforestation in the name of agriculture, primarily between 1974-91 under the country's communist leadership. But a remnant remains. Of the original forty five percent of forests that once covered the land, a mere five percent remains, mostly scattered across the landscape among some 35,000 oases ranging from three acres to three hundred hectares. In the middle of many of these oases sits a church building. The church there, "views the natural forest as a symbol of heaven on Earth, where every creature is a gift from God and needs its habitat." Thanks

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[42] James Temple, "Planting More Trees Could Suck Up A Huge Share of Carbon Emissions," *MIT Technology Review*, July 5, 2019, https://www.technologyreview.com/f/613928/planting-more-trees-could-remove-two-thirds-of-carbon-emissions.

[43] Laura Oliver, "China Has Sent 60,000 Soldiers To Plant Trees," World Economic Forum, February 16, 2018, https://www.weforum.org/agenda/2018/02/china-army-soldiers-plant-trees.

to the efforts of Alemayehu Wassie, a forest ecologist, these churches are protecting their forests from destruction, while also fostering the biodiversity needed for the agriculture. The birds and insects that reside in these forests help pollinate the crops and manage pests.[44]

These Ethiopian forests are a perfect metaphor for how the church in America can and should operate. We should seek to become grounds of biodiversity both among the people, as well as through plant and animal life on our properties. What happens on the grounds around the church, should benefit the "fields" around us. Instead of leveling the land and filling it with asphalt that absorbs heat, what if we promoted churches surrounded by forests? As a growing population seeks to live longer, protecting this biodiversity will become essential to the churches work. Jesus said, ""Do you not say, 'There are yet four months, and then comes the harvest. Behold, I say to you, lift up your eyes and look on the fields, that they are white for harvest." The fields get ready for harvest through the work of pollinators and pest managers. This is the conserving and conceiving discussed in the previous chapter. We conserve the landscape, biodiversity, and beauty of creation through cultivated forests on our properties, while hosting buildings that act as tech-community centers to conceive new ideas for the future in order to "pollinate" the fields around us.

In order to be truly beneficial to the surrounding landscape and community, these facilities will need to be efficient. The use of solar power can provide sustainable energy, although it will be necessary to find batteries for the battery banks purchased from ethical

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[44] Allison Abbott, "Biodiversity Thrives In Ethiopia's Church Forests," *Nature*, January 29, 2019, https://www.nature.com/immersive/d41586-019-00275-x/index.html.

sources that do not promote child labor. Depending on the abilities and capacities of each of these facilities, varying amounts of heat will be generated as well which will make cooling a necessity. The forests surrounding the buildings can provide an influx of cooler air, and as artificial intelligence becomes more ubiquitous, it can provide systems to monitor, learn, and customize cooling tailored to the specific environments. DeepMind utilized a similar program to cut its cooling costs by forty percent and increase their overall efficiency by fifteen percent.[45] These are pictures of a sustainable church of the future that cares for the earth that has been entrusted to its members, but what happens when the church has to expand into uncharted territory: space?

Christ And the Cosmos

In 2008 Disney released an almost prophetic cartoon depicting our future if we do not change our habits. *Wall-E* was the story of the last robot on earth after humans had to leave because the accumulation of trash and waste had destroyed the ecosystem and made earth uninhabitable. Wall-E carefully worked to try and clean up the trash that was piled up like skyscrapers in order to re-foster life on earth. For seven hundred years humans floated in space trying to find a new planet to inhabit, to no avail.

It is obvious from our investigation above that our current impacts on the Earth are having some devastating outcomes. Our decisions play a critical factor in the operative functions of the earth's ecological systems either to the preservation, extension,

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[45] Olaf Groth and Mark Nitzberg, *Solomon's Code: Humanity In A World Of Thinking Machines* (New York, NY: Pegasus Books Ltd., 2018), 25-26.

or diminishing of God's creation.[46] This begs the question in light of the aforementioned insight, "Are we seeking advanced technologies at the expense of other species both plant and animal?" The ecological impacts we have explored are a result of the habits of countless people whose techno-theological matrix has been corrupted by sin. As our search continues throughout the cosmos for inhabitable exoplanets capable of sustaining life, how will our current habits impact those planets? Our current habits will only be repeated on other planets unless we change them now.

Swiss physicist and recent Nobel Prize winner Michel Mayor, whose work focuses on identifying exoplanets, believes humans will never voyage to another exoplanet outside of our solar system due to the sheer distance. His sentiments were to kill all statements that promote the notion of going to another planet if this one becomes inhabitable, because this one is still livable.[47] This notion of leaving to another planet returns us to our escapism theology we explored earlier. We cannot escape when the problem gets too bad. We cannot throw out the old model, in hopes of attaining a newer and better one like we do with our current technological devices. We need an ecofriendly techno-theology that helps us both conserve and conceive the garden. Otherwise we may end up like the humans in *Wall-E*, sitting around in a spaceship for seven hundred years going nowhere. Our decisions today have tremendous impact on future generations. A teleological outlook should drive us to think of how we want the world to look seven

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[46] Brian Edgar, "Biotheology: Theology, Ethics And The New Biotechnologies," *Evangelical Review Of Theology* 30, no. 3 (July 2006): 230, ATLA Religion Database with ATLASerials, EBSCOhost.

[47] "Humans Will Not 'Migrate' To Other Planets, Nobel Winner Says," *Phys Org*, October 9, 2019, https://phys.org/news/2019-10-humans-migrate-planets-nobel-winner.html.

generations in the future and work our way back to today. We get to that outcome by making better decisions today.

Beyond the possibility of *our* life being on other planets, how will the discovery of *other* life on another planet impact our theology? Our current theology has made life on earth the central focus of the creation story and the redemptive process, but as more sophisticated and highly sensitive radios, satellites, and artificially intelligent programs scan the depths of the cosmos for any sign of life, we have to wonder: are we really alone in the vastness of the universe? The truth is we do not know.

While the Bible does show us the importance of humanity, and the incarnation reveals God's action toward *us*, the Bible makes claims far beyond homo sapiens and this blue ball floating through space.[48] God is the creator of the entire cosmos, and a proper interpretation of John 3:16 reveals to us His love for that cosmos, not just humanity. Ted Peters raises a challenging question in his article *Astrobiology And AstroChristology*: "Should Christians expect many incarnations, one for each inhabited exoplanet; or will the single incarnation in terrestrial history suffice?"[49] While we are not aware of intelligent life on other planets, or even of the possibility of it,[50] most pastors and Christians leaders have probably never considered this question in general. Our scientific and technological advancements in relation to space exploration fuel a wondering world

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[48] Deborah Haarsma, "What Would Life Beyond Earth Mean for Christians?" *BioLogos*, July 31, 2019, https://biologos.org/articles/what-would-life-beyond-earth-mean-for-christians.

[49] Ted Peters, "Astrobiology And Astrochristology," *Zygon: Journal Of Religion & Science* 51, no. 2 (June 2016): 480, http://dx.doi.org/10.1111/zygo.12249.

[50] The Fermi paradox, named after Enrico Fermi, challenges our understanding of the possibility of life. It is the seeming contradiction of the lack of evidence of alien life elsewhere in the universe and the probability that they should exist.

seeking to find meaning in the immensity of the universe. It is better to prepare our theology now for the larger questions approaching on the horizon, than to stumble on them when they break through our current paradigms of cosmological understanding.

Another look at Mark 16:15, "Go into all the *world* and preach the gospel to all creation," reveals that the word "world" is derived from the same *kosmos* in John 3:16. This reveals our commission to go into all the *universe* and share the Gospel. I agree with Ted Peters' conclusions that a single incarnation to fix a broken creation event would then suffice for the entirety of the universe. Embedded in the Christian tradition is the redemption of all creation in the material world, and this would be efficacious regardless of its position in the space time continuum.[51]

Our current theology of evangelism is too small. Current evangelism tends to commission us to preach to *people* and win converts, while Jesus's intentions were for us to preach his redemptive work to the entirety of the material universe. Will we try to simply "win extraterrestrial converts" or will we share with them the story or redemption that has already happened on their behalf, and allow them to join in? Then we have to wrestle with the idea of baptism. Peters challenges us with the question, "Should a Christian baptize an alien?"[52] I would add, what if water is deadly to the aliens like in the 2002 M. Night Shyamalan movie, *Signs*? I think only if the alien understands the meaning of baptism, and obviously if it does not harm them should we even consider baptism, but we should prepare our theology for these events as our technology increases our possibility of finding new intelligent life outside of the confines of earth.

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[51] Peters, "Astrobiology And Astrochristology," 493.

[52] Ibid., 488.

In Summary

If our techno-theology is to be truly robust, it must include an ecological component because the lifecycle of our devices, small and large, simple and complex, impact the creation we are all a part of. Everything from how we gather resources to develop these technologies to their end of life disposal should be considered in our attempt to both conserve and conceive. It is not enough to let our techno-theology only consider its impact on homo sapiens within creation.

If we truly believe in the redemptive power of Christ for *all* of creation, and our participation in that on-going process, then our theology of technology must also consider how what we do, and what we create impacts everything from the soil to outer space. As more efficient forms of space travel continue to emerge, and as more and more sophisticated communications systems become available, will we treat other exoplanets the way we have treated earth since the time of the industrial revolution pumping them full of pollutants? Can we foster biodiversity in the forest of the universe, or will we "deforest" every exoplanet for our personal gain?

Most origin stories, whether evolutionary or otherwise, tend to begin on the African continent. Our technological devices require us to return to our origins for the minerals that help power our devices, in order to find our way into the future. Can we find our way into a future that promotes a thriving diversity of life without costing others their own life? As our technologies probe and unravel the depths of the cosmos, we must be prepared at the possibility that our theology will have to adapt to new understandings of life, and the decentralization of the human race as God's only people in the universe. While the Biblical story tells us something about the importance of God's redemptive

work happening here, its cosmological application is beyond measure. Our techno-theology should foster thriving biodiversity on this planet, the next, and the entire "forest" of the known universe, because Christ's redemptive work is expansive enough for the immensity of the complete time space continuum.

CHAPTER 6:

THE SUBROUTINE OF RELATIONSHIP

The final subroutine in our techno-theological algorithm focuses on humanity's ability to be in relationship, both with their fellow humans and with God. We have seen that as our technology advances, we will need to use reasoning and wisdom in order to properly traverse some of the coming difficulties. As trustees of the earth we will also need to make wise decisions with our technological advancements that both conserve and conceive the natural cosmos, but we must also consider how one's technological usage impacts both relationships and community, because one's reasoning and influence on creation also affects their neighbor.

While his greatest commandment was to love others the way he loved us,[1] Jesus simplified the complexity of the Mosaic law down into two simpler commandments: 'You shall love the Lord your God with all your heart, and with all your soul, and with all your mind.'…"The second is like it, 'you shall love your neighbor as yourself.'[2] This is important to consider because our neighbors near and far are made in the image of God as well. Leonard Sweet points out that the orthodox understanding of *imago Dei* is less about the *individual* being made in the image of God, and *all* of humankind being made in the image of God.[3] This shifts our technological choices from self-centric to communal-centric, because we find God's image in community. Community is based

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[1] John 15:12 NASB.

[2] Matt. 22:36 NASB.

[3] Leonard Sweet, *So Beautiful: Divine Design For Life And The Church* (Colorado Springs, CO: David C. Cook, 2009), 222.

upon relationships, and the *image* is in the relationship itself, not one's capacity for relationship.[4] The triune God-head models this perfectly and lives within the context of community in a continual state of *kenosis*, or self-emptying.[5] This self-emptying and self-sacrifice provides the model for living in community as the *imago* Dei by asking, "How can we consider our neighbor more highly than ourselves,[6] and more so, how can we make flesh and blood relationships central to our daily interactions?"

When looking specifically at how technology influences the *imago Dei* in the context of community and relationships, the Amish provide a set of questions to help determine their use of technology. They are most often associated with the ideas of "anti-technology," or "stuck in the past," and these common themes show us the power of metaphors to influence our thinking, even about entire people groups. For the Amish, religion and specifically community form the matrix by which they filter new technologies through. The framework that protects their understanding of relationships with both God and community is as follows:

1. Does the technology provide tangible benefits to the community, or individuals within that community?

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[4] Noreen Herzfeld, "Empathetic Computers: The Problem Of Confusing Persons And Things," *Dialog* 54, no. 1 (2015): 35, ATLA Religion Database with ATLASerials, EBSCOhost.

[5] The theological terms of *kenosis* and *perichoresis* provide Christ followers with the necessary image of self-emptying and self-sacrifice. *Kenosis* is derived from passages such as Philippians 2:7, where Christ has emptied himself of all divine power, showing the importance of giving up of one's self for others. *Perichoresis* is a term used for the intersecting of the three persons of the trinity, and the mutual reciprocity of glory found among them, as can be found in examples such as John 16:14 and 17:1. *Perichoresis* provides the imagery of thinking of others more highly than one's self. In a world driven by promotion of the self, these models of selflessness provide a counter-cultural matrix for technological interaction.

[6] Phil. 2:3 NASB..

2. Does the technology change the relationship of the individual to the community?
3. Does the technology change the nature of the community itself?[7]

Their goal when encountering any new technology is to protect the importance and quality of the communal relationships in light of their walk with God. They are not "anti-technology" as much as they are "pro-community." Their framework is an often-overlooked aspect among evangelicals of the United States. Returning then to reason, one can begin to ask questions about how technologies are influencing both relationships and the world around us in light of humanity's position as being made in the image of God. I would propose that in this case, community entails both one's relationship with other people, as well as with creation, because without the rest of creation our relationships are meaningless. Meaning, if we lived in a barren landscape with no plants, animals, insects, or other life forms, our relationships would have no extrinsic importance, since being trustees of creation is one aspect of our being the *imago Dei*. Our relationships then become self-centric which is contrary to a selfless God. There is no doubt that our technological advancements have provided tangible benefits to both individuals and communities, and we can also see the impacts of the individual's relationship to the community. There is also possibility for greater disruption to an individual's relationship to community, as we will explore below.

Technology has altered the image of community itself, and will continue to do so in the future. Take for instance the homes we discussed in the previous chapter. As our

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[7] Noreen Herzfeld, *Technology And Religion: Remaining Human In A Co-created World* (West Conshohocken, PA: Templeton Press, 2009), 17-18.

homes have gotten bigger, our gatherings have gone from front lawn barbecues to fenced-in back yard private engagements. I am a culprit in this next example, but Amazon's online shopping system has interrupted our community engagement while being in a physical store. A person can almost never leave home and still do all the shopping they desire. Amazon (and other online shopping venues) removes the opportunity to see a friend, family member, or co-worker at the store.

Livestreaming church services allow people to "attend" a church gathering without the impact of handshakes, hugs, and hallelujahs. While both of these options are beneficial for homebound individuals, the sick, or those traveling, it changes the dynamics of community. Online shopping, online church, and online learning are all disruptions to our current understanding of community, but the more crucial question is, what happens when people would rather spend their time in a virtual world instead of the physical world?

Who Is Your Neighbor in A Virtual World?

Virtual reality has been on the technological horizon for some time, and it has had its fair share of ups and downs in the limelight. It has not quite lived up to its reputation of what it could be, but the possibilities that it invites users into disrupt our understanding of community, relationships, and our theological call to "love your neighbor," even more so than current social media apps have done in the last decade.

Virtual reality, or VR going forward, is a sensory immersive technological experience. Users typically utilize a headset covering the eyes that removes any peripheral visual stimulus from the natural world, in order to be fully immersed in the virtual environment. Headphones allow the user to only hear sounds in the virtual setting,

and further submerge the user in the environment. Future equipment adoption could include haptic feedback suits that users wear in order to feel every sensation in their body from the virtual world. This equipment paired with computer-generated environments disrupts our brain's ability to process the natural world around us, and fully immerses a user in the virtual environment.

Returning to the movie *Ready Player One* we discussed earlier, users continually sought the latest iteration of gear in order to engage in the *Oasis* in more sensory immersive ways, often incurring great debts. We already see the impacts of technological debt as new smart phones and devices are released each year, and people finance the cost through monthly payments. What sort of financial bondage will people put themselves in in order to escape the reality of the human experience and enter the virtual environment?

In *Ready Player One* people spent more time in the virtual world instead of the physical, because the *Oasis* offered a vibrant realm pulsating with limitless possibilities, as an escape from the physical world that was wasting away around them. Escape has been a coping mechanism for humanity for ages. People use everything from books, plays, movies, video games to drugs and alcohol, and now countless numbers of individuals mindlessly scroll social media feeds without any attention to the world around them, but virtual reality will disrupt the human experience in an entirely new way. With every other previous form of media, one was still rooted to the physical world through one's peripheral vision, auditory input, and one could feel the physical world as it ignites one's nerves through touch. Virtual reality seeks to plunge the participant into pixels and baptize him or her in haptic feedback, causing the natural world around the person to disappear into nothingness as he or she enters new worlds.

This will dramatically change our understanding of what it means to call someone neighbor, because we cannot separate a conversation about technological advancement from its impact on humanity.[8] You will sense them in the reality of the head mounted display, but their physical presence will be absent. Your "neighbor" may not even look like someone you are used to, because VR allows you to make yourself into any kind of human or creature you want. If being made in the image of God means a person is able to relate to, understand, and agree with his or her fellow human[9], how does one relate to a mythological creature he or she has never seen before? How do you hug a Hydra, the many-headed creature from Greek mythology? Is it possible to have a dialogue with a Demogorgon, the monstrous humanoid creature from the hit Netflix show *Stranger Things*? Can you be intimate with a digital duplicate of someone?

VR raises some challenging questions both legally and theologically in regard to sexual intimacy. Does someone lose their virginity in real life if they have sex in the virtual world? If a person unknowingly has sex with a child in VR, are they held liable in the real world? VR has the power to take pornographic addiction to an entirely new level. Users will go from not just viewing, but "participating" in the acts. This reality challenges our current understanding of an addiction of the mind, to purposeful acts of virtual fornication or adultery. Can someone divorce their spouse on grounds of adultery for engaging in sexual acts in a virtual environment? Paul teaches the Corinthians about

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[8] Tim Adams, "Jaron Lanier: The Solution Is to Double Down on Being Human," *The Guardian*, November 12, 2017, https://www.theguardian.com/technology/2017/nov/12/jaron-lanier-book-dawn-new-everything-interview-virtual-reality.

[9] Douglas Estes, Braving The Future: Christian Faith In A World Of Limitless Tech (Harrisonburg, VA: Herald Press, 2018), 127.

the detriments of sleeping with prostitutes, but what about with a digital avatar? What about when the digital is transferred to the mechanistic?

Sex robot brothels are already opening around the world, and the first US based one tried (and failed) to open in Houston in 2018,[10] but it is only a matter of time before these "safe alternatives" are popping up in major cities across the US. Can people get divorced over having sex with a robot? Are the ramifications different between engaging in sexual acts with "toys" and those with a robot that looks like a full-grown person? As current traditional understandings of fidelity, relationship, and marriage are already shifting in some denominations in light of the LGBTQ movement, how does the church respond to marital rights for robots? When a congregant approaches a pastor to marry him or her to their robot or to another VR avatar, will they do it? These are not just speculative science-fiction musings; there are individuals that are already marrying their robots around the world.[11] David Hanson, the creator of Sophia, believes this will be a regular occurrence by 2045.[12]

Sex robots and VR sex will not be the antidote to the many immoralities that plague our society, such as prostitution, pedophilia, or sex slavery, because people already have the option for healthy intimate relationships, and yet some still choose

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[10] Dan Solomon, Everything You Should Know About the Proposed Sex Robot Brothel in Houston," *Texas Monthly*, October 3, 2018, https://www.texasmonthly.com/the-culture/everything-need-know-sex-robot-brothel-opening-houston.

[11] Benjamin Hass, "Chinese Man 'Marries' Robot He Built Himself," *The Guardian*, April 4, 2017, https://www.theguardian.com/world/2017/apr/04/chinese-man-marries-robot-built-himself.

[12] Sean Keach, "Creator Of Lifelike Robot Thinks Humans Will Marry Droids By 2045," *New York Post*, May 24, 2018, https://nypost.com/2018/05/24/creator-of-lifelike-robot-thinks-humans-will-marry-droids-by-2045.

negative ones.[13] This is because our problem stems not just from our strained relationships with one another, but from the sin strain in our relationship with God. Our techno-theological algorithm needs help. We cannot just say "no" because we disagree with it. Our techno-theology must be prepared to give reasons and insight to an asking assembly and a watching world.

Although VR raises some difficult questions about the self and what it means to be a neighbor, it also has the power to expand our understanding of a neighbor. In a world that would allow your neighbor to be almost form of creation, the digital domain brings together people from vastly different walks of life, and it can remind us of the interconnectedness of all of humanity if we do not retreat into our cliques of confirmation bias.

The African anthropological framework of *ubuntu* provides a powerful image of the interconnectedness in the bundle of life, and virtual environment can be an excellent training ground for the real world. *Ubuntu* builds on the metaphor of biodiversity from the last chapter, because as we further understand the interdependent layers of the complexity of life, it can allow us to become more generous, compassionate, and hospitable not just to those who are like us, but to those that are different from us.[14]

The digital world of virtual reality expands our understanding of global life, while also making the world a seemingly smaller place by bringing together people from the far

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[13] Christopher Benek, "Sexbots: These Aren't the Droids You're Looking For," *Christian Post*, March 25, 2015, https://www.christianpost.com/news/sexbots-these-arent-the-droids-youre-looking-for-136319.

[14] Kathleen Osbeck Sindorff, "Desmond Tutu: Communicating Forgiveness Through Ubuntu," in *Words And Witnesses: Communication Studies In Christian Thought From Athanasius To Desmond Tutu*, ed. Robert H. Woods Jr. and Naaman K. Wood (Peabody, MA: Hendrickson Publishers, 2018), 280-281.

reaches of the globe like never before. A user becomes changed in the process of participating, because their understanding of life is no longer defined by those in the closest proximity to them (family, friends, teachers, and community members), they can begin to see where they fit into the diversity of a global picture, and how their actions impact their fellow human.[15]

VR has the power to utilize *ubuntu* to reduce or even eliminate bullying and prejudice, because in such a created world, no one will look as closely the same as we do in our human form. When no one looks alike it removes the ability to judge based on looking the same. This of course does not eliminate the proclivity to sin that we explored previously, but by practicing and focusing on *ubuntu* can create digital practices that carry beneficial impacts to the real world.

VR also has the ability to connect those that are sometimes forgotten. People suffering from agoraphobia, as well as those suffering from disabilities or diseases that prevent them from leaving their homes can stay connected in life giving relationships and community through virtual environments. Those that were a part of a local church body, can gather through a virtual lens. While this is not optimal, it is advantageous because loneliness can be lethal. Some are already creating virtual churches. *VR Church* is one of the first churches to gather completely in the virtual realm. They create worlds to experience both God and the Bible. Each week their "architect" builds new worlds based

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[15] Jacob Shatzer, *Transhumanism And The Image Of God* (Downers Grove, IL: IVP Academic, 2019), 67-68.

on the upcoming sermon, by recreating Biblical geographic locations, which is another benefit of VR.[16]

Virtual reality allows more cost efficient and environmentally friendly experiences of remote destinations. Once the virtual environment is developed users can travel to both remote locations, as well as any location in history without the cost of airfare, lodging, or food, while also reducing the carbon footprint that air travel produces. What if the digital platform of virtual reality was not just a place you could visit, but a place you could live?

Brain Emulation

Brain emulation, or sometimes referred to as "whole brain emulation," is the proposed concept that a person will be able to upload the entirety of information contained within the brain onto a computer substrate. This concept believes the conscious identity and personality of a person will be able to continue in digital format even after their biological bodies have died. Theorists propose this will take place in a number of phases along a spectrum beginning with brain computer interfaces, the use of nanotechnology, and finally the possibility of full substrate conversion, where a person is only present in digital format.

Pop culture shows us some examples of brain computer interfaces through the narratives of movies like *The Matrix Trilogy*, and the 2018 film *Upgrade*. After a terrible tragedy in the movie *Upgrade*, Grey Trace, the main character is paralyzed and

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[16] "Leadership," VR Church, accessed October 4, 2019, https://www.vrchurch.org/leaders.

eventually opts to receive a chip implant in his neck called STEM. The implant allows the paralyzed Grey to walk again, and when given permission by Grey, the implant can take full control of his body allowing him to have abilities beyond anything he was previously able to do. The storyline gives us hope that brain-machine-interface technology will help those with disabilities.

Futurist, scientist, and best-selling author, Ray Kurzweil has made predictions that we will have contact lenses for full immersion virtual reality and pocket-sized reading machines that allow the blind to read text from anywhere. He also believes that brain implants that need surgery to place them will be able to be sent through the blood stream by 2029. He even believes we will be able to use nanotechnology to expand our intelligence[17] and connect to the internet making us "more unique and more godlike."[18] Some of these predictions are realistic and widely beneficial, but what happens to the practice of faith when our nanotech-intelligence allows us to transcend the boundaries of "not knowing," and step into that "godlike" state? Will superintelligence be the finishing move to faith in God?

The Matrix Trilogy showed us the incredible power of being able to immediately download into our minds the entirety of knowledge and skill associated with a subject, but this also raises some difficulties. Immediate gratification removes the discipleship process of learning and growing. Learning about a subject is not just about the accumulation of information, but about the experience that it offers to a person. It is not

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[17] Ray Kurzweil, "The Future of Intelligent Technology and Its Impact on Disabilities," *Journal Of Visual Impairment & Blindness* 97, no. 10 (October 2003): 582-584, EBSCOhost.

[18] Ray Kurzweil and Kathleen Miles, "Nanobots In Our Brains Will Make Us Godlike," *NPQ: New Perspectives Quarterly* 32, no. 4 (October 2015): 24-29, http://dx.doi.org/10.1111/npqu.12005.

just about what we can get at the end of the study and practice, but who we become as people in the process. As a person learns he or she is able to retain some aspects while rejecting others, and those get melded together in the mind with previous knowledge and experiences in order to develop new thoughts. Neuromuscular control is learned during the process of practice. What is learned in the process impacts our daily relationships. I suspect skipping the process for the prize will most assuredly transfer to our Christian walk as well, causing us to expect immediate gratification from God in the same manner as our brain computer interfaces.

Will this technology be widely available to everyone immediately or will the wealthy attain this "godlike" intelligence before everyone else, continuing to widen the gap between people of different social classes? While personal computers and smart phones have shifted the social landscape, their impact on the socio-economic spectrum is minimal, but brain-computer interfaces and nanotechnology that allow us to fast forward the evolutionary process and enter new levels of intelligence, impact both how the Church operates, and how we understand the current chasm between our intelligence and God's.

We must also consider the impact of brain-computer interfaces and nanotechnology on disabilities and particular social classes of individuals with those disabilities. If a person is "upgradeable" and so chooses not to, will they be discriminated against or viewed as a subclass human in a world of transhumans?[19] In a technological conquest to eradicate every disability, we may end up eradicating entire ways of life and

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[19] Transhumanists are a growing sect of individuals who are seeking to transcend biological limits, and are between what they were as a normal human and what they will be through technological advancement.

social groups. Where do we draw the line of what is considered a disability, and what is a trait we do not like as a society? If we attempt to eradicate deafness, for example, because we find it to be useless in our society like the Down Syndrome eradication taking place in Iceland, we lose an entire population of individuals who utilize sign language and have created entire social groups and lifestyles around deafness.[20] Living in community and relationship allows us to see the image of God in one another regardless of ability, intelligence level, or handicap. Technology is a means of healing, but we must be cautious not to let it become an idol of salvation for a broken world, because ultimately the human condition has a bug that technology cannot fix. The question then is, how do we live in community if one is not physically present, or if your neighbor is a digital representation of him or herself, while you remain in the physical world?

At the advanced end of the brain emulation spectrum is the idea of full substrate conversion. This means the entirety of a person's mind, and personality for some like Kurzweil, is transferred to a digital platform. This endeavor accomplishes the transhumanist quest for immortality through technology. Brain emulation involves numerous scans of brain tissue in order to reconstruct the neural networks that created cognition. Uploaded to a powerful enough computer and paired with artificial intelligence carries the possibility of the development of a superintelligence. While the technology for this level of whole brain emulation has yet to be developed, Calvin Mercer believes low-grade emulations will lay the blueprint for more advanced versions through incremental

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[20] Jana M Bennett, "We Do Not Know How To Love: Observations On Theology, Technology, And Disability," *Journal Of Moral Theology* 4, no. 1 (January 2015): 90-110, ATLA Religion Database with ATLASerials, EBSCOhost.

improvements.[21] There is no longer a need for haptic feedback suits or visors to display the digital world, because you become part of the digital world.

What does the this do to our theology of being made in the image of God, if we are made in the image of programs and pixels? The quest for digital immortality is an escape from communal living. It removes the ability for growth, compassion, and discipleship as we attempt to lovingly meet each other's needs when a computer program provides everything a digital replicant could need, or possibly even desire. Communal living is messy. It requires trust, and sadly, it often entails that trust being broken. Community is the slow development of relationships. A digital emulation of one's self is an escape from true communal life, in order to satisfy selfish desires of digital immortality.

Brian emulation also challenges our theology of the limitations of personhood and the omnipresence of God. Up until the time this takes place, a person's presence has been constrained by time and space. Once uploaded to a computer, individuals are connected to the internet, therefore making them almost omnipresent. In the attempt to make one's self digitally immortal, they will become digitally omnipresent as well. While it is not as in-depth regarding presence throughout the cosmos and in nature like God, digital omnipresence is an attempt to make ourselves more godlike. Rather than being icons that point past ourselves to a greater God, we are attempting to become the idol.

What happens if *everyone* is fully emulated in a digital platform? Who keeps the computers up and running? Is it robots? Do robots then usurp the role of humanity and

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[21] Calvin Mercer, "Whole Brain Emulation Requires Enhanced Theology, and a Handmaiden," *Theology & Science* 13, no. 2 (May 2015): 176, http://dx.doi.org/10.1080/14746700.2015.1023527.

tend the garden of Earth in our place? Do we really want to live lives subject to artificial intelligence and not enjoy the created world God crafted for us? Do we think a created digital world crafted by humans is more fulfilling than the biosphere God handcrafted for humanity? Brain emulation technology will be here before we know it, and our theology is not ready.

If our techno-theology is to survive in a world where our technology is changing faster than we can rewrite the algorithms, we will need to get ahead of the curve. The best way to get ahead, is by returning to our beginnings, and our beginnings are rooted in the importance of embodiment and incarnation.

The Incarnation

Transhumanists see embodiment as the crux of the problem when it comes to the human condition. The material structure of humanity levies insufferable limitations upon what one is able to accomplish, because death is always lingering around the corner. The body breaks down at the cellular level more and more rapidly as days go by, leading to aging and the breakdown of subsystems in this fleshly container. Not every human has the same gifts and talents, and therefore not everyone can have the intelligence of Einstein, the athletic ability of Michael Jordan, the artistry of da Vinci.[22] Transhumanists seek transformation and ultimately salvation through technology, but as Christ followers we understand that both our transformation and salvation are found only in Christ. Todd Daly illustrates this further when he says,

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[22] Brent Waters, "Whose Salvation? Which Eschatology?: Transhumanism And Christianity As Contending Salvific Religions," in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, ed. Ronald Cole-Turner (Washington, DC: Georgetown University Press, 2011), 165.

> We cannot possibly know what it means to be human apart from the person of Jesus…Human nature is not discerned in advance from science, philosophy, or the social sciences. Rather, we learn what it means to be human in the history of a particular individual in whom human nature—and nature itself—is vindicated, restored, and exalted.[23]

Our techno-theology then becomes centered on the incarnation and the physical presence of Jesus Christ. The incarnation shows us the importance of embodiment. In looking at the incarnation in light of eternity, Jesus could have come to earth at any time, including now, or even a future reality involving digital emulations. His incarnation in the first century is vital to our understanding of the importance of physical presence. He chose to be enrobed in *flesh* rather than *pixels*. Jesus chose the rhythms of daily life in the physical world, rather than the algorithms of a digital one. Even in his resurrected state Jesus chose an embodied presence, while slightly different, he did have a physical body[24] since he was mistaken for both a gardener[25] and a traveler.[26] Due to these prominent details, at this time, I refuse to believe that digital emulation is the next phase of our evolutionary process, or should be any phase of our existence. The incarnation should impact the way we engage both technology and one another. In Christ the veil was torn between God and humanity, and in Christ the digital veil between humans should be removed as well.

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[23] Todd Daly, "Chasing Methuselah: Transhumanism and Christian Theosis in Critical Perspective," in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, ed. Ronald Cole-Turner (Washington, DC: Georgetown University Press, 2011), 137.

[24] Luke 24:39 NASB.

[25] John 20:15 NASB.

[26] Luke 24:13-35 NASB.

If we continually look to technology as a means of identity, connection, and ultimately salvation we lose sight of the mystery found in Christ. Jacob Shatzer highlights the transformative impacts of technology and our sense of self when he says, "Technology changes the way we think about the world around us, but it also shapes the way we think about ourselves. Forging an identity and a sense of self is a lifelong task and a complicated one…that involves inwardness and introspection."[27]

A person's sense of self is formed in the context of community and relationship where he or she shares both time and space with another person or persons, and has the ability to inhabit one another's stories. Yet sadly, in a world that is increasingly digitally connected, we are becoming progressively locally alienated, because "technology feeds our insatiable hunger for stories, but fails to satisfy our need for human connection."[28] Paradoxically we learn to live with others by learning to live with one's self, yet a person cannot truly know themselves apart from relationship in community,[29] because people are shaped by the narratives that their community offers.

Social media, virtual reality, genetic enhancement, and even brain emulation give us the option to construct our image of self that is portrayed to the world through individualism. Individualism reduces our need on social structures such as marriage,

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[27] Shatzer, Transhumanism And The Image Of God, 162-163.

[28] Michael T. McRay, "Meet A True Story," *Plough Quarterly* (Winter 2018), https://www.plough.com/en/topics/life/forgiveness/meet-a-true-story.

[29] Diane M. Badzinski, "Saint Benedict Of Nursia: Learning To Live Well With Others In A World Of Contradictions," in *Words And Witnesses: Communication Studies In Christian Thought From Athanasius To Desmond Tutu*, ed. Robert H. Woods Jr. and Naaman K. Wood (Peabody, MA: Hendrickson Publishers, 2018), 38-39.

relationships, community, and the table.[30] Narratives of transformation require incarnation, and incarnation requires relationship. Len Sweet points out that God is a God of relationship, and we see this by the way He is described in scripture: "The god of Abraham, Isaac, and Jacob."[31] The pinnacle of connection is wrapped up in incarnational relationships. This is why Jesus was willing to be incarnated in order to be in relationship and bring about transformation.

Incarnational narratives of transformation come through communication, and communication involves relationship and more than just the words we speak. VR avatars hide our true selves. Communication is based on more than just words. Body language, eye contact, tone and inflection divulge just as much in dialogue as our spoken words, and a simple muted microphone can silence true feelings. There is a difference between playing a character in a game and being a character in a simulated reality. Over-sized avatars can disguise insecurity and our digital distance inhibits our development of empathy. We learn empathy through immediate feedback of witnessing how our words and actions affect others. Without immediate feedback empathy cannot develop properly, and it is already a slow-developing skill.[32] In the hypothetical reality of brain emulation, we may be able to join in the narratives of a digital dialogue, but we miss out on the physical presence that Jesus modeled for us in his incarnation. This is why we should

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[30] Shatzer, *Transhumanism And The Image Of God*, 164.

[31] Leonard Sweet, *So Beautiful: Divine Design For Life And The Church* (Colorado Springs, CO: David C. Cook, 2009), 130.

[32] Adam Alter, *Irresistible: The Rise Of Addictive Technology And The Business Of Keeping Us Hooked* (New York, NY: Penguin, 2017), 40.

always seek to foster flesh and blood relationships over digital ones. Embodiment is the greatest teacher of empathy.

In a world where people are marrying their robots, (some are even attempting to create robots that are able to bear children),[33] where virtual worlds will entertain us with mythological characters, and the idea of escaping the carbon based reality for silicone based substrates, the question we really need to ask is, "why?" Why would people choose silicone, pixels, and escape over real life connections with those they are in community with? Humanity's relationship with one another is wounded. We have wounded each other to the point that we do not want to be in relationship with one another. Our techno-theology should be a message of redemption, reconciliation, and restoration. How can we use technology as a means to redeem and restore humanity's relationship with one another, rather than continuing to enlarge the digital distance from one another?

Anything that causes us to love distorted images of another human is a perversion of the Gospel. Jesus did not become human to save us from being human or even in order to escape being human, but to show us how to be *more* human. We do not have a silicone-based savior. Jesus the Christ was carbon based. While technology is beneficial for connecting across great distances, it should never be a replacement for physical face to face relationships. Salvation is not found in alternative substrates or subjecting ourselves to robotic masters while we live in a digitally crafted environment. We can, and should, use technology as a conduit to reach our culture, but it should be used as a means

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[33] "Developer Seeks To Create Sex Robot That Can Bear Babies," *Philippines Daily Inquirer*, November 2, 2017, EBSCO host.

to encourage us to come together in the real world. I believe the three greatest community builders that both foster and repair relationships are food, music, and activity.

The table is where identity and self are formed. The table is where the narratives of our past are shared, the narrative of our present is played out, and the narrative of our future can be written. The table should be a sabbath from bathing in blue light, a reprieve from replicant reality, and a place for incarnational embodiment. When we gather around the table to break bread together, Len Sweet reminds us we are returning to the focus of our faith: Jesus, because Christian theology is all about the art of table talk.[34] From the "table" set before us in the garden to the table prepared for us before our enemies in Psalms 23, and from Jesus dining with sinners to the wedding banquet of Revelation, the bible is full of table imagery, because the table is all about relationships over isolation.[35] Over the table we can build a new relationship, and mend broken ones, where as digital bread crumbs will never tingle the taste buds and only promote digital distance. The illusion of community cannot truly nourish or ultimately satisfy, because as we explored earlier, studies have already shown increases in depression and anxiety.[36]

As was shared above, we live in the paradox of self and community, and the image of God is best expressed in the context of community rather than just the self. Our self is formed both privately in the home, as well as in communal activities and celebrations. Another of those community building activities is music. Instruments can be

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[34] Leonard Sweet, *From Tablet To Table: Where Community Is Found And Identity Is Formed* (Carol Stream, IL: NavPress, 2014), 112.

[35] Ibid., 88.

[36] Alice G. Walton, "6 Ways Social Media Affects Our Mental Health," *Forbes*, June 30, 2017, https://www.forbes.com/sites/alicegwalton/2017/06/30/a-run-down-of-social-medias-effects-on-our-mental-health.

played by an individual or by a group. People are gathered together around different bands and various genres of music. It has the power to influence our attitudes, our emotions, and our productivity.

There is a vast difference between listening to music on a stereo or through headphones and experiencing it first-hand in real life. There is a power to presence. Just as physical presence at the sacred events of a person's life like births, weddings, or funerals is more moving and meaningful than if one was to join by teleconference, so too physical presence demands a different response from us in music. We do not feel indebted to a stereo, because it is just a *thing*, but we respect a musician when they play before us,[37] because in some subconscious manner we get to inhabit their story. We experience the fruit of the countless hours of labor and toil to master the notes and melodies that move us.

Albert Borgmann believes, "Communal celebrations will be salutary and central to our lives only if the material things and settings that ground and nourish them are granted public and prominent locations."[38] If we want to be moved by the music of those in our community, we must make a prominent space for the melodies to move us. If we want to appreciate the art of our neighbor, we must allow art in the public spaces we gather. Our activities together are what bring us closer in community.

People gather around activity. They gather to work, to worship, and even to workout. Outside of our occupations, people are willing to gather in service to their

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[37] Albert Borgmann, *Power Failure: Christianity In The Culture Of Technology* (Grand Rapids, MI: Brazos Press, 2003), 29.

[38] Ibid., 48.

community or other communities. The power of community is seen in the moments of disaster as people come together to find a way forward. While one may join in foreign relief through monetary donations, the hands that handout the water bottles and the arms that wrap around the hurting are what make the most impact, because physical presence is what matters most. We gather in activities big and small, fun and serious, easy and difficult, because deep down we understand we are wired for community, and for presence with one another.

We worship in community. The internet and "live-stream" have made worship experiences available to us from afar, but still promote digital distance. When we remove ourselves from the communal aspect of worship, we are missing the critical component of the Christian faith. The foundational factor of our faith was gathering together in homes, in the market place, and in the temple. The "body of Christ" is made of many parts, and when we fail to gather in physical presence, we are disembodying Christ. The church can learn the power of presence from the world of Crossfit.

Part of the human experience is taking care of our temple enrobed in flesh. Health and physical well-being are essential to maintaining our bodies. Crossfit, the group workout based around randomized circuitous style movements, is one avenue that has taken our culture, and the globe, by storm. One of the greatest strengths of the Crossfit movement is their ability to build community among their members. People from different walks of life and different levels of ability come together to accomplish a goal. They have taken the work out of working out and made fitness fun. The embodied presence of community encourages people to engage in and complete difficult tasks. Crossfit is the perfect metaphor for discipleship. It is a process that takes time,

persistence, and consistency, just like the discipleship process. You can do Crossfit on your own, just like you can grow in the Lord on your own, but the greatest growth comes when done in community, because the physical presence of others is a powerful motivator. How can the church use the table, music, art, and activity to promote embodied presence in a world that disseminates digital distance?

In Summary

The pursuit of escape in the simulated world will only increase as virtual reality becomes more widespread. As our technology to emulate the human brain into existence on silicone or other substrates approaches a present tense reality, our techno-theological algorithm will need the subroutine that promotes physical presence as found in the incarnation. Presence, of both the structures for people to inhabit and the very people that inhabit them are foundational to Christian theology. "Our understanding of what it means to be human must be rooted in embodiment, because the incarnation affirms embodiment."[39]

The pursuit of digital immortality through brain emulation will always be corrupted by the coding bug of sin. While Christ followers are considered "new creations" in Jesus, creation and the world around them will always be tainted by sin until the eschaton. We cannot look to computer simulated realities as anything more than entertainment, and our engagement in worlds *we* crafted should never supersede physical relationships in the world *God* created. A life saturated by digital distance does damage to the Christian foundations of incarnation, embodiment, and community. The human

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[39] Shatzer, *Transhumanism And The Image Of God*, 121.

experience is wrapped up in the example of the person of Jesus. To be human in a technological age means we center ourselves on embodiment. This may mean in the days to come, the church goes against the grain of culture that seeks digital personification, by supporting, promoting, and living out an embodied presence in flesh and blood.

CHAPTER 7:

THE FUTURE NEEDS US

As a young man I loved sitting in history class and learning about the people and occurrences that shaped my home state of Texas. Without those books that retold the narratives of the past, I would have never known about those historical events. Unfortunately, there are various facts and narratives that are missing from our history books. Others, and myself, have often sat and wondered about the artifacts, stories, and traditions of days gone by that have seemed to fade away into nothingness. Our minds are much like our history books. They are full of events and narratives, yet they are still missing some data from our past. Even now as my grandparents have all passed away, I never learned the stories and traditions of my family's history. They are now lost to the dirt. Society finds great importance in these history classes so that our past is not forgotten, but "we need to be as anxious about losing the future as about losing the past, because they are both the same."[1] Every age is equidistant from eternity.[2] Understanding the past enriches our lives, but in a changing and advancing world we must not root ourselves there, or we will be left behind. While conversely, living solely in the abstract imagination of the future leaves us in a fantasy world, but the truth is, the future is made by our actions today. As we live out the future our ancestors thought about, we must begin acting and choosing the future we want future generations to see.

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[1] Leonard Sweet, *So Beautiful: Divine Design For Life And The Church* (Colorado Springs, CO: David C. Cook, 2009), 81.

[2] Leonard Sweet, "Semiotics And Future Studies," Zoom Lecture, Portland Seminary, Portland OR, January, 29, 2018.

Idols and Icons

Our theology cannot and must not dismiss technological advancement, because it too is part of God's creative and redemptive work.[3] Genetic editing will allow us to bring healing to diseases that have riddled humanity for ages. Artificial intelligence will allow us to manage systems of consumption and waste more efficiently, make more precise medical diagnoses, and manage creation more carefully. Nanotechnology will allow us to get smarter, as well as remove the need for complex surgeries by sending nanobots through our bloodstream in order to heal us. Research in radical life extension will help make our regular lifespans healthier. Virtual reality has the potential to connect us in ways that will positively impact us in the realm of flesh and blood. These technologies carry significant iconic attributes that point past themselves to the redemptive work of God, but they also carry the potential to be corrupted by our own coding problems.

> Technology is a wonderful tool that allows us as humans to improve our lives. This fact might seem to make technology an extension of God's original plan. Yet technology is not a tool that can empower us to be gods, nor can it save humanity[4]… To be fair, trying new things is the way science works; it is a good thing to discover the way God made the world. To say it better: trying new things is good as long as we understand our role and our limitations. When culture encourages us to believe that humanity's knowledge is not limited, hubris will grow like weeds in the hearts of people. Hubris and tech should never be mixed.[5]

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[3] Ronald Cole-Turner, "Transhumanism And Christianity," in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, ed. Ronald Cole-Turner (Washington, DC: Georgetown University Press, 2011), 198.

[4] Douglas Estes, *Braving the Future: Christian Faith In a World Of Limitless Tech* (Harrisonburg, VA: Herald Press, 2018), 147.

[5] Ibid., 111.

Since the corrupted code of sin is still present in our techno-theological algorithm, our creations have the ability to quickly turn from icons to idols. We are called to use technology, but in doing so we must be aware of the potential that lies within us. Swearengen points to the psalmist's illustration that the "products of our culture should bring praise to the Creator."[6] The prophet Isaiah also encourages the use of technology but shows how technology can quickly mix with idolatry.[7]

> The blacksmith takes a tool and works with it in the coals;
> he shapes an idol with hammers, he forges it with the might of his arm.
> He gets hungry and loses his strength; he drinks no water and grows faint.
> The carpenter measures with a line and makes an outline with a marker;
> he roughs it out with chisels and marks it with compasses.
> He shapes it in human form, human form in all its glory, that it may dwell in a shrine. He cut down cedars or perhaps took a cypress or oak.
> He let it grow among the trees of the forest, or planted a pine, and the rain made it grow. It is used as fuel for burning; some of it he takes and warms himself,
> he kindles a fire and bakes bread. But he also fashions a god and worships it;
> he makes an idol and bows down to it. Half of the wood he burns in the fire;
> over it he prepares his meal, he roasts his meat and eats his fill.
> He also warms himself and says, "Ah! I am warm; I see the fire." From the rest he makes a god, his idol; he bows down to it and worships. He prays to it and says, "Save me! You are my god!"[8]

Our idols are no longer made of bricks and stones like the tower of Babel, or giant sculptures as found in the books of Exodus and Daniel. They are no longer about the biggest blast radius, like the bombs of the early twentieth century. Instead of our idols getting bigger, they are getting smaller. Our idols of tomorrow will be microscopic: genetic sequences that allow a person to design his or her children, nanotechnology that will increase our intelligence to make us almost god like, and algorithmic coding that

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[6] Jack Clayton Swearengen, *Beyond Paradise: Technology And The Kingdom Of God* (Eugene, OR: Wipf & Stock Publishers, 2007), 283.

[7] Ibid., 111.

[8] Isa 44:12-17 NIV.

provides us with artificially intelligent robots that some sill seek intimate relationships with, rather than their fellow human. In light of this idolatrous potential we have to examine what the real problem is, and as Douglas Estes points out, "Maybe the problem isn't tech. Maybe the problem never was tech. Maybe the problem is us."[9]

In a world of technological icons and idols, the Church has a challenging future in front of it. How can we use the narrative of science and technology to awaken a religious sense of awe? I would agree with Jaron Lanier, one of the primary inventors and visionaries for virtual reality, who said he is unhappy with the way digital technology is influencing the world. He, and I, believe "the solution is to double down on being human,"[10] and I would add we need to double down on what it means to be the *imago Dei*.

The Future Does Need Us

In the year 2000 Bill Joy, cofounder of Sun Microsystems, wrote a compelling, and often referenced article entitled, "Why the Future Doesn't Need Us." Joy asserts that our technological advancements such as, genetic editing, nanotechnology, and robotics will overtake our society, and do irreparable damage to both humanity and the biosphere. While Joy provides some insight into what he believes would help the future, he is still melancholic towards it.

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[9] Estes, *Braving The Future*, 183.

[10] Tim Adams, "Jaron Lanier: 'The Solution Is to Double Down on Being Human," *The Guardian*, November 12, 2017, https://www.theguardian.com/technology/2017/nov/12/jaron-lanier-book-dawn-new-everything-interview-virtual-reality?CMP=fb_gu.

Although he feels this way about the future, I agree with his sentiment, "knowing is not a rationale for not acting."[11] Just knowing about, or being aware of, is not enough. Our knowing about the corruptive tendencies for these emerging technologies instigated by our sinful coding, should in no way prevent us from interacting with them. To the contrary, it should spur on our interactions with them, and as Catherine Booth challenges us, if we want to improve the future, we must begin by disturbing the present.[12] That begins with the Church getting acquainted with these technologies. Lanier believes, "people should become acquainted enough with what the technology can do so that they are less likely to be fooled by it." He relates it to magic in that, "If you have learned a little bit of magic, you are less likely to be tricked by a magic show, but you still might enjoy the performance a lot." By becoming acquainted and involved in these technologies, we will not be fooled by fancy marketing, and will be aware of the redemptive and corruptive potential of each.

In light of that, and in contradiction to Bill Joy's article, I say, *the future does need us*. The future needs the Church. The future needs *us*. It needs you, and it needs me. The future needs us to decide now what we will and will not allow, instead of looking back with regret. In looking back on the effects of the first atomic bombs, Bill Joy shares that physicist Freeman Dyson said, "The reason that it was dropped was just that nobody

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[11] Bill Joy, "Why the Future Doesn't Need Us," *Wired*, April 1, 2000, https://www.wired.com/2000/04/joy-2/.

[12] Kathy Bruner And Kenneth Baillie, "Catherine Booth: Disturbing The Present To Promote Gender Equality," in *Words And Witnesses: Communication Studies In Christian Thought From Athanasius To Desmond Tutu*, ed. Robert H. Woods Jr. and Naaman K. Wood (Peabody, MA: Hendrickson Publishers, 2018), 170.

had the courage or the foresight to say no."[13] As technology continues to advance, will we have the courage and foresight to say no when the time comes? We do not have to say no in a Luddite fashion, but as a result of reasoning as the *imago Dei*, we can say no to the things we know will do such irreparable damage to our fellow humans and the biosphere.

The future needs us to think long and hard about how AI will both benefit and disrupt our lives. As automation continues to rise, Max Tegmark gives us some helpful questions to ask our children about their future career choices such as:

- Does it require interacting with people and using social intelligence?
- Does it involve creativity and coming up with clever solutions?
- Does it require working in an unpredictable environment?

He says some of the safest "bets for careers include becoming a teacher, nurse, doctor, dentist, scientist, entrepreneur, programmer, engineer, lawyer, social worker, clergy member, artist, hair dresser, or massage therapist."[14] These options have a lower chance of being replaced by automated robots. The future needs the Church to do some preventative maintenance, by showing how these kinds of careers help us reflect the image of God, through careers that are automation resistant, while also understanding the ethical ramifications of artificially intelligent robots in the workplace, in our homes, and in society at large. The future needs Christ followers to worship and serve God in the laboratory and behind a computer as much as in the pew.

The future needs us to dig down in our understanding of what it means to be human, because as genetic editing continues to advance, people as we currently know

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[13] Joy, "Why The Future Doesn't Need Us."

[14] Max Tegmark *Life 3.0*, 121-122.

them will change. There will be those that want to design their children in order to create a seemingly better future for them. Genetic enhancements have the potential to create a chasmic divide between the edited and nonedited peoples of the planet. The future needs the Church to set the table that makes a place for everyone in our culture regardless of their genetic status, both today and tomorrow.

The future needs us to not stand idly by and watch creation be destroyed by greed and consumerism. If current rates of animal extinction, deforestation, and pollution continue, what will be left for us to enjoy in the future? It needs the church to build literal and metaphorical forests that foster biodiversity. We need forests that harbor habitats for plants, animals, and insects that are harmed by our urban sprawl. The future needs the Church to be pollinators to the fields of the world by bringing new ideas and innovations to the rest of the world in order to bear the fruit of beneficial technology. The future needs the Church to return to its origins and become training and innovation centers of technology that foster new ideas that change the landscape of our culture based on Christocentric principles. The future needs the church to use technology as a force multiplier to advance the kingdom of God, spread the Gospel, relieve suffering, and care for the "least of these."[15]

The future needs the Church to create technology that helps our fellow human without making advancement into a zero-sum game. By being rooted and grounded in love,[16] more specifically, loving others the way Christ loved us, we can make technological advancement into a win-win scenario. While technology cannot bring about

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[15] Swearengen, *Beyond Paradise,* 282.

[16] Eph. 3:17 NASB.

salvation, it can bring about healing, provision, and connection for all people if we both allow it and direct it that way. The future needs the church to use technology as a means to "stimulate one another to love and good deeds."[17]

The future needs us to explore helping all people live healthy and whole lives to one hundred and twenty years, instead of focusing on how to live radically longer lives. It would be more beneficial to seek healing and fullness within our current biological boundaries, before we try to break past that barrier.

The future needs the church to create better metaphors today for what it is like to live in a technological age. It needs creative Christian writers to join Hollywood in scripting the narraphors that impact our lives. It needs the church to use the arts to drive us deeper into the mystery of Christ, just as much as it needs artists to shape virtual worlds. In a world that seeks to submerge us in computer systems of created environments, rather than sitting face to face with our fellow human, the future needs the Church to illuminate the incarnation as the model of humanity in a pixelated world, by promoting proximity over digital distance. It needs us to encourage embodiment over emulation.

The future needs the Church to live out a techno-theology that points back to Jesus with its entire life cycle, from its resource allocation, through its usage, and onto its disposal. It needs us to live out a techno-theology that reminds us that our humanity is both, elucidated in the incarnation and finalized in the person of Christ, because our salvation is not found in pixels, nanobots, genetic alterations, or artificial intelligence. A techno-theology transcends the algorithms of any doctrine or creed. It is the people of

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[17] Heb. 10:24 NASB.

God, the *imago Dei*, shadowing a creative God as created co-creators. It is those who use wisdom and understanding in making technological decisions, who both conserve and conceive as trustees over creation, and who live in relationship to God, and prioritize flesh and blood relationships with their fellow humans over digital distance. This is what it means to be human in a technological age.

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