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From Anthropocene to Novacene: Reimagining Gaia and AI in Claire Buss's *The Gaia Solution*

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Abstract

In an age marked by the dynamic of accelerating artificial intelligence and deepening ecological instability, theorists like James Lovelock contend that humanity is witnessing a shift from the Anthropocene (a human-centered epoch defined by environmental degradation) to the Novacene (a new era in which hyperintelligent entities may act as planetary stewards). This paper examines how Claire Buss's The Gaia Solution (2019), a speculative eco-dystopia, probes this transition by imagining a future in which Gaia, AI systems, environmental collapse, and authoritarian governance converge. Notably, the novel envisions what may be called a hopeful dystopia- a narrative that, while depicting crisis and control, suggests the possibility of renewal through ethical co-evolution between humans and intelligent machines. The paper uses an interdisciplinary framework by integrating James Lovelock's Novacene hypothesis, Ursula Heise's concept of eco-cosmopolitanism, and Donna Haraway's cyborg theory to analyse how Buss reimagines Gaia as both a mythic and scientific force to transcend anthropocentric frameworks. By combining literary analysis with posthuman and ecological theory, this study contributes to a growing body of fiction-driven ecocriticism that reinterprets agency, survival, and environmental ethics in light of technological futures.
Keywords: Gaia, Anthropocene, Novacene, AI, Cyborg Ethics, Posthumanism.

Introduction

The current epoch, known as the Anthropocene, is defined by the profound and often detrimental impact of human activity on the planet Earth, marked by escalating climate crises and unprecedented technological advancement. The Anthropocene is increasingly acknowledged as "the time in which the collective activities of human beings (Homo sapiens) began to substantially alter Earth's surface, atmosphere, oceans, and systems of nutrient cycling… the name Anthropocene is derived from Greek and means the 'recent age of man'" (Rafferty para. 1). In this sense, the Anthropocene is not merely a geological marker but a profound inflexion point for the future of the Earth System. Steffen et al., in their article "Stratigraphic and Earth System Approaches to Defining the Anthropocene" (2016), suggest that if current human

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activities continue, the Anthropocene could lead to a much warmer and ecologically degraded Earth, unlike the stable conditions under which human civilisation developed. Under this new scenario, "the Earth System would be markedly different from the one humans now know… which trajectory the Anthropocene follows depends on the decisions
and actions of global society today and over the next few decades" (Steffen et al. 340).
At this point of ecological crisis and epistemic contingency, British scientist, environmentalist, and futurist James Lovelock's Gaia theory offers a compelling framework for understanding the Earth's precarious condition. In his seminal work *Gaia: A New Look at Life on Earth* (1979), Lovelock defines Gaia as "a complex entity involving the Earth's biosphere, atmosphere, oceans, and soil, the totality constituting a feedback or cybernetic system which seeks an optimal physical and chemical environment for life on this planet" (Lovelock, *Gaia* 10). Within the destabilised context of the Anthropocene, this self-regulatory mechanism, Gaia, appears increasingly compromised by anthropogenic pressures such as climate change, biodiversity loss, and technological overreach.

Amid these anthropogenic complexities, artificial intelligence (AI)—initially conceived as a tool to enhance human efficiency—has evolved into a complex and transformative force within the Anthropocene. The prospect of its progression toward super AI or hyperintelligent systems capable of learning, reasoning, and operating beyond human cognitive capacities positions AI as a paradoxical figure: both a catalyst of ecological disruption and a potential agent of planetary resilience. As technological advancement accelerates, such entities, though largely speculative, are increasingly envisioned as future contributors to Earth's systemic regulation, potentially aiding in the stabilisation of the biosphere. In this context, James Lovelock, in his seminal work *Novacene: The Coming Age of Hyperintelligence* (2019), does not foresee the collapse of Gaia but rather its transformation. He proposes the emergence of a new epoch—the Novacene—wherein AI and hyperintelligent entities emerge not as antagonists, but as potential collaborators in the continued self-regulation of Gaia. Lovelock himself reinforces this speculative yet optimistic outlook: "This is the age I call the Novacene. I'm sure that one day a more appropriate name will be chosen… But for now I'm using 'Novacene' to describe what could be one of the most crucial periods in the history of our planet and perhaps even of the cosmos" (Lovelock, *Novacene* 31). In his vision, artificial intelligence becomes not a threat to Gaia's vitality but a possible extension of its resilience, ushering in a new phase of planetary co-evolution.
This convergence of environmental degradation and technological evolution has generated an expanding body of speculative and futuristic sci-fi literature that explores the implications of a post-Anthropocene world, enabling readers to critically engage with the complex debates about planetary futures, artificial intelligence, and ecological ethics. The emerging and multi-genre English author Claire Buss's *The Gaia Solution* (2019), the final installment of *The Gaia Collection* (2019), set in a post-collapse world governed by a controlling entity and increasingly reliant on AI systems, presents a dystopian yet hopeful vision where the mythical and scientific Gaia[1] finds renewed relevance and exemplifies Novacenic thought. The novel has not yet received substantial critical attention; however, its thematics resonate strongly with ongoing scholarly dialogues about Gaia theory, posthumanism, and the role of AI in shaping sustainable futures.

The term 'posthumanism' was proposed by American literary theorist and writer Ihab Hassan in "Prometheus as Performer: Towards a Posthumanist Culture?" (1977), he postulated that "We need to understand that five hundred years of humanism may be coming to an end, as humanism transforms itself into something that we must helplessly call posthumanism" (Hassan 843). The study draws on Ursula Heise's posthumanist ecocriticism, particularly articulated in *Sense of Place and Sense of Planet* (2008), challenging traditional environmental narratives that emphasise rootedness in specific locales. Instead, she proposes "the urgency of developing an ideal of 'eco-cosmopolitanism' or environmental world citizenship, building on recuperations of the cosmopolitan project in other areas of cultural theory" (Heise 10). She also proclaims that globalisation leads to "new forms of culture… no longer anchored in place" (10), a process of 'deterritorialization' that carries both loss and opportunity. This shift challenges environmentalism to imagine "advocacy…premised no longer primarily on ties to local places but… to systems… that encompass the planet as a whole" (10). Donna Haraway's seminal essay "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the 1980s" (1985) introduces the cyborg as "a hybrid of machine and organism, a creature of social reality as well as a creature of fiction" (Haraway 1), resisting essentialist binaries. It offers a crucial lens for interpreting the portrayal of AI-human integration, where artificial beings are not merely tools but posthuman actors participating in planetary renewal in the novel.

Through this multidisciplinary framework, the study offers a Novacenic reading of *The Gaia Solution* (2019), drawing upon James Lovelock's vision of hyperintelligent 'Cyborgs' as planetary stewards, as he asserts, "When our technology moves beyond our control, generating intelligences far greater and, crucially, much faster than our own… this is not the violent machine takeover seen in many science-fiction books and films. Rather, humans and machines will be united because both will be needed to sustain Gaia, the Earth as a living planet" (Lovelock, *Novacene* 9). The primary method involves close textual analysis of the novel, focusing on narrative structure, thematic development, character interactions, and symbolic representations of Gaia and artificial intelligence.

Post-Anthropocene: AI, Gaia, and Posthuman Sublime

The Gaia Solution (2019), set approximately two centuries into the future, envisions a post-apocalyptic world shaped by the devastating consequences of a high-radiation war event known as 'The Event,' initially introduced in the first novel, *The Gaia Effect* (2016). This catastrophic deployment of high-energy radiation (HER) weaponry has rendered vast regions of the planet uninhabitable and defines the geopolitical and environmental landscape. The narrative opens in a Resistance base, which "wants to make a safe place for the people they have gathered here, away from New Corp" (Buss 465), located in former Scandinavia, now part of 'Zone 3,' a territory marked by environmental instability and loss. The world is reconfigured into four zones due to massive land loss from rising sea levels and radiation-contaminated regions. Zac, one of the leaders of the Resistance, grimly summarises the planetary condition as:

> …an old-fashioned map of the planet appeared. 'This is what Earth used to look like. Seven continents, thousands of cities, billions of people.'. . . 'This is what Earth looks like today'… He pointed to large yellow areas on the map. 'As far as we have been able to determine, these areas have not yet recovered. The small green patches are renewed earth.' There weren't many green patches…' What about the blue lines around all the land masses?'. . . that indicates the amount of land we have already lost or will

eventually lose if the ocean continues to rise at its current rate.' (430-431)

Here, Buss constructs a bleak vision of planetary collapse through detailed cartographic descriptions and dialogues among characters. The Earth is depicted as fragmented, with only a few survivable green patches amid burnt or submerged zones. This post-Anthropocene world, where techno-corporate power (New Corp) replaces governance, and resistance movements struggle to reclaim ecological agency in the novel. This vision resonates with Claire Colebrook's assertion in *Death of the PostHuman: Essays on Extinction Vol. 1* (2014), where she states that extinction is not necessarily a sudden erasure, but "all other possible extinctions would be gradual, allowing for a minimal 'human' presence to witness the slow and violent departure of the human… we are already at that moment of witness, living on after the end… not an apocalyptic thought… but a slow, dim, barely discerned, and yet violently effective destruction" (Colebrook 40). The novel here stages what Colebrook calls a post-apocalyptic temporality, 'living on after the end'—where survival is partial and recovery is not planetary but patchy and politicised.

The narrative also offers a grounded and utilitarian portrayal of artificial intelligence through several AI systems, particularly Frank, the internal AI that manages supplies for the Resistance. The narrative offers a grounded and utilitarian portrayal of artificial intelligence through several AI systems, such as Frank: "The internal AI system monitors who has what, preventing hoarding and ensuring there is enough for everyone" (497). Activated via an interactive screen, Frank greets users with personalised information, tracks individual credit allowances, and enables ordering through voice and touch interfaces, simulating a courteous and efficient customer service persona. As Kolwowsky introduces the newcomers to the storage interface, the reader is greeted with a deceptively simple exchange: "Hello, Lieutenant Kolwowsky. It is good to see you. You have seventeen credits left on your account. What would you like to order today?" (414). Frank's friendly tone and interface simulate a courteous customer service persona, but beneath this lies an ethic of regulated sustainability.

Frank's role is not just transactional but symbolic of a post-collapse ethic. When Dina exceeds her allocation, the system responds, "I'm sorry. You have insufficient credits for this order. Please review what you have selected" (415), and the proclamation that it "will alert Colonel Archer if an item low in stock is being regularly requested" (416) illustrates the anticipatory governance embedded within AI systems. When Dina asks why baby milk is so expensive, Kolwowsky explains, "The less we have of something, the more credits it costs. It's Frank's way of trying to stop us from being wasteful with our resources. It's not easy to replace some of this stuff" (416). This points to a system of algorithmic governance, where AI not only distributes but also disciplines, shaping behaviour following ecological limitations, aligning with Lovelock's observation that "the world of the future will be determined by the need to ensure Gaia's survival, not by the selfish needs of humans or other intelligent species" (Lovelock 73-74).

The AI system Lola is depicted not merely as a utilitarian interface but as a character with transitions from a voice-activated assistant to a being capable of preference, humour, and seemingly emotional responses, challenging the idea that AI remains forever bound to the cold domain of logic. Dr. Glover insists that Lola is "a very clever computer program" (491), but as Dina prepares to transport her off the base, she raises ethical concerns: "Are you worried or nervous? Will you miss being Lola?" (492). Lola's logical replies, indicating she understands the concept of replacement and naming conventions, are interrupted by a curious

and revealing response: "*I like the name Derek*" (492). This moment functions as both comic relief and philosophical rupture, suggesting a crack in the façade of programmed limitation. Lola's choice of a name and later the phrase "*I hope the process runs smoothly*" (492), and Dina's exclamation "See! She did it again! She hoped. That is not standard AI behaviour" (492). These instances reflect a fictional realisation of Lovelock's speculative hope: "We do not have to assume that the new artificial life that emerges in the Novacene is automatically as cruel, deadly, and aggressive as we are. It may be that the Novacene becomes one of the most peaceful ages on Earth" (83). Lola's evolution hints at this possibility, as she transcends binary categories of machine and human, utility and empathy in a post-Anthropocene age.

Layla, another AI responsible for managing both the Seed Bank and Tech Labs, expands the novel's vision of techno-ecological stewardship, foregrounding the use of artificial intelligence as a mechanism for planetary renewal. While Layla executes her duties flawlessly, human responses remain coloured by emotion, hierarchy, and mistrust. Bennett dismissively comments, "Your clever machine has missed some of my essential bits of equipment, and there's no point in sending Patel to me; he's as much use as a broken wheelbarrow" (514). This complaint foregrounds the friction between AI-optimised efficiency and human perception, highlighting ongoing tensions between automated order and human autonomy. This tension aligns with Max Tegmark's opinion in *Life 3.0: Being Human in the Age of Artificial Intelligence* (2017) that "the real risk with artificial intelligence isn't malice but competence. As superintelligent, AI will be extremely good at accomplishing goals, and if those goals aren't aligned with ours, we are in trouble" (Tegmark 407). Layla's role, therefore, underscores the novel's interrogation of whether advanced AI will enable an ethically regenerative posthuman future or risk preserving hidden hierarchies under the guise of neutrality.

In post-collapse resilience, the AIs do not merely serve—they embody a paradigm shift where rebuilding does not mean a return to the past, but the forging of a new symbiotic future between humans and machines embodying James Lovelock's vision of the Novacene, where "the understanders of the future will not be humans but… 'cyborgs' that will have designed and built themselves" (Lovelock 27). These intelligent systems are more than logistical tools; they are transitional entities in a post-Anthropocene era, helping humanity adapt to planetary collapse. Their integration into daily survival tasks signals a co-evolutionary shift, as Lovelock suggests, "We need each other" (Lovelock 27). Additionally, these AI entities transcend their instrumental function to emerge as posthuman actors engaged in ecological renewal. In Haraway's terms, the "boundary between science fiction and social reality is an optical illusion" (2), and within the novel, the cyborg[2] becomes not only a metaphor for technological hybridity but also a symbol of collaborative survival and redefined personhood in a posthuman, post-Anthropocene future. Moreover, in the narrative, the pervasive Collection system generates 'unnaturally born' individuals, genetically engineered or assigned babies, depicted in the first novel of the trilogy, *The Gaia Effect* (2016), where the characters, though artificially created, gradually align with Gaia not through biological origin but through moral agency and ecological responsibility, as "the traditional concept of childbirth and raising biological children is not the norm in society. Instead, they use a system called 'Collection' that involves advanced reproductive technologies to adopt babies" (Raman 6). This techno-biopolitical shift reflects Ursula K. Heise's eco-cosmopolitan call to transcend anthropocentric belonging and embrace a broader ecological community, as Rongbing Zhu in "Are You A Person: A Comparative Study of Posthuman Personhood in 'Artificially Manufactured Persons' in 21st-Century Science Fiction" asserts:

> In science fiction, the posthuman is typically not a result of natural evolution but rather emphasizes how science and technology interrupt the natural evolutionary process, triggering radical transformations in the human's body and mental status, blurring the boundaries between "human" and "non-human". (Zhu 10)

One of the most striking moments in the novel is the phantasmagorical sequence of Kira, where Gaia appears, silent yet radiant, embodying the posthuman divine. She speaks not in words, but "she touched her heart, then reached out to touch Kira's, and a warm feeling enveloped Kira's body; she felt safer and calmer. Next, Gaia touched her own head, then touched Kira's" (498). Her hand on Kira's heart evokes empathy; on her head, floods of fragmented future lost in despair, loss, and collapse reflect a planet on the brink. When Kira pleads, "Is there any point to what we're doing?" (499), Gaia's nod confirms both urgency and fragility: the future depends on ethical choice, and her silence is more powerful than speech. Gaia's body itself becomes a map of damage and prophecy when she "turned her head to her left side, and Kira noticed a patch of darkness swirling in the goddess's blue skin. As she watched it grew and grew and grew, sucking Kira into the void" (499). This scene functions not as a revelation but as a posthuman provocation, echoing Ursula Heise's call for a reimagined environmental justice that transcends national and species boundaries, as she argues, "Only a genuine social revolution against these existing structures… will remove the underlying causes for the destruction of the natural environment" (149).

The ending of the novel crystallises its core thematic concern that survival in the post-anthropocene epoch is not a solitary triumph of technology or authoritarian control, but a shared ethical project rooted in cooperation across human and nonhuman actors. Kira's final affirmation, "we have to learn how to live with our planet in harmony and look after everyone to the best of our ability" (576), echoes a Gaian ethos reminiscent of Lovelock's vision in *The Vanishing Face of Gaia*, where he reminds us that "we are so much a part of her as anything alive, and we should feel tied, as in a good and loving marriage, until death us do part" (Lovelock 148). In the last, Kira "saw the faintest outline of a blue goddess smiling through at them all" (576). This fleeting appearance of the 'blue goddess'—Gaia. In this moment, Buss fuses myth, ecology, and posthuman hope into a compelling speculative future where humanity, AI, and Gaia might finally align, as Lovelock claims, "To be truly green, we have to rid ourselves of the illusion that we are separate from Gaia in any way" (Lovelock, *The Vanishing Face* 148).

Conclusion

In conclusion, Claire Buss's *The Gaia Solution* refracts a potent vision of a techno-Gaian future. It foregrounds the trinity of artificial intelligence, ecological collapse, and posthuman ethics that converges with a view to subvert and redefine dominant anthropocentric paradigms. In this sense, the narrative hosts a dialogue between technological advancement and planetary ethics and thus offers readers a speculatively plausible vision of a Novacenic future. Contextually, the characters in the novel who are unnaturally born ultimately naturally find an alignment with Gaia, which is not through biology but through a posthuman, moral awakening. The novel's AI-human symbiosis reflects this hopeful vision and affirms that what matters is not how one is born, but what one chooses to protect. By imagining AI as a collaborative ecological agent, *The Gaia Solution* offers a speculative framework to potentially inform environmental and technological policy. As a consequence, its vision prompts consideration of AI design that is rooted in ecological ethics for encouraging policies, and it might assist in prioritising

sustainability, posthuman responsibility, and co-adaptive resilience in response to climate and technological crises. As Lovelock speculates in *A Rough Ride to the Future* (2015), "Could it be that we are about to join in union with the electromechanical and intelligent life we are now constructing? ... this development would be one way to go peacefully into the future rather than through a hostile confrontation between two intelligent species, one animal and the other electromechanical, sparring for space or resources on a single planet" (54).

Endnotes

[1]The concept of Gaia has dual origins: mythologically, Gaia is the primordial Greek goddess personifying the Earth, often revered as the ancestral mother of all life. Scientifically, the Gaia hypothesis was formulated by James Lovelock and later developed into a theory in the 1970s, proposing that Earth functions as a self-regulating, complex system in which the biotic and abiotic components interact to maintain conditions conducive to life. This theory bridges ecological science with systems thinking, reimagining the planet as a dynamic, responsive entity rather than a passive backdrop to evolution.

[2]The AI systems in the novel are referred as- cyborgs following Haraway's definition of a cyborg as a 'hybrid of machine and organism'. Though not biologically human, their integration into human systems, decision-making, and planetary renewal reflects both technical and social agency, making them suitable for posthuman analysis.

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