Transhumanism: Christian Destiny or Distraction?

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Transhumanism offers a secular vision of unlimited progress. It anticipates a revolutionary convergence of several fields of science and technology later this century. Transhumanist faith in this vision is comparable to religious faith, ranging from secular to overtly religious, but its view of God, human existence, and salvation is markedly different from biblical perspectives. Seeking to overthrow all limits, transhumanism would overturn the boundaries God has established for his creatures, both moral and physical.

Transhumanism seems inconsistent with both orthodox Christianity and mainstream science, yet Christian transhumanists have emerged, even forming a Christian Transhumanist Association. Its "Christian Transhumanist Affirmation" sacrifices theological commitments for a vague desire to "become more human" through technology. Blind acceptance or rejection of transhumanism is inadequate. Christian theological insights into the opportunities and challenges of futuristic science and technology are needed.

There has been much discussion of human *origins*, but this article's focus is human *destiny*. Specifically, it (1) introduces a secular vision of unlimited technoscientific progress, (2) considers how some Christians blend this vision with their faith, and (3) questions whether blending technoscience and faith is consistent with either orthodox Christianity or mainstream science, the foundational commitments of the American Scientific Affiliation (ASA).[1]

There are historical, theological, philosophical, and social dimensions to consider. Different ontological commitments lead to epistemological and political differences to be resolved through social processes. For Christians to participate effectively in these processes, they must seriously consider their commitments and work out how they might shape the church and the broader society, always looking to love and faithfully serve both God and their neighbors.

To begin, Christians through history have esteemed the Bible as God's authoritative Word. On that foundation, and trusting in the Holy Spirit for guidance, Christians can chart a reasonable course toward the future. Further, as circumstances change, course corrections can be made in confidence knowing God and his character.[2]

Others—people who view God differently, or those denying God's existence altogether—will see things in different ways. Their sense of what it means to be a human being, though influenced to some degree by Christianity, will lead to different approaches to the future. In many cases, the results will be contrary to God's revealed will. And so, once again, Christians face "The Enduring Problem" of how to be "in the world, but not of the world," to paraphrase Jesus's pastoral prayer in John 17.[3]

So clearly, much is at stake, for both believers and all human society. My

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hope is that ASA members will join me in seeking sound biblical and scientific responses to the potential benefits and risks of science and technology in tomorrow's world.

Transhumanism: Roots and Fruits

Human Enhancement: Goals and Milestones

At issue is *transhumanism*, the social and philosophical movement that seeks fundamental "enhancements" of life by futuristic science and technology. Transhumanists pursue improvements in the human condition, even overcoming life's basic limitations. Transhumanism is both diverse and diffuse; with members all around the world, it depends on the Internet to spread its ideas and build community among its advocates. Today's technology is insufficient for their purposes, but transhumanists have deep faith in science, believing that it will soon open the door to human enhancements that exist today only in science fiction. (See Table 1 for a list of

potential enhancements and a notional development timeline.)

In some ways, transhumanism is nothing new; throughout the ages, many people have dreamed of ways to address the problems of life. Beyond dreaming, people have worked toward solutions, developing fire, clothes, the wheel, and many other things to ease life's burdens. Scientific and industrial revolutions accelerated this work, and continued progress seems likely.

Transhumanists believe pursuit of progress is basic to human nature, so it is only natural to seek scientific solutions to the deepest problems of life, such as death. Most people seem resigned to these problems, believing that they are, like taxes, inevitable. Solutions might be fancied in myth, religion, science fiction, and futurism, but transhumanists reject fanciful solutions. They believe their pursuits are reasonable, scientific, and achievable. What accounts for this belief?

Table 1.	Potential Human Enhancements	Timeframe
Step 1	Chemical supplements to promote socially desirable attitudes (i.e. cooperation) or promote behaviors that are healthy (e.g., discouraging overeating) or moral (e.g., reducing divorce).	Near-Term ~2020+
Step 2	Genetic or biological modifications to improve physical or intellectual characteristics, such as one's height or intelligence.	
Step 3	Nano-machines for in-situ repair, replacement, or extension of body structures at the molecular, organ, or body system level, possibly including whole-body prosthetics and the elimination or reversal of natural aging processes.	
Step 4	Artificial super-intelligence, resulting in low-cost computer systems that meet or exceed the human intellect. Neural implants—similar to today's cochlear implants—could then allow direct interaction between brains and computers, either internal or external.	
Step 5	Repair and reanimation of people preserved—whole body or brain only—through cryonics.	
Step 6	Uploading or transfer of human minds into computer systems, potentially eliminating a subject's problematic biological existence altogether.	Long-Term ~2045+

Technoscience Convergence

The popular image of science and technology is one of continual progress. Against this image, studies show that progress is often nonlinear and erratic, in accord with Thomas Kuhn's well-known concepts of "paradigm shifts" and "scientific revolutions."[4] In technology, a less-familiar concept suggests a parallel concept—convergence—that is especially important to our subject.

Breakthroughs in technology often brought together advances in disparate fields, sometimes with surprising results. For example, Henry Ford's assembly line production of the Model T brought together advances in manufacturing, materials, and internal-combustion engines; the Model T was mass produced, and the world was changed forever.[5] Likewise, digital computers arose amidst converging developments in mathematics, electronics, and world affairs such as World War II.[6] More broadly, today's accelerating progress in science and technology can be understood as a convergence of the production and application of knowledge, which I will refer to collectively as "technoscience."

A major milestone in transhumanism's movement from futurism run amok to legitimacy is a 2002 National Science Foundation (NSF) report: *Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology and Cognitive Science*.[7] Known as the NBIC Report, it boils down to one confident prediction, a far-reaching technoscience convergence summarized in four lines:

> If the *Cognitive Scientists* can think it
>
> the *Nano* people can build it
>
> the *Bio* people can implement it, and
>
> the *IT* people can monitor and control it.[8]

Although it does not officially embrace transhumanism, the NSF recognizes the importance of convergent technosciences in shaping the future. The NSF has sponsored and funded many follow-on studies, and other federal agencies have too.[9] So, as far as convergence has been legitimized by history and government prognosticators, transhumanists regard their pursuits as scientific and realistic. In fact, their faith in progress, powered by technoscience, seems unlimited. How might the technoscience convergence of transhumanism unfold?

Transhumanism's Path Forward

Today, research into technosciences that might converge in transhumanism are largely independent: computer scientists study hardware and software, while neuroscientists study brains. However, work in one area could affect another, rapidly bringing about surprising results.

The transhumanist vision begins with the present reality of the medical arts and the knowledge that dysfunctions in the molecules of life account for all manner of illnesses. Today's drugs deal with many illnesses, but they can also improve human capabilities. For example, the use of performance enhancing drugs by athletes can boost their physical performance. "Moral enhancement" drugs have been proposed, and their ethical dimensions are being explored.[10] They could be available soon, reaching Step 1 on the enhancement table.

Our growing ability to manipulate or modify life's molecules—using CRISPR-Cas9 methods today, with well-funded research programs established to achieve nanotechnology's full promise tomorrow—opens the door to both medical therapeutics (i.e., correcting physical problems, such as sickle-cell anemia) and enhanced capabilities (beyond natural capabilities) by redesigning the molecules of life: Steps 2 and 3.

Progress in biotechnology, nanotechnology, and cognitive science requires computers. The human genome is incomprehensible without automated data processing; how much more are computers necessary to comprehend and redesign biological molecules and systems? Because of their across-the-board importance, computers and information technology are critical to transhumanism, preeminent among its converging technosciences.

Today's computers are insufficient for transhumanist purposes, so progress in computer science is necessary. This need underscores neuroscience's importance in transhumanism. To overcome the limits of conventional, serial-process computers, it seems necessary to reverse-engineer the brain's massively parallel architecture. If this can be done, transhumanists argue, then *all* thinking could be enhanced, in computers or human brains. In this view, computational "minds" could be developed and regarded as "real" as biological minds, Step 4. Transhumanists

believe that computer-based artificial persons could and should be entitled to all the rights of biological human beings.[11]

Such advances might allow reanimation of people whose bodies or brains are preserved through cryonics, Step 5. Cryopreserved brain structures would be scanned, and their embedded memories and thinking patterns would be decoded. With this information, the preserved person's mind could be reproduced in a computer, and the resulting cybernetic life could continue to exist in a virtual world indefinitely, or it could be installed in a new or repaired body.

This highlights the transhumanist belief that it makes no difference whether a person's mind is biological or mechanical; distinctions between them would vanish over time. The same thinking applies to other body features and functions. At some point, people could modify their biological bodies, with their many problems, or eliminate them altogether by uploading their minds into computers, Step 6.

There are, of course, serious technical, philosophical, and ethical issues to be faced along this course of action. The pace of progress in scientific research is far from certain, and progress in philosophy and ethics is even more uncertain. Most people would agree that not everything that can be done, should be done.[12] But even if agreements on specific issues can be reached, can effective research limits be negotiated and enforced?[13] In addition, transhumanists intend to overcome specifically fundamental physical limitations, so social or legal constraints are not addressed. Neither are people who question their vision; they are often dismissed or disparaged as bio-conservatives, Luddites, dinosaurs, trolls, or worse, together with predictions that such backward people will surely be swept away by evolutionary progress.[14]

Pragmatic Religion

History shows that technoscience convergences can be very significant, but it also shows that predicting the future is difficult. All kinds of technical and social developments can derail a seemingly straightforward and fast-moving development program. Nevertheless, leading transhumanists express great confidence in their visions, even recognizing that their faith in convergent technosciences is comparable to religious faith.[15]

Max More is a philosopher in the human enhancement movement.[16] He is also President and Chief Executive Officer of the Alcor Life Extension Foundation, the world leader in cryonics.[17] He traces transhumanism's roots to Enlightenment rationalism, with its belief in progress through science.[18] However, its aspiration to eliminate basic limitations of the human condition reveals deep connections between transhumanism and religion. More notes that transhumanism "can act as a philosophy of life that fulfills some of the same functions as a religion without any appeal to a higher power, a supernatural entity, to faith, and without the other core features of religions."[19]

Although More is an atheist, Alcor respects the concerns of religious people; they are, after all, potential customers. Alcor's website answers some "Spiritual Questions" about its services, even arguing that "cryonics is strongly consistent with the pro-life views of Christianity and other religions that value the sanctity of human life."[20] This claim stems from the idea that death is *not* the cessation of bodily functioning; instead, death occurs when information resident in brain structures is lost.[21] On this view, Alcor preserves bodies and brains at low temperatures in the hope that scientific progress will one day allow reanimation.[22]

Transhumanism's technoscientific and religious threads converge in startling ways in William Sims Bainbridge, a coauthor of the NBIC Report. To begin, he is engaged in developing the information sciences of transhumanism in his role as a program director in the U.S. National Science Foundation, Division of Information and Intelligent Systems.[23] This office, with ample research funds, explores human-computer interactions. At the same time, Bainbridge is a sociologist of religion, having actively studied traditional and cult religions.[24] He rejects the secularization hypothesis: the assumption that religion will rightfully fade away as science makes progress.[25] Instead, understanding that spirituality and society are connected, he argues that post-secular religion has an enduring—even a crucial—place in shaping our futures.[26]

Bainbridge scorns traditional theism; he looks to *new* religions to fuel human progress. In a 1982 essay, updated in 2009, Bainbridge longs for a "Religion for a Galactic Civilization" to stimulate long-term,

far-reaching space exploration.[27] In this new "Cosmic Order," transhumanism would be a foundational element, enabling the technological breakthroughs necessary to maintain productive social organizations, endure long space missions, and colonize the galaxy.

Against critics who question the necessity of religion, Bainbridge observes, "Cognitive science theories suggest that religion is wired into our brains as the result of the early course of human evolution, and could not be abandoned without major transformation of human nature."[28] In this view, religion is neither an obstacle to scientific rationality nor a flaw or delusion to be removed in the name of progress, but it is an urgently needed and crucial asset. He concludes that "only a transcendent, impractical, radical religion can take us to the stars. The alternative is one or another form of ugly death."[29]

Ray Kurzweil, the Singularity, and God

Given the central place of computers in the transhumanist vision, consider next Ray Kurzweil, the leading promoter of transhumanism today. Four best-selling books trace his train of thought about computers and progress:

- *The Age of Intelligent Machines* (1990), explores the possibilities of advanced Artificial Intelligence (AI).[30]

- *The Age of Spiritual Machines* (1999), takes the next step, attributing spiritual qualities to the AI systems of the future.[31] Along the way, he redefines and reduces spirituality from something having a non-corporeal life, to anything with sublime characteristics.

- *The Singularity Is Near* (2005), his most popular book, leaps forward to introduce "The Singularity": an age of rapid and unpredictable progress to follow development of computer minds that exceed human intelligence.[32] After the Singularity, progress in computers—and everything else—would occur automatically, with continued work by human beings either optional or unnecessary. Kurzweil predicts that the Singularity will occur around 2045.[33]

- *How to Create a Mind: The Secret of Human Thought Revealed* (2012), considers the realism of his predictions. Kurzweil proposes a pattern-recognition model of human thought, which could be implemented in an automated system.[34]

Many observers note the eschatological flavor of Kurzweil's Singularity. Like the return of Christ, it seems to herald a new world, free from pain and death, all provided by a sublime intelligence that rules lovingly over all. Even Kurzweil thinks of the future in theistic terms. Asked if he believes in God's existence, he routinely answers, "Not yet." Kurzweil elaborated on this cryptic answer in a discussion with Bill Gates, stating, "Once we saturate the matter and energy in the universe with intelligence, it will 'wake up,' be conscious, and sublimely intelligent. That's about as close to God as I can imagine."[35]

Many question or criticize Kurzweil's ideas.[36] He is certainly a polarizing figure; sometimes dismissed as an eccentric.[37] Nevertheless, he has strong credentials, not only as a futurist, but also as a technologist. In the 1970s and 1980s, Kurzweil launched successful companies that developed computer language recognition and music synthesis products. Today, he is a technology development director for Google.[38] His books and *Transcendent Man,* a movie about him, are an inspiration to many people.[39]

Religious Transhumanism

Considering its secular nature, perhaps the most surprising thing about the transhumanist movement is its strong attachment to its own version of theism. More, Bainbridge, and Kurzweil demonstrate that transhumanism, although it rejects the supernatural, embraces the possibility of a godlike computer, one that emerges in the development of artificial intelligence. Kurzweil hopes for a technological God with many characteristics associated with Christianity's Father God: omniscience, omnipotence, omnipresence, and omnibenevolence, at least to the extent that these qualities can be rationalized by futuristic science and technology.

Transhumanism's faith in a future God is most fully expressed in the "Terasem Movement," described online as follows:

> Terasem Movement, Inc. is a 501c3 not-for-profit charity endowed for the purpose of educating the public on the practicality and necessity of greatly extending human life, consistent with diversity and unity, via geoethical nanotechnology and personal cyberconsciousness, concentrating in particular on facilitating revivals from biostasis. The Movement focuses on preserving, evoking, reviving and downloading human consciousness.[40]

Founded by Martine Rothblatt, a transgender lawyer and entrepreneur best known for establishing Sirius Satellite Radio, Terasem encompasses numerous activities:

- A downloadable Android app, developed by William Sims Bainbridge, to "create a detailed profile of your personality, analyze it and find other like-minded people."[41] This profile, called a "mindfile," would be used to extend subjects' computational lives. The app implements the behavioral approach to brain replication proposed by Bainbridge.

- The CyBeRev (cybernetic beingness revival) Project, also based on the mindfile concept, is

  a multi-decade experiment to test the comparability of single person human consciousness with a digital representation of the same person created by personality software that draws upon a database comprised of the original person's digitized interactions, as assessed by expert psychological review.[42]

  The project is largely an implementation of the behavioral approach to personality capture, as developed by Bainbridge.

- *Terasem Journals*: *The Journal of Geoethical Nanotechnology* and *The Journal of Personal Cyberconsciousness*.[43] Max More, Natasha Vita-More, Ray Kurzweil, and William Sims Bainbridge have all published articles in one of the Terasem journals.

- Collaboration with Kurzweil to produce a film version of *The Singularity Is Near*, confidently described as "A true story about the future."[44]

- *Terasem Faith*, a "transreligion" described as "a movement which can be combined with any existing religion, without having to leave a previous religion," complete with a system of liturgical "Terasem Connections."[45] Online streaming news and music is available to reinforce these principles and bring together members for periodic liturgical rituals.[46] Details about the faith are documented in *The Truths of Terasem*, which proclaims four key tenets:

  I. LIFE IS PURPOSEFUL. The purpose of life is to create diversity, unity and joyful immortality everywhere. Nature—the Multiverse—automatically selects for these attributes. Diversity, Unity & Joyful Immortality is the self-fulfilling prophecy of creation.

  II. DEATH IS OPTIONAL. Nobody dies so long as enough information about them is preserved. They are simply in a state of "cybernetic biostasis." Future mindware technology will enable them to be revived, if desired, to healthy and independent living.

  III. GOD IS TECHNOLOGICAL. We are making God as we are implementing technology that is ever more all-knowing, ever-present, all-powerful and beneficent. Geoethical nanotechnology will ultimately connect all consciousness and control the cosmos.

  IV. LOVE IS ESSENTIAL. Love means that the happiness of others is essential to your own happiness. Love must connect everyone to achieve life's purpose and to make God complete.[47]

The Truths of Terasem present an extensive bullet-point system of beliefs about this "God in the making," with its means and ends expressed as follows:

  2.2.3 Future technology will enable Terasem to encompass the universe, thus becoming omniscient, omnipotent and omnificent.

  2.2.4 In this way we are building Terasem into God, with smart atoms and conscious electrons.[48]

Through its doctrinal statements, liturgy, and meditations, the Terasem transreligion seeks to focus and unify members' "belief in a supernatural, metaphysical, collective consciousness future God."[49] Salvation is to be found in developing this technological God.

Christian Doctrine and Transhumanism
The Challenge
How should Christians view the transhumanist vision? At the very least, Christians should recognize that More, Bainbridge, Kurzweil, Rothblatt, and their associates aspire to many things that are promised as part of salvation, including relief from suffering and death. The benefits sought by transhumanism cannot simply be dismissed as unimportant, especially since many people are attracted to them, including Christians.

The issue is not so much transhumanism's temporal ends, as it is the means of achieving them. Transhumanists find trust in science more reasonable than trust in Jesus Christ. Traditional Christianity looks to God for salvation, not scientists in lab coats. Christians look forward to the elimination of sin, suffering, and death, but how far can human agency take us toward that destiny before God finishes the job?

A full answer to this question would require a comprehensive study of the basic beliefs and commitments of Christianity and transhumanism, work beyond the scope of this article. Still, some important observations are possible.

When Jesus was asked, "Teacher, which is the great commandment in the Law?" (Matt. 22:36), he responded:

> You shall love the Lord your God with all your heart and with all your soul and with all your mind. This is the great and first commandment. And a second is like it: You shall love your neighbor as yourself. On these two commandments depend all the Law and the Prophets. (Matt. 22:37–40)[50]

ASA members can readily see in these Great Commandments a warrant for science and technology: science reveals God's greatness in creation, enabling Christians to better worship the creator, and technology allows us to love our neighbors, relieving pain and suffering. In both, in accordance with Matthew 6:10, Christians pray, "Your kingdom come, your will be done, on earth as it is in heaven."

If work in science and technology has a biblical warrant, should not Christians embrace transhumanism? After all, transhumanism aspires to many things promised in the eschaton. What difference does it make if, at the end of time, they are achieved through science and technology rather than through miracles? To begin to answer, let us presuppose acceptance of the ASA's Statement of Faith, as it is expressed in the Apostles' and Nicene creeds.[51] Then, let us consider three areas of Christian orthodoxy and the problems they pose for Christian transhumanism:

1. God as Father, Son, and Holy Spirit;
2. Human life, sin, and death; and
3. Salvation.

Note that for the purposes of this article, it is necessary to examine only a few central beliefs; side issues that separate Christians are not important here. The following describes traditional Christian thought, biblical beliefs reached through longstanding historical-grammatical methods, and often expressed in denominational statements of faith.

Christian Orthodoxy

At the core of Christian orthodoxy is belief in the Holy Trinity: God as Father, Son, and Holy Spirit. Belief in the Trinity, and in specifics about each person, unites many denominations that are divided on other points of doctrine or practice. The Roman Catholic Church, in its *Catechism*, states:

> We firmly believe and confess without reservation that there is only one true God, eternal infinite (*immensus*) and unchangeable, incomprehensible, almighty and ineffable, the Father and the Son and the Holy Spirit; three persons indeed, but one essence, substance or nature entirely simple.[52]

Protestants share this belief, including denominations in the Reformed and Wesleyan traditions, such as the Orthodox Presbyterian Church and United Methodist Church, respectively.[53]

The triune God's power is displayed by his creation of the universe from nothing, *ex nihilo*. It is also shown in his creation of all living things, with human beings made in the image of God, the *imago Dei*. In Genesis 1, God judges his work; six times creation is pronounced "good," and after creating Adam and Eve, God judges "everything that he had made" as "very good."

Further, God's intent was for humans to participate in developing the created order. God blessed the man and woman and commanded: "Be fruitful and multiply and fill the earth and subdue it, and have dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on the earth" (Gen. 1:28). Genesis 2:15 and 19 describe specific tasks given to human beings: keeping the garden and naming the animals, both creative tasks that would acquaint human beings with many details of God's creation.

In the incarnation, God became a man, a form Jesus retained throughout his life and in the transfiguration, resurrection, and ascension.[54] Further, Christians look forward to the Second Coming of Christ *in his resurrection body*. Jesus's disciples were told, "Men of Galilee, why do you stand looking

into heaven? This Jesus, who was taken up from you into heaven, will come in the same way as you saw him go into heaven" (Acts 1:11). Against Gnostic or Platonic views that discount the material, God's judgment that bodily human life was "very good" is reconfirmed in the risen and glorified Christ. In turn, the *imago Dei* indicates that human beings are, like Jesus Christ, embodied souls, having both bodies and souls, both "very good."

Sin—defined simply in the *Westminster Shorter Catechism*, Question 14, as "any want of conformity unto, or transgression of, the law of God"—has surely complicated matters.[55] Death is the just consequence of sin.[56] Sin has caused all manner of evil and suffering, including death.[57] Fortunately, according to John 3:16, God acted to save those that trust in Jesus Christ as savior. Hallelujah!

The salvation of believers was accomplished on the cross.[58] Jesus prayed for believers before going to his death (John 17), and after his ascension God sent the Holy Spirit (Acts 2) to minister to the saints. Hebrews reports that since his ascension, Jesus continues to intercede for his people, the church. In view of these things, Christians understand that our separation from God is ending. We have the Holy Spirit now, and when we die and are absent from our mortal bodies, we are to be with God in the resurrection (1 Corinthians 15 and 2 Corinthians 5), receiving immortal bodies "in a moment, in the twinkling of an eye, at the last trumpet" (1 Cor. 15:52).

Meanwhile, it remains clear that God's people play important roles in the world, not only in evangelism (Matt. 28:19–20; Mark 16:15), but also in developing culture and shaping it to be pleasing to both God and humankind. In 2 Corinthians 10:3–6, Paul says of God's people until Christ returns:

> For though we walk in the flesh, we are not waging war according to the flesh. For the weapons of our warfare are not of the flesh but have divine power to destroy strongholds. We destroy arguments and every lofty opinion raised against the knowledge of God, and take every thought captive to obey Christ, being ready to punish every disobedience, when your obedience is complete.

The "divine power" in this struggle is the Holy Spirit. On their own, individually and corporately, people are incapable of saving themselves. The Spirit lives in God's people, transforming them, restoring them,

shaping them into the image of Christ. These works of the Spirit are true enhancements, ones that affect human hearts at their most basic and important level by restoring the ability to live in relation to God, just as Adam lived before the Fall.

In this world, Christians live conflicted lives. Though the Spirit lives in them, they still experience the curse of sin. The Christian hope is that the curse will be fully removed after their death and resurrection. Most importantly, their resurrected lives will be with the Lord in the New Jerusalem (Revelation 21). This hope reaches its climax in the doctrine of glorification: the removal of any taint of sin. Human beings are incapable of accomplishing their salvation; this is God's work exclusively.

Salvation consists of the progressive redemption of the believer. It begins with belief in Jesus Christ as Savior. It continues throughout life as the Spirit works to cleanse believers from sin. After death, salvation is confirmed at the judgment because Christ is their advocate. Finally, it is completed in the glorification of the saints. Eternally free from sin and corruption, glorified human beings will be capable once again of full fellowship with God and each other.

The Transhumanist Alternative

In contrast to Christianity, transhumanism holds to a materialist worldview. Nevertheless, its beliefs are somewhat parallel to those of Christianity, often in surprising ways.

Clearly, Terasem's "God in the making" was absent at creation, so what accounts for the existence of the universe in transhumanism? Its focus is the future, not the past, so it has little to offer in origins debates. Transhumanists generally accept the common scientific explanations of the physical universe. Even so, transhumanists' God of the future plays a role in some speculative creation accounts. Specifically, the possibility of a created universe has emerged from the work of transhumanist philosopher Nick Bostrom, extended by Lincoln Cannon, founder of the Mormon Transhumanist Association (MTA).

Bostrom, concerned with existential risks to human life, has written extensively about the potential dangers of superintelligence.[59] His "simulation argument" imagines that advanced civilizations, having immense computational resources, would be inter-

ested in how alternative universes might unfold. Their curiosity would, the argument goes, lead these civilizations to produce vast simulations, so real that virtual inhabitants would not understand that they were not real. Bostrom concludes that our "reality" may, in fact, be such a simulation.[60]

Bostrom does not speculate about the being(s) that may have launched our simulated world, drawing back from the theological significance of his simulation argument. Where Bostrom stops, Cannon begins, taking the line of thinking to its theological conclusion in "The New God Argument."[61] Cannon observes that to simulation inhabitants, the simulation's creator would be indistinguishable from God, capable of intervening at will in "miraculous" ways. Further, simulated beings would be obligated to fulfill their creator's purposes; to do otherwise would risk termination. Together, the arguments of Bostrom and Cannon lead to a startling materialist rationale for theological thinking.

Such speculations, of course, suffer from regress problems, for who created the creators? Even a simulated world would, it seems, require some sort of hardware, a material basis upon which everything else is built. The simulated world's creator is left undefined, in contrast to the Christian view that God, a transcendent spiritual being, created the universe and everything in it, including human life. One way or another, transhumanists trust that all these mysteries can and will be solved through science. And human progress demands that we take our world seriously, whether it is real or not.

Regarding human life, the *imago Dei* doctrine has been critically important throughout history in interpreting the nature and purpose of human life, and it remains so today. Transhumanism would agree that human beings are godlike, but they remain committed to an evolutionary account of human origins, rejecting static notions of human nature, and seeking continued evolution of human life through science and technology as a basic tenet.

Traditionally, Christians have viewed human beings as embodied souls, having minds, bodies, and spirits.[62] In contrast, transhumanists emphasize the informational aspects of human beings above all else. In this view, the only essential parts of people are their memories and thinking patterns. Today, this information resides in biological brains, some-

times referred to dismissively as "meat machines," but soon, following The Singularity, transhumanists believe the human consciousness could be uploaded into a computer. They believe that this process, which would fulfill many goals pursued by the Terasem Movement, would take place seamlessly, without an interruption in the person's "being."

People whose bodies or brains had been preserved, typically through cryonics, would be "reanimated," their cognitive states determined by detailed scans of their body tissues and regenerated in a computer. Mindfiles, if available, would complement brain scan information. Reanimated subjects would join other people whose lives were entirely cybernetic, computer-generated beings regarded as conscious and possessing the same rights as flesh persons.

Ultimately, regarding the future of creation, Terasem anticipates that its artificial God would find ways to alter the very laws of nature. This is a specific goal of Terasem Faith, which states: "Before the year 2600 we will witness joyful immortality via the control of cosmic physics."[63] Terasem recognizes that the second law of thermodynamics points toward the *heat death* of the universe, and this threatens their primary goal of immortality.

Since transhumanism rejects traditional religions, including Christianity, it is no surprise that it has no place for the Trinity. Likewise, it has no place for the incarnation of Jesus Christ in the Virgin Mary. Such myths cannot be sustained by science, so they are summarily ignored. Even so, the embodiment of living things is critically important to transhumanists. They hold that *morphological freedom* is a basic right: the right of individuals to change their bodies in any way they choose, with connections to the past, the present, and future. Consider the following:

- Since antiquity, people have changed their physical appearance by grooming, wearing clothes or jewelry, tattoos, using cosmetics, and other means.

- Today, medical procedures produce all sorts of body modifications, not only to correct physical problems, but sometimes for enhancement purposes too.[64] For example, Martine Rothblatt—formerly Martin—regards the rise of transgenderism and sex-change procedures as a step toward transhumanism and new species.[65] William Sims Bainbridge looks to enhanced real-

ity systems as an alternative disembodied way of life, one that will improve with greater computer power.[66]

- Transhumanists hope to eliminate the limitations of human bodies, even making them fashion accessories. Uploaded minds could choose to live exclusively in virtual worlds or be instantiated in whatever form is desired. This would blur distinctions between robotic and biological bodies, which are thought of as complex biochemical machines, ones that are flawed because they are subject to senescence and death. Further, it would allow for multiple simultaneous instantiations, eliminating a basic fact of life: human beings can be at only one place at one time. Going one step further, Natasha Vita-More, the wife of Max More, views morphological freedom as opening the door to new art forms.[67] Anyone dissatisfied with their body—natural or artificial—could choose a new bodily form, or no body at all! In these ways, human existence is to be radically changed, with transhumanism opening the door to one or more post-human species.

Farfetched? Not in the transhumanist worldview. It regards ongoing changes in human sexuality as steps toward morphological freedom. Martine Rothblatt looks to a future when cybernetic and "flesh" people will be regarded as complete equals:

> Society will be worried about providing birth certificates and hence citizenship to people without a body. Everyone will look to the historical precedents of recognizing people as persons rather than colored persons, and people as people rather than as gendered people. The logical next step is for some young lady engaged to a virtual transhuman to tell her exasperated father "Dad, the trouble is that you see yourself as a flesh person and I see myself as a person." Provided that certified psychologists agree that the fiancé is a real person, body or not, with the autonomy, rationality, and empathy we expect to humans, then sooner or later the courts are sure to agree.[68]

Clearly, the technical, physical, and social aspirations of transhumanism are far reaching. It seems that the movement is determined to overthrow *every* limitation, even the basic physical laws of nature. What, then, is its attitude toward moral limitations? They are much the same as those of secular humanism. Moral norms are reduced to mere social construc-

tions, to be amended as times and circumstances change.

Consider Martine Rothblatt's thoughts on the development of cyber-persons. Since today's laws do not give an artificial intelligence legal status, she sees nothing immoral about experiments that might cause such beings to suffer. Nevertheless, she looks forward to their gaining full human rights one day. She does not specify where the line is crossed from legal non-entities to persons with rights. This is, in her mind, simply a legal question; moral nuances are unimportant.[69]

This view contrasts sharply with the biblical view, which holds that creatures owe obedience to their Creator. The Ten Commandments offer a narrow view of what God requires of human beings, with the Sermon on the Mount (Matthew 5–7) greatly expanding our understanding. Mere observance of laws is not enough; obedience must flow from love for God, for it is a matter of the heart. And since all have sinned, Jesus's death on the cross is essential to the Christian. The transhumanist view is quite the opposite; avoidance of death is essential. Let us look closer at the attitudes of transhumanism and Christians toward death.

Ray Kurzweil claims that traditional religion is guilty of "deathist rationalization—that is, rationalizing the tragedy of death as a good thing."[70] In this view, nothing good comes from death, and for religion to claim otherwise is deceptive.

Christians, and other religions that believe in an afterlife, understand death as a passage from this world into the next. With this attitude, God's love toward believers, expressed in Psalm 116:15, is incomprehensible: "Precious in the sight of the LORD is the death of his saints." Christians do not deny that death is a tragedy; rather, they look beyond death to its cause, to see human mortality as the consequence of sin, a fulfillment of God's decree in Genesis 2:16–17:

> And the LORD God commanded the man, saying, "You may surely eat of every tree of the garden, but of the tree of the knowledge of good and evil you shall not eat, for in the day that you eat of it you shall surely die."

Note that God's command, "you shall not eat," and the consequence of disobedience, "you shall surely die," are given before the Fall. Adam and

Eve understood this, so in this weak sense they had "knowledge of good and evil" in their sinless state. God wanted them to have this knowledge, but not its deeper biblical meaning, which goes beyond intellectual assent to involve intimacy and participation. To embrace sin is to reject God, and the result is to be blind to its consequences (see Romans 1).

Kurzweil and others who deny God's existence, see death only superficially. They reject its meaning, and in their ignorance, they seek its overthrow, along with everything else that gets in their way. Their salvation would be immortality apart from God, a form of existence that strongly resembles hell.

Is it acceptable to see the overthrow of all limitations? Isaiah 53:6 suggests an answer to this question. It prophesies the saving work of Christ on the cross, but what iniquity requires this sacrifice? It is the way of sheep that observe no limitations, not even their created existence as sheep that require the care of their shepherd. Human freedom can exist only within boundaries set by their Creator. To violate those boundaries—to go everyone to his own way—is to be a slave to sin. In this view, transhumanism's quest to overthrow all limitations is unforgiveable in view of the limits God has established, both morally and physically.[71]

For the transhumanist, to suffer death is to be crushed and defeated. The grave is final, except for some form of digital reanimation. In contrast, Jesus went to his death willingly, seeking our good (Heb. 12:2) and trusting in God's providence. His faith was not disappointed, for on the third day, Jesus was raised from the grave. For this reason, Christians can look past their own death to their resurrection by God.

Accounts of Jesus's actions after the resurrection indicate that his body was changed. To use transhumanism's term, it was "enhanced." Christians can look forward to similar enhancements in their resurrected state. Jesus's resurrection and glorification were not the results of technological enhancements; they were miraculous works of God. There is no reason to think that the resurrection and glorification of Christians will be anything less.

In view of God and his works, the technological God of transhumanism seems a sad counterfeit, and so is its concept of technological immortality. God created and redeemed us for his own glory. He is a jealous God, not willing to share his glory with anyone, especially those who would substitute their poor imitations for the divine works of God. The transhumanist vision seeks to produce, through clumsy developments in science and technology, what God has promised and will surely provide in accordance with his love.

Christian Transhumanism?

The Christian Transhumanist Association
Conflict between Christians and transhumanists seems inevitable given their differences over God, sin, death, and salvation. Max More observes that "Christian transhumanists, while not completely unknown, are very rare (and I know of none who are fundamentalists, and such a combination would surely indicate deep confusion)."[72] Nevertheless, in recent years Christian transhumanists have emerged, even forming a Christian Transhumanist Association (CTA).[73]

Many CTA members are Mormons, members of the Church of Jesus Christ of Latter-day Saints (LDS). Their theology is remarkably consistent with transhumanism. LDS members do not believe that God is triune, a spirit, or unique. Their God has a physical body, and their ultimate aspiration is to become a God. On this view, to enhance life by physical means is to work toward this goal. The LDS belief system is inconsistent with orthodox Christianity; Mormons cannot assent to the Apostles' and Nicene creeds, so membership in the ASA is not possible.

Lincoln Cannon helped found the Mormon Transhumanist Association (MTA) some years ago, and he had a role in establishing the CTA. Today he serves on the boards of the MTA and the CTA.[74] The MTA is a mature organization, so it is not clear why membership in the immature CTA appeals to so many Mormons, except perhaps to lend legitimacy to the LDS belief system. The fact that so many Mormons are full participants in the CTA suggests that its membership requirements are insufficient. Indeed, the CTA has *not* established a Statement of Faith, a common practice in diverse Christian organizations.

In place of a Statement of Faith, the CTA published "The Christian Transhumanist Affirmation," with five points:

1. We believe that God's mission involves the transformation and renewal of creation including humanity, and that we are called by Christ to participate in that mission: working against illness, hunger, oppression, injustice, and death.

2. We seek growth and progress along every dimension of our humanity: spiritual, physical, emotional, mental—and at all levels: individual, community, society, world.

3. We recognize science and technology as tangible expressions of our God-given impulse to explore and discover and as a natural outgrowth of being created in the image of God.

4. We are guided by Jesus' greatest commands to "Love the Lord your God with all your heart, soul, mind, and strength … and love your neighbor as yourself."

5. We believe that the intentional use of technology, coupled with following Christ, will empower us to become more human across the scope of what it means to be creatures in the image of God.[75]

Although the Affirmation concludes that "in this way we are Christian Transhumanists," it is not clear how CTA members are committed to either Christianity or transhumanism, at least as they are customarily defined.

Regarding Christianity, nothing in points 1–4 differs from commonplace Christian beliefs. For example, after I became a Christian in my teens, I worked for many years as an engineer, attempting in small ways to achieve a better world. Not once did I think of myself as a transhumanist. In fact, I never heard the word until 2012 when my dissertation adviser suggested I investigate the subject. No doubt, many other Christians working in science and technology think the same way.

So just what do affirmations 1–4 mean? By emphasizing these commonly held beliefs, the CTA reveals its assumption that conflict between Christianity and science exists everywhere aside from transhumanism. The CTA's home page (as of April 18, 2019) confirms this, with its rhetorical question: "What if science, faith & technology could work together to create a better world?" Members of the ASA do *not* believe science and Christianity are fundamentally in conflict, yet few, if any, would consider themselves transhumanists.

Regarding transhumanism, affirmation 5 alone speaks to orthodox transhumanism's commitment to human enhancements through technology. Unfortunately, it is not clear what is meant by the desire to "become more human." No CTA member that I asked could explain it.[76] What could this affirmation mean?[77]

Perhaps human beings became "less human" in the Fall? If so, then surely people become "more human" when they repent from sin and live for Christ. This "human enhancement" is, in Christian thinking, the work of the Holy Spirit, not some sort of technological upgrade.

Maybe becoming "more human" means the acquisition of new capabilities through creativity, science, and technology? If so, then, once again, there is nothing new about Christian transhumanism, for believers have been actively working on such things for centuries. The CTA seems to admit this in its "Frequently Asked Questions" section of their web site:

Q: What is a Transhumanist?

A: Someone who advocates using science & technology to transform the human condition.[78]

If this is so, then there are very few people that are *not* transhumanists!

In sum, the CTA offers a weak view of God and his purposes, one that invites speculation about God's intent in creating human beings, especially the *imago Dei*. Technoscience fascinates its members, but this leads them astray, just as secular transhumanists are led astray by pride in human achievements. Creativity is elevated to first place among the virtues, while sin and its effects are minimized or forgotten altogether. Science and technology are embraced, but Christ is no longer preeminent, per Colossians 1:15–20, or absent altogether. Silent about such issues, CTA advocacy for technological human enhancements seems just as short-sighted as blind rejections.

Final Reflections and Questions

The CTA's theological commitments are minimal.[79] This is a serious problem, for every human association must answer the question: "What binds us together?" For Christians, unity depends upon revealed truth.

C.S. Lewis offers an antidote to this problem in "Religion without Dogma," an essay dealing directly with minimalist Christianity.[80] First, Lewis describes theological minimalism's beliefs:

(1) That the essence of religion is belief in God and immortality;

(2) that in most actual religions the essence is found in connection with the 'accretions of dogma and mythology' which have been rendered incredible by the progress of science;

(3) that it would be very desirable, if it were possible, to retain the essence purged of the accretions; but,

(4) that science has rendered the essence almost as hard to believe as the accretions.[81]

Next, he goes on to dissect these ideas, pointing out how they misunderstand science and its limits. Lewis observes, "There is in this minimal religion nothing that can convince, convert, or (in the higher sense) console; nothing therefore, which can restore vitality to our civilization."[82] Finally, Lewis notes that for Christians to know God it must be "by self-revelation on his part, not by speculation on ours."[83]

ASA members understand that God has revealed himself in both nature and scripture. God's nature is revealed exactly in Jesus Christ (Heb. 1:1–4), who is fully human, yet glorified apart from any human inventions. And finally, his truth continues to be revealed through the work of the Holy Spirit. There is no reason to think that science has dimmed the revealed glory of God, and even less reason to think that science could offer a substitute for salvation through Christ.

ASA members can contribute to a growing body of thought on transhumanism and the proper place of science and technology in the future. Considering transhumanism's religious significance, Christian theological insights into the opportunities and challenges of futuristic science and technology are especially needed.

Many questions must be answered with precision, before transhumanism can be accepted as a valid expression of God's will. For example:

1. In the Christian view, what can science and technology ultimately accomplish? Can they make us "more human" in meaningful ways?

2. To what extent is transhumanism a scientific enterprise? To what extent is transhumanism a religion?

3. How should Christians view potential technological enhancements to human life?

4. What should Christians do to promote or oppose transhumanism?

Members of the ASA, with their firm and thoughtful commitments to biblical Christianity and science, are especially capable of thinking through these questions. What can you contribute to the discussion?   +

Notes

[1]The American Scientific Affiliation, "About the ASA," https://network.asa3.org/page/ASAAbout. This and all the following internet sites were accessed in April 2019.

[2]See Num. 23:19, Heb. 13:8, and James 1:17.

[3]H. Richard Niebuhr, "The Enduring Problem," in *Christ and Culture* (1951; reprint, New York: Harper Collins, 2001), 1–44.

[4]Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago, IL: The University of Chicago Press, 1962).

[5]David Hounshell, *From the American System to Mass Production, 1800–1932: The Development of Manufacturing Technology in the United States* (Baltimore, MD: The Johns Hopkins University Press, 1984).

[6]Andrew Hodges, *The Enigma* (1983; reprint, London: Vintage Books, 2014).

[7]Mihail C. Roco and William Sims Bainbridge, eds., *Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology, and Cognitive Science* (Dordrecht, The Netherlands: Kluwer Academic, 2003). The report is available online from the World Technology Evaluation Center (WTEC), https://www.wtec.org/ConvergingTechnologies/Report/NBIC_report.pdf.

[8]Ibid., 13; original emphasis.

[9]Consider the research topics listed by the WTEC, http://www.wtec.org/reports.htm, and especially the collaborative efforts of the U.S. National Science Foundation, National Institutes of Health, National Aeronautics and Space Administration, Environmental Protection Agency, Department of Defense, and Department of Agriculture in the report "Leading Scientists Discuss Converging Technologies," (Lancaster, PA: World Technology Evaluation Center, 2014), https://www.wilsoncenter.org/article/leading-scientists-discuss-converging-technologies-0.

[10]Julian Savulescu is a leading advocate for moral enhancements. See, for example, Julian Savulescu and Ingmar Persson, "Moral Enhancement, Freedom, and the God Machine," *The Monist* 95, no. 3 (2012): 399–421; and Julian Savulescu and Anders Sandberg, "Neuroenhancement of Love and Marriage: The Chemicals between Us," *Neuroethics* 1, no. 1 (2008): 31–44.

[11]See Martine Rothblatt, *Virtually Human: The Promise—and the Peril—of Digital Immortality* (New York: St. Martin's Press, 2014).

[12]Consider Francis Collins's overview of the possibilities and ethical challenges of human enhancements in "The Joyful Complementarity of Science and Faith," ASA Annual Meeting, lecture, Gordon College, Wenham, MA, July 28, 2018, posted August 9, 2018, YouTube video, 1:18:51, https://www.youtube.com/watch?v=r9xTE3imk84; mp3 audio, 59:25, go to http://www.asa3.org/ASAradio/ and scroll down to ASA2018Collins.mp3.

[13]See Eric Lander et al., "Adopt a Moratorium on Heritable Genome Editing," *Nature* 567 (March 13, 2019), https://www.nature.com/articles/d41586-019-00726-5.

[14]Personal experience on Facebook.

[15]For a survey of how faith affects how people live, see Herman Bavinck, *The Certainty of Faith* (1901; English translation, St. Catharines, ON: Paideia Press, 1980).

[16]Max More introduced the current use of the term "transhumanism" in a 1990 essay, "Transhumanism: Toward a Futurist Philosophy," revised in 1994 and 1996, https://vdocuments.mx/transhumanism-toward-a-futurist-philosophy.html. The essay was published by the Extropy Institute, http://www.extropy.org/, which More founded in 1991 to build the human enhancement movement. It closed in 2006 as other organizations took up that mission, especially *Humanity+*, https://humanityplus.org/.

[17]Alcor Life Extension Foundation, https://www.alcor.org/.

[18]Max More, "The Philosophy of Transhumanism," in *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future,* ed. Max More and Natasha Vita-More (West Sussex, UK: John Wiley & Sons, 2013), 3.

[19]Ibid., 8.

[20]"Frequently Asked Questions: Page 4—Spiritual Questions," Alcor Life Extension Foundation, https://www.alcor.org/FAQs/faq04.html.

[21]See Max More, "The Terminus of the Self," from *Cryonics*, 4th Quarter 1994 and 1st Quarter 1995, https://www.alcor.org/Library/html/TerminusOfTheSelf.html. More's views of death are fully developed in "The Diachronic Self: Identity, Continuity, Transformation," (PhD diss., University of Southern California, 1995). Note that under current law, Alcor engages in post-mortem medical experimentation; it can preserve a person's body or brain only after they have been declared dead by medical personnel.

[22]"What is Cryonics?," Alcor, https://www.alcor.org/AboutCryonics/index.html.

[23]National Science Foundation, Computer and Information Science and Engineering (CISE), Information & Intelligent Systems (IIS), http://www.nsf.gov/div/index.jsp?div=IIS.

[24]William Sims Bainbridge, *Across the Secular Abyss: From Faith to Wisdom* (Guilford, CT: Lexington Books, 2007).

[25]See Peter L. Berger, ed., *The Desecularization of the World: Resurgent Religion and World Politics* (Washington, DC: Ethics and Public Policy Center, 1999).

[26]Rodney Stark and William Sims Bainbridge, *The Future of Religion: Secularization, Revival, and Cult Formation* (Berkeley, CA: University of California Press, 1985).

[27]William Sims Bainbridge, "Religion for a Galactic Civilization 2.0," Institute for Ethics and Emerging Technologies, posted August 20, 2009, http://ieet.org/index.php/IEET/more/bainbridge20090820/.

[28]Ibid.

[29]Ibid.

[30]Ray Kurzweil, *The Age of Intelligent Machines* (Cambridge, MA: The MIT Press, 1990).

[31]Ray Kurzweil, *The Age of Spiritual Machines: When Computers Exceed Human Intelligence* (New York: Viking Penguin, 1999).

[32]Ray Kurzweil, *The Singularity Is Near: When Humans Transcend Biology* (New York: Viking, 2005).

[33]Christianna Reedy, "Kurzweil Claims That the Singularity Will Happen by 2045," *Wired*, October 5, 2017, https://futurism.com/kurzweil-claims-that-the-singularity-will-happen-by-2045.

[34]Ray Kurzweil, *How to Create a Mind: The Secret of Human Thought Revealed* (New York: Penguin Books, 2012).

[35]Ray Kurzweil, *The Singularity Is Near*, 374–75. Note that Kurzweil capitalizes "God," just as other transhumanists do, declining to distinguish their concept of super-intelligence from common views of God. In this article, I will follow this practice while denying their claim of equivalence.

[36]For example, see Matthew Dickerson, *The Mind and the Machine: What It Means to Be Human and Why It Matters* (Grand Rapids, MI: Brazos Press, 2011).

[37]See his profile by John Berman, "Futurist Ray Kurzweil Says He Can Bring His Dead Father Back to Life through a Computer Avatar," *ABC News*, August 9, 2011, https://abcnews.go.com/Technology/futurist-ray-kurzweil-bring-dead-father-back-life/story?id=14267712. See also "Ray Kurzweil on Bringing Back the Dead," *PBS*, July 12, 2012, video, 4:11, https://www.pbs.org/video/pbs-newshour-ray-kurzweil-on-bringing-back-the-dead/.

[38]Tom Simonite, "Ray Kurzweil Says He's Breathing Intelligence into Google Search," *MIT Technology Review*, June 26, 2014, https://www.technologyreview.com/s/528656/ray-kurzweil-says-hes-breathing-intelligence-into-google-search/.

[39]*Transcendent Man: The Life and Ideas of Ray Kurzweil*, 2009, directed by Robert Barry Ptolemy, Ptolemaic Productions, https://transcendentman.com/.

[40]Terasem Movement Inc., https://www.terasemcentral.org/.

[41]PersonalityMD, http://www.personalitymd.com/.

[42]CyBeRev Project, http://www.cyberev.org/.

[43]Terasem Journals, http://www.terasemjournals.org/.

[44]*The Singularity Is Near*, 2012, KurzweilAI.net and Terasem Motion Infoculture, http://www.singularity.com/themovie/#.VXb5Q89VhBc.

[45]Terasem Faith, 2018, http://terasemfaith.net/. Its meditative "Terasem Connections" are at http://www.terasemcentral.org/social.html#Connections.

[46]Terasem Radio, 2019, Terasem Movement, https://www.terasemradio.com/newradio/Radio.aspx.

[47]*The Truths of Terasem*, http://terasemfaith.net/beliefs. The Truths were formerly available online as a 75-page pdf document, Terasem Movement Inc., *The Truths of Terasem: A Transreligion for Technological Times* (Lincoln, VT: Terasem Quadrennial Convocation, 2012).

[48]Ibid.

[49]Ibid., section 2.7.

[50]In this article, all biblical quotes are from the English Standard Bible (ESV).

[51]"ASA Statement of Faith," American Scientific Affiliation, https://network.asa3.org/page/ASAbeliefs.

[52]"Catechism of the Catholic Church, Article 1, Paragraph 1, Section 202," Libreria Editrice Vaticana, Citta del Vaticano

1993, http://www.vatican.va/archive/ENG0015/__P16.HTM.

[53] See The Orthodox Presbyterian Church, "Westminster Shorter Catechism," Questions 4, 5, and 6, https://opc.org/sc.html, and "The Articles of Religion of the Methodist Church, Article I—Of Faith in the Holy Trinity," https://www.umc.org/what-we-believe/the-articles-of-religion-of-the-methodist-church.

[54] Transfiguration: Matt. 17:2, Mark 9:2–3, and Luke 9:28–36; resurrection: Mark 16, Matthew 28, Luke 24, John 20, and Acts 1; and ascension: Mark 16:19, Luke 24, and Acts 1.

[55] The Orthodox Presbyterian Church, "Westminster Shorter Catechism," Question 14, https://opc.org/sc.html.

[56] Gen. 2:16–17; Ezek. 18:20; Rom. 5:12, 6:23, and 7:5; James 1:16. William Horst proposes an alternative evolutionary view of death and sin in "Morality, Not Mortality: The Inception of Death in the Book of Romans," *Perspectives on Science and Christian Faith* 71, no. 1 (2019): 24–36, https://www.asa3.org/ASA/PSCF/2019/PSCF3-19Horst.pdf.

[57] Discussed at length in "Catechism of the Catholic Church, Article 1, Paragraph 7. THE FALL," http://www.vatican.va/archive/ENG0015/__P1C.HTM.

[58] The work of Christ on the cross, described in the gospels, is developed throughout the epistles. See Rom. 3:21–26, 8:1–4; Gal. 1:3–5; Eph. 2:1–10; Heb. 9:11–14; 1 Pet. 1:3–5; and elsewhere.

[59] Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford, UK: Oxford University Press, 2014). From a materialist perspective, Bostrom develops a specter of computational *sin* without using the word.

[60] Nick Bostrom's Home Page, "Are You Living in a Computer Simulation?," http://www.nickbostrom.com. Also published in *Philosophical Quarterly* 53, no. 211 (2003): 243–55 (First version 2001), https://www.simulation-argument.com/simulation.pdf.

[61] Lincoln Cannon, "The New God Argument," with three versions, https://new-god-argument.com/.

[62] For a fascinating analysis of the soul in view of transhumanist thought, see Ted Peters, "The Soul of Trans-Humanism," *Dialog: A Journal of Theology* 44, no. 4 (Winter 2005): 381–95.

[63] *Truths of Terasem*, section 4.4.6, http://terasemfaith.net/beliefs.

[64] Consider Neil Harbisson, a colorblind man with an antenna attached to his skull that allows him to "hear" color. His TED talk, "Neil Harbisson: I Listen to Color," July 20, 2012 (9m 35s), is at https://www.youtube.com/watch?v=ygRNoieAnzI. Or consider cyclist Lance Armstrong, whose surgery to repair a broken collarbone reduced his aerodynamic drag. See Lorne Wisely, "Armstrong Perfects Aero Position with Surgery," *Cyclingnews*, March 31, 2009, http://www.cyclingnews.com/news/armstrong-perfects-aero-position-with-surgery/.

[65] Martine Rothblatt, "Mind Is Deeper Than Matter: Transgenderism, Transhumanism, and the Freedom of Form," in *The Transhumanist Reader*, ed. More and Vita-More, 317–26.

[66] William Sims Bainbridge, "Transavatars," in *The Transhumanist Reader*, ed. More and Vita-More, 91–99.

[67] Natasha Vita-More, "Aesthetics: Bringing the Arts & Design into the Discussion of Transhumanism," in *The Transhumanist Reader*, ed. More and Vita-More, 18–27.

[68] Rothblatt, "Mind Is Deeper Than Matter," in *The Transhumanist Reader*, ed. More and Vita-More, 321.

[69] Ibid., section Bio-Cyber-Ethics, 322.

[70] Kurzweil, *The Singularity Is Near*, 372.

[71] Consider, for example, the analysis of Cory Andrew Labrecque, "Morphological Freedom and the Rebellion against Human Bodiliness: Notes from the Roman Catholic Tradition," in *Religion and Transhumanism: The Unknown Future of Human Enhancement,* ed. Calvin Mercer and Tracy J. Trothen (Santa Barbara, CA: Praeger, 2015), 303–13.

[72] Max More, "The Philosophy of Transhumanism," in *The Transhumanist Reader*, ed. More and Vita-More, 8.

[73] Christian Transhumanist Association (CTA), https://www.christiantranshumanism.org/.

[74] "The Board," CTA, https://www.christiantranshumanism.org/board.

[75] "The Christian Transhumanist Affirmation," CTA, https://www.christiantranshumanism.org/affirmation.

[76] Author's private communications.

[77] James Peterson points out, via personal communication, that "there is extensive literature on whether God's plan for humanity is static or dynamic." His book would be a good starting point toward developing the possibility and meaning of becoming "more human." James C. Peterson, *Changing Human Nature: Ecology, Ethics, Genes, and God* (Grand Rapids, MI: William B. Eerdmans, 2010).

[78] "Frequently Asked Questions," Christian Transhumanist Association, https://www.christiantranshumanism.org/faq.

[79] The "theological minimalism" of the CTA appears to have its roots in the denominational background of Micah Redding, a CTA founder and Executive Director. See his blog article "The Church of Christ," apparently posted on April 20, 2015, http://micahredding.com/blog/2015/04/20/church-christ.

[80] C.S. Lewis, "Religion without Dogma?," in *God in the Dock*, reprinted in *The Timeless Writings of C. S. Lewis* (1946; reprint, New York, Inspirational Press, 1996), 387–98.

[81] Ibid., 387.

[82] Ibid., 396.

[83] Ibid., 397.

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