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ESCHATOLOGICAL DIMENSIONS OF TRANSHUMANISM

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ABBREVIATIONS

Adv. Haer.	*Adversus Haeresis (Against Heresies)*
AI	*Artificial Intelligence*
Cf.	*Confer*
CRISPR	*Clustered Regularly Interspaced Short Palindromic Repeat*
CTA	*Christian Transhumanist Association*
Cyborg	*Cybernetic Organism*
DCD	*De Civitate Dei (City of God)*
De Trin.	*De Trinitate (On the Holy Trinity)*
DNA	*De-oxyribo Nucleic Acid*
ed./eds.	*Editor/Editors*
FINLON	*First Instance of a New Law of Nature*
FINLONC	*First Instance of a New Law of the New Creation*
IA	*Intelligence Amplification*
MTA	*Mormon Transhumanist Association*
NOMA	*Non-Overlapping Magisteria*
RLE	*Radical Life Extension*
SENS	*Strategies for Engineered Negligible Senescence*
ST	*Summa Theologica*
trans.	*Translator*
vol.	*Volume*
WTA	*World Transhumanist Association*

INTRODUCTION

Human beings exist in this world with a manifold of confusion and doubts regarding their existence. Creatures have limitations bound by space and time, phenomenal and sensory knowledge. So too, the human body is limited, subject to illness, ignorance, passions and ultimately death.

Transhumanists argue that technology will enable humans to overcome bodily limitations by reaching technological immortality. What is transhumanism? In the simplest terms, it is a movement that advocates developing and using new technologies to improve human capacities and enhance human lives. Progress for today's transhumanist is not the evolutionary advancement of biology but our expanded freedom from biology. Scholars also use the term 'posthumanism' in such discussions, which precisely refer to the end result of transhumanist efforts. A posthuman is another species or entity. However, we would prefer the term 'transhumanism' throughout this paper to encompass both unless explicitly mentioned.

Across this spectrum of views, Christian theology plays an essential role in modelling the diverse assessments of technology. Our area of concern would be to understand the eschatological dimensions in such situations. The whole dogmatic side of eschatology would inevitably deal with human existence and its journey, from God and ultimately back to God. How does this journey affect when technology influences humans to become a part of human existence? Do the faculties of soul, i.e., intellect and will revive as scrutiny matters in a techno-centric mode of living? The human person's freedom is modified in enhanced humanity, and much more ironic would be an eschatological discussion on beings empty of souls.

This academic paper entitled 'Eschatological Dimensions of Transhumanism' is divided into three chapters. The first chapter, 'Bridging the Gap between Science and Theology,' deals with bringing the two domains of

science and theology together to develop an integrated endeavour. This would lay a foundation for the succeeding chapters.

The second chapter, ‘Transhumanism: Scope and Challenges’, aims to look into the issue of transhumanism from various theological and social perspectives. Here, we try to answer whether such endeavours be integrated and incorporated in Christian living. Transhumanism finds similarities regarding certain aspects of Christian theology, though there are also many differences.

The third chapter, ‘Techno-theological Eschatology: A Harmonious Output,’ precisely moves into integrating transhumanism with eschatology. Such a theme in the field of science-religion dialogue is much recent. Hence, it is only an in-depth study on different eschatological themes such as death, resurrection and cosmic end as applied in transhuman thought.

Since it is a recent area of study, there is a sort of scarcity in theological attention. There are very few books and articles that address this topic directly. So a definitive agreement, in the end, would be a high-handedness on our part, at least for now. But we hope this paper will be an invitation for many who explore newer vistas in theological studies.

CHAPTER ONE

BRIDGING THE GAP BETWEEN SCIENCE AND THEOLOGY

Introduction

The reality of the created order is so vast that it transcends one's finite grasp and never be held entirely by the intellect. The quest for sufficient reason and a comprehensive understanding of the universe drives the scientist to seek theoretical explanations for the phenomena. On the other hand, the theologian standing on the Scripture and Traditions of the Church interprets reality through the eyes of faith. Yet, both lead the person to the ultimate Truth, i.e., God. There has certainly not been a single and consistent relationship between the two entities. Henceforth, this chapter analyses the various areas of science-religion interaction in the first section. The following section gives a basic framework on eschatology from multiple perspectives, and the final section introduces the transhumanist prospects, related terminologies and their nuances.

1. Various Stances of Relation

"Religion without science is blind, and science without religion is lame,"[1] says Albert Einstein. Though the present age recognizes science and theology as complementary agents to seek truth, it was not so in the past, when both contained mutually contradictory testimonies. The discussion on science and religion accounts for various fluctuating interactions and possibilities ahead.

1.1. Through the History

A historical analysis of the science-religion relationship reveals several fluctuations and compromises over centuries. "Knowing the history of the theology-science relationship […] provides an indispensable perspective for

[1] A. Einstein, "Science and Religion," *Ideas and Opinions*, (New York: Citadel Press 1956), 26.

understanding current activity in this interdisciplinary field."[2] Though tracing the origins of an integrated study to a particular time is difficult, science as part of philosophy was employed by theologians even since the patristic period. In pursuing scientific knowledge for theology, Church Fathers showed closer affinity to Plato than Aristotle.[3] A significant contribution in this area was made in the scholastic period when St. Thomas Aquinas formulated the whole of the then dogmatics and ethics using, mainly, the Aristotelian system. This casts light on the medieval Church's adherence to Geocentrism and dualistic anthropology.

The collapse of the Aristotelian metaphysics and the mechanistic worldview in the wake of the 17th century led to compartmentalization and even conflict of science and religion.[4] Copernican heliocentrism gained acceptance in the rational community due to its mathematical precision and empirical observations. The Church's vigorous defence for the Aristotelian authority led to the pathetic fate of Galileo, who justified the Copernican model with telescopes and mathematical calculations.[5] In the background of Counter-Reformation, the Catholic Church maintained a position against any innovation that undermined the integrity of its dogmas.[6] Though the Galileo episode is often viewed as a start of a war, he died as a devout Catholic, believing that the Book of Nature and the Book of Scriptures can never mutually conflict.

The gap between the two domains widened by the emergence of Newtonian physics. The great success of Newtonian dynamics led to the idea of a mechanical world that moves according to inexorable laws. Though Newton

[2] W. Wildman – M. Richardson (eds.), *Religion and Science: History, Method and Dialogue*, (London: Routledge 1996), 1.
[3] Cf. P.M. Hess – P.L. Allen, *Catholicism and Science*, (Connecticut: Greenwood Press 2008), 8.
[4] Cf. A. Pamplany, *Science and Religion*, (Thellichery: Alpha Institute of Theology and Science 2016), 7.
[5] Cf. J. Hannam, *God's Philosophers: How The Medieval World Laid The Foundations Of Modern* Science, (UK: Icon Books 2009), 209.
[6] Cf. A. Pamplany, *Science and Religion*, 8.

and his works illustrated deep piety for the Intelligent Designer, his views of law-governed cosmos paved the way for material reductionism, rationalism and determinism. The scientific community became more independent and even inimical towards theology during the 19th century. Newer developments comprising electromagnetism, thermodynamics, genetics, atomic structure, etc., began to challenge the traditional worldview. The ground-breaking publication of Darwin's *Origin of Species* was a milestone in evolutionary biology.[7] Where random natural selection was proposed for the emergence of new species, God and His intervention were ruled out. However, the initial "warfare myth"[8] could be a misinterpretation formed by distorted readings. Darwin himself admitted a general providence in the design of natural laws.

The 20th century witnessed significant scientific developments such as the Quantum revolution, Neo-Darwinism, Cosmological Anthropic Principle, Relativity theory, etc., giving a new outlook on reality. Heisenberg's uncertainty principle ruled out a deterministic, objective truth. In classical physics, absolute time and space were overturned into the space-time continuum in Einsteinian thought. Also, massive efforts for synthesis through demythologization within theology and incorporating morality within scientific innovations followed in the last century.[9] In 1992, the Vatican admitted officially that church officials had erred in condemning Galileo.[10] Before this, the Second Vatican Council

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[7] *Origin of Species* is the abbreviated, more commonly-known title for Charles Darwin's classic, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life.* British naturalist Charles Darwin (1809-1882) began drafting Origin of Species in 1842, just six years after returning from his fateful five-year voyage aboard the HMS Beagle (1831-36). In this book, he introduced, for the first time, the concept of natural selection – a natural process which acts to preserve and accumulate minor advantageous variations within living systems.

[8] Such a usage is found in A.D. White, *A History of the Warfare of Science and Theology in Christendom*, (New York: D. Appleton and Co. 1910).

[9] Demythologization is a hermeneutic approach to religious texts that seeks to separate cosmological and historic claims from philosophical, ethical and theological teachings. Rudolf Bultmann (1884–1976) introduced the term, but the concept has earlier precedents. Refer R.A. Johnson, *The Origins of Demythologizing: Philosophy and Historiography in the Theology of Rudolf Bultmann*, (Leiden: E.J. Brill 1974), 127-130.

[10] Pope John Paul II, *Address to the Plenary Session on 'The Emergence of Complexity in Mathematics, Physics, Chemistry and Biology,' The Pontifical Academy of Sciences*, (Oct. 31,

welcomed synthetic approaches to be made in science-religion interaction. Job Kozhamthadam notes that "It really aimed at an aggiornamento, a genuine, comprehensive effort to make the Church be at home in our contemporary world dominated by science and technology."[11] This is asserted by the *Catechism of the Catholic Church* in stating that "[science and technology] must be at the service of the human person, of his inalienable rights, of his true and integral good, in conformity with the plan and will of God."[12]

1.2. Models of Interaction

Ian G. Barbour describes four ways of relating science and religion, which he categorizes as conflict, independence, dialogue and integration.[13] However, it seems proper to use such a schema here with specific addition.

1.2.1. Conflict

The conflict model assumes that religion and science are incompatible and that only one is a legitimate source of knowledge. However, both make rival arguments about the same domain, such that one must choose between them. One specific case would be the opposition between biblical literalism and scientific materialism. Fundamentalists such as Richard Dawkins and Jacques Monod ridicule every religious sentiment and view it as a delusion,[14] whereas;

1992). His Holiness courageously accepts Church's fault in § 10, "…the Galileo case was the symbol of the Church's supposed rejection of scientific progress, or of 'dogmatic' obscurantism opposed to the free search for truth." Available at [http://www.pas.va/content/accademia/en/magisterium/johnpaulii/31october1992.html], (Accessed on Oct. 30, 2021). The Pontifical Academy of Sciences was originally founded on 17 August 1603, as the first exclusively scientific academy in the world by Federico Cesi, Giovanni Heck, Francesco Stelluti and Anastasio de Filiis with the name *Linceorum Academia*, to which Galileo Galilei was appointed member on 25 August 1610, it was re-established in 1847 by Pius IX with the name *Pontificia Accademia dei Nuovi Lincei*. It was moved to its current headquarters in the Casina Pio IV in the Vatican Gardens in 1922, and given its current name and statutes by Pius XI in 1936. Its mission is to honour science, ensure its freedom and encourage research for progress.

[11] J. Kozhamthadam, "Catholicism and Modern Science: Vatican II on Science and Technology," *Jnanadeepa*, vol. 23 no. 2, (2019), 94.

[12] *Catechism of the Catholic Church* § 2294, (Bengaluru: TPI 2019), 552.

[13] Refer I. Barbour, *Religion in an Age of Reason*, (Britain: SCM 1990), 18 – 49.

[14] Refer R. Dawkins, *The God Delusion*, (London: Bantam Press 2006), 31 and J. Monod, *Chance and Necessity*, A. Wainhouse (trans.), (New York: Vintage Books 1971).

empirical science is the only valid and reliable knowledge. Nevertheless, the biblical literalists also fall in the same category when they hold on to the Bible as the sole basis of truth, even to the extent that Scripture must rule over science at occasions of a perceived conflict.

1.2.2. Independence or Compartmental model

One way to avoid conflicts is compartmentalizing both fields. Each has its distinct domain and specific methodology that can be justified on its terms. For example, palaeontologist and evolutionary biologist Stephen Jay Gould employs the acronym NOMA to represent his idea of 'Non-Overlapping Magisteria,'[15] which argues that religion looks into while science deals with objective facts, transcendental realities and human values. In other words, science deals with the "what", and religion deals with the "why." Thus, this model holds that they cannot conflict due to their different functions.

1.2.3. Dialogue

The dialogue model holds that though religion and science are primarily separate, they mutually appreciate, and explanation in one field will have implications for the other. Karl Rahner, John Polkinghorne and David Tracy are advocates of this model.[16]

1.2.4. Integration

In this model, both religion and science have the authority to reveal truth such that they are inextricably intertwined. Theological speculations shape scientific interpretations, just as how science influences insights on divine revelation and actions. Both contribute to a coherent worldview. Arthur Peacocke says, "Science and theology are seen as interacting approaches to

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[15] Refer S.J. Gould, *Rocks of Ages: Science and Religion in the Fullness of Life*, (New York: Ballantine Books 1999), 38 – 58.

[16] Refer K. Rahner, "Science and Theology" (Part I), in *Theological Investigations* vol. 21, (London: Darton, Longman and Todd Ltd. 1973); J. Polkinghorne, *One World: The Interaction of Science and Theology*, (Philadelphia: Templeton Foundation Press 2007) and D. Tracy, *Blessed Rage for Order*, (Chicago: University of Chicago Press 1996).

reality."[17] The best example would be Chardin's vision of "Omega Point"[18] which integrates directional evolution and Christian eschatology.

1.3. Science: Natural Theology at Work

The Big Bang theory presupposes the universe to have originated at a particular moment and thereby dismisses the idea of an eternal universe. It also proves the universe to be contingent. As space-time traces its origin in the Big Bang, something existing before this is illogical. Therefore, one could indubitably conclude that Big Bang occurred from nothing. In other words, the universe came into existence *ex nihilo*. In connection with this, Pamplany says, "The entire universe is a re-expression of sheer nothingness."[19] This is founded on the observation that the total energy in the universe adds up to zero,[20] implying that it would not require any energy for the universe to come into being. It is also true that scientific explanations arguing for vacuum turning into Big Bang at zero energy requirement are inadequate to date. Therefore, the existence of an ultimate Being, God, is indispensable. In the words of Stanley Jaki, "The Singularity of the universe is a gigantic springboard which can propel upward anyone ready to exploit its metaphysical resilience and catch thereby a glimpse of the absolute."[21]

The discovery of DNA double helix structure opened up many scientific studies. The magnificent precision in DNA structure that gives a unique identity to the person cannot be merely attributed to any impersonal cosmic laws or human capabilities. In addition to arguments for intelligent design, science reveals the uniqueness of each person. Yet, these discoveries do not answer how

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[17] A. Peacocke, *Theology for a Scientific Age*, (Minneapolis: Fortress Press 1993), 20.
[18] P.T. de Chardin, *Phenomenon of Man*, (New York: Harper Perennial 1958), 243.
[19] A. Pamplany, *Science and Religion*, 51.
[20] Refer V. Faraoni - F.I. Cooperstock, "On the Total Energy of Open Friedmann-Robertson-Walker Universes," *The Astrophysical Journal*, vol. 587, 483–486 (2003) and H. Choi, "Size and Expansion of the Universe in Zero Energy Universe," *Research Gate* (Nov. 2016), [https://www.researchgate.net/publication/309786718] (Accessed on September 24, 2021).
[21] S. Jaki, *The Road of Science and the Ways to God*, (Chicago: University of Chicago Press 1978), 18.

and why life evolved on this earth. This could only be traced to the eternal wisdom of God, who knows the purpose of our being. Science reveals to religion the mystery element hidden in the observable beyond the mystery dimension of the unseen.[22]

2. Evolving Perceptions of Eschatology

Eschatology is the branch of theology that deals with *eschata*, the last things (death, judgement, heaven and hell) and the cosmic consummation of history at Parousia. Christian eschatology has a personal dimension as it is Christo-centric. The focus of attention has drifted over centuries from *eschata* to *eschatos*, Christ.[23]

2.1. Biblical View

Israel had cherished the belief that YHWH is the Creator and Lord of all universe and sustains it (2 Kgs. 19:15, Ps. 93:1). The Babylonian exile fostered the hope that God would vindicate Israel and reveal Himself as the King of the whole world. Israelites had vague ideas on afterlife realities.[24]

In the New Testament, eschatology revolves around Jesus Christ, who preaches the advent of the Kingdom of God and actualizes it in and through His person. While the object of hope in the Old Testament is the manifestation of YHWH's reign, in the New Testament, it is the Risen Christ Himself in whom the whole kingdom converges.[25] It will consummate in the future (Lk. 11:2), marked by the resurrection of the dead (1 Cor. 15:51-57), when Christ will be 'all in all' (1 Cor. 15:28, Eph. 1:23). The Apostolic era reflected the hope of

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[22] Cf. M. Kallungal, "*Chaos Saidhantika Noothanathvavum Anubhava Saaddhyathakalum*," in A. Pamplany (ed.), *Isvarasamvedhanam Sasthrayugathil*, (Aluva: Institute of Science and Religion 2003), 119.

[23] Cf. J. Ratzinger, *Eschatology*, M. Waldstein (trans.), (Washington DC: The Catholic University of America Press 1988), 1. Also, refer H.U. von Balthasar, *Dare we Hope "That All Men be Saved"?*, D. Kipp – L. Krauth (trans.), (San Francisco: Ignatius Press 1988), 60.

[24] Cf. J. Ratzinger, *Jesus of Nazareth*, (New York: Doubleday 2007), 56.

[25] Cf. R.A. Kereszty, *Jesus Christ: Fundamentals of Christology*, (USA: St. Paul's Publications 2010), 136. Also, Cf. S. Chalakkal, *An Introduction to Christology*, (Kottayam: OIRSI 2011), 54; Cf. J. Ratzinger, *Jesus of Nazareth*, (New York: Doubleday 2007), 146.

imminent Parousia[26] (1 Thess. 4:15-17, 1 Cor. 15:51-52). For John, faith in Jesus Christ is the realization of eschatological joy. While the Synoptics point towards the future Kingdom of God,[27] John presents eternal life as already fulfilled in the believer (Jn. 7:38). The one who believes in Jesus has already passed from death and is free from judgement[28] (Jn. 3:18, 5:24).

A theology of hope, beginning with a promise made to Abraham (people and land – Gen. 12:12-15, 15:16), reviving in Moses (exodus event and covenant), David ('everlasting throne' – 2 Sam. 7:10-14), prophets ('day of YHWH' – Amos 5:18, Mac. 4:1) and completed in Jesus is the overall picture of Biblical eschatology.

2.2. Historical Development

Eschatological themes have been discussed, taught and written down in treatises since the Patristic period. A shift in the focus of these writings is noticeable. However, this section will deal with the eschatological notions of two Church fathers, one Greek (Irenaeus) and another Latin (Augustine), and the greatest of scholastic theologians, St. Thomas Aquinas.

2.2.1. St. Irenaeus of Lyons (120-202)

In *Adversus Haereses*, St. Irenaeus says that there will be a resurrection for both just and unjust,[29] although, in the *Demonstratio*, he speaks of resurrection only for those who possess the Holy Spirit.[30] He explains eternal life in terms of participation in the divine life. For him, not only does vision derive from divinization, but participation in God's life comes from vision. "For God is He who is yet to be seen, and the beholding of God is productive of immortality,

[26] Cf. J. Francis, *Jesus Christ: Our Lord, God, Brother and Saviour*, (Bangalore: St. Peter's Pontifical Institute Publications 2011), 30.
[27] Cf. J. Parappally, *The Meaning of Jesus Christ*, (Bengaluru: TPI 2016), 33-34.
[28] Cf. R. Brown, *The Gospel according to John (The Anchor Bible)* (New York: Doubleday, 1966), 159.
[29] Cf. Irenaeus, *Adv. Haer.* II, 33:5, in C. Coxe (ed.), *The Ante-Nicene Fathers*, (Grand Rapids: Wm. B. Eerdmans Publishing Co. 1985), 411.
[30] Cf. Irenaeus, *Demonstratio*, 42.

but immortality renders one nigh unto God."[31] Although Irenaeus looked for a general resurrection, when God through Christ will raise the whole human race, it does not appear that he envisaged a simultaneous resurrection.[32] The righteous will be raised first amongst humankind, before the earthly reign of our Lord. The wicked will be raised, in their turn, at the close of the Millennium. The purpose of the Parousia is to separate the believing from the unbelieving, and this separation begins at the moment of the first resurrection.[33]

2.2.2. St. Augustine of Hippo (354-430)

Despite his Neoplatonic background, Augustine discovers the importance of a historical understanding of the world and favours a linear history model. He conceives human history as integrated into the broader context of an eschatological drama, in which history is the temporal playing out of God's justice and in which both beginning and end are fixed.[34] Due to original sin, all human beings participated in Adam's fall and became a *massa damnata*, a mass that deserves eternal damnation.[35] Nevertheless, God has chosen or predestined through a free and unmerited grace a small minority to grant them salvation and participation in His own eternal life. For Augustine, the number of elected is minimal so that God can show what all deserve and enforce His Divine justice.[36] There is an identity between the bodies on earth and the risen bodies; however, the risen body is a spiritual body.[37] The eternal end of the saints consists in praising God and their beatific vision of God.[38] Heaven is an eternal state beyond temporal succession in perfect communion with God. Eternal

[31] Irenaeus, *Adv. Haer.* IV, 38:3, 522.
[32] Cf. Irenaeus, *Adv. Haer.* V, 12:3, 538.
[33] Cf. Irenaeus, *Adv. Haer.* I, 10:1, 331.
[34] Cf. R. Bittner, "Augustine's Philosophy of History," in *The Augustinian Tradition*, G.B. Matthews (ed.) (Berkeley: University of California Press 1999), 348.
[35] Refer Augustine, *De Civitate Dei* XIII, 14; XIV, 3 and XXI, 12, in P. Schaff (ed.) *A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church* vol. 2, (Grand Rapids: Wm. B. Eerdmans Publishing Co. 1983), 251.
[36] Cf. Augustine, *DCD* XXI, 12, 463.
[37] Cf. Augustine, *DCD* XXII, 21, 499.
[38] Cf. Augustine, *DCD* XXII, 29, 507.

punishment in hell is an expression of God's justice.[39] He conceives hell as a disciplinary punishment by God, and for him, torment is eternal because original sin is an atrocious act against God.

2.2.3. St. Thomas Aquinas (1225-1274)

The most outstanding contribution of Aquinas to eschatology is his profound analysis of beatitude as the fulfilment of the deepest desires of intelligent creatures and the whole of creation.[40] He argues that human beings cannot attain perfect happiness, beatitude and justice in this life, and therefore the resurrection is needed if human beings are to realize their natural and supernatural end willed by God.[41] Moreover, he believes in the ultimate victory of good over evil and the fulfillment of God's justice at the second coming. He says, "The merits of the elect will be discussed, […] that it may be made manifest to us that their good merits outweigh their evil merits, and thus God's justice be proved."[42]

2.3. Heideggerian Vision

In the early and middle part of his career, Heidegger's personal life and philosophical methodology reflect his move towards a perspective that staunchly excludes God. And yet, in his later works, he affirms some kind of deity and our need for them. Moreover, his account of human existence is 'eschatological' because it envisions the possibility of authentic existence as dependent on a specific (existential) relation to one's future.[43]

The essence of technology as a resource is the impetus that drives Heidegger's look towards the future where mortals will enjoy a greater

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[39] Cf. Augustine, *DCD* XXI, 12, 331.
[40] Cf. M.L. Lamb, "The Eschatology of St. Thomas Aquinas," in T.G. Weinandy – D.A. Keating (eds.), *Aquinas on Doctrine: A Critical Introduction*, (London: T&T Clark 2004), 225.
[41] Cf. Aquinas, Suppl. *ST* III, q. 89, a. 6, in R.M. Hutchins (ed.), Great Books of the Western World, (Chicago: William Benton 1982), 1010.
[42] Aquinas, Suppl. *ST* III, q. 75, a. 1,
[43] Cf. J. Wolfe, *Heidegger's Eschatology*: *Theological Horizons in Martin Heidegger's Early Work*, (UK: Oxford University Press 2013), 118.

unfettered relation to Being. The first step in eschatology recognises that the present is not what it should be. With Heidegger, this present is experienced as homelessness.[44] In the years 1923–8, he developed an 'eschatology without *eschaton*.' "For Heidegger, death and not eternal life becomes the authentic object of eschatology."[45] He claims that an existential experience of death can only be gained by anticipating one's death, never by witnessing another's. Heidegger's "de-theologized eschatology"[46] is a powerful critique of scholasticism and its all too rationalist strands. In Heidegger, too, there is still hidden a silenced 'desire to transcend finitude'[47] on the other.

2.4. Chardin's Optimism on Technological Futurism

A Jesuit priest and palaeontologist, Pierre Teilhard de Chardin (1881–1955), developed a picture of cosmic and biological evolution that is divinely directed and advocated a harmonious motion rather than competitive as demonstrated by Darwinism. He integrates the unique role of Jesus Christ in evolution as its *telos* (Omega point). The end culminates in the convergence of humanity into the complete person of the cosmic Christ.

Chardin reflected seriously on the force of technology in shaping the future. For him, technology represents "the sum of processes combined reflectively in such a way as to preserve in men the state of consciousness which corresponds to our state of aggregation and conjunction."[48] Consciousness relies upon technology for its propagation. Technology and consciousness are in a symbiotic relationship, which finds its most simplistic roots in the coherence of

[44] Cf. M.S. Burdett, *Eschatology and the Technological Future*, (New York: Routledge 2015), 192.
[45] J. Wolfe, *Heidegger's Eschatology*, 72.
[46] J. Wolfe, *Heidegger's Eschatology*, 4.
[47] Cf. M. Heidegger, *Being and Time*, J. Stambough (ed.), (Albany: State University of New York 2010), 394. In the discourse on death, he states, "As a mode of being of *Dasein*, history has its roots so essentially in the future that death, as the possibility of *Dasein* we characterized, throws anticipatory existence back upon its factical thrownness and thus first gives to having-been its unique priority in what is historical. Authentic being-toward-death, that is, the finitude of temporality, is the concealed ground of the historicity of *Dasein*."
[48] P.T. de Chardin, *Activation of Energy*, René Hague (trans.), (London: Collins, 1970), 159.

the mind and body itself.[49] Since his theological system and eschatology depend upon convergent humanity, on an Ultra-Human, he asserts that this is only good if it is set within the overall narrative of Christ as the one who is the Ultra-Human, the end and prototype for all of humanity. This Ultra-Human is not the amorphous transhuman signified by Kurzweil and Bostrom[50] but looks much more like Christ. And, this Christ is not just a cosmic Christ, but a natural enfleshed person for, as Teilhard asserts, there is no meaning in the cosmic Christ without the specificity of the historical Christ.[51]

2.5. Contemporary Notions

Since a comprehensive study on the eschatological ideas of various theologians is not possible due to space limitation, only Rahner, Barth, Moltmann and Ratzinger will be discussed here.

Karl Rahner would assert that "Resurrection does not mean to begin with a salvifically neutral survival of human existence, but means its salvation and its acceptance by God."[52] He stresses that the consummation of the human individual has two aspects: immanent consummation (individuals determine their fate through human freedom and decision); and transcendent

[49] Cf. M.S. Burdett, *Eschatology and the Technological Future*, 128.
[50] Refer N. Bostrom, *Superintelligence: Paths, Dangers, Strategies*, (UK: Oxford 2014) and R. Kurzweil, *The Singularity is Near: When Humans Transcend Biology* (USA: Penguin Group 2005). Nick Bostrom is known for his work on existential risk, the anthropic principle, human enhancement ethics, superintelligence risks. In 2011, he founded the Oxford Martin Program on the Impacts of Future Technology, and is the founding director of the Future of Humanity Institute at Oxford University. He believes that superintelligence, is a potential outcome of advances in artificial intelligence. He views the rise of superintelligence as potentially highly dangerous to humans, but nonetheless rejects the idea that humans are powerless to stop its negative effects. Raymond Kurzweil is an American inventor and futurist. He has written books on artificial intelligence (AI), transhumanism, the technological singularity, and futurism. Kurzweil is a public advocate for the futurist and transhumanist movements and gives public talks to share his optimistic outlook on life extension technologies and the future of nanotechnology, robotics, and biotechnology.
[51] Cf. P.T. de Chardin, *The Divine Milieu*, (New York: Harper and Row 1960), 117.
[52] K. Rahner, *Foundations of Christian Faith*, W. Dych (trans.), (New York: The Seabury Press 1978), 267.

consummation (the transforming grace of God).[53] Regarding the resurrection, he says that "whatever has been created, assumed by Christ and transfigured by his death and resurrection, is also destined to finality and consummation in us."[54] He reflects on the nature of the collective Christian task in working towards a world of greater peace, justice, and love. Rahner distinguishes this task from worldly ideologies and utopianism by emphasizing that humans are only at most co-creators of the future world with God.[55]

For Karl Barth, death will not be the final end of life because the coming of Jesus will be the end of life for everyone without exception. "In hoping in Jesus Christ, the Christian hopes for the glory of God investing the whole creation of God of every time and place with unspotted and imperishable glory."[56] Barth teaches that the resurrection is a temporary phenomenon that occurs at the coming of Jesus for the Final Judgment, but life will end forever after this event. The Risen Christ gives sure promise of His final appearance, the conclusion of His revelation and participation in the life of new cosmic form and therefore of its eternal life.[57]

Jürgen Moltmann's eschatological theology criticises the marginalisation of eschatological hope to the fringes of traditional Christian theology, making hope something that lies in the distant future, unconcerned with the present historical situation of humankind.[58] For him, the kingdom of God awaits us in the future, but it is present to us in hope. He emphasises that the death and resurrection of Christ essentially constitute a single event that dialectically

[53] Refer Rahner, "Eschatology" (Part III), in D. Bourke (trans.), *Theological Investigations* vol. 10 (London: Darton, Longman and Todd Ltd. 1973), 273-289.
[54] Rahner, *The Content of Faith: The Best of Karl Rahner's Theological Writings*, H.D. Egan (ed.), (New York: Crossroad 1994), 657.
[55] Refer Rahner, "Humane Society" (Part I), in J. Donceel (trans.), *Theological Investigations* vol. 22 (London: Darton, Longman and Todd Ltd. 1991), 26-36.
[56] K. Barth, *Church Dogmatics* IV, 3.2 § 73, G.W. Bromiley – T.F. Torrance (eds.), (Edinburgh: T&T Clark 1980), 916.
[57] Cf. K. Barth, *Church Dogmatics* IV, 3.1 § 69, (1983), 351.
[58] Cf. J. Moltmann, "Hope and History," in *Theology Today*, vol. 25, no. 3 (1968), 369-370.

means both the death of God and the future of God. He interprets the resurrection of Christ as follows:

> The risen Christ is and remains the crucified Christ. The God who in the event of the cross and resurrection reveals himself as 'the same' is the God who reveals himself in his contradiction. Out of the night of the 'death of God' on the cross, out of the pain of the negation of himself, he is experienced in the resurrection of the crucified one, in the negation of the negation, as the God of promise, as the coming God.[59]

For Moltmann, eschatology "must formulate its statements to hope, in contradiction to our present experiences of suffering, evil and death."[60] In other words, this hope must prompt the church to protect and promote human dignity.[61]

Joseph Ratzinger (later Pope Benedict XVI) had employed Teilhardian notions in the beginning to explain his cosmic eschatology. Following Teilhard, he asserts that the end of this history, i.e. Omega, is personal.[62] But later, Teilhard no longer becomes the lynchpin of Benedict's cosmic eschatology. Fletcher points out that Benedict abandons the Rahnerian-Teilhardian account. In Fletcher's words, Benedict's "appetite" for this schema has "diminished significantly" over the years.[63] In *Spe Salvi*, Benedict XVI urges the proper proclamation of our hope in the resurrection. In his view, "living forever – endlessly – appears more like a curse than a gift […] this, all things considered, can only be monotonous and ultimately unbearable."[64] His idea of dialogical immortality (we live forever not because of any inherent power but by our relatedness to God) exhibits a particular affinity with Augustine's thought.

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[59] J. Moltmann, *Theology of Hope*, (Minneapolis: Fortress Press 1993), 171.
[60] Moltmann, *Theology of Hope*, 18-19.
[61] Cf. Moltmann, *The Way of Jesus Christ: Christology in Messianic Dimensions*, M. Kohl (trans.), (Philadelphia: Fortress Press 1990), 101-102.
[62] Cf. J. Ratzinger, *Introduction to Christianity*, J.R. Foster (trans.), (San Francisco: Ignatius Press 2004), 322.
[63] Cf. P.J. Fletcher, *Resurrection Realism*, (Eugene: Cascade Books 2014), 188.
[64] Benedict XVI, *Spe Salvi* § 10 (Trivandrum: CIPH 2009).

Commenting on 1 Corinthians, he claims that Paul does not teach "the resurrection of physical bodies, but the resurrection of persons."[65]

This section addressed the various perspectives of eschatology. The underlying objective behind this attempt was to understand how the thought of 'the last' is explained in biblical, patristic, philosophical, scientific and theological arenas. This shall function as an introduction to the first part of the topic. The second part, 'Transhumanism' will be introduced in the upcoming section.

3. Life 3.0: Various Schemes of Transhuman Strategies[66]

Though put under the common term 'transhumanism', the technologies that claim to dominate the future of evolution are widely diverse and manifold. A few of such technologies are considered below.

3.1. Genetic Enhancement

Gene editing is a type of genetic engineering in which DNA is inserted, deleted, modified or replaced in the genome of a living organism.[67] In 1973, Stanley Cohen and Herbert Boyer developed recombinant DNA technology. Scientists quickly became interested in perfecting methods of genetic engineering. Primary genetic therapy started in 2000, and the sex selection of children using this technology started in 2001.[68] In 2012, the discussion on CRISPRCas9, a new technological tool, started. It is a cut-and-paste molecular

[65] Ratzinger, *Introduction to Christianity*, 357–358.

[66] Life 3.0 is a usage by Max Tegmark who described evolution in three stages: biological, cultural and technological. Life 1.0 is determined by its DNA, which changes only through evolution over many generations. Life 2.0 can learn complex new skills such as languages, sports and professions and can fundamentally update their worldview. Life 3.0, which does not yet exist, can dramatically redesign itself, rather than having to wait for it to evolve gradually over generations. "Life 3.0 is the master of its own destiny, finally fully free from its evolutionary shackles." Refer M. Tegmark, *Life 3.0: Being Human in the age of Artificial Intelligence*, (New York: Alfred A. Knoff 2017).

[67] Cf. D.B. Resnik, "Genetic Engineering," in *Encyclopedia of Bioethics* vol. 2, (USA: Macmillan Reference 2004), 960-961.

[68] Cf. K. Lee, "Dangers of Genetic Engineering: New Forms of Discrimination," *Ethics and Medics*, vol. 33, no. 5 (2013), 1–2.

scissors system that allows the genetic engineer to make precise changes in the DNA sequence of any organism. Later, CRISPR Casf1 was invented, which is more accurate than CRISPR Cas9.[69] With the completion of the Human Genome Project in April 2003, scientists found ways in employing several gene therapies for many diseases that afflicted the human race. In 2017, scientists claimed that they had therapeutically edited embryos successfully.[70] However, this puts forward what determines a defect or illness.

Geneticist Robert Sinsheimer suggests that we lose reverence for life when we see ourselves as the creators of life.[71] Such technologies place the problem of forced determinism. Germ-line enhancement is permeant and irreversible. Individuals have no choice and are subject to changes they cannot control. Also, discussions on enhancement usually focus on developing intelligence and physical capacities, which have priorities in scientific and socio-political contexts.[72] Ethical objections to eugenics seem to presuppose enhancement and not therapy. The growing power to control the human genetic makeup could raise the emergence of humanity's new strain.

3.2. Cyborgs (Cybernetic Organism)

With an antenna implanted in the skull to confront his innate problem of colour blindness, Neil Harbisson became the first legally recognized cyborg in 2004.[73] The term 'cyborg' – a shortened form of 'cybernetic organism' – was coined by Manfred Clynes and Nathan Kline in 1960 to refer to their "concept of a mechanically enhanced or altered human being who could survive extra-

[69] Cf. N.G. Austriaco, "Genome Editing with CRISPR," *Ethics and Medics*, vol. 41, no. 3, (2016), 1–4.
[70] Cf. J. Zalot – T. Pachalczyk, "The Ethical Challenges of Gene Editing," *Ethics and Medics*, vol. 42, no. 12 (2017), 3-4.
[71] Cf. R.L. Sinsheimer, "Genetic Engineering: Life as a Plaything," *Technology Review*, vol. 86, no. 14 (1983), 14–70.
[72] Cf. T.A. Shannon, *What Are They Saying About Genetic Engineering*, (New York: Paulist Press 1985), 43 – 44.
[73] Cf. M. Stix, "World's First Cyborg Wants to Hack Your Body," *CNN Business*, Jan. 7, 2016. [https://edition.cnn.com/2014/09/02/tech/inovation/cyborg-neil-harbisson-implant-antenna/index.html] (Accessed on Sept. 23, 2021).

terrestrial environments."[74] This seemingly generic definition does not fully address the technical endeavour.

Together with this, another aspect known as brain emulation (or whole brain emulation) is the idea of uploading the full information contained within the human brain onto a computer substrate. The identity and personality will continue in a digital format even after their biological death. Theorists propose this will occur in several 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."[75] While transhumanism is considered the next step in human evolution, the cyborg is positioned as an endpoint for integrating humans, machines and computers.[76] In dealing with such an issue, one must not limit oneself only to technological influence but also consider the composite's anthropological framework. In short, a cyborg is "a hybrid species of nature that demands a hybrid analysis."[77]

3.3. Artificial Intelligence (AI)

Back in the 1950s, scientists realized the possibility of programming a computer to behave intelligently. Computing and the internet gave AI the necessary foundation for rapid development. Big Data and its corresponding analytics have further extended intelligence levels. Winston defines AI as "the study of ideas that enable computers to be intelligent."[78] Usually, AI is primarily thought of in terms of robotics. But beyond this, it involves the ability of

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[74] A. Kull, "Cyborg and Religious: Techno Culture and Techno Nature," *Scientia et Fides*, vol. 4, no. 1, (2016), 300.
[75] D. Passini, *Techno-theology: A Theological Algorithm for Being Human in a Technological Age*, Doctoral Dissertation, (Oregon: George Fox University 2020), 129. Published in Digital Commons (George Fox University) [https://digitalcommons.georgefox.edu/dmin].
[76] Cf. N. Vita-More, "The Transhumanist Manifesto," *Humanity+*, (1983, revised in 2004), [https://humanityplus.org/transhumanism/transhumanist-manifesto/] (Accessed on March 9, 2021).
[77] A. Kull, "The Cyborg as an Interpretation of Culture-Nature," *Zygon*, vol. 36, no. 1, (2001), 53.
[78] P.H. Winston, *Artificial Intelligence*, (USA: Addison-Wesley 1984), 1.

programming computers and other technology-enabled devices to understand the nature of intelligent thought and action.[79] In short, AI involves computer systems improving their performance independent of human intervention ('machine learning').[80]

AI is regarded as the most incredible technological endeavour made in human history. "We are under a Copernican revolution offered by AI, which is an organic development of a technological development in the present history of the world."[81] Alain Cardon explains the hairline difference between human intelligence and AI:

> We can therefore see the central difference between the human psyche and an artificial psyche: the human psyche contains potentialities of elements that are memorized through possible but inactive links between neurons. The artificial system, however, will contain dormant agents that will be coded and represented as agents, and these must be made to activate themselves in order for the memorized fact to reappear.[82]

Most smartphones use image recognition AI to unlock devices, apps and folders. In healthcare, deep learning algorithms of image recognition can perform at human or super-human levels in various tasks. However, such image recognition technologies also raise serious ethical questions. Computer-generated pornography could tarnish the reputation of the targeted person and could also pose widespread mistrust and propagate several social evils. It is easy to imagine how blurring the line between what is verifiably real and what is not could negatively affect us individually and collectively.[83]

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[79] Cf. B.G. Buchanan, "A (Very) Brief History of Artificial Intelligence," *AI*, vol. 26, (2006), 55.
[80] Cf. C. Samuelson, "Artificial Intelligence: A Theological Approach," *The Way*, vol. 59, no. 3, (2020), 41.
[81] R. Kavalackal, "Artificial Intelligence: An Anthropological and Theological Investigation," *Asian Horizons*, vol. 14, no. 3, (2020), 701.
[82] A. Cardon, *Beyond Artificial Intelligence: From Human Consciousness to Artificial Consciousness*, (USA: John Wiley and Sons Ltd. 2018), 115.
[83] Cf. M. Dorobantu, "Recent Advances in Artificial Intelligence (AI) and Some of the Issues in the Theology & AI Dialogue," *ESSSAT News & Reviews*, vol. 29, (2019), 9.

3.4. Intelligence Amplification (IA)

Intelligence amplification (also known as cognitive augmentation and enhanced intelligence) refers to the effective use of information technology in augmenting human intelligence.[84] It is sometimes contrasted with AI. The latter has encountered various fundamental obstacles. Comparatively, IA faces fewer problems as it needs technology merely as additional support for an autonomous intelligence already in function.

It focuses on the assistive roles of AI, emphasising that it is meant to enhance human intelligence rather than replace it. IA was designed due to fears and concerns about AI as a whole. IA, many believe, offers a safer way to develop tools and technologies that gain their efficacy from human consciousness rather than from artificial intelligence. Tools developed through IA have a variety of purposes, such as image processing tools, natural language tools, developing knowledge bases, and electronic discovery.[85]

3.5. Cryonics

The concept of Cryonics was introduced by Robert Ettinger, the founder of Cryonics Institute, in his work, *Prospects of Immortality*.[86] As per the Cryonics Institute, the process of cryopreservation involves "cooling a legally-dead person to liquid nitrogen temperature where all physical decay essentially stops."[87] The Alcor Life Extension Foundation, Arizona, was founded in 1972

[84] Cf. A. Lilhare – D. Rane, "Overview of Intelligence Amplification," *IOSR Journal of Engineering*, 30. Available at [www.iosrjen.org], (Accessed on Oct. 15, 2021).
[85] Analytics Insight, "How does Intelligence Amplification make Smarter AI?," (Aug. 26, 2020) [https://www.analyticsinsight.net/how-does-intelligence-amplification-make-smarter-ai/] (Accessed on Jan 18, 2022).
[86] Robert Ettinger published *The Prospect of Immortality* in 1962, a book that gave birth to the idea of cryonics – the process of freezing a human body after death in the hope that scientific advances might one day restore life. The book discusses issues such as personal survival after death, body freezing, extension of lifespan, reincarnation, contrasting views on soul etc.
[87] Refer Cryonics Institute, [https://www.cryonics.org/about-us/faqs/] (Accessed on Sept. 13, 2021).

as the leading organization in cryonics, research, and technology, claims to bring many dead people back to life. It has 184 patients and 1379 members.[88]

Associated with this is the concept of cryothanasia, the process of provoking the death of a terminally ill patient to have a better medical chance of extending their life through cryonics. Minerva and Sandberg consider that since "administering cryothanasia is ethically different from administering euthanasia [...] objections to euthanasia should not apply to cryothanasia, and cryothanasia could be considered a legal option also where euthanasia is illegal."[89] Some opt for neuropreservation[90] than the preservation of the whole body.

3.6. Radical Life Extensions and Immortality

One of the causes of physical degeneration involves telomeres getting shorter at cell division. Once a cell runs out of telomeres, it cannot multiply anymore and dies. Nevertheless, cells treated with telomerase enzyme show a reversal in this process.[91] Therefore, British biologist and renowned life-extension researcher Aubrey de Grey view ageing as a process of accumulating damage that can be repaired.

Another idea proposed by Freitas is nanomedicine, which refers to the application of nanotechnology to preserve and improve human health. He theorizes about medical machines, only a few micrometres in size. These "nanorobots" should be introduced into the body in large amounts to detect and

[88] Refer Alcor Life Extension Foundation, [https://www.alcor.org/about/] (Accessed on Sept. 12, 2021).
[89] F. Minerva – A. Sandberg, "Euthanasia and Cryothanasia." in *Bioethics*, vol. 31, no. 7, (2017), 526.
[90] Neuro-preservation is the process of preserving only the brain to retrieve information instead of the whole body. "The idea is that the personality is preserved in brain structure and that if you can freeze it fast enough, future science may be able to bring back the same person with his or her memories preserved." See R.U. Sirius – J. Cornell (eds.), *Transcendence: The Disinformation Encyclopedia of Transhumanism and the Singularity*, (San Francisco: Disinformation Books 2015), 59.
[91] Refer L. Grossman, "Man and Machine," in *Times*, vol. 177, no. 7 (2011), 29.

repair all kinds of damages.[92] While living indefinitely appears to be an excellent idea, it may cause frustration in the long run. This also has social implications in future. Kurzweil asserts that RLE "will result in overpopulation and the exhaustion of limited material resources to sustain human life."[93] Scarcity of resources further leads to competition and a fight for survival. As a result, the disparity between the rich and the poor will aggravate more.[94] However, currently, science lacks resources for an indefinite extension of life.

Conclusion

Theology must be presented in the context of an influential and prevalent trend. In this light, science could be an effective hermeneutical tool in theology for the coming generations. Aquinas' transformation of Aristotelian metaphysics into a meta-theology gives a methodology to create a meta-theology from science.[95] Tipler opines that theological research in the twenty-first century would require a PhD in particle physics and adds the example of Aquinas who, "in fact was one of the leading scholars of Aristotelian physics of his day."[96] Beyond mutual co-existence, science and theology could work together in understanding God and His revelation. The first section demonstrated that scientific discoveries lead one to unravel His mysteries. The later sections focussed on introducing various terms that recur in the following chapters. The upcoming chapters shall examine transhumanism from diverse theological perspectives and attempt a comparative and integrated study.

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[92] Refer R.A. Freitas, *Nanomedicine: Basic Capabilities*, (Texas: Landes Bioscience 1999); and "Nanomedicine: The Quest for Accident-Limited Healthspans," in Immortality Institute (ed.), *The Scientific Conquest of Death: Essays on Infinite Lifespans*, (Buenos Aires: Libros en Red 2004), 77-91.
[93] R. Kurzweil, *The Singularity is Near: When Humans Transcend Biology*, 28.
[94] Refer K. Pandikattu, "God Among Immortal Humans," in R. Herrmann (ed.), *Expanding Humanity's Vision of God*, (West Conshohocken: Templeton Foundation Press 2012), 220.
[95] Cf. M. Chandranknnel, *The Condemnation and Rehabilitation of Galileo Galilei by the Catholic Church*, (Bangalore: Dharmaram Publications 2004), 178.
[96] F.J. Tipler, *The Physics of Immortality*, (New York: Doubleday 1994), 361.

CHAPTER TWO

TRANSHUMANISM: SCOPE AND CHALLENGES

Introduction

One of the various thoughts that gained recognition in the twentieth century was transhumanism. With the growing influence of postmodernism, this scientific, cultural movement kindled the fire of discussion and debate among scientists, philosophers, and theologians alike. Transhumanism is a class of philosophies that seeks the continued evolution of human life beyond its present form via science and technology and is guided by life-promoting principles and values. This chapter begins with the historical development of the idea, followed by a study on the transformation of human beings from the viewpoint of theological anthropology, with particular emphasis on biblical and patristic notions. Further, it discusses the theological, social, and ethical implications of transhumanism and concludes with the potential risks and challenges this thought could pose in the future.

1. Historical Background

Though the term 'transhumanism' has been often seen since the wake of the last century, it is noteworthy that the earliest instances of this word were not in the twentieth century – although not necessarily with precisely the same meaning as now. In 1312, Dante Alighieri, in his *Divine Comedy*, uses the term *transumanare*, meaning 'to pass beyond the human', but his usage was religious or spiritual.[1] Later, in his 1935 work, *The Cocktail Party,* T.S. Eliot uses the word 'transhumanized,' which is about illumination rather than technologically mediated transformation.[2] Julian Huxley, the first director-general of the UNESCO and President of the British Eugenics Society, makes a closer aptness

[1] Refer Dante, "Paradise, Canto I," in *The Divine Comedy*, (New York: Everyman's Library 1967), 294.
[2] Refer T.S. Eliot, *The Cocktail Party*, (London: Faber and Faber Ltd. 1949), 147.

in the brief chapter "Transhumanism" of his 1957 book, *New Bottles for New Wine*. He used it to mean "man remaining man, but transcending himself, by realizing new possibilities of and for his human nature."[3] However, he did not develop this evolutionary view into a philosophical position.

However, proper care must be given to distinguish precursors and proto-transhumanists from early transhumanists properly. For example, the European alchemists of the Middle Ages can be referred to as proto-transhumanists. In *Oration on the Dignity of Man* (1486), Pico della Mirandola portrays God as the artisan explaining to humanity its nature in a way that it resembles transhumanism than the religious notion.[4] As science flourished, some Enlightenment thinkers began to think in line with proto-transhumanists. It continued to rule the core of the Enlightenment ideals – rationality and scientific method, individual rights, and the search for new forms of governance.[5] With the publication of Darwin's *Origin of Species*, the traditional static view gave way to the idea of humanity as a step in the evolutionary path of development. Then, in a philosophical rather than scientific form, Friedrich Nietzsche picked up this idea and declared that humans are something to be overcome.

A significant precursor was Nikolai Fedorovich Fedorov (1829–1903), a Russian Orthodox Christian philosopher and participant in the Russian cosmism, who advocated "that it is humanity's destiny to defeat death, becoming immortal either by bioengineering or technology."[6] An interest in

[3] J. Huxley, *New Bottles for New Wine: Essays by Julian Huxley*, (London: Chatto and Windus 1957), 17. There exists certain ambiguity regarding the exact year, with some scholars pointing to Huxley's lectures delivered and subsequently published in 1951 and some even mentioning as early as 1927 when his essay 'Evolutionary Humanism' was published in Religion without Revelation.

[4] M. More, "The Philosophy of Transhumanism," in M. More – N. Vita-More (eds.), *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future* (UK: John Wiley & Sons Inc. 2013), 9.

[5] Cf. M. More, "The Philosophy of Transhumanism," 10.

[6] A. Nugent, "The Russian Philosopher Who Sought Immortality in the Cosmos," *Atlas Obscura* (May 29, 2018), 5 [http://www.atlasobscura/articles/what-is-russian-cosmism-nikolai-fedorov] (Accessed on May 13, 2021).

studying Teilhard has been observed in the recent past. Eric Steinhart considers Teilhard to hold a pivotal role in transhumanism. He noted, "Teilhard was one of the first to articulate transhumanist themes," and "his thought has influenced transhumanism itself."[7]

Transhumanism as we know it currently began to take form in the latter part of the twentieth century. Many felt that the same technological advances that could render longer, healthier lives could also enable us to change ourselves in other ways. For example, in his book, *The Prospect of Immortality*, Robert Ettinger, opined that one could continue their existence by preserving themselves at ultra-low temperatures at the point of clinical death.[8] His *Man into Superman* (1972) studied other transformative possibilities and explicitly used the term "transhuman." In 1970, Marvin Minsky made optimistic forecasts of the advent of artificial intelligence (AI). In 1994, he explained the need to replace our biological brains with superior computational devices. In 1965, I.J. Good argued that AI development would result in an intelligence explosion. Such ideas were elaborated by several other influential writers such as Bostrom, Kurzweil, and Vinge.

Art forms and art theory, along with philosophy, science, and technology, played a role since 1982, when Natasha Vita-More wrote the Transhuman Manifesto, followed by Transhuman Arts Statement.[9] In 1997, a later version of the manifesto was released via the Internet, and later signed by hundreds of thinkers, to be placed aboard the Cassini Huygens spacecraft. In 1998, the Transhumanist Declaration[10] was made by an international group of authors. In

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[7] E. Steinhart, "Teilhard de Chardin and Transhumanism," in *Journal of Evolution and Technology* vol. 20, no. 1, (Dec. 2008), 2.
[8] Refer R. Ettinger, *The Prospect of Immortality*, (Ann Arbor: Ria University Press 2005), 65-66.
[9] Cf. M. More, "The Philosophy of Transhumanism," 12. For further reading, see N. Vita-More, "The Transhumanist Manifesto," *Humanity+*.
[10] Refer "Transhumanist Declaration," in M. More – N. Vita-More (ed.), *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, 54.

the same year, the World Transhumanist Association was founded. After Extropy Institute was closed, the WTA (renamed Humanity+) became the chief organization in this field.

2. Biblical and Patristic Anthropological Views on Transcendence and Transformation

Discourses on human enhancement are often seen as challenges to Christian anthropology and eschatology. Theological anthropology considers the human being in relation and dependence "upon God for his/her origin, nature, condition, dignity and destiny."[11] The Old Testament has varied notions on human existence. Hence, one cannot expect a comprehensive approach to anthropological thought. Human is entirely flesh and entire spirit. The Hebrew word for body and soul is *baasar* and *nephesh*, respectively.[12] Unlike the anthropogenetic concept in pagan religions, which viewed humankind as born of gods, Judaism describes the human being as an exemplary creation of Yahweh in his image and likeness.[13] Though a doctrinal approach to human beings' essence under Hellenistic categories is not evident, the Old Testament views humans always in contrast, yet in relationship with God.

2.1. Pauline View

St. Paul refers to human beings directly or indirectly in all his epistles, but his most extensive ponderings occur in Romans and Corinthians. Paul's most inclusive term for the human being as an embodied being is *soma*, by which he means the whole self.[14] It is necessary to analyse his understanding of the human being as a spiritual entity and consider God's spirit's role in revitalizing that being (Rom. 5:5; 1 Cor. 2:12; Gal 4:6). A person attains the fullness of Christ

[11] J.A. Fichtner, "Theological Anthropology," in W.J. McDonald (ed.), *New Catholic Encyclopedia* vol. 1, (Washington D.C.: Catholic University of America 1967), 613.
[12] Refer C.B. Bass, "Body," in G.W. Bromiley (ed.), *The International Standard Bible Encyclopedia* vol. 1, (Michigan: Wm B. Eerdmans Publishing Company 1979), 528-529.
[13] Refer H. Kung, *Judaism*, J. Bowden (trans.), (London: SCM Press 1992), 30-32.
[14] Cf. J.A. Fitzmyer, *Romans (The Anchor Bible)*, (New York: Doubleday, 1966), 159.

in His mystical body (Eph. 1:23, 3:19). He connects the human being to the cosmic body of Christ (Gal 2:20) and the corporate body of Christ '*ekklesia'* (Rom. 12:5; 1 Cor. 12:27). The human being is not, therefore, an isolated being. It exists in a relationship, both with the Creator and the creation.[15]

There are specific areas where a cordial dialogue between transhumanists and St. Paul is possible. First, Paul's articulated ambivalence towards the present empirical human body advocates that he accepts the idea that the human body could and would be transformed into another kind of corporeal existence (1 Cor. 15: 2 Cor. 4 and Rom 8). This distinction between the current empirical body and the 'Christic' future embodiment aids a potential conversation with transhumanism. Second, Paul repeatedly expresses his desire for a release from his current bodily state (Phil. 1:21, 23: 2 Cor. 5:2, 4-5) and maintains that the current form of the human body will be transformed with a non-perishable, glorious, immortal spiritual body (1 Cor. 15:42-49, 50-57).[16] In 1 Thess. 4:13-17, stressing the totality of the resurrection, the intimate ongoing relationship of the human with God is at the core of his hope, not simply the extension of his current human form.

However, Paul and transhumanists diverge in certain fundamental opinions about the human being. First, Paul's position on the human being is defined only in relationship to God. Contrary to this, most transhumanists attribute a high degree of autonomy to the human and locate humanity's problems primarily with the human being's physical and mental constrictions. Transhumanists realize that the human being is capable and responsible for its transformation whereas, Paul gives credit to the prerogative and power of God (Rom 8:3; 2 Cor. 1:9).[17] Moreover, in contrast to many transhumanists, Paul insists that the human being is, and must be, an embodied being. Transhumanist perspectives

[15] Cf. S.J. Kraftchick, "Bodies, Selves, and Human Identity: A Conversation between Transhumanism and the Apostle Paul," *Theology Today*, vol. 72 no.1, (2015), 57-58.
[16] Cf. S.J. Kraftchick, 58.
[17] Cf. S.J. Kraftchick, 59.

on humans follow a Platonic conception of the primary self as mind/spirit enclosed or imprisoned by a body, while Paul rejects this form of anthropological dualism. For him, redemption is not a release of the soul from the body but a re-embodying as a spiritual being (Rom 8:11).[18]

The combination of Paul's understanding of divine sovereignty, the human condition, and God's manifestation of life in Christ are the reasons for his eschatological language and orientation. In contrast to transhumanist belief, Paul attributes this possibility to God alone. Even if human beings somehow could overcome physical death, they do not have, nor can they have, the ability or the status to overcome the reality of spiritual death. As Paul sees it, 'life' is more than continued existence.[19] Thus, the desire for prolonged existence does not equate to Paul's understanding of redemption or eternal existence. Pope Benedict XVI in his encyclical, *Spe Salvi*, conveys this idea: "eternity is not an unending succession of days in the calendar, but something more like the supreme moment of satisfaction."[20]

2.2. Anthropology of Maximus the Confessor

Although imbued in a Neoplatonist thought, Maximus' anthropocentric cosmic vision makes harmony with the transhumanist movement.

a) Maximus firmly and positively affirms humanity's essential goodness and potential and holds to a theory of progress in which humanity has a magnificent destiny.
b) As with the transhumanists, this glorious destiny depends on human action and choices. Thus, humans have a significant role to play in their ultimate destiny.
c) Maximus' teleological anthropology anticipates not simply a spiritual transformation of humanity but a corporeal one too. Thus, Maximus values

[18] Cf. J.A. Fitzmyer, *Romans*, 173.
[19] Cf. S.J. Kraftchick, "Bodies, Selves, and Human Identity," 59.
[20] Benedict XVI, *Spe Salvi* § 12.

the body as central to deification, just as transhumanists realize the body as the locus of the evolutionary change that will transcend humanity.

d) Both Maximus and the transhumanists understand the universe to have a purpose. For Maximus, this purpose is that of the Creator, whose love for his creation leads him to deify; for the transhumanists, this purpose originates within the human, who, through the technology, can bend matter and energy to its desires and ultimately transcend human limits.[21]

However, Maximus' theistic anthropology is in many ways incompatible with transhumanism, which essentially denies or ignores God's role in the created world and situates itself in contemporary science. A study by Eugene Clay observes the following:

> First, Maximus' Christocentric theism is clearly alien to the transhumanist project, based, as it is, in materialist evolution. Second, transhumanists rely on empirical science; the Orthodox fathers, on a divine teleology. Certainly, this difference is clear in their different approaches to defining human nature. According to Chalcedon and Maximus, humanity is God's creation, corporal, mortal, limited, born in time, with a rational soul. Although transhumanists certainly would agree that humans have mortal bodies, they would agree with little else.[22]

Contrary to the transhumanist vision, Maximus sees human nature as eternal. Although purified through redemption and deification, humanity will remain eternally human even as it partakes in divine nature. Humanity will never evolve into something else. For transhumanists, who follow Darwinism, such a belief in the immutability of a species is a grave error. However, natural processes are already producing genetic changes in *Homo sapiens*, which will inevitably give rise to some new species.

2.3. Continuing Reality of Creation

St. Irenaeus interpreted the words from the creation account in Gen. 1:26 ("Let us make man in our image, after our likeness") as illustrating a distinction

[21] Cf. E. Clay, "Transhumanism and the Orthodox Christian Tradition," in H.T. Samuelson – K.L. Mossman (eds.), *Building Better Humans?*, vol. 3, (Frankfurt: Peter Lang 2011), 167.
[22] E. Clay, "Transhumanism and the Orthodox Christian Tradition," 168.

being made between God's image and likeness.[23] According to Plato, the greatest possible likeness to God (*homoiosis*) is the life's task and longing of human beings.[24] However, since human beings are justified only by grace, it conceived likeness as a gift that Christ restored through his sacrifice. Human existence must be interpreted in terms of transformation from image to the likeness of God. Medieval Scholasticism continued Irenaeus' exegesis in its distinction and correlation of image and likeness.[25]

For St. Clement of Alexandria (c.150 - 215), creation is a timeless act, a continuing reality (*creatio continua*). This element of creation as a continuing process, found in Eastern Fathers, is also upheld by Pannenberg and Chardin in connection with the evolutionary model. For Pannenberg, "The special place of humanity is not achieved abruptly, but is rather, the result of a history in the course of which alone human beings attain to selfhood and their specific nature."[26] Accordingly, human beings are in the path of transformation. Man synthesizes, individually and socially, the stuff of the universe, but at present, he is "the most mobile point of the stuff in the course of transformation."[27] However, its direction is centripetal such that it converges into an Omega point. There is an immanent Alpha within all creatures that facilitate an upward motion to connect with Christ even at the atomic level. "As a consequence of the Incarnation, the divine immensity has transformed itself for us into the omnipresence of Christification."[28] Robert Russel, too maintains the position of *creatio continua*. In his view, "one of the key ways in which science informs

[23] Even today, it is uncertain whether the Hebraic terms, *selem* and *demut*, are different or simply two synonyms. Irenaeus, however, interprets likeness as an enhancement of the concept of image since he translates the two words with Greek Platonic terms, *eikon* and *homoiosis*.
[24] Refer Plato, "Republic 613" and "Theaetetus 176" in *The Dialogues of Plato* vol. 7, B. Jowett (trans.) (Chicago: The University of Chicago 1982), 437 and 530 respectively.
[25] Following the teaching of John Damascene, St. Thomas Aquinas seems to see this distinction in his Summa Theologica I q. 93, a. 9.
[26] W. Pannenberg, *Anthropology in Theological Perspective*, M. J. O'Connel (trans.) (Edinburgh: T. & T. Clark 1985), 42.
[27] Chardin, *The Phenomenon of Man*, 282.
[28] Chardin, *The Divine Milieu*, 123.

Christian eschatology is by providing certain formal conditions for the possibility of transformation of the universe by God."[29]

Process theologians explain the evolutionary growth in relation to the evolution of the essence of beings. The increasing intensity for the longing to be united with God leads an organism to cross the boundary of existence and transform into another mode of being. When evolution reaches the human stage, the precedent creative work of God becomes a pro-offered gift. Speaking on this participation in directing evolution, Pannenberg says, "Human beings living in history likewise anticipate outcomes but primarily from the viewpoint of identity both of their own lives and of the social and cultural world to which they belong."[30] However, if it is to be a formative process leading to a fulfilled humanity, it can be such only under the guidance of divine providence.[31]

2.4. Obediential Potency

According to Karl Rahner, there are two potencies in a creature – 'Natural potency' (what a being can become by its essence) and 'Obediential potency' (what a being can become under God's direction). Thus, by God acting in him, human beings can surpass their essence and rise to a new being.[32] Today evolution is conceived as a process of conscientization. Technology plays a pivotal role in this process of orienting towards the future. Regarding the radical change in understanding the future, Schillebeeckx comments that contrary to the so-called humanities, technological sciences are essentially future-oriented and provide guidance for the human society, which is oriented towards a new

[29] F.L. Shults, *Christology and Science*, (UK: Ashgate Publishing Ltd. 2008), 137. See also, T. Peters – M. Hewlett, *Evolution from Creation to New Creation* (Nashville: Abingdon Press 2003), 151-153.
[30] W. Pannenberg, *Anthropology in Theological Perspective*, 514.
[31] Cf. W. Pannenberg, *Anthropology in Theological Perspective*, 515.
[32] K. Rahner, "The Doctrine of Grace" (Part IV) in *Theological Investigations* vol. 4 (London: Darton, Longman and Todd 1975). See also, M. Steinmetz, "Thoughts on the Experience of God in the Theology of Karl Rahner: Gifts and Implications," in *Lumen et Vita* vol. 2, (Boston: School of Theology and Ministry 2012), 2-3.

future.[33] For Philip Hefner, "human being is God's created co-creator."[34] For him, technology is the most crucial product of bio-cultural evolution that determines the eschatological future of humankind.

Though some Christian transhumanists hold on to a dialogical approach, some vigorously oppose this as against faith and morality.[35] According to Jacob Shatzer, overcoming and transcending humanity are antithetical to the Scriptures. God himself became human to save us. Jesus took on flesh to save our embodied souls. If we pursue to shed our bodies, we lose a fundamental aspect of our humanity and ultimately deny the One who took on flesh to rescue us. Likewise, seeking disembodiment results in losing an essential element of humanity and ultimately denying Incarnated Lord.[36] Hans Walter Wolff warns of the danger of technological domination, saying, "the subjection of the world must not lead to man's being dominated by a myth of technology, which produces the technically possible simply because it *is* possible, and therefore subjects man to technological and economic compulsions."[37]

3. Theological Perspectives

After analyzing the theological significance of transformation, it is pertinent to understand various themes that cohere and disagree with transhumanism. Do enhanced humanity and artificial intelligence resemble the image of God? How does this renounced uniqueness of human nature threaten aspects like deification? What are the ethical and social implications associated with the transhuman future? Such questions are brought into concern in the following sections.

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[33] Cf. E. Schillebeeckx, *God the Future of Man*, N.D. Smith (trans.), (London: Sheed and Ward 1969), 173.
[34] T. Peters – M. Hewlett, *Evolution from Creation to New Creation*, 147.
[35] Robert Russell, Micah Redding, Aubrey de Grey and Philip Hefner belong to the class of thinkers who hope to bring a harmony between transhumanism and Christian values.
[36] Cf. J. Thacker, *Transhumanism Is Yet another Temptation to Play God* (June 3, 2019) [https://www.thegospelcoalition.org/reviews/transhumanism-image-god/] (Accessed on Aug. 3, 2021).
[37] H.W. Wolff, *Anthropology of the Old Testament*, (Philadelphia: Fortress Press 1975), 164.

3.1. Image of God

The term '*imago Dei*' *prima facie* refers to the rational soul with which human beings are endowed.[38] However, the notion can be extended to refer to human relations with his Creator. Hans Wolff comments, "Taken by itself, the phrase [image of God] points first and fundamentally to a correspondence between man and God. The unique nature of man in creation is to be understood in the light of his special relationship to God."[39] The image of God is also interpreted in various other ways. Noreen Herzfeld makes a study on these interpretations and elaborates as follows:[40]

a) Substantive interpretation – the image of God is something that human beings possess, as a trait or property of the human being, intrinsic and unique to human nature. Our rational capacity constitutes the presence of the divine in the human. The early Greek and Latin Fathers seem to hold this notion.
b) Functional interpretations regard the image of God as connected to dominion and representation of God on earth. Theologians such as Reinhold Neibuhr and Gerhard von Rad are the proponents of this view.
c) Relational interpretations locate the image of God, not within human nature or individual human soul or in individual or corporate action, but in the relationships that constitute the human person. Karl Barth is an influential proponent of this opinion.[41]

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[38] Cf. J. Ratzinger, *In the Beginning…: A Catholic Understanding of the Story of Creation and the Fall*, (Michigan: Wm. B. Eerdmans Publishing Co. 1995), 73.
[39] H.W. Wolff, *Anthropology of the Old Testament*, 159.
[40] Noreen Herzfeld using the following interpretations, attempts to relate the image of God and AI. In his article, he stresses the relational aspect of AI as a possibility in the future. Nevertheless, the paper concludes with the notion that "building such an 'other' will not be easy, however, for it demands self-consciousness and free will on the computer's part." Refer N. Herzfeld, "Creating in Our Own Image: Artificial Intelligence and the Image of God," in *Zygon: Journal of Religion and Science* vol. 37 no. 2, (2003), 303-316.
[41] K. Barth, *Church Dogmatic*s: *The Doctrine of Creation* III/1, 178 and III/2, 223-224, J.W. Edwards – O. Bussey – H. Knight (trans.), G.W. Bromiley – T.F. Torrance (eds.), (Edinburgh: T. and T. Clark 1958).

The Church Fathers took a great interest in the 'image of God' due to Christological reasons. Jesus Christ is, in person, the perfect visible image of the Father (Col. 1:15). It is through Him that humankind discovers its creation as God's image. This is what the Second Vatican Council tries to explain in its Pastoral Constitution on Church in the Modern World, "Christ reveals man to man."[42] Thus, human beings were created foreseeing the Word Incarnate. Until the Pelagian controversy arose, St. Augustine was of the notion that sin destroyed the image of God in humans. Later, however, Augustine changed his position, saying that the image of God is rooted in the rational nature of the soul[43] and cannot be lost. However, at the same time, he taught that sin brings about a radical degradation in the likeness of God in man.

The image of God becomes a topic of scrutiny when human beings proceed towards a transhuman future. Modern science has turned the *Homo sapiens* into its design projects. Present human beings ought to be responsible for future ones, which is undermined when they create future generations in their image and not in *imago Dei*. Regarding cyborgs and uploading the mind, both Matthew Fisher and Jeanine Thweatt-Bates ask whether human flesh and conscious awareness of one's personhood is necessary to be in the image of God. Fisher, in an affirmative tone, relies on Rahner's concept of *Vorgriff*[44] and answers, "we have no reason to assume that uploaded mind would not be a person in the image

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[42] *Gaudium et Spes* § 22, in A. Flannery (ed.), *Vatican Council II: The Conciliar and Post Conciliar Documents* (Mumbai: St. Pauls Publications 1991), 811.

[43] Refer Augustine, *De Trin.* XII, 7, 12 and XV, 7,11 in P. Schaff (ed.) *A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church* vol. 3, (Edinburgh: T. and T. Clark 1988).

[44] The word *Vorgriff*, literally meaning 'pre-apprehension' or 'anticipation,' was originally coined by Heidegger, who used this word along with *Vorhabe* (fore-having) and *Vorsicht* (foresight). Rahner was acquainted with this word while he attended Heidegger's lectures. Though for Heidegger, *Vorgriff* played the role of an original motivation-basis from where the philosophical inquiry begins, Rahnerian notion expresses a person's fundamental being and God-orientedness. Through *Vorgriff,* we continually transcend everything toward a pure being (God). Refer B.K. Hoppál, "Karl Rahner's Notion of *Vorgriff*," in Verbum VI/2, (Budapest: Akadémiai Kiadó 2004), 451–459 and I. Røsok, *Surrender to Life: A Systematic Theological Analysis of Human Kenosis in Karl Rahner's Thoughts, with Reference to Ignatian Spirituality*, Master's Thesis, (Norwegian School of Theology 2010), 21–22.

of God."[45] However, for Thweatt-Bates, considering cyborgs as potentially liberating from embodiment is unacceptable.

Generally, there is a growing tendency to uphold that this is not a static but rather a dynamic image. Evolution, incorporating even technological developments, plays a significant role in its progress. "Science and technology are therefore not alien activities but expressions of the image of God, to glorify God and to promote the flourishing of creation and people."[46]

3.2. Deification and Creaturehood

A closer parallel to transhumanism is the ancient Christian doctrine of deification (*theōsis*). Around 180 AD, Irenaeus of Lyon wrote that the purpose of the Incarnation was the deification of humanity.[47] Athanasius of Alexandria[48] (293-373) and Gregory of Nazianzus[49] (c.329–389) made similar statements in

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[45] T.J. Trothen, "Transhumanism and Religion: Glimpsing the Future of Human Enhancement," in C. Mercer – T. J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement* (California: Praeger 2015), 389.

[46] D. Bruce, "Reflections on Ten Years of Human Enhancement Debate," in T. Boer – R. Fischer (eds.), *Human Enhancement: Scientific, Ethical and Theological Aspects from a European Perspective*, (Strasbourg: Church and Society Commission of the Conference of European Churches 2012), 143.

[47] Refer Irenaeus, *Adv. Haer.* III, 19:1, in A. Roberts – J. Donaldson (eds.), *The Ante-Nicene Fathers* vol. 1, (Michigan: Wm. B. Eerdmans Publishing Company 1985), 448-449. Irenaeus says, "How could the human race go to God if God had not come to us? How should we free ourselves from our birth into death if we had not been born again according to faith by a new birth generously given by God?" (*Adv. Haer.* IV, 33:4) and "This is the reason why the Word of God was made flesh, and the Son of God became Son of Man: so that we might enter into communion with the Word of God, and by receiving adoption might become Sons of God." (*Adv. Haer.* III,19:1).

[48] Refer Athanasius, *Epistola ad Adelphium* § 4, in P. Schaff – H. Wace (eds.) *A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church* vol. IV, (Michigan: Wm. B. Eerdmans Publishing Company 1980), 576. "Never could man have stood in the presence of God unless He that had taken on a body were the natural and true Word of God. [...] man would never have been divinized unless he that became flesh were by nature the true and proper Word of the Father."

[49] Refer Gregory of Nazianzus, *Oration 3, On the Son 1,* §19, in S. Reynolds (trans.), *Five Theological Orations*, (Toronto: University of Toronto website), [https://tspace.library.utoronto.ca/bitstream/1807/36303/1/Gregory%20of%20Nazianzus%20Theological%20Orations.pdf] (Accessed on Nov. 20, 2021). "For He still pleads even now as human being for my salvation; for He still has the body which He assumed, until He makes me God by the power of His incarnation, even though He is no longer known according to the flesh."

the fourth century. The doctrine of the Incarnation has profound implications for the Christian understanding of human nature and its ultimate destiny. Christian salvation was not an escape from eternal damnation or even sin itself for these Church fathers. On the contrary, it is a profound transfiguration of the human race whose end is eternal indwelling in Trinitarian communion.

However, deification is a divine act that any autonomous human effort cannot accomplish. "Because of the impotency of the human to become divine, God had to take the initiative and descend to the level of fallen man to raise him up to the divine realm in order to make him share in his divinity."[50] Often the transhumanists wrongly associate enhanced humanity with *theosis.* RLE, cybernetic immortality, and superintelligence projects employ God-language and confuse divinization with the transmutation of humans into the superhuman realm. Christian faith relies not on 'becoming god-like' but on synergistic participation in God's grace that is achieved by the working of the Holy Spirit. Moreover, if the hypostatic union made *theosis* possible, it must be admitted that human limitations have a significant role. "The bad news to aspiring H+ is that the God of the cross exchanges attributes with the sinful human who is subject to death."[51]

Creaturehood in Christian theology means being created contingent and limited. Some theologians such as Celia Deane-Drummond, Jeanine Thweatt, and Michael Burdett have supported creaturehood as a significant response to human enhancement technologies and transhumanism. Deane-Drummond's works unfailingly argue against radical human enhancement projects because their objectives often disregard the inherent good in embodied creatures and instead view these characteristic aspects of creaturehood as limitations to be

[50] Devdat, *The Acosmic: Human Quest for Liberation and Deification*, (Delhi: Media House 2004), 629.
[51] T. Peters, "Imago Dei, DNA, and the Transhuman Way, Theology and Science," *Theology and Science* (2018), 7. DOI: https://doi.org/10.1080/14746700.2018.1488529.

overcome.[52] Thweatt makes a similar argument in a much radical way as she argues for the inherent creaturely good in the plurality of human embodied experiences.[53] For Burdett, Christian virtues such as mercy, grace, humility, and love arise in the context of a community that acknowledges its plurality, imperfection, and fragility because the members have to rely on one another.[54] Embodiment ensures a link between dependence and interconnectedness. Understanding the world as a global community where one person's creaturely weaknesses complement the other essentially nurtures humane and fraternal values.

3.3. The Uniqueness of Human Nature

Human uniqueness relative to other species in the evolutionary line can be seen in its bipedal walk, erect posture, larger brain, etc. However, humans are not entirely different from apes, even in their genetic makeup. However, this slight variation accounts for its uniqueness.[55] Christian notions of bearing the image of God tend towards an essential understanding of human nature. This gives a possibility of looking beyond the phenomenal essence of humankind. As per Andy Clark, human beings are naturally-born cyborgs such that incorporating technology is an inseparable aspect of our essential human nature. "The capacity to creatively distribute labour between biology and designed

[52] Refer C. Deane-Drummond, "Taking Leave of the Animal? The Theological and Ethical Implications of Transhuman Projects," in R. Cole-Turner (ed.), *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, (Washington DC: Georgetown University Press 2011), 115-120.

[53] Refer J. Thweatt-Bates, *Cyborg Selves: A Theological Anthropology of the Posthuman* (Farnham: Ashgate 2012), 152-155.

[54] Refer M. Burdett, *Eschatology and the Technological Future*, 238-240.

[55] Refer A. Varki and D.L. Nelson, "Genomic Comparisons of Humans and Chimpanzees," *Annual Review of Anthropology*, vol. 36, (2007), 191-202. DOI: [10.1146/annurev.anthro.36.081406.094339]. "The essentially complete human reference genome, coupled with the draft chimpanzee genome, allowed direct comparison of large fractions of these two data sets for interesting changes. Sequence differences were confirmed to be ~1% in regions that could be precisely aligned (lined up against each other, indicating a common ancestral origin). This percentage represented ~35 million single base-pair differences."

environment is the very signature of our species."[56] He believes that human existence cannot be separately defined without recognizing its technological relationship.

The invention of empathic robots that scan facial emotional expressions and respond accordingly may pose a difficulty, i.e., if these modes of AI experience subjective states, they could be equated to human behaviour. Sara Lumbreras warns of such a possibility in the transhuman future:

> …if the machine actually experienced these subjective states and was conscious, free, and responsible, it would be immoral to deny it human dignity and all the rights associated to it. However […] granting this if there is no authenticity actually results in potential damage for the human being, erring therefore when identifying the machine as a possessor of the same human specificity.[57]

Thus, one problem with transhumanism is that, even when it is possible to upload the electrical and cognitive content of the brain into a network, it does not follow that the soul can be uploaded; indeed, the existence of the soul as immaterial and intangible does not fall within scientific categories and thus would seem to be disparate from the goal of the transhumanist.[58] In connection with the radical transformation of human nature, Scott Midson warns, "[…] technologies make potentially dangerous changes to our nature, which transitions from something given to us, to being something we create and change ourselves."[59]

Francis Fukuyama fears the transformations as causes for troubling and disrupting the unity of human nature that formed into its current status through

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[56] A. Clark, *Natural-born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*, (Oxford: Oxford University Press 2003), 6.
[57] S. Lumbreras, "Strong Artificial Intelligence and Imago Hominis: The Risks of a Reductionist Definition of Human Nature," in M. Fuller – A. Runehov (eds.), *Issues in Science and Theology: Are We Special? Human Uniqueness in Science and Theology*, (Switzerland: Springer International Publishing 2017), 165.
[58] Cf. R. Torseth, "Bereft of the Soul: Biblical and Augustinian Views of Death as they pertain to Measuring the Existential Threat of Transhumanist Anthropological Destiny," in *The Evangelical Review of Theology and Politics* vol. 7 (2019), 80.
[59] S.A. Midson, *Cyborg Theology: Humans, Technology and God*, (London: I. B. Tauris & Co. Ltd. 2018), 53.

evolution. He says, "We want to protect the full range of our complex, evolved natures against attempts at self-modification, and thereby the human rights that are based on it."[60] Though Fukuyama is content and supportive of biological evolution, he resents the technological input in advancing future evolution.

3.4. Embodiment and Body of Christ

In the Christian faith, 'Body of Christ' has various definitions. It refers to the historical human body of Jesus and the Eucharist, the Church (corporate body), and the glorified body (eschatological). Hence, in the cyber era, the concept of 'Body of Christ' could steer our contemplation on human corporeality by focusing on the embodiment, sacramentality, difference, and solidarity.

As mentioned earlier, one of the aims of transhumanism is to upload the contents of human consciousness onto a vast cyber-network and, via the network, "realize a disembodied yet intelligent immortality."[61] Transhumanists believe in enjoying perfections that the biological limits prevent from actualizing as a machine. Bodily limits are often seen as elements that curtail human possibilities. "Materialists propose that we bend all our efforts toward freeing that 'soul' from its current dependence on the undependable biological body."[62] However, advocates of bodily enhancement prefer to develop biological bodies that are immortal and enhanced than implanting the human consciousness in a robot or uploading it online. However, according to Vicini, even the cyborg as a network of relations can be animated by the Spirit of Christ if peoples of goodwill promote inclusivity and peaceful relations among various social bodies. He asserts that the sacramentality of the Body of Christ can allow

[60] F. Fukuyama, *Our Posthuman Future: Consequences of The Biotechnology Revolution*, (New York: Farrar, Straus and Giroux 2002), 172.
[61] T. Peters, "The Soul of Trans-Humanism," in *Dialog: A Journal of Theology* vol. 44, no. 4. Winter 2005, 384.
[62] K. O'Neill, *Internet Afterlife: Virtual Salvation in the 21st century*, (California: Praeger 2016), 85.

the symbolization of the fusion of human and nonhuman technologies in the cyborg.[63]

The significance of the human body is further highlighted in the doctrine of the resurrection. The Church explains death, as the separation of the body and the soul and resurrection, as a reintegration. The Church's teaching on the glorified body is that matter can indeed be perfected. The Risen Christ returns with the body that others knew him as, but somehow different. The evangelists make painstakingly clear that the body of the Risen Christ is genuinely physical and that it bears the marks of his crucifixion.

> This does not seem to be in accord with the idea of enhancement or perfectibility espoused by transhumanism; this embodiment of humility—the physical manifestation of humbling in a transfigured body—is in stark contrast with the images of power, hyperfunctionality, and greatness that often characterize the posthuman archetype.[64]

For the transhumanists, the body and, consequently, all things material are manipulable, replaceable, and disposable. But as per the Catholic viewpoint, the human body is essentially rooted in communion that survives even the sting of death.

4. Ethical and Social Challenges

Transhumanism, from a broader perspective, involves a social schema. It desires the betterment of the world through technological efforts such as providing choices for people to be free from sickness, hereditary diseases, poverty, and even finite life span. It allows the individual to choose to transcend existing limitations. As a transhumanist, Ray Kurzweil has argued that technology should be applied to solve the extensive challenges of humankind, including poverty, and has even started Singularity University in 2009 with this motive. In his view, "technologies will create extraordinary wealth, thereby

[63] Cf. A. Vicini – A.M. Brazal, "Longing for Transcendence: Cyborgs and Trans- and Posthumans" in *Theological Studies*, vol. 76 no.1 (2015) (UK: Sage Publication), 163.
[64] C.A. Labrecque, "The Glorified Body: Corporealities in the Catholic Tradition" in *Religions* vol. 8, no. 166 (2017), 5-6.

overcoming poverty and enabling us to provide for all of our material needs by transforming inexpensive raw materials and information into any type of product."[65] Hence, enabling broader or equal access to technology within the social framework.

Autonomous robots can be designed to behave more humane than human beings and thus help settle inevitable ethical catastrophes of warfare. "Such machines will not rape, torture, or kill out of a misguided vendetta or enthusiasm for killing."[66] AI could be programmed to reject unethical orders, detect and report the behaviour of delinquents, and follow military protocols. For Lilley, the social competition associated with transhumanity is a necessary good.

> The transhumanists, as well, anticipate this development; however, they accept social competition as the way of the world […] they assert that overall wealth will increase as social competition drives personal innovation. For example, health, mental acuity, and personal productivity will improve as individuals 'enhance to advance'.[67]

Germline intervention poses various challenges. As an expensive therapy, many may not avail of its benefits. It could create the risks of irreversible multigenerational genetic fallacies. Eric Juengst argues, "Germ-line gene therapy experiments would involve too many ineliminable (and unpredictable) long term iatrogenic risks to the transformed subjects and their offspring to be justifiable."[68] But such enhancements have their positive side too. It increases the likelihood of having healthy children devoid of genetic disorders. Medical ethics demands that health professionals use the best resources to prevent or treat hereditary diseases, including germline alterations.

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[65] R. Kurzweil, *The Singularity is Near: When Humans Transcend Biology*, 289.
[66] R.M. Geraci, *Apocalyptic AI: Visions of Heaven in Robotics, Artificial Intelligence, and Virtual Reality*, (New York: Oxford 2010), 164.
[67] S. Lilley, *Transhumanism and Society: The Social Debate over Human Enhancement*, (New York: Springer 2008), 70.
[68] E.T. Juengst, "Germ-Line Gene Therapy: Back to Basics," *Journal of Medicine and Philosophy*, vol. 16, issue 6, (1991), 589–590.

The issue of human dignity is central in any ethical discussion. Dignity consists in respecting the givenness in the species. Enhancements per se do not conclude in the degradation of human dignity. But in such acts, there is a choice to bypass our bodily integrity. Our dignity must lie in accepting our embodied reality and its limits. Karen Lebacqz opines that "Our excellence must be our own embodied excellence; only then can it be considered dignified."[69] For Ted Peters, "dignity is experienced as worth or value communicated by relationships."[70]

Another problem is the availability for only a select few, which may result in socioeconomic discrepancy. Such disproportionate access could further exacerbate the pre-existing partitions. On the one hand, the risk exists in the possibility that concern and empathy for certain diseases could dissolve if the affluent could prevent these diseases in their children through enhancement technologies. In addition, if the illness is thought of as something preventable that could have been avoided with the proper use of technology, social provision and care for the sick might also be lessened.[71] On the other hand, the socially weak could be restricted as a threat to evolution, which may eventually demand their termination (resulting in Eugenics). In a world where the ones who have demonstrated their technological superiority are entitled to rule, democracy and collectivist principles will fall under the category of absurdities. Moreover, such an approach neglects a large group of unskilled people who earn to meet their daily needs. If AI and Autobots replace thinking humans, widespread unemployment would be inevitable.

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[69] K. Lebacqz, "Dignity and Enhancement in Holy City," in *Transhumanism and Transcendence*, 52.

[70] S. Garner, "Transhumanism and Christian Social Concern," in *Journal of Evolution and Technology*, vol. 14, no. 2 (2005), 33.

[71] Cf. M. Kotze, "The Theological Ethics of Human Enhancement: Genetic Engineering, Robotics, and Nanotechnology," in *In die Skriflig* 52(3), a2323 (2018), 7. DOI: [https://doi.org/10.4102/ids.v52i3.2323].

Moral values such as love of neighbour, compassion for the poor, social justice, and human equality found in the *imago Dei* demands that technology that can lessen suffering and improve quality of life must be embraced. A complete rejection of technology would be antithetical to the Christian message of love. Those functioning within this framework of social concern are to commit themselves to apply newer technologies. However, one must be careful of the other side that overemphasizes autonomy and freedom.

5. Potential Dangers

Transhumanist endeavours promise an up-gradation of human lives and thereby better humanity that ensures improved standards of living comfortably. But there are also various problems associated with this new thought that could potentially threaten the existing frameworks of society, ethics, and religion. Some scholars view technology as an evil and a threat to human identity. Reflecting on this dehumanizing aspect, French social critic and theologian Jacque Ellul considers technology destroys and subordinates the natural world.[72] However, in response to Ellul's argument, Ted Peters says, "the threat of dehumanization comes not from technological advance per se; rather, the threat comes from our temptation to so identify with our technological production that we forget our relationship to the natural world."[73] Avoiding and escaping the reality of suffering is not an answer to all the miseries in the world. Being empathic to the suffering person defines our being human. In his apostolic exhortation *Evangelii Gaudium*, Pope Francis warns against the image of the "purely spiritual Christ, without flesh and without the cross" in a digital age and encourages "to run the risk of a face-to-face encounter with others, with their physical presence which challenges us, with their pain and their pleas."[74]

[72] Cf. M. Burdett, *Eschatology and Technological Future*, 150.
[73] T. Peters, "Progress and Provolution: Will Transhumanism Leave Sin Behind?" in R. Cole-Turner (ed.), *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, 77.
[74] Francis, *Evangelii Gaudium* § 88, (Trivandrum: CIPH 2013).

In situations involving the integrity of the human species, like xenotransplantation, there could be a danger of dehumanization: polluting the given 'human nature' with non-human attributes will inevitably degrade the elements of human identity like human dignity, autonomy, and vulnerability.[75] However, David Livingstone seems apathetic as he says that transhumanism is an extension of the dangerous belief in human perfectibility derived from Social Darwinism and Eugenics, which flourished in the early twentieth century. After World War II, when these were imported to the US, cybernetics, which sought advanced population control methods, led to the development of a covert CIA 'mind-control' project known as MK-Ultra, which fostered the proliferation of psychedelic drugs, to transform society.[76]

Regarding RLE, while Christianity holds that saving and preserving lives is a moral act, it remains ambiguous whether deliberately prolonging the life span is also good. It is still a matter of doubt whether "living forever would eliminate all forms of suffering and might bring about its own challenges."[77] In addition, the transhumanist ideas of immortality directly contradict the Christian concept of resurrection, which asserts the glorification of our mortal bodies through resurrection (Phil 3:21). Such themes will be discussed in the upcoming chapter. To summarize, while both transhumanists and Christians aspire to immortality, they differ in their approach and means of achieving this.

Conclusion

The chapter focussed on the various theological stances that find concomitance and discrepancy with transhumanism. Though the dialogue is possible between both the streams, its extent is doubtful for the time being.

[75] Cf. E.T. Juengst, "What's Taxonomy got to do with it? 'Species Integrity', Human Rights, and Science Policy," in J. Savulescu – N. Bostrom (eds.), *Human Enhancement*, (New York: Oxford University Press 2005), 54.
[76] Cf. D. Livingstone, *Transhumanism: The History of a Dangerous Idea*, (USA: Sabilillah Publications 2015), 13.
[77] S. Dein, "Transhumanism and Health: A Christian Perspective," in *Journal of Religion and Theology*, vol. 3, no. 4, (2019), 14.

Nonetheless, one can maintain that both religion and technology aid humankind if adequately employed. Human beings are indeed advancing in their relationship with scientific innovations. However, even newer situations and theological problems such as impeccability of cyborgs, *telos* of AI, death in cryonics, the liberation of the body etc., are yet to be developed. The potential dangers that transhumanism may pose upon the future human generation reminds us of the moral responsibilities towards our fellow non-human animals. While the scope of transhumanism is uncertain to this date (since it has not come into its full realization), it can be optimistically a harbinger of a better age if humane values and morals are incorporated. Such progress certainly has the potential to promise better human living conditions. Perhaps a newer approach in theology is indispensable in the future cyber age.

CHAPTER THREE

TECHNO-THEOLOGICAL ESCHATOLOGY: A HARMONIOUS OUTPUT

Introduction

Transhumanism illustrated by Moravec, Tipler, and Kurzweil exhibits a belief in technology's capacity to transform human destiny. Technology will offer these thinkers how current humanity or its descendants will participate in their transhuman evolution, thus ushering in an eschatological kingdom devoid of human and cosmic finitude. This chapter will analyse the role of technology in explaining Christian eschatology and offer substantial thoughts for developing transhumanist theology in a Christian framework. The first section of this chapter is a comparative analysis between transhumanist and Christian notions regarding eschatological realities. This is followed by an overview of various religious interpretations of transhumanism and its possible Christian version. The third section takes the issue of salvation and relates it with the transhuman future. A Ratzingerian approach to the Theo-evolutionary man and an optimistic note on the need for an integrated study of transhumanism and theology marks the end of the chapter.

1. Transhumanist Eschatology and Christian Parousia

Since the wake of the present century, scientists and theologians are seen moving from the usual focus on the origin of the universe and man to its destiny.[1] A severe challenge before theology is coping with the fast pacing and swiftly changing scientific arena.

One of the most significant challenges faced by the apostolic community in the infant years of Christianity was to explain bodily resurrection – both Jesus'

[1] Cf. D.A. Wilkinson, *Christian Eschatology and the Physical Universe*, (New York: T & T Clark 2010), 5.

and of whole humankind – to the Jewish and Gentile world. The fact that bodily existence continues in the resurrected state shows that Parousia may not be an occasion of material annihilation but rather its glorification. Beyond any desolate pessimism, this posits the significance of current matter as the basis for what is to come.

1.1. Life at the Scientific *Eschaton*

Freeman Dyson believes that life could be extended indefinitely forever even in an open universe,[2] if biological life is substituted by a similar kind of synthetic but conscious existence. Biological life would adapt first through genetic engineering to redesign organisms that could cope in such a Universe. Then consciousness would be transferred to new kinds of hardware that would cope with the ultra-low temperatures.[3] However, Dyson's notion of reducing life to an information-processing unit threatens the necessity of a material body.

Working on a closed universe model,[4] Frank Tipler asserts that carbon-based life will cease to exist at high temperatures as the universe moves towards Big Crunch. Borrowing the Omega point terminology of Chardin, Tipler expects that technological advancement shall replace biological life with computer emulations. This 'life' pervades the universe, both spatially and temporally, such that at Omega point, this transformed life will be omnipotent, omniscient, and omnipresent (characteristic features of God alone). Tipler also explains how

[2] Open Universe is a cosmological model that describes the indefinite expansion of the universe ever since the Big Bang. In such a universe, the temperature will gradually decrease, until life becomes impossible, leading to the so-called 'Big Freeze', where the universe tends towards a state of maximum entropy. Refer F.J. Dyson, "Time without End: Physics and Biology in an Open Universe," in *Reviews of Modern Physics*, vol. 51, no. 3, (1979), 447–460.
[3] Cf. D.A. Wilkinson, *Christian Eschatology and the Physical Universe*, Doctoral Dissertation, (Durham: University of Durham) (2004), 23. Available at [http://etheses.dur.ac.uk/2815/].
[4] Closed Universe model describes the situation where the universe becomes denser than the critical value of expansion. Here, the effect of gravity will overpower the universe's expansion, leading it to re-collapse in a 'Big Crunch'. The universe from now will continue to expand for perhaps 500 billion years from now, before it contracts upon itself in a dramatic reversal of the original Big Bang. Refer F.J. Tipler, *The Anthropic Cosmological Principle*, (Oxford: Oxford University Press 1986) and P. Davies, *The Goldilocks Enigma,* (London: Penguin Books 2006).

this leads to the resurrection of every life form into computer emulation. In this argument, the physical universe will end, yet time will be stretched infinitely at the Omega point, and life will appear to be resurrected.[5]

These expectations of scientific *eschaton* have aroused widespread attention due to their rational and systematic approach. Though there are theological discrepancies in their arguments, both suggest transforming biological life into a synthetic mode (such as AI) that can exist in an incorruptible entity, such as cyberspace.

1.2. Resurrection: A Law in the World to Come?

For Robert John Russell, "Easter indicates a radically new action of God which is still to come to fulfilment"[6] God's interference in the universe, especially at the moment of Christ's bodily resurrection and His continuing action in the future, has caused it not to be what science can predict. He initially presented the bodily resurrection of Jesus as the 'First Instance of a New Law of Nature' (FINLON)[7], a unique historical event that will be universal at the *eschaton*. Later, realizing the difficulty in describing the special application of a law of nature, he modified it as 'First Instance of a New Law of the New Creation' (FINLONC). This shall answer that resurrection would be law-like in the New World but does not explain the relationship between the unique resurrection of Jesus and our universal resurrection.

Along with John Polkinghorne and Jürgen Moltmann, Russel too uses the term creation *ex vetera* to stand for the eschatological transformation of the cosmos. If the universe is transformable, then it must contain elements of continuity, implying that the New Creation is not a radical replacement but that

[5] Refer F.J. Tipler, *The Physics of Immortality*, 103-147.
[6] M. Harris, "Will Resurrection be a Law of Nature? Science as Divine Action at the End of the World," (Edinburgh: University of Edinburgh), 8. [https://www.academia.edu/5822044/will_resurrection_be_a_law_of_nature_science_as_divine_action_at_the_end_of_the_world] (Accessed on Aug. 16, 2021).
[7] R.J. Russell, *Cosmology, Evolution and Resurrection Hope*, (Ontario: Pandora Press 2006), 47.

the first creation is meant to commence in the eschatological universe.[8] There are several ambiguities regarding the kind of law to which FINLONC corresponds. However, Russell holds on to say that FINLONC is a traditional theological assertion found in the creedal statement ('resurrection of the dead and life everlasting') that is made to appear in scientific attire.

1.3. Death and Resurrection from the Vantage Point of Cryonics

Cryonics view their legally dead members as patients who desire to be treated. The cryopreserved person is considered similar to a coma patient, who eventually is revived. In this view, cryonics can be an essential extension of advancing medical technology. Death is a process rather than an event, and cryonics interrupts this process to preserve the neural information for future generations. Here, the person is brought back after a long period of deep unconsciousness. According to Calvin Mercer, three possibilities emerge[9] in this discussion:

a) Due to the radical nature of this technology, it is much unlikely that the public would prefer to view it as a routine medical procedure.
b) Cryonics could be interpreted in the sense of resuscitation of the dead. Just as Lazarus of Bethany, the revived person continues to live the life they had before death.
c) Successful cryopreservation extending an indefinitely long period opens up a newer possibility. A preservation period that prolongs hundreds and thousands of years introduces radical interventions and enhancements from the then-available technologies.

The restoration of such a 'patient' would be necessarily different from its initial condition. The body may be transformed into a newer reality. Whether

[8] Cf. R.J. Russell, 49.
[9] Refer C. Mercer, "Resurrection of the Body and Cryonics", in *Religions*, vol. 8, no. 96 (2017), 5-6.

such a restoration into life is compared to resurrected state is a problem that theology must address.[10]

In neuropreservation, such a person's reduction into information challenges various theological and anthropological arguments. Therefore, the ongoing research on body memory apart from brain memory is considered relevant.[11]

1.4. Technological Eschatology and Chardin's Noosphere

Eric Steinhart studying Chardin, says, "Teilhard's writing likewise argues for the ethical application of technology to advance humanity beyond the limitations of natural biology."[12] Anticipating present trends in transhumanism, he asserts that Chardin envisaged the cyber-world as the next stage of evolution. For him, the Teilhardian vision points toward Christian transhumanism. However, David Grumett, responding to Steinhart, comments, "Teilhard would not accept all transhumanist assumptions and values and could not himself be described as a 'transhumanist' without careful qualification."[13] Certainly, Teilhard's transhumanism cannot be placed on the same level as that of Kurzweil and others who anticipate a post-biological era marked by techno-sapiens. "Evolution and the openness of matter to spirit not only set Teilhard apart from AI transhumanists but enables him to describe evolutionary humanism that engages life for the whole cosmos."[14]

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[10] Refer K. Pandikattu, "God Among Immortal Humans," 225-226.

[11] Refer J. Swinton, "What the Body Remembers: Theological Reflections on Dementia," *Journal of Religion, Spirituality and Aging*, vol. 26, no. 2, (2014), 160-72. Also, S. Cosier, "Could Memory Traces Exist in Cell Bodies," *Scientific American* (May 1, 2015) [https://www.scientificamerican.com/article/could-memory-traces-exist-in-cell-bodies/] (Accessed on Sept. 29, 2021).

[12] E. Steinhart, "Teilhard de Chardin and Transhumanism," in *Journal of Evolution and Technology*, 2.

[13] D. Grummet, "Transformation and the End of Enhancement: Insights from Pierre Teilhard de Chardin," in R. Cole-Turner (ed.), *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, (Washington DC: Georgetown University Press, 2011), 2.

[14] I. Delio, "Religion, Transhumanism and the Vision of Teilhard de Chardin," [https://www.academia.edu/8474701/Religion_Transhumanism_and_the_Vision_of_Teilhard_de_Chardin], 11. (Accessed on Sept. 29, 2021).

Teilhard perceived a significant role for technology in evolutionary progress, which is not random but has purpose and direction. It progresses towards increasing consciousness through the dual functions of complexification and convergence. For him, matter and consciousness are two aspects of the same cosmic stuff. Teilhard's theory runs counter to Darwin's in that the success of humanity's evolution in this stage will not be determined by "survival of the fittest" but by our capacity to converge and unify.[15] His faith led him to posit Christ, the future fullness of the whole evolutionary process, as the 'Omega point' where the individual and collective adventure of humanity finds its *telos* and the consummation of the world and consummation of God converge. Evolution has a goal and direction, and this schema must consider transhumanism.

The most critical evolutionary leap of the convergence stage is forming what he called "the noosphere."[16] However, unlike the transhumanist blend of biology and technology, Teilhard understands noosphere, not as a drastic break with biological life. Just as Earth once covered itself with a film of interdependent, living organisms called the biosphere, so humankind has combined achievements that form a global network of a collective mind.[17] Although technological endeavours were just in their infancy stage in his time, he valued the role of machines in the emergence of the noosphere. He wrote of "the extraordinary network of radio and television communications which, perhaps anticipating the direct intercommunication of brains through the mysterious power of telepathy, already link us all in a sort of 'etherized'

[15] Cf. P.T. Chardin, *Phenomenon of Man*, 243.
[16] Teilhard coined the word 'noosphere' along with his friend Edouard Le Roy. The noosphere describes the layer of mind, thought and spirit within the biosphere covering the earth, yet distinguished from it. Chardin, *The Future of Man*, (New York: Image Books), 204.
[17] Cf. M.H. Murray, *The Thought of Teilhard de Chardin*, (New York: Seabury Press, 1966), 20-21.

universal consciousness."[18] He foresaw the evolution of the computer as the catalyst for the noosphere:

> Here I am thinking of those astonishing electronic machines, by which our mental capacity to calculate and combine is reinforced and multiplied by a process and to a degree, that herald as astonishing advances in this direction as those that optical science has already produced for our power of vision.[19]

His anticipation of what computers would do for us was twofold: first, they would complete our brains through instantaneous retrieval of information around the globe. Second, they would improve our brains by facilitating processes more quickly than our resources.[20] Teilhard's vision of the noosphere as a cybernetic mind anticipated the emergence of cyberspace as a field of the global mind through interconnecting network pathways.

Robert Jastrow claimed that "human evolution is nearly a finished chapter in the history of life," albeit the evolution of intelligence will continue because a new species will emerge, "a new kind of intelligent life more likely to be made of silicon."[21] Comparatively, Teilhard's view is not apocalyptic but inherently creative. While AI transhumanists look toward the rise of *techno sapiens*, Teilhard did not anticipate the perfection of being through artificial means. Instead, he imagined psychic energy in a continually more reflective state, giving rise to ultrahumanity.[22] He insisted that technology is the means of convergence, and the noosphere is the evolutionary convergence of the mind through technology; humankind does not dissipate itself but continually concentrates upon itself.[23] Integral to the noosphere is the necessary role of love and "the rise of our inward horizon of a cosmic spiritual centre […] the rise of

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[18] L. Hagerty, *The Spirit of the Internet: Speculations on the Evolution of Global Consciousness*, (Florida: Matrix Masters 2000), 33.
[19] Chardin, *Man's Place in Nature*, (New York: Harper and Row 1966), 110.
[20] Cf. Chardin, *Man's Place in Nature*, 111.
[21] T. Roszak, "Evolution and the Transcendence of Mind," in *Perspectives*, vol. 1, no. 2, (1996). Available at [http://www.mentalhelp.net/poc/view_doc.php?type=doc&id=274].
[22] Cf. W.H. Kenny, *A Path through Teilhard's Phenomenon*, (Dayton: Pflaum Press, 1970), 105.
[23] Chardin, *The Future of Man*, 316.

God."[24] At the core of cosmic evolution, the phenomenon of love makes the transhumanist trend of individual perfection radically different from the Christian view. For Chardin, love unites in such a way that a new complexified being transcends individual being; it is the emerging body of Christ.[25]

While AI transhumanism can seem self-serving at the expense of the community or cosmic wholeness, Teilhard saw ultrahumanism as less an alteration of the human person than the next level of evolution and expansion of society through greater unity.[26] Philip Hefner states that technology is either pointless in the long run or an expression of the fundamental self-transcending reality of God.[27] A real difference between Teilhard's ultrahumanism and scientific transhumanism is the role of religion in evolution. AI transhumanists such as Kurzweil see technology as the fulfilment of religion's promises, though techno-salvation is centred on the individual. Teilhard did not see technology as self-perfecting or self-asserting; rather, technology furthers religion, the heart of evolution. Technology, therefore, not only advances noogenesis but noogenesis proceeds towards Christogenesis.[28] Though technology plays a crucial role in evolutionary convergence, the endpoint is not technology or techno-sapiens, but Omega's total unification of being-in-love. The transhumanist Christ does not supersede biological evolution; instead, as biogenesis yields noogenesis, Christ emerges as greater unity in love.

1.5. Eschatological Hope and Transhumanist Hope

For a secular transhumanist, death is neither to be hoped for nor feared; thus, fear of death is irrational.[29] Nevertheless, life is an undeniable good, and all have

[24] Chardin, 120.
[25] Refer Chardin, 270-88.
[26] I. Delio, "Religion, Transhumanism and the Vision of Teilhard de Chardin," 19.
[27] Cf. P. Hefner, *Technology and Human Becoming*, (Minneapolis: Fortress Press 2003), 84-86.
[28] I. Delio, "Religion, Transhumanism and the Vision of Teilhard de Chardin," 21.
[29] R. Machuga, *In Defense of the Soul: What it Means to be Human* (Grand Rapids: Brazos Press 2002), 25–26.

an instinct to survive. Unfortunately, some proponents of radical enhancement have targeted death as the principal enemy of human existence. Hence, various strategies such as cybernetics, biological enhancements and RLE pursue to circumvent death.

Both Christianity and transhumanism are united in the notion that death is the 'final enemy' – that death should be defeated.[30] However, both take different approaches towards death. For Christians, death is understood through the narrative of Jesus' death and resurrection. Through Christ's death, one finds reconciliation with God, and through His resurrection, one has the promised defeat of death.

> Christianity adopts a more prosaic stance toward death that is guided by the narrative of the redemption and reconciliation of humankind through God's activity in Jesus Christ. Christianity proclaims Christ's victory over sin and death in his bodily resurrection and ascension. Death has been defeated (1 Corinthians 15).[31]

Christians link death as intrinsically associated with sin, whereas transhumanists do not. This fundamental difference exposes the disparity between the two responses to the reality of death. Christians view death as a consequence of a moral fact – a result of rebellion against God. Transhumanists see death as a material reality only with no moral connections.

However, the Christian acceptance of death is problematic for transhumanists. Any assertion that implies accepting death defeats the transhumanist notion. Transhumanism and posthumanism seek in many ways to overturn death. Given enough technical expertise, any biological cause of death can be overcome. But this does not resolve problems arising from consequent side effects. For example, one would not prefer to run the risk of

[30] Cf. T. Daly, "Diagnosing Death in the Transhumanism and Christian Traditions," in C. Mercer and T. J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement*, (Denver: Praeger 2015), 83.
[31] Cf. Daly, 87.

cancer resulting from the extension of telomeres. Whether through SENS[32] or mind-uploading, RLE will entail a transformation of what it means to be human. Indeed, upon achieving indefinite life spans, the person may no longer be human. This is inferior to the transformation hoped for by the Christian notion of the resurrection. While indeed a remarkable milestone, Singularity will not grant true transcendence, for it would still be an earthly condition.[33] The doctrine of the resurrection teaches something wholly different. It teaches that a physical body is changed in peculiar ways to relate to God and others. Also, the belief in the resurrection of Jesus as the firstborn is a promise for the redemption of all creation.[34] Nature is to be transformed, not annihilated. This is based on the idea that God's original design is good but corrupted.

Humans especially are given special status as God's image-bearers and thus have a unique destiny in relating to God by resurrection. This is the primary reason why embodiment is essential to Christian thought, and this idea undergirds the rejection of transhumanist thought that makes humans merely patterns of information. However, this disparity also shows that for Christians, the embodiment is a reminder of our frailty before God – that we are finite and limited creatures, dependent upon God for ultimate fulfilment.[35] Brent Waters observes that Christians have a two-fold understanding of mortality. The first is that while death is the end of our earthly life, it represents the beginning of our

[32] "SENS is an acronym that stands for *Strategies for Engineered Negligible Senescence*. It is the formal name for the way SENS Research Foundation develops therapies for the diseases and disabilities of aging." Refer SENS Research Foundation, [https://www.sens.org] (Accessed on Oct. 19, 2021).
[33] Cf. R.L. Wilson, *Techno-Salvation: Developing a Christian Hermeneutic of Enhancement Technology* (Doctoral dissertation, Duquesne University) (2017), 427. Available at [https://dsc.duq.edu/etd/156].
[34] Cf. J.C. Peterson, *Changing Human Nature: Ecology, Ethics, Genes, and God*, (Grand Rapids: Wm. B. Eerdmans Publishing Company 2010), 47.
[35] Cf. S. Garner, "Christian Theology and Transhumanism: The 'Created Co-creator' and Bioethical Principles," in *Religion and Transhumanism: The Unknown Future of Human Enhancement*, 234.

eternal fellowship with God – our *telos*. Secondly, Christians should not fear death, but they should not seek it either.[36]

Another point of debate in the transhumanist agenda is whether happiness can be achieved by simply adding life span. "No one associated with transhumanism ever seems to question the main assumption that people who live longer with younger cells will necessarily live happier or more rewarding lives."[37] Christian theologians likely deny that life-extension or "cybernetic immortality corresponds to the biblical vision of resurrection from the dead […]. Our redemption through resurrection into the new creation does not correspond to physical longevity or cybernetic immortality."[38] Indefinite lifespans are not the same as resurrection. Indeed, there could be many reasons for one to despise an indefinite lifespan. The Christian notion of resurrection is not the same as enhancement projects. But, in pursuit of happiness and fulfilment through enhancement technologies, humans may divert the true and ultimate end – fellowship with God.

The soul at death exists in God's presence until the final resurrection, when the soul is reunited with the body, and the person becomes whole. The Christian hope is that His Kingdom will come and redeem everything by God's grace. This eschatological hope is the foundation for the belief in the resurrection. The hope in the resurrection and beatific vision implies that "Our true humanity is *eschatological*."[39] Stephen Garner notes that transhumanism and posthumanism often mirror Christian concerns and hope for a better future.[40] For the Christian, it is hope in God's grace and mercy. For the transhumanist, it is in technological skill. Jesus' resurrection provides the framework from which man finds his place in the world and God's creation.

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[36] B. Waters, "Flesh Made Data," in *Religion and Transhumanism: The Unknown Future of Human Enhancement*, 297.
[37] B. Waters, 298.
[38] T. Peters, "Progress and Provolution," 73.
[39] K. Lebacqz, "Dignity and Enhancement in the Holy City," 58.
[40] Cf. S. Garner, "Christian Theology and Transhumanism," 229.

2. Christian Transhumanism

Although a majority of followers of transhumanism depict their plan as a secular movement that specifically challenges the traditional premises of Christian metaphysics, some techno-progressive thinkers assert that Christians should endorse a moderate version of biotechnological enhancement.

Such is the approach of Benedict Paul Göcke, who pleas for the emergence of 'immortal Christian cyborgs.'[41] As long as biotechnological and genetic enhancement does not conflict with the character of human beings as free and autonomous moral agents, transhumanism can be considered fully compatible with Christian theology, anthropology, and ethics.[42] He thinks it is the duty of Christians as God's co-creators to enhance the well-being of the present creation following moral values. Nevertheless, "Göcke's image of the human as a freely acting and embodied stream of consciousness fails to address the essential feature of Christian anthropology: the soul."[43] Even then, the transhumanist denial of the soul as an unempirical and 'intangible appendage to the tangible material body' does not address the Christian view of humankind.

2.1. 'God' and Religion in a Technological World

For many transhumanists, religion is a threat that blocks the way toward immortality, primarily because religion has traditionally attempted to provide a palliative for people facing death by comforting them with an acceptance of reality. Therefore, futurists such as Kurzweil engage in combat with traditional religion; they wish to defy death and use technology for this purpose. He explains, "The primary role of traditional religion is deathist rationalization — that is, rationalizing the tragedy of death as a good thing."[44] Hereto, to benefit

[41] B.P. Göcke, "Christian Cyborgs: A Plea for a Moderate Transhumanism," *Faith and Philosophy*, vol. 34, no. 3, (2017), 350.
[42] B.P. Göcke, 352.
[43] M. Lipowicz, "Transhumanism and Christianity: A Ratzingerian Approach to the Concept of Biotechnological Human Enhancement," *Religion and Theology*, vol. 27, (2020), 64.
[44] R. Kurzweil, *The Singularity is Near*, 274.

from what the Singularity can bring, transhumanists are looking to overcome the "deathist" rationalization and sweep traditional religion out of our road.[45] His book *The Singularity Is Near* makes predictions with an eschatological flavour. "If super-luminary speeds can be attained, Kurzweil predicts, post-humans will eventually transform the entire universe into an all-powerful intelligence resembling in important respects the monotheistic God."[46] Kurzweil's God is not transcendental but the zenith of nature's intrinsic possibilities. Yuval Noah Harari examines such pervading nature of cyber data and foresees 'dataism' as the future religion. Life is considered a movement of information, and maintaining its flow is the supreme value. He says,

> According to Dataism, human experiences are not sacred, and *Homo sapiens* isn't the apex of creation or a precursor of some future *Homo Deus*. Humans are merely tools for creating the Internet-of-All-Things, which may eventually spread out from planet Earth to cover the whole galaxy and even the whole universe. This cosmic data-processing system would be like God. It will be everywhere and will control everything, and humans are destined to merge into it.[47]

Brain emulation technologies also challenge the theology of the omnipresence of God and limitations of personhood. Once uploaded into a network, individuals are not bound by time-space barriers, making them almost omnipresent. In the process of digital immortalization, they will be digitally ubiquitous. Transhumans try to become idols rather than icons that point past ourselves to God.[48]

Specific Christian organizations emerged in the United States to propose a conciliation between transhumanist and Christian theologies. In 2006 two

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[45] T. Peters, "Progress and Provolution," 73. Also, in V. Kirezi, "On Posthumanist Religion: Brief Theological Queries," (2019), 12-13. Available at [https://www.academia.edu/42788362/On-Posthumanist-Religion-Brief-Theological-Queries] (Accessed on March 20, 2021).

[46] M.E. Zimmermann, "The Singularity: A Crucial Phase in Divine Self Actualization?" in *Cosmos and History: The Journal of Natural and Social Philosophy* (2008), 10.

[47] Y.N. Harari, *Homo Deus: A Brief History of Tomorrow*, (Canada: Signal Books 2016), 364.

[48] Cf. D. Passini, *Techno-theology: A Theological Algorithm for Being Human in a Technological Age*, 133.

organizations, namely, the Mormon Transhumanist Association (MTA), and World Transhumanist Association, currently known as Humanity+ was founded. The MTA claims to believe in the Gospel of Jesus Christ and its compatibility with many religions and philosophies. According to former MTA president Lincoln Cannon, God could be considered an advanced man-machine hybridization.[49] The Russian cosmists believed in achieving the resurrection of bodies by bringing the disposition of the atoms of the dead back to the configuration before death. Some other transhumanists even believed in assimilating God to a superintelligence and an afterlife as a simulation.

2.2. Christian Transhumanist Association

For some scholars, transhumanism is a natural consequence of man's status as a co-creator with God. It is theistic evolution through human agency. Philp Hefner notes, "Transhumanism is not first of all a matter of morality. Our existence as created co-creators who face the possibilities of TH is profoundly an expression of our human nature […]. To discredit our God-given nature is itself a rebellion against God."[50] Hence, one has a God-given mandate towards transhumanism. This explains Hefner's 'created co-creator' as the pillar in Christian transhumanism.

In 2014, the Christian Transhumanist Association (CTA), also affiliated with Humanity+, was founded. The CTA based its belief in God's mission that involves "the transformation and renewal of creation including humanity" and that people have been "called by Christ to participate in that mission." Becoming like Christ implies "using science and technology ethically to improve the world."[51] The CTA considers Teilhard de Chardin a forerunner of

[49] L. Cannon, "Theology May Become a Science of Superintelligence," (Aug. 22, 2017) Available on Cannon's official website, [http://lincoln.metacannon.net/2017/08/theology-may-become-science-of.html] (Accessed on Apr. 21, 2021).
[50] P. Hefner, "The Animal that Aspires to Be an Angel: The Challenge of Transhumanism," in *Dialog: Journal of Technology*, vol. 48, no. 2 (2009), 166.
[51] Christian Transhumanist Association, [https://www.christiantranshumanism.org], (Accessed on Aug. 25, 2019).

transhumanism, and Frank Tipler's *The Physics of Immortality* as the recommended book. Micah Redding, the association's co-founder and its Executive Director, says, "It's not just that they are compatible. Christianity is a distinctly transhumanist viewpoint that sprung up in the first century, and set out to reshape both the world and human nature."[52]

3. Technological Soteriology: Salvation through Technology?

Transhumanists seek salvation through technology, contrary to the Christian faith that salvation is found only in Christ. The posthuman project portrays "the mentality of apocalyptic eschatology."[53] Moreover, the idea of 'techno-scientific *eschaton*' is imbued with technology intended to meet our desires for perfection. It is a search for the Kingdom of God achieved by human creativity. Concerning posthuman salvation, Brent Waters comments that humans are essentially patterns of information that constitute the mind and will. Still, this data pattern is currently confined to a biological body that is ill-equipped to preserve the data pattern. "In short, humans must save themselves from their finite and mortal bodies by building a superior prosthetic of the will."[54]

This posthuman salvific narrative places science as the object of faith. The posthumanist has confidence that scientific pursuits will overcome specific ailments. They have faith that science will solve their most profound problems. However, from a Christian perspective, the issue is that science can resolve any issues under the purview of science, but science cannot answer existential questions.[55]

> The problem with elevating technology to salvific status is that it makes a priesthood out of the scientific community – a magisterium that cannot be

[52] M. Redding, "Christianity is Transhumanism," (Apr. 25, 2012), [http://micahredding.com/blog/2012/04/25/christianity-transhumanism] (Accessed on July 1, 2016).
[53] H. Tirosh-Samuelson, "Utopianism and Eschatology: Judaism Engages Transhumanism," in *Religion and Transhumanism: The Unknown Future of Human Enhancement*, 164.
[54] B. Waters, "Flesh Made Data," 294.
[55] Cf. C.B. Lake, *Prophets of the Posthuman: American Fiction, Biotechnology, and the Ethics of Personhood*, (Notre Dame: University of Notre Dame Press 2013), 135.

> contradicted on pain of public humiliation and verbal flogging. It makes physicians dispensers of salvation, not caregivers. It turns technology into the sacraments of grace. The hard truth is that by mixing these categories, we have made technological matters, moral matters.[56]

The enhancement debate deals mainly with two approaches. First, technology attempts to free us from our physical and cognitive limitations – an approach of transhumanism. Second, technology is employed to alter humans physically and cognitively far beyond the current limits – the approach of posthumanism. Patrick Hopkins notes that these two approaches create a "salvation paradox." That is, transhumanism is unlikely to *save* us, while posthumanism is unlikely to save *us*.[57] Transhumanism offers a form of 'soteriology' – an escape from the frail human condition. But the cost of this technological soteriology is a transformation of human nature and identity.

Techno-theology then must focus on the incarnation and the physical presence of Jesus Christ, which points towards the importance of embodiment. "He chose to be enrobed in the *flesh* rather than *pixels*."[58] Jesus chose the rhythms of the physical world rather than the algorithms of a digital world. Even His resurrected state entails an embodied presence, though there was a significant change in its nature. It is doubtful to regard digital emulation as the next phase of our evolutionary process.

The transhumanist idea claims technology is the means for individual, social, and political progress. It will allow us to make the environment more hospitable to humans – or change humans to better relate to a hostile environment. Michael Burdett calls this the "myth of progress", and it holds "that not only does technology transform society and the economy for the better, but also individual

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[56] R.L. Wilson, *Techno-Salvation: Developing a Christian Hermeneutic of Enhancement Technology*, 418 – 419.
[57] Cf. P.D. Hopkins, "A Salvation Paradox for Transhumanism: *Saving* You versus Saving *You*," in *Religion and Transhumanism: The Unknown Future of Human Enhancement*, 72.
[58] D. Passini, *Techno-Theology: A Theological Algorithm for Being Human in a Technological Age*, 135.

human experience can be affected directly through bodily enhancement."[59] Likewise, in indefinite life-spans, humans may claim to live forever with God, but this would be in an alternate state of being; it is not entirely clear what an indefinite life-span would do to a person who is functionally the same. One may long for death and find it elusive. Eternal life is not merely extending life indefinitely. Jesus said that eternal life consists in knowing God (Jn. 17:3) and being in communion with Him (Jn. 17:20). Hence, eternal life is not a quantitative feature but as a qualitative one.

Christians cannot ignore the alternative salvation offered by "radical" enhancements. For the Christian, God is sovereign, and all power and authority lay with Him. Ultimately, salvation is not an escape or a limited reprieve from our condition in it – instead, salvation is the fulfilment of the world and redemption of our situation.[60] The Christian hope of salvation is redeeming this world, not its abandonment. The Christian notions of embodiment and salvation are pretty different from this posthuman notion of salvation.[61]

4. Transhumanist Theology: A Need or a Choice?

As mentioned earlier, theology often lags in the race with fast pacing scientific developments. This allows modern problems to create distractions even in matters of faith and morals. A theology that addresses the issue of transhumanism may not be an urgent necessity today. However, the near future of the human psyche may defectively involve itself in this ideology to the extent that the basic tenets of faith fall into jeopardy. A transhumanist theology starting as an option for today becomes a need for tomorrow. Rather than condemn, theology must create an integrated platform for the effective and mature use of such technologies.

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[59] M.S. Burdett, "The Religion of Technology: Transhumanism and the Myth of Progress," in *Religion and Transhumanism: The Unknown Future of Human Enhancement*, 142.
[60] Cf. J.C. Peterson, *Changing Human Nature: Ecology, Ethics, Genes, and God*, 48.
[61] Cf. B. Waters, "Flesh Made Data," 295.

4.1. Transformability and the Rise of the 'New Man'

Anders Sandberg's concept of morphological freedom is based on "an increasing acceptance and cherishing of individual self-expression and diversity."[62] Consequently, he opines, "We express ourselves through what we transform ourselves into."[63] Morphological freedom seems to imply a newer understanding of personal liberty directly.

Lipowicz makes a parallelism to this, by enumerating three elements in Ratzinger's the concept of freedom: the total liberation from institutional constraints, the technological triumph of man's will over nature's principles, and the rise of a 'new man' as a necessary consequence of the two previous processes.[64] He emphasises that, unlike the earlier times, beyond perceiving the truth of being, the reality with which man is concerned is that of moulding the world, centred on future and action.[65] The human being "does not need to regard it as impossible to make himself into the God who now stands at the end as *fasciendum*, as something makeable."[66] Later as Pope, he encourages that technology "is a profoundly human reality, linked to the autonomy and freedom of man."[67] Technology is a way of understanding the human condition as a struggle against physical limitations, though in the long run could reduce all human creativity into technical operations. However, as Lipowicz says, "Christianity is structurally rooted in a specific kind of post-humanism, which, historically and philosophically, precedes the modern idea of the 'new man' and its most recent derivate – transhumanism."[68]

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[62] A. Sandberg, "Morphological Freedom – Why we not Just Want it, but Need it," in M. More and N. Vita-More (eds.), *The Transhumanist Reader*, 56.
[63] A. Sandberg, "Morphological Freedom," 59.
[64] Cf. Lipowicz, "Transhumanism and Christianity," 59. For further study, refer J. Ratzinger, "Truth and Freedom," *Communio*, vol. 23, no. 1, (1996).
[65] Cf. Ratzinger, *Introduction to Christianity*, 63.
[66] Ratzinger, *Introduction to Christianity*, 65.
[67] Benedict XVI, *Caritas in Veritate* § 69, (Trivandrum: CIPH 2011).
[68] Lipowicz, "Transhumanism and Christianity," 64. The Pauline epistles speak of a transformation of the current human body to a spiritual existence in relation to God. The image of 'glorious immortal body' has attracted many transhumanists to justify the roots of their idea

4.2. Jesus Christ, the Theo-Evolutionary Man of the Future

The Christian idea of the soul inclines toward relational anthropology: being human means being in relation to God and His creation.[69] The Church upholds this aspect and conveys this through the Pastoral Constitution of Vatican II. The human being is the "only creature on earth which God willed for itself."[70] Theology shifted its attention from Platonic categorization towards a person's existential nature grounded in relation to God. The understanding of the essence has gone from a substantial entity to an ontological relationship to God. Personhood is the crucial anthropological category that forms the basis of almost all Christian doctrine regarding human identity.[71] Initially, *persona* was only an artistic tool employed in ancient drama. By identifying God as a dialogical being, this term had to be accordingly introduced as a dialogical reality.[72]

God's personhood and dialogicality propose an ontological unity: "In God, person is the pure relativity of being turned toward the other; it does not lie on the level of substance – the substance is *one* – but on the level of dialogical reality, of relativity toward the other."[73] This relationality, in its most total sense, is realised in Christ. The contradiction between essence and relativity ultimately and irreversibly has been torn down in Him. Hence, from a Christian

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in Christianity. The Christian aim of deification is considered by many as an anticipation of the transhumanist notion of transformation. Another theme from Christian history is Irenaeus' idea of growth from image to likeness of God. Also, Maximus' emphasis on the human role in attaining the glorious end intersects with the transhumanist vision of directed evolution via technology. This issue is discussed in details in sections, 'Biblical and Anthropological Views' and in 'Deification and Creaturehood' of chapter two of this paper.

[69] Cf. J. Ratzinger, *In the Beginning…*, 47-48. "Its nature as an image has to do with the fact that it goes beyond itself and that it manifests something that it itself is not. Thus the image of God means, first of all, that human beings cannot be closed in on themselves. To be the image of God implies relationality. It is the dynamic that sets the human being in motion toward the totally Other. Hence it means the capacity for relationship; it is the human capacity for God."

[70] *Gaudium et Spes* § 24, *Vatican Council II*, 812.

[71] Cf. Lipowicz, "Transhumanism and Christianity," 65.

[72] Cf. J. Ratzinger, "Concerning the Notion of Person in Theology," in *Communio* vol. 17, no. 3 (1990), 439.

[73] Ratzinger, 444 – 445.

perspective, Christ is the ultimate image of the human – the *telos* of personal development; "In him 'hominization' has truly reached its goal."[74]

Ratzinger explains this existential transition of the individual as follows: "Faith sees in Jesus the man in whom – on the biological plane – the next evolutionary leap, as it were, has been accomplished."[75] While Chardin points to Christ as the Omega point towards whom all evolution is directed, Ratzinger includes Christ in the whole schema as the one who anticipated and accomplished the eschatological future of *Homo sapiens*. Christian faith understands Christ as the "future of man in which he is completely 'socialized', incorporated in one single being, but in such a way that the individual is not extinguished but brought completely to himself."[76] He transcended the limits of the biological nature, not through replacing the body by the technological endeavour, not through becoming an 'immortal cyborg,' but through qualitatively a new understanding of life, which is grounded "in the coinciding of man and God."[77]

4.3. Relationality and Transhumanism

The greatest threat that technology and transhumanism poses is hubris and resultant isolation. Individual attempts disturb the fabric of communion with which humanity is created. Beyond any discussion on morality, it questions humans' very nature and destiny. "An existence in which man tries to divinize himself, to become 'like a god' in his autonomy, independence and self-sufficiency, turns into a Sheol-existence, a being in nothingness, a shadow-life on the fringe of real living."[78] From a theological perspective, the only proper way to overcome death is not the direct, physical enhancement of biological life but a dramatic change in one's attitude towards life. It is love that transforms

[74] Ratzinger, *Introduction to Christianity*, 235.
[75] Ratzinger, 239.
[76] Ratzinger, 239.
[77] Ratzinger, 226.
[78] Ratzinger, *Eschatology*, 156.

mortal *bios* can turn into eternal *Zoe*. It is only through self-giving that man finds meaning in his existence. Enhancement technologies and cybernetics must focus on developing such a relational approach.

Conclusion

Relationality and embodiment are critical themes for several scholars such as Deane-Drummond, Daly, Labrecque, Thweatt-Bates, Trothen, and Hannah Scheidt. Chardin's vision of the Omega point and Ratzinger's faith in the Theo-evolutionary man who fulfilled hominization are eschatological descriptions that point to Christ, for whom the whole cosmos was made and in whom it finds its meaning and destiny (Col. 1: 16-20). Though collectivization may appear similar to all-pervading cyberspace, it is uncertain whether Chardin's noosphere is realized in the transhuman future. But attempts to acquire self-enhancement entail a chain of unsatisfied needs, whereas man finds himself in total self-giving.[79] Heaven is not a place of self-reliant immortal entities who desire to attain god-like qualities but an eternal communion of selfless and relational beings. Brian Green argues that since transhumanists want to become god-like, they should maybe consider talking to theologians who, in turn, might "appreciate their efforts and gladly offer advice."[80]

[79] Cf. *Gaudium et Spes* § 24, *Vatican Council II*, 812.
[80] B.P. Green, "Transhumanism and Roman Catholicism: Imagined and Real Tensions," in *Theology and Science* vol. 13, no. 2 (2015), 199.

CONCLUSION

The human being is a mystery yet to be fully understood. The more this is made visible, the more it leads one to appreciate the beauty of God's work. The recent developments in the arena of science predict the emergence of new species that include immortal humans too. Will the upcoming transhumans still relate themselves to God and other fellow beings? Will the essential attitudes of love, compassion and communion be limited to digital functions? Will enhanced humanity be more enhanced in human values and its intimacy to God?

Transhumanism as an upcoming step in human evolution has not been actualized. This conveys the reason for a deficiency in concluding this argument. The question is open-ended and demands further study; this insists scientists and theologians come together and develop a transhumanist theology, which would address the problems of a technological future. Theology must encounter technology to comprehend, correct and critique man's search for immortality.

This academic dissertation tried to consolidate the various attempts to integrate eschatology and transhumanism. The existential questions regarding technological innovations and consequent philosophy challenge the basic tenets of faith. In return, the Christian faith urges one to re-think, re-interpret and re-formulate these aspects through the eyes of faith. Perhaps a better theological language is necessary in the coming times to accommodate the scientific community. Science clarifies theological concepts in a rationalistic society—similarly, theology guides and orients science towards God and divine realities. An integrated study may help one seek beyond the 'God of gaps' and have a related experience with God.

BIBLIOGRAPHY

Magisterial and Ecclesial Documents

CATECHISM OF THE CATHOLIC CHURCH, (Bengaluru: TPI 2019).

BENEDICT XVI, Encyclical on Integral Human Development in Charity and Truth: *Caritas in Veritate*, (Trivandrum: CIPH 2011).

_____, Encyclical on Christian Hope: *Spe Salvi*, (Trivandrum: CIPH 2009).

FRANCIS, Encyclical on the Joy of Evangelization: *Evangelii Gaudium*, (Trivandrum: CIPH 2013).

JOHN PAUL II, *Address to the Plenary Session on 'The Emergence of Complexity in Mathematics, Physics, Chemistry and Biology'*, The Pontifical Academy of Sciences, (Oct. 31, 1992). Available at [http://www.pas.va/content/accademia/en/magisterium/johnpaulii/31october1992.html], (Accessed on Oct. 30, 2021).

SECOND VATICAN COUNCIL. *Pastoral Constitution on Church in the Modern World: Gaudium et Spes* (1965), in FLANNERY, A. (ed.), *Vatican Council II: The Conciliar and Post Conciliar Documents* (Mumbai: St. Pauls Publications 1991).

Fathers of the Church

AQUINAS, T., *Summa Theologica*, in R.M. Hutchins (ed.), Great Books of the Western World, (Chicago: William Benton 1982).

ATHANASIUS, *Epistola ad Adelphium* , in P. Schaff – H. Wace (eds.), A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church vol. 4, (Michigan: Wm. B. Eerdmans Publishing Company 1980).

AUGUSTINE, *De Civitate Dei*, in P. Schaff (ed.), A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church vol. 2, (Grand Rapids: Wm. B. Eerdmans Publishing Co. 1983).

_____, *De Trinitate*, in P. Schaff (ed.), A Select Library of the Nicene and Post-Nicene Fathers of the Christian Church vol. 3, (Edinburgh: T. and T. Clark 1988).

GREGORY OF NAZIANZUS, *Oration 3: On the Son 1*, in S. Reynolds (trans.), *Five Theological Orations*, (Toronto: University of Toronto),

[https://tspace.library.utoronto.ca/bitstream/1807/36303/1/Gregory%20of%20Nazianzus%20Theological%20Orations.pdf] (Accessed on Nov. 20, 2021).

IRENAEUS, *Adversus Haereses*, in A. Roberts – J. Donaldson (eds.), The Ante-Nicene Fathers, vol. 1, (Michigan: Wm. B. Eerdmans Publishing Company 1985).

Books

BALTHASAR, H.U. von, *Dare we Hope "That All Men be Saved"?*, D. Kipp – L. Krauth (trans.), (San Francisco: Ignatius Press 1988).

BARBOUR, I., *Religion in an Age of Reason*, (Britain: SCM 1990).

BARTH, K., *Church Dogmatics* vol. 3, J.W. Edwards – O. Bussey – H. Knight (trans.), G.W. Bromiley – T.F. Torrance (eds.), (Edinburgh: T. and T. Clark 1958).

_____, *Church Dogmatics* vol. IV, G.W. Bromiley – T.F. Torrance (eds.), (Edinburgh: T&T Clark 1980).

BOSTROM, N., *Superintelligence: Paths, Dangers, Strategies*, (UK: Oxford 2014).

BROWN, R., *The Gospel according to John (The Anchor Bible)* (New York: Doubleday 1966).

BURDETT, M., *Eschatology and the Technological Future*, (London: Routledge 2015).

CARDON, A., *Beyond Artificial Intelligence: From Human Consciousness to Artificial Consciousness*, (USA: John Wiley and Sons Ltd. 2018).

CHALAKKAL, S., *An Introduction to Christology*, (Kottayam: OIRSI 2011).

CHANDRANKUNNEL, M., *The Condemnation and Rehabilitation of Galileo Galilei by the Catholic Church*, (Bangalore: Dharmaram Publications 2004).

CHARDIN, P.T. de, *Activation of Energy*, René Hague (trans.), (London: Collins, 1970).

_____, *Man's Place in Nature*, (New York: Harper and Row 1966).

_____, *Phenomenon of Man*, (New York: Harper Perennial 1958).

_____, *The Divine Milieu*, (New York: Harper and Row 1960).

_____, *The Future of Man*, (New York: Image Books 1968).

CLARK, A., *Natural-born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*, (Oxford: Oxford University Press 2003).

DANTE, *The Divine Comedy*, (New York: Everyman's Library 1967).

DAVIES, P., *The Goldilocks Enigma*, (London: Penguin Books 2006).

DAWKINS, R., *The God Delusion*, (London: Bantam Press 2006).

DEVDAT, *The Acosmic: Human Quest for Liberation and Deification*, (Delhi: Media House 2004).

ELIOT, T.S., *The Cocktail Party*, (London: Faber and Faber Ltd. 1949).

ETTINGER, R., *The Prospect of Immortality*, (Ann Arbor: Ria University Press 2005).

FITZMYER, J.A., *Romans (The Anchor Bible)*, (New York: Doubleday, 1966).

FLETCHER, P.J., *Resurrection Realism*, (Eugene: Cascade Books 2014).

FRANCIS, J., *Jesus Christ: Our Lord, God, Brother and Saviour*, (Bangalore: St. Peter's Pontifical Institute Publications 2011).

FREITAS, R. A., *Nanomedicine: Basic Capabilities*, (Texas: Landes Bioscience 1999).

FUKUYAMA, F., *Our Posthuman Future: Consequences of The Biotechnology Revolution*, (New York: Farrar, Straus and Giroux 2002).

GERACI, R. M., *Apocalyptic AI: Visions of Heaven in Robotics, Artificial Intelligence, and Virtual Reality*, (New York: Oxford 2010).

GOULD, S.J., *Rocks of Ages: Science and Religion in the Fullness of Life*, (New York: Ballantine Books 1999).

HAGERTY, L., *The Spirit of the Internet: Speculations on the Evolution of Global Consciousness*, (Florida: Matrix Masters 2000).

HANNAM, J., *God's Philosophers: How the Medieval World Laid the Foundations of Modern* Science, (UK: Icon Books 2009).

HARARI, Y. N., *Homo Deus: A Brief History of Tomorrow*, (Canada: Signal Books 2016).

HEFNER, P., *Technology and Human Becoming*,(Minneapolis: Fortress Press 2003).

HEIDEGGER, M., *Being and Time*, J. Stambough (ed.), (Albany: State University of New York 2010).

HESS, P.M. – ALLEN, P.L., *Catholicism and Science*, (Connecticut: Greenwood Press 2008).

HUXLEY, J., *New Bottles for New Wine: Essays by Julian Huxley*, (London: Chatto and Windus 1957).

JAKI, S., *The Road of Science and the Ways to God*, (Chicago: University of Chicago Press 1978).

JOHNSON, R.A., *The Origins of Demythologizing: Philosophy and Historiography in the Theology of Rudolf Bultmann*, (Leiden: E.J. Brill 1974).

KENNY, W.H., *A Path through Teilhard's Phenomenon*, (Dayton: Pflaum Press 1970).

KERESZTY, R.A., *Jesus Christ: Fundamentals of Christology*, (USA: St. Paul's Publications 2010).

KURZWEIL, R., *The Singularity is Near: When Humans Transcend Biology*, (USA: Penguin Group 2005).

KÜNG, H., *Judaism*, J. Bowden (trans.), (London: SCM Press 1992).

LAKE, C.B., *Prophets of the Posthuman: American Fiction, Biotechnology, and the Ethics of Personhood*, (Notre Dame: University of Notre Dame Press 2013).

LILLEY, S., *Transhumanism and Society: The Social Debate over Human Enhancement*, (New York: Springer 2008).

LIVINGSTONE, D., *Transhumanism: The History of a Dangerous Idea*, (USA: Sabilillah Publications 2015).

MACHUGA, R., *In Defense of the Soul: What it Means to be Human*, (Grand Rapids: Brazos Press 2002).

MIDSON, S.A., *Cyborg Theology: Humans, Technology and God*, (London: I.B. Tauris & Co. Ltd. 2018).

MOLTMANN, J., *The Way of Jesus Christ: Christology in Messianic Dimensions*, M. Kohl (trans.), (Philadelphia: Fortress Press 1990).

_____, *Theology of Hope*, (Minneapolis: Fortress Press 1993).

MONOD, J., *Chance and Necessity*, A. Wainhouse (trans.), (New York: Vintage Books 1971).

MURRAY, M.H., *The Thought of Teilhard de Chardin*, (New York: Seabury Press 1966).

O'NEILL, K., *Internet Afterlife: Virtual Salvation in the 21st century*, (California: Praeger 2016).

PAMPLANY, A., *Science and Religion*, (Thellichery: Alpha Institute of Theology and Science 2016).

PANNENBERG, W., *Anthropology in Theological Perspective*, M.J. O'Connel (trans.) (Edinburgh: T. & T. Clark 1985).

PARAPPALLY, J., *The Meaning of Jesus Christ*, (Bengaluru: TPI 2016).

PEACOCKE, A., *Theology for a Scientific Age*, (Minneapolis: Fortress Press 1993).

PETERS, T. – HEWLETT, M., *Evolution from Creation to New Creation*, (Nashville: Abingdon Press 2003).

PETERSON, J.C., *Changing Human Nature: Ecology, Ethics, Genes, and God*, (Grand Rapids: Wm. B. Eerdmans Publications 2010).

PLATO, "*Republic*" and "*Theaetetus*" in *The Dialogues of Plato*, vol. 7, B. Jowett (trans.) (Chicago: The University of Chicago 1982).

POLKINGHORNE, J., *One World: The Interaction of Science and Theology*, (Philadelphia: Templeton Foundation Press 2007).

RAHNER, K., "Eschatology" (Part III), in D. Bourke (trans.), *Theological Investigations* vol. 10 (London: Darton, Longman and Todd Ltd. 1973).

_____, "Humane Society" (Part I), in J. Donceel (trans.), *Theological Investigations* vol. 22 (London: Darton, Longman and Todd Ltd. 1991).

_____, "Science and Theology" (Part I), in *Theological Investigations* vol. 21, (London: Darton, Longman and Todd Ltd. 1973)

_____, "The Doctrine of Grace" (Part IV) in *Theological Investigations* vol. 4 (London: Darton, Longman and Todd 1975).

_____, *Foundations of Christian Faith*, W. Dych (trans.), (New York: The Seabury Press 1978).

_____, *The Content of Faith: The Best of Karl Rahner's Theological Writings*, H.D. Egan (ed.), (New York: Crossroad 1994).

RATZINGER, J., *Eschatology*, M. Waldstein (trans.), (Washington DC: The Catholic University of America Press 1988).

_____, *Introduction to Christianity*, J.R. Foster (trans.), (San Francisco: Ignatius Press 2004).

_____, *Jesus of Nazareth*, (New York: Doubleday 2007).

RUSSELL, R.J., *Cosmology, Evolution and Resurrection Hope*, (Ontario: Pandora Press 2006).

SCHILLEBEECKX, E., *God the Future of Man*, N.D. Smith (trans.) (London: Sheed and Ward 1969).

SHANNON, T.A., *What Are They Saying About Genetic Engineering*, (New York: Paulist Press 1985).

SHULTS, F.L., *Christology and Science*, (UK: Ashgate Publishing Ltd. 2008).

TEGMARK, M., *Life 3.0: Being Human in the Age of Artificial Intelligence*, (New York: Alfred A. Knoff 2017).

THWEATT-BATES, J., *Cyborg Selves: A Theological Anthropology of the Posthuman*, (Farnham: Ashgate 2012).

TIPLER, F.J., *The Anthropic Cosmological Principle*, (Oxford: Oxford University Press 1986).

_____, *The Physics of Immortality*, (New York: Doubleday 1994).

TRACY, D., *Blessed Rage for Order*, (Chicago: University of Chicago Press 1996).

WHITE, A.D., *A History of the Warfare of Science and Theology in Christendom*, (New York: D. Appleton and Co. 1910).

WILDMAN, W. – RICHARDSON M. (eds.), *Religion and Science: History, Method and Dialogue*, (London: Routledge 1996).

WILKINSON, D.A., *Christian Eschatology and the Physical Universe*, (New York: T & T Clark 2010).

WINSTON, P.H., *Artificial Intelligence*, (USA: Addison-Wesley 1984).

WOLFE, J., *Heidegger's Eschatology: Theological Horizons in Martin Heidegger's Early Work*, (UK: Oxford University Press 2013).

WOLFF, H.W., *Anthropology of The Old Testament*, (Philadelphia: Fortress Press 1975).

Articles from Books

BASS, C.B., "Body," in G.W. Bromiley (ed.), *The International Standard Bible* Encyclopedia vol. 1, (Michigan: Wm B. Eerdmans Publishing Company 1979).

BITTNER, R., "Augustine's Philosophy of History," in G. B. Matthews (ed.), *The Augustinian Tradition*, (Berkeley: University of California Press 1999).

BRUCE, D., "Reflections on Ten Years of Human Enhancement Debate," in T. Boer – R. Fischer (eds.), *Human Enhancement: Scientific, Ethical and Theological Aspects from a European Perspective*, (Strasbourg: Church and Society Commission of the Conference of European Churches 2012).

BURDETT, M., "The Religion of Technology: Transhumanism and the Myth of Progress," in C. Mercer – T. J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement* (California: Praeger 2015).

CLAY, E., "Transhumanism and the Orthodox Christian Tradition," in H.T. Samuelson – K.L. Mossman (eds.), *Building Better Humans?*, vol. 3, (Frankfurt: Peter Lang 2011).

DALY, T., "Diagnosing Death in the Transhumanism and Christian Traditions," in C. Mercer – T.J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement*, (California: Praeger 2015).

DEANE-DRUMMOND, C., "Remaking Human Nature: Transhumanism, Theology, and Creatureliness in Bioethical Controversies," in C. Mercer – T.J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement* (California: Praeger 2015).

_____, "Taking Leave of the Animal? The Theological and Ethical Implications of Transhuman Projects," in R. Cole-Turner (ed.), *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, (Washington DC: Georgetown University Press 2011).

EINSTEIN, A., "Science and Religion," *Ideas and Opinions*, (New York: Citadel Press 1956).

FICHTNER, J.A., "Theological Anthropology," in W.J. McDonald (ed.), *New Catholic Encyclopedia* vol. 1, (Washington D.C.: Catholic University of America 1967).

FREITAS, R.A., "Nanomedicine: The Quest for Accident-Limited Healthspans," in Immortality Institute (ed.), *The Scientific Conquest of Death: Essays on Infinite Lifespans*, (Buenos Aires: Libros en Red 2004).

GARNER, S., "Christian Theology and Transhumanism: The 'Created Co-creator' and Bioethical Principles," in C. Mercer – T.J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement*, (California: Praeger 2015).

GRUMMET, D., "Transformation and the End of Enhancement: Insights from Pierre Teilhard de Chardin," in R. Cole-Turner (ed.), *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, (Washington DC: Georgetown University Press, 2011).

HOPKINS, P.D., "A Salvation Paradox for Transhumanism: Saving You versus Saving You," in C. Mercer – T.J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement*, (California: Praeger 2015).

JUENGST, E.T., "What's Taxonomy got to do with it? 'Species Integrity', Human Rights, and Science Policy," in J. Savulescu – N. Bostrom (eds.), *Human Enhancement*, (New York: Oxford University Press 2005).

KALLUNGAL, M., "*Chaos Saidhantika Noothanathvavum Anubhava Saaddhyathakalum*," in A. Pamplany (ed.), *Isvarasamvedhanam Sasthrayugathil*, (Aluva: Institute of Science and Religion 2003).

LAMB, M.L., "The Eschatology of St. Thomas Aquinas," in T.G. Weinandy – D.A. Keating (eds.), *Aquinas on Doctrine: A Critical Introduction*, (London: T&T Clark 2004).

LEBACQZ, K., "Dignity and Enhancement in Holy City," in *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, (Washington DC: Georgetown University Press 2011).

LUMBRERAS, S., "Strong Artificial Intelligence and Imago Hominis: The Risks of a Reductionist Definition of Human Nature," in M. Fuller – A. Runehov (eds.), *Issues in Science and Theology: Are We Special? Human Uniqueness in Science and Theology*, (Switzerland: Springer International Publishing 2017).

MORE, M., "The Philosophy of Transhumanism," in M. More – N. Vita-More (eds.), *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, (UK: John Wiley & Sons Inc. 2013).

PANDIKATTU, K., "God Among Immortal Humans," in R. Herrmann (ed.), *Expanding Humanity's Vision of God*, (West Conshohocken: Templeton Foundation Press 2012).

PETERS, T., "Progress and Provolution: Will Transhumanism Leave Sin Behind?" in R. Cole-Turner (ed.), *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement*, (Washington DC: Georgetown University Press 2011).

RANISCH, R. – SORGNER, S.L., "Introducing Post- and Transhumanism," in S.L. Sorgner (ed.), *Beyond Humanism: Trans- and Posthumanism*, vol. 1, (Frankfurt: Peter Lang 2014).

RESNIK, D.B., "Genetic Engineering," in S.G. Post (ed.), *Encyclopedia of Bioethics* vol. 2, (USA: Macmillan Reference 2004).

SANDBERG, A., "Morphological Freedom – Why we not Just Want it, but Need it," in M. More and N. Vita-More (eds.), *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, (Chichester: Wiley-Blackwell 2013).

SIRIUS, R.U. – CORNELL, J. (eds.), *Transcendence: The Disinformation Encyclopedia of Transhumanism and the Singularity*, (San Francisco: Disinformation Books 2015).

TIROSH-SAMUELSON, H., "Utopianism and Eschatology: Judaism Engages Transhumanism," in C. Mercer – T.J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement*, (California: Praeger 2015).

TROTHEN, T.J., "Transhumanism and Religion: Glimpsing the Future of Human Enhancement," in C. Mercer – T.J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement*, (California: Praeger 2015).

WATERS, B., "Flesh Made Data: The Posthuman Project in Light of the Incarnation," in C. Mercer – T.J. Trothen (eds.), *Religion and Transhumanism: The Unknown Future of Human Enhancement*, (California: Praeger 2015).

Articles from Journals

AUSTRIACO, N.G., "Genome Editing with CRISPR," *Ethics and Medics*, vol. 41, no. 3, (2016).

BUCHANAN, B.G., "A (Very) Brief History of Artificial Intelligence," *AI*, vol. 26, (2006).

DEIN, S., "Transhumanism and Health: A Christian Perspective," *Journal of Religion and Theology*, vol. 3, issue 4, (2019).

DOROBANTU, M., "Recent Advances in Artificial Intelligence (AI) and Some of the Issues in the Theology & AI Dialogue," *ESSSAT News & Reviews*, vol. 29, (2019).

DYSON, F.J., "Time without End: Physics and Biology in an Open Universe," *Reviews of Modern Physics*, vol. 51, no. 3, (1979).

FARAONI, V. – COOPERSTOCK F.I., "On the Total Energy of Open Friedmann-Robertson-Walker Universes," *The Astrophysical Journal*, vol. 587, (2003).

GARNER, S., "Transhumanism and Christian Social Concern," *Journal of Evolution and Technology*, vol. 14, no. 2, (Aug. 2005).

GÖCKE, B.P., "Christian Cyborgs: A Plea for a Moderate Transhumanism," *Faith and Philosophy*, vol. 34, no. 3 (2017).

GREEN, B.P., "Transhumanism and Roman Catholicism: Imagined and Real Tensions," *Theology and Science*, vol. 13, no. 2 (2015).

GROSSMAN, L., "Man and Machine," in *Times*, vol. 177, no. 7 (2011).

HEFNER, P., "The Animal that Aspires to Be an Angel: The Challenge of Transhumanism," *Dialog: Journal of Technology*, vol. 48, no. 2, (2009).

HERZFELD, N., "Creating in Our Own Image: Artificial Intelligence and the Image of God," *Zygon*, vol. 37, no. 2, (2003).

HOPPÁL, B.K., "Karl Rahner's Notion of Vorgriff," *Verbum* vol. 6, no. 2, (Budapest: Akadémiai Kiadó 2004).

JUENGST, E. T., "Germ-Line Gene Therapy: Back to Basics," *Journal of Medicine and Philosophy*, vol. 16, no. 6, (1991).

KAVALACKAL, R., "Artificial Intelligence: An Anthropological and Theological Investigation," *Asian Horizons*, vol. 14, no. 3, (2020).

KOTZE, M., "The Theological Ethics of Human Enhancement: Genetic Engineering, Robotics, and Nanotechnology," in *In die Skriflig* 52(3), a2323 (2018). DOI: [https://doi.org/10.4102/ids.v52i3.2323]

KOZHAMTHADAM, J., "Catholicism and Modern Science: Vatican II on Science and Technology," *Jnanadeepa,* vol. 23, no. 2, (2019).

KRAFTCHICK, S. J., "Bodies, Selves, and Human Identity: A Conversation between Transhumanism and the Apostle Paul," *Theology Today*, vol. 72, no.1, (2015).

KULL, A., "Cyborg and Religious: Techno Culture and Techno Nature," *Scientia et Fides,* vol. 4, no. 1, (2016).

_____, "The Cyborg as an Interpretation of Culture-Nature," *Zygon*, vol. 36, no. 1, (2001).

LABRECQUE, C. A., "The Glorified Body: Corporealities in the Catholic Tradition" *Religions,* vol. 8, no. 166, (2017).

LEE, K., "Dangers of Genetic Engineering: New Forms of Discrimination," *Ethics and Medics*, vol. 33, no. 5, (2013).

LIPOWICZ, M., "Transhumanism and Christianity: A Ratzingerian Approach to the Concept of Biotechnological Human Enhancement," *Religion and Theology*, vol. 27, (2020).

MERCER, C., "Resurrection of the Body and Cryonics," *Religions*, vol. 8, no. 96, (2017).

MINERVA, F. – SANDBERG, A., "Euthanasia and Cryothanasia." in *Bioethics*, vol. 31, no. 7, (2017).

MOLTMANN, J., "Hope and History," *Theology Today,* vol. 25, no. 3, (1968).

PETERS, T., "The Soul of Trans-Humanism," *Dialog: A Journal of Theology*, vol. 44, no. 4, (2005).

_____, "Imago Dei, DNA, and the Transhuman Way," *Theology and Science* (2018). DOI: [https://doi.org/10.1080/14746700.2018.1488529].

RATZINGER, J., "Concerning the Notion of Person in Theology," *Communio,* vol. 17, no. 3, (1990).

_____, "Truth and Freedom," *Communio,* vol. 23, no. 1, (1996).

SAMUELSON, C., "Artificial Intelligence: A Theological Approach," *The Way*, vol. 59, no. 3, (2020).

SINSHEIMER, R.L., "Genetic Engineering: Life as a Plaything," *Technology Review*, vol. 86, no. 14, (1983).

STEINHART, E., "Teilhard de Chardin and Transhumanism," *Journal of Evolution and Technology*, vol. 20, no. 1, (2008).

STEINMETZ, M., "Thoughts on the Experience of God in the Theology of Karl Rahner: Gifts and Implications," in *Lumen et Vita* vol. 2, (Boston: School of Theology and Ministry 2012).

SWINTON, J., "What the Body Remembers: Theological Reflections on Dementia," *Journal of Religion, Spirituality and Aging*, vol. 26, no. 2, (2014).

TORSETH, R., "Bereft of the Soul: Biblical and Augustinian Views of Death as they pertain to Measuring the Existential Threat of Transhumanist Anthropological Destiny," *The Evangelical Review of Theology and Politics*, vol. 7, (2019).

VARKI, A. – NELSON, D.L., "Genomic Comparisons of Humans and Chimpanzees," *Annual Review of Anthropology*, vol. 36, (2007), 191-202. DOI: [10.1146/annurev.anthro.36.081406.094339].

VICINI, A.– BRAZAL, A.M., "Longing for Transcendence: Cyborgs and Trans- and Posthumans," *Theological Studies*, vol. 76, no.1, (2015) (UK: Sage Publication).

ZALOT, J. – PACHALCZYK, T., "The Ethical Challenges of Gene Editing," *Ethics and Medics*, vol. 42, no. 12 (2017).

ZIMMERMANN, M.E., "The Singularity: A Crucial Phase in Divine Self Actualization?" *Cosmos and History: The Journal of Natural and Social Philosophy* (2008).

Internet Sources

ALCOR LIFE EXTENSION FOUNDATION, [https://www.alcor.org/about/] (Accessed on Sept. 12, 2021).

ANALYTICS INSIGHT, "How does Intelligence Amplification make Smarter AI?," (Aug. 26, 2020), [https://www.analyticsinsight.net/how-does-intelligence-amplification-make-smarter-ai/] (Accessed on Jan. 18, 2022).

CANNON, L., "Theology May Become a Science of Superintelligence," (Aug. 22, 2017), Cannon's official website, [http://lincoln.metacannon.net/2017/08/theology-may-become-science-of.html] (Accessed on Apr. 21, 2021).

CHOI, H., "Size and Expansion of the Universe in Zero Energy Universe," *Research Gate* (Nov. 2016), [https://www.researchgate.net/publication/309786718] (Accessed on Sept. 24, 2021).

CHRISTIAN TRANSHUMANIST ASSOCIATION, [https://www.christiantranshumanism.org], (Accessed on Aug. 25, 2019).

COSIER, S., "Could Memory Traces Exist in Cell Bodies," *Scientific American*, (May 1, 2015) [https://www.scientificamerican.com/article/could-memory-traces-exist-in-cell-bodies/] (Accessed on Sept. 29, 2021).

CRYONICS INSTITUTE, [https://www.cryonics.org/about-us/faqs/] (Accessed on Sept. 13, 2021).

DELIO, I., "Religion, Transhumanism and the Vision of Teilhard de Chardin," [https://www.academia.edu/8474701/Religion_Transhumanism_and_the_Vision_of_Teilhard_de_Chardin]. (Accessed on Sept. 29, 2021).

HARRIS, M., "Will Resurrection be a Law of Nature? Science as Divine Action at the End of the World," (Edinburgh: University of Edinburgh). [https://www.academia.edu/5822044/will_resurrection_be_a_law_of_nature_science_as_divine_action_at_the_end_of_the_world] (Accessed on Aug. 16, 2021).

KIREZI, V., "On Posthumanist Religion: Brief Theological Queries" (2019). Available at [https://www.academia.edu/42788362/On-Posthumanist-Religion-Brief-Theological-Queries] (Accessed on March 20, 2021).

LILHARE, A.– RANE, D., "Overview of Intelligence Amplification," *IOSR Journal of Engineering*. [www.iosrjen.org], (Accessed on Oct. 15, 2021).

NUGENT, A., "The Russian Philosopher Who Sought Immortality in the Cosmos," *Atlas Obscura*, (May 29, 2018). [http://www.atlasobscura/articles/what-is-russian-cosmism-nikolai-fedorov] (Accessed on May 13, 2021).

REDDING, M., "Christianity is Transhumanism," (Apr. 25, 2012), [http://micahredding.com/blog/2012/04/25/christianity-transhumanism] (Accessed on July 1, 2016).

ROSZAK, T., "Evolution and the Transcendence of Mind," *Perspectives*, vol. 1, no. 2, (1996). [http://www.mentalhelp.net/poc/view_doc.php?type=doc&id=274].

SENS Research Foundation, [https://www.sens.org] (Accessed on Oct. 19, 2021).

STIX, M., "World's First Cyborg Wants to Hack Your Body," *CNN Business*, (Jan. 7, 2016). [https://edition.cnn.com/2014/09/02/tech/inovation/cyborg-neil-harbisson-implant-antenna/index.html] (Accessed on Sept. 23, 2021).

THACKER, J., Transhumanism Is Yet Another Temptation to Play God (June 3, 2019) [https://www.thegospelcoalition.org/reviews/transhumanism-image-god/] (Accessed on Aug. 3, 2021).

VITA-MORE, N., "The Transhumanist Manifesto," Humanity+ (1983, revised in 2004), [http://humanityplus.org/transhumanism/transhumanist-manifesto] (Accessed on March 9, 2021).

Dissertations

PASSINI, D., *Techno-theology: A Theological Algorithm for Being Human in a Technological Age*, Doctoral Dissertation, (Oregon: George Fox University 2020).

RØSOK, I., *Surrender to Life: A Systematic Theological Analysis of Human Kenosis in Karl Rahner's Thoughts, with Reference to Ignatian Spirituality*, Master's Thesis, (Norwegian School of Theology 2010).

WILKINSON, D. A., *Christian Eschatology and the Physical Universe*, Doctoral Dissertation, (Durham: University of Durham 2004). Available at [http://etheses.dur.ac.uk/2815/].

WILSON, R. L., *Techno-Salvation: Developing a Christian Hermeneutic of Enhancement Technology*, Doctoral dissertation, (Duquesne University 2017). Available at [https://dsc.duq.edu/etd/156].