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ABSTRACT:

This article attempts to bring ecology and Christology into conversation through a transdisciplinary approach. It looks at the pastoral implications of eco-anxiety, resurrection ecology in the field of biotechnology, Church teaching on the Resurrection, and concludes by initiating an interpretation of the resurrection appearances in the Gospel of Luke through the lens of the microbiome.

On the Resurrection of Microbes

An Eco-Christological Approach to the Resurrection

by Brother Denys Janiga, OSB

The first creation account found in the Book of Genesis¹ can be described as a story of significant biodiversity. Living things of “every kind” fill the air, water, and land; words like “multitude” and “swarm” are used to convey this massive number of living things that God created. After each day of creating, God affirms that what God created is *good*. This means

1 “Genesis 1:1 - NRSVCE - - Bible Gateway.” n.d. [www.biblegateway.com. https://www.biblegateway.com/passage/?search=Genesis%201&version=NRSVCE](https://www.biblegateway.com/passage/?search=Genesis%201&version=NRSVCE).



that biodiversity is also good. The sciences that research biodiversity also affirm its goodness. Contemporary ecology defines biodiversity as “the variety of life, including variation among genes, species and functional traits. It is often measured as: richness is a measure of the number of unique life forms; evenness is a measure of the equitability among life forms; and heterogeneity is the dissimilarity among life forms”.² Recent estimates contend that “9 million types of plants, animals, protists and fungi inhabit the Earth”.³ Yet, assaults against biodiversity have been accumulating with destructive results. Elizabeth Kolbert, a writer for the *New Yorker*, gathered significant evidence—in her book *The Sixth Extinction*—that the planet is in the throes of a sixth extinction event that is wreaking significant environmental damage across the globe that involves a massive loss of biodiversity.⁴

Scientific research appears to be demonstrating that “reductions in the number of genes, species and functional groups of organisms reduce the efficiency by which whole communities capture biologically essential resources (nutrients, water, light, prey), and convert those resources into biomass”.⁵ The destruction of biodiversity in the current context is largely the result of a political and economic mode of production that is dependent on the extraction, production, and consumption of fossil fuels.⁶ Especially since 1945, there has been a significant growth in the extraction of fossil fuels that is contributing to the emission of Green House Gases and altering the earth climate system.⁷ Five planetary boundaries, as a consequence, have “been breached due to human activities: climate change, biosphere integrity loss, land-system change,

2 Cardinale, Bradley J., J. Emmett Duffy, Andrew Gonzalez, David U. Hooper, Charles Perrings, Patrick Venail, Anita Narwani, et al. 2012. “Biodiversity Loss and Its Impact on Humanity.” *Nature* 486 (7401): 59–67. <https://doi.org/10.1038/nature11148>.

3 Biodiversity Loss, p.59

4 Kolbert, Elizabeth. 2015. *Sixth Extinction: An Unnatural History*. New York, N.Y.: Picador Usa.

5 Biodiversity Loss, p.60

6 Crutzen, Paul J., and Will Steffen. 2003. “How Long Have We Been in the Anthropocene Era?” *Climatic Change* 61 (3): 251–57. <https://doi.org/10.1023/b:clim.0000004708.74871.62>.

7 McNeill, John Robert and Peter Engelke. 2014. *The Great Acceleration: An Environmental History of the Anthropocene since 1945*. Cambridge, Massachusetts: The Belknap Press of Harvard University Press.

plastic and chemical pollution, and altered biogeochemical cycles”.⁸ The social, political, and economic forms of organization seem to be at odds with the original emphasis on biodiversity expressed in the book of Genesis.

One area of scientific activity in the burgeoning field of biotechnology, that is concerned with the loss of biodiversity, is known as *resurrection ecology*.⁹ Resurrection ecology refers to the process of bringing extinct species—animal, plant or microbe—back into existence through techniques like cloning and gene editing. Not seen for over 80 years, the Xerces Blue Butterfly, for example, has been deemed a possible candidate for resurrection by biotechnological methods. Such de-extinction efforts attempt to mitigate the loss of biodiversity by bringing extinct species back into ecosystems that have been harmed by human development. The Xerces Blue Butterfly once inhabited the San Francisco Peninsula and due to urban development and “activities meant to shelter humans destroyed the habitat for the butterflies, pulverized their native food, and let invasive insects into their territory”.¹⁰ In other words, the Xerces Blue Butterfly was driven to extinction. Now the question becomes: To resurrect or not to resurrect? Corrie Moreau, an entomologist at Cornell University, states that while this butterfly “is considered a candidate for species revival...instead of resurrecting the dead species, the resources should be utilized for the protection of the endangered species thriving in the present”.¹¹ What we see here are conflicting visions of resurrection, biodiversity, and the conservation of limited resources. More importantly, though, we see scientists constructing divisions and boundaries between different species by using certain criteria to assess which extinct species will be offered the chance of resurrection.

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- 8 Peixoto, Raquel S., Christian R. Voolstra, Michael Sweet, Carlos M. Duarte, Susana Carvalho, Helena Vilella, Jeantine E. Lunshof, et al. 2022. “Harnessing the Microbiome to Prevent Global Biodiversity Loss.” *Nature Microbiology*, July, 1–10. <https://doi.org/10.1038/s41564-022-01173-1>.
- 9 It also goes under names like species revivalism, zombie zoology and de-extinction.
- 10 Jefferson, Ron. 2021. “Xerces Blue Butterfly Wiped-out due to Urban Development; First Distinct Insect Species Extinct by Human Activity.” *Science Times*. July 22, 2021. <https://www.sciencetimes.com/articles/32409/20210722/xerces-blue-butterfly-wiped-out-due-urban-development-first-distinct.htm>.
- 11 Ron Jefferson, “Xerxes Blue Butterfly”.

Christian theologians similarly construct divisions and boundaries between humans and other species in terms of who or what will be resurrected along with their Savior, Jesus Christ. Will humans be the only species resurrected? Or will other animals accompany them? What about plants and microbes? It is rather strange that while God affirmed the goodness of creation immediately after creating a panoply of diverse life forms, some theologians do not grant access to resurrected life to life forms outside of the human dimension. This article aims to explore this puzzling situation whereby theologians bear similarities to biotechnologists investigating which species are good candidates for resurrection ecology. Which species will have access to resurrected life, in the domain of theology, prompts investigation into ecological issues of *biodiversity*, *monoculture*, and *anthropocentrism*. This article will propose that the *kind of body* that Jesus Christ exhibited in his resurrected state will shape which non-human life forms are granted eligibility for resurrection. Moreover, it raises general questions about the role of materiality itself in eschatology. Its approach brings ecology and theology into a deeper encounter through an examination of resurrection ecology, expressions of resurrection in the early church and 20th century, and the microbiome present in Jesus Christ in his resurrected state (and humans more generally). The purpose of bringing these different discourses together is to contextualize a theology of resurrection within ecology so as to affirm the goodness of creation and its essential materiality that the Christian tradition acknowledges. In short: a theology of resurrection as if the goodness of material creation mattered.

PASTORAL DIMENSIONS OF ECO-CHRISTOLOGY

While this article will be primarily focused on thinking about microbiomes, resurrection ecology, and offering an ecological hermeneutic for reading the resurrection appearances in Luke's gospel, it should also be noted that discussions concerning *how* Jesus saves will benefit from understanding the conditions of sin that ecological destruction presupposes. Moreover, the mental health effects of ecological destruction are growing and an ecologically-informed Christology must be able to offer something relevant to people who are really in pain.

Over the last 10 years numerous studies have been conducted, and peer-reviewed articles written, to better understand the relationship between ecological problems and mental health. Simply put: psychological health is impacted by the broader environments that humans inhabit. What happens outside, therefore, will have an impact on the inside. While ecological destruction is certainly not a new phenomenon—there have been many examples over the last 200 years—the scale at which an ecological problem like climate change, for instance, operates (i.e., the entire earth system) has never before been experienced by humans. A report jointly published in 2017 by the American Psychological Association, Climate for Health, and ecoAmerica, titled *Mental Health and Our Changing Climate: Impacts, Implications, and Guidance*¹², brings the mental health impact of climate change into full-frontal focus. Some of the acute mental health impacts the report identifies “include increases in trauma and shock, post-traumatic stress disorder (PTSD), compounded stress, anxiety, substance abuse, and depression”.¹³ Chronic mental health impacts “include higher rates of aggression and violence, more mental health emergencies, an increased sense of helplessness, hopelessness, or fatalism, and intense feelings of loss”.¹⁴ It seems clear that a Christology that does not offer any help to people experiencing these kinds of mental health issues will be out of touch at best and irrelevant at worst.

Several concepts have been developed within the field of psychology, and subsequently used within pastoral theology, to make sense of mental health issues related to ecological problems. In the literature the term *eco-anxiety* “refers to a variety of difficult emotions and mental states that are significantly related to environmental problems, while ‘climate anxiety’ refers to the climate-change-related forms of eco-anxiety”.¹⁵ Eco-anxiety, then, is a concept that captures a range of emotional and

12 Clayton, Susan, Christie Manning, Kirra Krygsman, and Meighen Speiser. 2017. “MENTAL HEALTH and OUR CHANGING CLIMATE: IMPACTS, IMPLICATIONS, and GUIDANCE.” <https://www.apa.org/news/press/releases/2017/03/mental-health-climate.pdf>.

13 Clayton, Mental Health and Our Changing, p.7.

14 Clayton, Mental Health and Our Changing, p.7.

15 Pihkala, Panu. 2022. “Eco-Anxiety and Pastoral Care: Theoretical Considerations and Practical Suggestions.” *Religions* 13 (3): p.1. <https://doi.org/10.3390/rel13030192>.

mental states that are shaped by environmental problems in general; while climate-anxiety is specifically related to climate change. The term *anxiety* has been dealt with in different disciplines like psychology, psychiatry and public health, but has also featured significantly in the existential work of philosophers and theologians like Soren Kierkegaard¹⁶, Martin Heidegger¹⁷, and Paul Tillich¹⁸. The specifics of the anxiety component of eco-anxiety can refer “to the experience of excessive worry, anxiety, depression and trauma responses”.¹⁹ These two concepts require that pastoral care practitioners be comfortable working within a *transdisciplinary*²⁰ framework and approach that integrates philosophy, theology, psychiatry, public health, psychology, ecology, and earth system science (to name a few). The mental health impacts and implications of ecological problems require multiple ways of knowing in order to appreciate the complex reality that is emerging.

Glenn Albrecht, an environmental philosopher in Australia, has written extensively about anxiety and emotions as these relate to environmental crises. An important term that he developed is known as *solastalgia*. Albrecht developed this term in 2003, since he was finding that traditional mental health concepts and categories were not able to properly signify the mental health issues and emotions that people were

16 Søren Kierkegaard, and Alastair Hannay. 2015. *The Concept of Anxiety: A Simple Psychologically Oriented Deliberation in View of the Dogmatic Problem of Hereditary Sin*. New York: Liveright Publishing Corporation.

17 Heidegger, Martin. 1962. *Being and Time*. Oxford: Blackwell.

18 Tillich, Paul, and Harvey Cox. 2014. *The Courage to Be*. New Haven: Yale University Press.

19 McCarroll, Pamela R. 2020. “Listening for the Cries of the Earth: Practical Theology in the Anthropocene.” *International Journal of Practical Theology* 24 (1): 29–46. <https://doi.org/10.1515/ijpt-2019-0013>.

20 The use of this term has been around since the early 1970s. Basarab Nicolescu has been a key proponent of transdisciplinarity since the early 1990s and has been actively working to introduce the notion of complexity as the basic feature of reality. His thought also “seems applicable to the integration of the humanities, including spiritual subjects such as religion, and philosophies of knowledge and education with physical science subjects such as those extant in laboratories and space observatories”. For a history of the term transdisciplinarity please see Bernstein, Jay. n.d. “CUNY Academic Works CUNY Academic Works Transdisciplinarity: A Review of Its Origins, Development, and Transdisciplinarity” Accessed December 12, 2022. https://academicworks.cuny.edu/cgi/viewcontent.cgi?article=1010&context=kb_pubs&sei-redir=1&referer=https%253A%252F%252Fscholar.google.ca%252Fscholar%253Fhl%253Den%2526as_

experiencing in relation to environmental problems. The term *solastalgia* is defined as:

the pain experienced when there is recognition that the place where one resides and that one loves is under immediate assault (physical desolation). It is manifest in an attack on one's sense of place, in the erosion of the sense of belonging (identity) to a particular place and a feeling of distress (psychological desolation) about its transformation. It is an intense desire for the place where one is a resident to be maintained in a state that continues to give comfort or solace. Solastalgia is not about looking back to some golden past, nor is it about seeking another place as "home". It is the "lived experience" of the loss of the present as manifest in a feeling of dislocation; of being undermined by forces that destroy the potential for solace to be derived from the present. In short, *solastalgia is a form of homesickness one gets when one is still at "home"* (emphasis added).²¹

The terms *eco-anxiety*, *climate anxiety*, and *solastalgia* have in common the following elements: a sense that one's ground or very being is under threat; a constant sense of concern and worry that borders on being debilitating; a lack of hope and meaning; and experiences of dispossession, displacement, and homelessness.²² Albrecht would also contend that both the pace and scale of environmental problems are creating *distinct* emotional responses that require the invention of new words to better understand what is going on.²³ It seems clear that the ontological aspect of these experiences will require pastoral care practitioners to grow their capacity to think and act within a holistic framework that can bring together in one integral practice notions of

21 Albrecht, Glenn A. 2020. "Negating Solastalgia: An Emotional Revolution from the Anthropocene to the Symbiocene." *American Imago* 77 (1): 9–30. <https://doi.org/10.1353/aim.2020.0001>.

22 Ryan LaMothe links themes of homelessness and migration in Scripture, like Adam and Eve being evicted from the Garden, and Abraham, Noah, and Moses being migrants (p.89). See Lamothe, Ryan. 2021. *Radical Political Theology for the Anthropocene Era*. S.L.: Cascade Books.

23 Albrecht, Glenn. 2019. *Earth Emotions New Words for a New World*. Ithaca London Cornell University Press.

self, ecology, other species beyond the human, and a theology rooted in concrete and material circumstances. However, this pastoral care theology will need to be grounded in a Christian soteriology that can offer something relevant to an ecological context.

A BRIEF HOW OF RESURRECTION ECOLOGY

In order to better understand what is technically involved in resurrection ecology, it will be useful to outline some of the procedures and techniques that biotechnologists engage in. There are several methods used: selective breeding, cloning, genetic engineering, gene editing, CRISPR²⁴, and synthetic genomes.²⁵ These methods are very costly, and the results do not have much predictability attached to them due to the *instability* introduced at the death of an organism. Attempting to resurrect a *T. rex* dinosaur, for instance, would require a stability that is simply not available. To do this, the “DNA would need to be whole and intact, with the right genes lined up in the right order, and be able to be read out as a complete genomic map...you would need to have every single piece of the puzzle and each one would need to be put in the right place”.²⁶ To ensure the integrity of DNA upon the death of an organism you would need to “flash-freeze the cells in liquid nitrogen immediately upon death”²⁷ or the cells would undergo instability and chaos. The death of an organism introduces instability and chaos into its system and thus technology cannot be a savior without some measure of perfection. This is not to suggest that the resurrection of species has not happened or cannot happen; there have been examples of cloning that did lead to some success when DNA cells were frozen and thus protected from degradation. Cloning works “by taking the nucleus—an organelle that contains most of a cell’s genetic material—from a somatic cell of the organism being cloned and transferring it to an unfertilized egg cell from the host: another organism’s egg that’s had its own native nucleus

24 This stands for *clustered regularly interspaced short palindromic repeats*. <https://www.genome.gov/genetics-glossary/CRISPR>

25 Wray, Britt, and George M Church. 2019. *Rise of the Necrofauna : The Science, Ethics, and Risks of De-Extinction*. Vancouver ; Berkeley: Greystone Books.

26 *Rise of the Necrofauna*, p.49

27 *Ibid.*

removed”.²⁸ Recall the Roslin Institute in Scotland “created” Dolly the Sheep back in 1996. The procedure it employed was somatic cell nuclear transfer. To clone this one sheep required 277 eggs, 29 embryos, and 13 surrogate mothers.²⁹ This is clearly not an efficient process. It is useful to point out that a significant reliance on technology is required; the technological prowess of advanced capitalism has led to the destruction of biodiversity, and it seems that using technology to fix technology may not be the best approach. A fix must come from the *outside* whereby death *can no longer hold court by introducing chaos and instability into the world*. A resurrection ecology that requires technology will simply not be sufficient. A different kind of resurrection is required, a resurrection that highlights the central role of the body in relationship with God and all the life forms in creation.

THE EARLY CHURCH AND BODILY RESURRECTION

Some elemental understanding of life after death has been present in ancient Greek, Roman, and Egyptian cultures. Even in today’s thoroughly disenchanted world, or what appears to be a disenchanted world, we see wonder-working biotechnologists professing belief in resurrection, which suggests that this ancient remnant cannot be shaken. With modern biotechnology, though, resurrection is about information contained within the DNA of a particular species and then finding the appropriate modern-day host that will allow reproduction to occur. The language used to talk about resurrection ecology is saturated with scientific and technological concepts that connote control over nature’s natural processes. This is not a bodily resurrection, but an informational one; it is a resurrection where humanity acting like God³⁰ is in control of the process with all its pitfalls and errors.³¹

In the early Christian church, the idea that the mortal body would be resurrected at some point after death occupied the thought of numerous

28 Rise of the Necrofauna, p.80.

29 Rise of the Necrofauna, p.81.

30 This is essentially what the anthropocene era seems to entail in that humans are now the dominant geological force on the planet.

31 In some ways, it might be possible to draw a connection between the disembodied information contained in DNA and a disembodied soul that outlives the physical body.

Church Fathers. Their ideas did not emerge, however, out of thin air, but rather built upon an emerging tradition that was gaining traction within Judaism. Bynum claims that the “hope that early Christians placed in the empty tomb was based...on Jewish ideas of the resurrection or return from the dead of a...whole person”.³² One example offered concerns accounts of Christian martyrs from the 2nd century that bear a lot of similarity to the language found in II Maccabees where the third son about to be executed proclaims with his hands pointing at the sword that “These I had from heaven...and from [God] I hope to receive them again”.³³ The apocalyptic literature of Judaism also postulated a notion of the resurrection of the body, but here a development occurs that is incongruous with the body as a “whole person” and Greek philosophical concepts like the “soul” are incorporated in order to illustrate how life after death is possible.

Second century Christian writing about resurrection has a deep ecological aspect to it in that the processes, rhythms, fertility, and cycles of nature seem to dominate the imaginary of the early Church. As Bynum contends, the “point of the metaphors is to emphasize God’s power and the goodness of creation”.³⁴ The power of God to decide and act on the bodily resurrection of humans is never bifurcated from the rest of creation; if it were, this might call into question the goodness of creation and thus have overtones of Gnosticism. The kind of imagery that this period in the early church relied upon to think about the resurrection suggests that rather than a radical discontinuity “they make the world to come a grander and more abundant version of this world”.³⁵ This certainly places God’s creation at the forefront of resurrection thought while also indicating that this resurrected world is one that has been transformed by an enhancement of creation itself.

32 Bynum, Caroline W.. 1994. “Review of Images of the Resurrection Body in the Theology of Late Antiquity”. *The Catholic Historical Review* 80 (2): 216. https://www.jstor.org/stable/25024255#metadata_info_tab_contents

33 Bynum, “Review of Images”, 216

34 Bynum, “Review of Images,” 219.

35 Bynum, “Review of Images,” 219.

BODILY RESURRECTION AND CHURCH TEACHING

At the Fourth Lateran Council in 1215 the Church affirmed that the resurrected body would be identical to the body that lived on earth. It stated that “all will rise with their own bodies, which they now wear”.³⁶ More recently, in 1992, the International Theological Commission published a document on eschatology titled *De quibusdam quaestionibus actualibus circa eschatologiam*. The Commission’s president, at the time, was Cardinal Joseph Ratzinger. This document built on the document titled *Recentiores episcoporum synodi* that the Sacred Congregation for the Doctrine of the Faith published in 1979. The key point from *De quibusdam* that is relevant for my paper is the following:

The resurrection of Jesus is the cause and model of our resurrection. Since the risen Jesus’ body is identical with his earthly body (albeit transformed), our resurrection will also be bodily. Our risen bodies will not be spiritualized or ethereal bodies created *ex novo* by God, but will be really identical with our earthly bodies, though transformed, formed like that of Jesus. Nevertheless, the resurrection is not a return to the conditions of earthly existence. In other words, it is not reanimation. Rather, “this body which is now shaped by the soul (psyche) will be shaped in the glorious resurrection by the spirit (pneuma)”.³⁷

This contends that resurrected bodies will be identical to their earthly bodies; moreover, they will not be “ethereal” or “spiritual” bodies, but truly earthly bodies. However, the way the resurrected body is *shaped* will be spirit-based, rather than soul-based. Yet the body is still central.

Another point the Commission made that is pertinent to this paper is that one of the hermeneutical principles required for understanding eschatology is that any “interpretation of the resurrection of the dead must be based on our knowledge of the resurrection of Christ”.³⁸ In

36 Tanner, Norman P, and Giuseppe Alberigo. 1990. *Decrees of the Ecumenical Councils 1 Nicaea I to Lateran V*. London Sheed & Ward U.A.

37 Phan, Peter C. 1994. “Contemporary Context and Issues in Eschatology.” *Theological Studies* 55 (3): 507–36. <https://doi.org/10.1177/004056399405500304>.

38 *Contemporary Context*, p.509.

addition to this principle, there is also the notion that “our eternal life must be understood as a life of communion with God in Christ”.³⁹ Our knowledge of the resurrection of Christ will basically be derived from accounts provided in the gospels and the use of reason to think through these accounts. Reason often includes philosophy, but rationality can be found in a variety of disciplines. The notion that eternal life involves union with God in Christ is obviously fundamental to the faith, but there is no reason to think that this union only involves humans; communion with one another in bodily existence requires the participation and sharing of other life forms. The resurrection makes bodily life central to a life in God. In fact, it seems entirely reasonable to state that the resurrection of Jesus is about the *transformation of the body*. This is the point of the resurrection: so that our bodies may become transformed. Jesus in his resurrected state, given that he had the same identical body and thus a transformed body, would have been inhaling oxygen⁴⁰ provided by plants and trees; his body was the host of trillions of microbes that worked cooperatively together to digest food. This is a subject that we now turn to.

AN ECOLOGICAL HERMENEUTIC OF THREE DISTINCT MICROBIOMES OF JESUS’ BODY

A renaissance of thought has been taking place in the biological sciences through extensive research in the area of *microbiomes*. Many biologists are contending that the human form is mostly comprised of non-human elements involving microorganisms lining areas like the gut, skin, and the mouth. Microbiomes are typically comprised of trillions of microorganisms, including bacteria, fungi, parasites and viruses. It is interesting to note “that [a] bacterial strain has a genome containing thousands of genes, offering substantially more genetic diversity and hence flexibility than the human genome”⁴¹. Moreover,

39 Contemporary Context, p.509.

40 It is likely that many of us are inhaling the same molecules that Jesus once exhaled.

41 Gilbert, Jack A, Martin J Blaser, J Gregory Caporaso, Janet K Jansson, Susan V Lynch, and Rob Knight. 2018. “Current Understanding of the Human Microbiome.” *Nature Medicine* 24 (4): 392–400. <https://doi.org/10.1038/nm.4517>.

research demonstrates that the “microbiome is a living ecosystem”⁴² in relationship with its environment. I would like to think about three distinct microbiomes that would have been involved in the resurrected body of Jesus as a basic material infrastructure that supported certain activities involving the mouth, gut, and skin. The oral microbiome would include the mouth of Jesus and the words he uttered from that mouth, as well as the fish he chewed that would have released digestive enzymes; the microbiome in his gut would also have been operative while eating fish during the resurrection appearances; lastly, the microbiome of his skin would have been involved in the wounds he suffered from his crucifixion. Yet it is also important to convey that when Jesus died on the Cross this would have instigated a *thanatomicrobiome*, which involves all the bacteria in the human gut having a feasting banquet of their own, a kind of “last supper” if you will. When cells die carbohydrates, amino acids, and lipids begin to drain out of the cell; this sets the microbes in motion by leaving the human gut so they can begin consuming the organs of the body, travelling through the circulatory and lymphatic systems to do so.⁴³ Initially, then, I am proposing that the transformed body of the resurrected Jesus should still be seen as a biological body that had distinct microbiomes that supported his interactions with the disciples. However, this can be seen as a transformed biological body that is no longer subject to death and thus chaos; this body is now fully imbued with life-giving and life-sustaining spirit. Perhaps the resurrection of Christ can be conceptualized as the *death of death*, as the *extinction of extinction*. Could this be the fulfillment of the evolution of biological life and the continued work of Creation?

The resurrected body of Jesus Christ was a transformed body that was both continuous and discontinuous with his mortal body and one that still contained microbiomes as a material infrastructure. It might be helpful to link this idea with Pope Benedict XVI’s idea that the Resurrection be regarded “as something akin to a radical ‘evolutionary

42 Jack Gilbert, et al., “Current Understanding,” 392-400.

43 Williams, Anna. n.d. “Your Death Microbiome Could Catch Your Killer.” *New Scientist*. <https://www.newscientist.com/article/mg22329842-500-your-death-microbiome-could-catch-your-killer/>.

leap', in which a new dimension of life emerges, a new dimension of human existence".⁴⁴ However, instead of stopping at "human existence" I suggest that it encompass an ecological understanding of material reality and its involvement in resurrected life. Pope Benedict XVI contended that "Christ's transformed body is also the place where men enter into communion with God and with one another".⁴⁵ While this is certainly a truthful and hopeful interpretation of the eschatological body of Christ, it needs to be further developed by articulating that this is not only about "communion with God and with one another", but also that a new dimension of communion with *all biological forms of life* has emerged. This would certainly be in keeping with the early Church sources that promoted an understanding of the resurrection grounded in God's power and the goodness of creation.

How are we to understand that the resurrected body of Jesus engaged in eating and speaking, which are thoroughly bodily and biological activities involved in interdependent relationships with the broader environment? Moreover, the very wounds he received and suffered during his crucifixion were still visibly present in his resurrected state. The eating, speaking, and healed wounds would have all been involved in distinct microbiomes on the skin of his body, the gut tract, and his mouth. Trillions of microorganisms populated these three biotic environments. Yes, it was a *transformed* body. But how helpful is this laconic yet undeveloped thought for understanding the soteriological meaning of Jesus' crucified and resurrected *body*?

In an age of science and technology like the 21st century, drawing attention to the biological and ecological aspects of Jesus' resurrected body may help develop faith, or at least some initial interest, in people who may question the veracity of the resurrection from a scientific epistemology. It also helps overcome the bifurcation between science and religion. Moreover, the microbiome is comprised of bacteria that have existed since life first emerged on planet earth and thus reading the resurrection appearances in Luke from this lens can help bring the

44 Benedict, Pope. 2007. *Jesus of Nazareth. From the Baptism in the Jordan to the Transfiguration*. Translated by Adrian J Walker. New York: Doubleday. P.274

45 *Jesus of Nazareth*, p.274.

science of evolution and faith in Jesus Christ into conversation. Another important reason for an ecological hermeneutic is to contend that if Jesus was and is fully human, then his body like every other human body was comprised of trillions of microbes. Since these microbes are not specific to the human biological form, the resurrected body of the incarnate Son of God takes up that which is other-than-human into Himself. It is a sign that Jesus' identity—as both human and divine—is comprised of non-human microbes that involve living ecosystems. However, this is not to suggest that the mortal and resurrected body of Jesus was a *generalized* body. This is the interesting point about microbiomes: they are highly specific to each individual person. In fact, current thinking contends that the “degree of personalization of the human microbiome vastly exceeds the host genome, which is over 99.5% identical between individuals, suggesting that only 0.5% of the genome is unique to an individual. However, based on current observations, two individuals can show *no overlap* in microbial species in their microbiome”⁴⁶. The mortal and resurrected body of Christ, therefore, is that of a unique and specific person as identified in the distinct microbiome suggested by his resurrection appearances.

Is this not what is involved, after all, in the Son of God assuming flesh? Hannah Malcolm makes a poignant claim when she states that “when God chooses to take on nature, and not just temporarily, but forever, the *aspects of nature* which he adopts define the meaning of Christian hope”.⁴⁷ If this applies to the Son of God's incarnation in the person of Jesus Christ, so too does it apply to His resurrection. While it is true that the resurrection is considered a transformation of Christ's body, while remaining identical, this transformation is a continuation of the assumption of flesh that inaugurated the incarnation. Yet because of the transformation that took place in Christ's resurrection it is also

46 Gilbert et al, Current Understanding, emphasis added.

47 Malcolm, Hannah. 2022. “Body without End: Biological Mutualism and the Body of Christ.” International Journal of Systematic Theology, March. P.6 <https://doi.org/10.1111/ijst.12569>. Hannah's article skillfully deals with the microbiome and the implications of not only the resurrected body of Jesus, but also his ascended body. Specifically, she looks at biological mutualism inherent in the microbiome ecosystem and how this contrasts with evolutionary competition.

discontinuous with the life of Jesus from birth to death. This clearly aligns with Patristic thinking about the resurrection: “the reconstitution and glorious transformation of the present mortal body, a transformation involving ‘*enhancement of what is*, not metamorphosis into what is not’ ”.⁴⁸ Patristic thought aligns with an ecological understanding of the resurrected body that is continuous with its earthly biological infrastructure while also being transformed.

CONCLUSION

I have proposed that the *kind of body* that Jesus Christ exhibited in his resurrected state will shape which non-human life forms are granted eligibility for resurrection. It has attempted this proposal by thinking about the resurrection of Jesus alongside a technological resurrection within the field of biotechnology in order to show one as human mastery over nature and the other an act of God’s power that reveals the goodness of creation. The Church teaches that Jesus’ resurrected body is identical to his earthly body. I have attempted to continue this line of thought by considering the possibility that Jesus’ resurrected body had a transformed biological infrastructure (i.e., microbiomes) that is indicated by his speaking, eating, and healed wounds. This conversation will be aided by further inquiry into the relationship between technology, Christian ethics and how the resurrection of Jesus Christ transforms creation by enhancing it, rather than by changing it into what it is not. Technology is a key structure in the 21st century that prevents us from seeing the whole of creation *as* creation.



48 Orji, Cyril. 2021. *A Semiotic Christology*. Wipf and Stock Publishers. p.269-70, emphasis added.

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