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Rewriting Nature: Ethical Implications of Genetic Engineering in Margaret Atwood's *Oryx and Crake**

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Abstract

Oryx and Crake by Margaret Atwood is set in a future where people, animals and even laboratory-created life is a blurred line that asks immediate, pressing ethical questions. The paper interprets the novel as an allegorical exploration of biotechnological advancements and their enduring social and environmental consequences. Centring on characters like Snowman and Crake, Oryx and Crake considers the dissonance between scientific progress and ecological responsibility. The research enters current discussions about genetic modification and synthetic biology by means of close reading of the text. Atwood's tale functions as a warning against human hubris, ecological disaster, and the commercialization of life itself. The book highlights the consequences of scientific exploration that is not bound by ethical practices, and explores the toll it can take on individuals and society to meddle with life forms. In connecting with current global debates about biotechnology, the study draws the reader's attention to the necessity and pertinence of a balanced, ethically guided approach to genetic engineering that will respect humanity as well as nature.

Keywords: Genetic engineering, biotechnology, dystopia, ecological responsibility, extrapolation, bioethics.

Introduction

Genetic engineering, as a lens for exploring ethical, social, and existential questions that humanity faces with emergent technologies, has been increasingly attractive in the corpus of contemporary literature. With literary studies now moving in the direction of the environmental and the technological, speculative fiction has begun monitoring biotechnological interference with nature. These narratives regularly acknowledge the push/pull dynamic between the imperative of scientific innovation and the value of ecological stasis, mirroring broad cultural anxieties concerning the possible long-term effects of tinkering with nature. As Barbosa and Santos affirm, "this new branch of speculative fiction involves technoscientific elements as the fundamental setting of the story and examines how humans manage disruptive alterations, either provoked by natural events, social changes, technological developments or scientific advances" (145).

Margaret Atwood's *Oryx and Crake* (2003) directly addresses these ethical issues. With a near-future society where genetics are widely available for commercialised enhancement, the novel offers a chilling vision of the implications of rewriting natural existence. Atwood creates a world driven by research and greed in which morality is lost, only to be replaced by engineered species, super humans and new worlds. As Cooke puts it, Atwood "insist[s] that it's not technics

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or technology or biotechnology that is dangerous: it's what human beings do with such things. The end of man is not a technical problem but a human one" (107).

The novel is a profound meditation on the commercialization of life, the yearning for genetic perfection, and the hubris of scientific elites. It challenges the ideology of technological determinism; wherein new technologies are rarely scrutinized through ethical or ecological lenses. The novel imagines a world ravaged by the Jetspeed Ultraviolet Virus Extraordinary (JUVE), a bioengineered weapon created by Crake. This dystopia serves as a vivid warning about genetic engineering in the hands of amoral corporate and ideological forces. As Mert Kabak notes, "the novel's flashback scenes depict life in the enclaves, which are owned by the pharmaceutical companies that rule the world with their various bioengineered products" (40). Crake, the amoral mastermind behind this transformation, envisions a world free of human imperfection, consumption, and destruction. His genetically modified beings, 'the Crakers' are engineered to be pacifistic, non-hierarchical, and reproductively controlled. Yet his solution to environmental collapse is not mitigation, but extinction and replacement. Crake's vision ultimately results in the erasure of humanity, replaced by a biologically efficient but culturally empty posthuman species. As Silpa observes, "Crake is portrayed as a kind of king or god who can create biologically and existentially new beings on earth" (429).

In contrast, Snowman (formerly Jimmy), who survives the aftermath of Crake's plan, offers a counter-narrative laced with irony, guilt, and loss. Haunted by memory and tasked with caring for the Crakers, Snowman becomes a reluctant prophet whose voice underscores the emotional toll of unchecked scientific ambition. Stephen Dunning views *Oryx and Crake* as "a warning fable, warning again the dominance of quantitative science and technology, how they can be a tool of those who would exploit 'qualitative human concerns'" (94). This tension between Crake's scientific vision and Snowman's moral uncertainty anchors the novel's exploration of ethical complexity.

While Atwood critiques the commodification of genetic science, she also engages with the possibility that biotechnology, under ethical oversight, could offer solutions to global challenges. Medical applications, climate-resilient crops, and disease prevention are hinted at through technologies like the BlyssPluss pill, which, though misused, was marketed with humanitarian promises. This tension between potential benefit and ethical collapse adds to the novel's complexity.

Atwood's fiction resonates with recent developments such as CRISPR-Cas9 and synthetic biology, which challenge longstanding definitions of what is "natural" and provoke urgent ethical debates. As Roger Luckhurst has argued:

Mechanized modernity starts to speed the rate of transformation and to make visible the changing rhythms of everyday life. [...] SF (Science Fiction) brings into being new futures or the future as a new world out of the flux of continuous change which fills the cracks of the modern occidental modern world in which Mechanism permits itself to be described . . . (3)

This speculative future is not fantasy but a projection of emerging technoscientific trends and their moral ambiguities. The novel provokes ethical reflection, asking whether rewriting life should outweigh the duty to protect it, and uses dystopia, irony, and speculative conventions to critique hubris and the fragile balance between progress and preservation.

Review of Literature

Atwood's *Oryx and Crake* has elicited a wealth of scholarly analysis for its layered engagement with ethics, biotechnology, environmental collapse, and the posthuman condition. Grayson Cooke emphasizes that the novel does not demonize technology itself but critiques the moral vacuum within which it is often applied. Likewise, Mert Kabak views the novel as a rejection of technological utopianism, illustrating how engineered societies can devolve into ecological and ethical chaos. J. Brooks Bouson connects Snowman's survivor's guilt to the psychological

damage inflicted by a biotech-dominated world, while Stephen Dunning characterizes Crake's scientific rationalism as nihilism disguised as idealism. Scholars such as Barbosa and Santos emphasize the pedagogical power of speculative fiction in fostering ethical inquiry, particularly concerning biotechnological futures. Roger Luckhurst situates the novel within a tradition of science fiction that extrapolates from present technological anxieties, highlighting how genre conventions such as dystopia and extrapolation make SF (Science Fiction) a platform for philosophical reflection. Rosi Braidotti reads the Crakers as embodiments of posthuman ethics, suggesting that Atwood's narrative tests the boundaries of agency, autonomy, and evolution. However, existing literature often foregrounds dystopian motifs and biopolitical control without sufficient attention to Atwood's narrative strategies or genre play. Few scholars have analysed how Atwood's narrative voice, particularly through Snowman, employs irony, metafiction, and speculative world-building to subvert both technoscientific rationalism and utopian posthumanism. Moreover, although critics have acknowledged the ethical dilemmas posed by synthetic biology, the symbolic erasure of cultural memory and emotional depth in engineered species such as the Crakers remains underexplored. Another under-theorized area is the novel's ecological critique through a post humanist lens. Braidotti's and Rozelle's theoretical contributions open space to examine how Atwood reframes nature not as a passive victim of science but as an active terrain of ethical resistance. Similarly, while corporate biopolitics is often discussed, less attention has been paid to the socio-economic stratification embedded in access to biotechnological advancements.

Integrating ethical, ecological, and literary lenses, this paper shows how the novel critiques genetic engineering as both a biopolitical instrument and a cultural act reshaping memory, identity, and morality, bridging science fiction, environmental ethics, and posthuman thought.

Methodology

This study employs a qualitative literary approach cantered on close textual analysis of Margaret Atwood's *Oryx and Crake*, with attention to its ethical, ecological, and formal dimensions. It examines Atwood's narrative strategies as tools to challenge scientific rationalism and biotechnological overreach. Snowman's post-apocalyptic voice, marked by satire and melancholy, is considered alongside broader themes of genetic engineering, ecological degradation, and moral responsibility. Drawing on perspectives from bioethics, environmental humanities, and science and technology studies (STS), the analysis situates Atwood's speculative elements within debates on biotechnology and sustainability. Speculative fiction tropes such as envisioning, dystopia, and estrangement are explored for their role in shaping ethical engagement. Theoretical frameworks from Rosi Braidotti's posthumanism and Roger Luckhurst's science fiction genre theory guide the reading of posthuman subjectivity and the ethics of techno-scientific futures.

Theoretical Framework

In reaction to biotechnological development, Rosi Braidotti's posthumanism questions the conventional humanist subject by emphasising the relational and embedded aspect of existence. She contends in The Posthuman that in order to recognise non-human agency and interrelated living systems, posthuman ethics must go "beyond the dialectics of self and other" (Braidotti 60). Her framework is essential to understanding the Crakers, not just as genetically altered creatures but also as symbols of a new ethical subjectivity that challenges human limits. The science fiction perspective of Roger Luckhurst offers a general framework for comprehending Atwood's narrative style. According to him, SF is a genre that imagines morally complex futures by extrapolating from current social and technological circumstances (Luckhurst 3). When combined, these frameworks allow for a multi-level interpretation of Atwood's book as a genre-conscious literary work as well as a bioethical investigation.

Analysis and Discussion

Margaret Atwood presents a future reshaped by xenotransplantation, synthetic biology, and transgenic engineering, in which genetically altered beings redefine ecological hierarchies and challenge the boundaries of nature, identity, and ethics. The novel explores various forms of genetic modification, highlighting their potential medical and environmental benefits while simultaneously exposing the ethical dilemmas and unforeseen consequences of altering life forms. Gurpreet S. Saund and Kulandai Samy observe: "Xenotransplantation, the post humanist venture, induces a world dominated by pandemic viruses, such as the JUVE lethal virus, to eliminate the entire human race . . . The fine line between the last human survivors and transgendered Crakers lies in inheriting the same blood line that bounds them together" (745).

Atwood envisions a world where scientific ambition, unchecked by moral constraint, leads to irreversible ecological and existential collapse. This speculative landscape operates, in Roger Luckhurst's terms, as an extrapolation of "current social and technological developments to map out ethically fraught futures" (3). Through such speculation, Atwood crafts a near-future scenario that critiques contemporary bioengineering while acknowledging the seductive power of its promises. At the centre of this world is Snowman, formerly known as Jimmy, the last known unaltered human, who survives in a post-apocalyptic environment. Snowman's ironic, melancholic voice, laden with guilt and memory, becomes a narrative lens through which the costs of scientific overreach are examined. As Naoual El Guezar notes, "The character of Snowman embodies an emerging awareness that is shifted toward valorising the environment" (42). Torn between his memories of the past and his reluctant role as guardian of the Crakers, Snowman represents a fragmented human consciousness struggling with complicity in Crake's vision. His character exemplifies what Braidotti calls a "materially embedded and embodied" posthuman subject - defined not by mastery, but by relationality, loss, and ethical reflection (60). This extrapolative power of science fiction also sharpens Atwood's critique of structural inequalities, as seen in the stark divide between the privileged Compounds and the vulnerable pleeblands.

The Crakers, designed by Crake to be docile, non-hierarchical, and devoid of symbolic thinking, embody the radical erasure of traits essential to human culture. Crake removes their capacity for religion, art, and abstract thought to prevent future violence and domination. As Snowman recalls, "Watch out for art, Crake used to say. As soon as they start doing art, we're in trouble. Symbolic thinking of any kind would signal downfall, in Crake's view. Next they'd be inventing idols, and funerals, and grave goods, and the afterlife, and sin, and Linear B, and kings, and then slavery and war" (Atwood 362). This cognitive reduction, while posed as evolutionary improvement, raises urgent ethical questions about autonomy and the right to meaning. As Škrovan notes, Crake's intervention "exceeds the bounds of gene therapy . . . and could have lasting impacts on social, political, and religious landscapes" (52). Braidotti's posthuman ethics emphasize interconnection and transformation, not the sterilization of affect or erasure of cultural memory, making the Crakers less an ideal and more a cautionary outcome of reductive design.

Atwood also critiques the commodification of life through her portrayal of transgenic organisms. The pigoons, bioengineered to grow human-compatible organs, illustrate biotechnology's utilitarian impulse: "The pigoons were much bigger and fatter than ordinary pigs, to leave room for all of the extra organs . . . heavily secured" (Atwood 31). These creatures blur the line between subject and resource, provoking ethical concerns about animal welfare, evolutionary disruption, and ecological balance. Crake's company, OrganInc Farms, and other biotech firms like NooSkins, reveal a world where cosmetic and medical markets drive bioengineering without accountability. At NooSkins, Snowman recalls, "The main idea was to

find a method of replacing the older epidermis with a fresh one, not a laser thinned or dermabraded short-term resurfacing but a genuine start over skin that would be wrinkle- and blemish-free" (Atwood 57).

Perhaps the most harrowing example of scientific abuse is Crake's development of the BlyssPluss pill, marketed as a miracle product promoting sexual health and longevity. Unbeknownst to the public, it contains a sterilization agent and a deadly virus intended to wipe out humanity:

The BlyssPluss Pill would also act as a sure-fire one-time-does-it-all birth-control pill, for male and female alike, thus automatically lowering the population level. This effect could be made reversible, though not in individual subjects, by altering the components of the pill as needed, i.e., if the populations of any one area got too low" (294).

Crake's manipulation of public trust under the guise of corporate innovation underscores Atwood's warning: when science is driven by ideology and profit, it becomes a tool for systemic violence.

Atwood's speculative creations like Crakers, pigoons, wolvogs, and the BlyssPluss pill illustrate her central argument that genetic manipulation, when severed from ethical responsibility, becomes a dystopian force. These technologies, while promising innovation, lead to ecological instability, social stratification, and ultimately collapse. Companies like OrganInc Farms and NooSkins prioritize market demand over bioethics; the production of "a genuine start-over skin" (Atwood 57) reflects biotechnology repurposed for aesthetic consumerism. As engineered species escape controlled environments and enter natural ecosystems, they destabilize biodiversity. Lacking natural predators, they mirror real-world anxieties about genetically modified organisms and invasive species.

This disruption parallels the stark divide between privileged Compounds and impoverished pleeblands. Jimmy's early life unfolds in insulated corporate spaces: "surrounded by technology, bioengineered foods and even pets . . . a life behind the walls" (Massuno 17). In contrast, the pleeblands are chaotic and unprotected: "Rows of dingy houses . . . Everything in the pleeblands seemed so boundless, so porous . . . so subject to chance" (Atwood 196). Johnston's "corporate domesticity" reinforces a world where access to genetic enhancements is reserved for elites, widening socioeconomic and biological inequality (Johnston 59).

Crake's release of a lethal virus through the BlyssPluss pill marks the catastrophic apex of unregulated science. Marketed under the guise of youth and vitality, the pill secretly contains a sterilization agent and deadly pathogen, concealed from public knowledge. This genocidal act, driven by Crake's disillusionment, aims to wipe out humanity and replace it with his genetically perfected Crakers. Schmeink observes: "Atwood does not relativize any readerly perceptions of her posthumans . . . Crakers remain passive reflections of the failure of human civilization" (13). These posthumans, devoid of culture, history, and emotional complexity, reveal the ethical dangers of reducing life to design logic and utilitarian purpose.

Yet Atwood does not present these developments as far-fetched fantasy. As Roger Luckhurst explains, science fiction "extends by extrapolation" from present conditions to imagine ethically fraught futures (3). Her speculative realism shows how today's techno-capitalist trajectories may evolve into tomorrow's crises. The novel's dystopia emerges logically from contemporary biotechnological ambition, consumer culture, and environmental neglect. Atwood's speculative future is deeply literary, shaped by character, irony, and narrative disruption, yet grounded in urgent ecological and ethical concerns. By weaving together scientific possibility and philosophical critique, she crafts a cautionary tale that mirrors the dangers and dilemmas of rewriting nature. This broader dystopian vision crystallizes most sharply in Atwood's portrayal of the Crakers, genetically engineered successors to humanity, whose design raises urgent questions about identity and agency.

One of the central ethical concerns is the impact of genetic engineering on human identity and agency. Crake's creation of the Crakers, genetically stripped of aggression, symbolic thought, and religious belief, is presented as a utopian fix for human destructiveness. However, this engineered simplicity invites critical reflection on the cost of eradicating imagination and autonomy. Atwood suggests that in eliminating these capacities, Crake has also extinguished the potential for culture, art, and philosophical inquiry. Snowman, caught between nostalgia and despair, observes the Crakers' innocence with deep ambivalence and moral discomfort: "What right does he have to foist his pustulant, cankered self and soul upon these innocent creatures?" (Atwood 177). Their peacefulness is not a triumph of evolution but a carefully designed erasure of complexity. As he watches their unguarded wonder, Snowman envies their calm but also pities their dependence: "They are like children, they need someone. You have to be kind with them" (Atwood 337). In this way, Atwood presents a chilling irony: a harmonious posthuman world that lacks the very qualities that make life meaningfully human. The ethical weight of this engineered simplicity becomes most apparent through Snowman's perspective, as he grapples with both admiration and unease toward the beings he is left to protect.

Snowman's ironic and fragmented narration acts as a counterpoint to Crake's cold rationalism. Through his memory-laden storytelling, he becomes both mourner and mythmaker, struggling to assemble meaning from a shattered past. "It's the art of the possible" (Atwood 256), he reflects, expressing his improvisational ethics in a world without stable norms. Set against this is Crake's stripped-down logic:

Nature is to zoos as God is to churches.' 'Meaning what?' 'Those walls and bars are there for a reason,' said Crake. 'Not to keep us out, but to keep them in. Mankind needs barriers.' 'I thought you didn't believe in God,' said Jimmy. 'I don't believe in Nature either,' said Crake. 'Or not with a capital N' (207).

The juxtaposition clarifies the novel's ethical fault line between Snowman's fragile, affective humanism and Crake's instrumental reason. Braidotti's notion of the posthuman subject entangled in memory, affect, and materiality- resonates through Snowman's voice, which embodies the ethical residue left by unchecked innovation (60). This tension between affective humanism and instrumental reason resonates with Braidotti's posthuman ethics, which foregrounds relationality, memory, and embodiment as counterpoints to reductive design, yet Atwood does not offer a one-sided denunciation. While the novel critiques corporate biopolitics, it leaves space to consider the potential benefits of biotechnology under ethical regulation. For instance, Crake's BlyssPluss pill was promoted as a solution to overpopulation and disease: "The BlyssPluss Pill . . . eliminate the external causes of death . . . Overpopulation" (292). Though Crake's true aim was extinction, the marketed benefits reflect real-world bioethical debates about population control, reproductive freedom, and longevity. The novel, thereby, provokes readers to distinguish intent from application, reminding us that genetic engineering, like all tools, carries different risks depending on its use. But Atwood resists a purely one-sided critique, acknowledging that even the most dangerous biotechnologies are often entangled with promises of social good.

Atwood's ecological critique is further embodied in the novel's transgenic creatures. Pigoons, bred for organ harvesting, become feral and intelligent, eventually turning against humans. These beings evolve beyond their utility, challenging anthropocentric assumptions. Similarly, rakunks and wolvogs, originally designed for companionship and security, become invasive species. "Create-an-animal was so much fun . . . it made you feel like God" (Atwood 53). Thus, Atwood echoes Braidotti's warning that posthumanism is not merely about biological novelty, but about reconceiving relationality and responsibility (72).

The novel also reflects Roger Luckhurst's view of science fiction as a genre that "traces out the consequences of present ideologies" (5). Atwood projects today's unchecked biotech

capitalism into a dystopia of ecological and moral collapse. This is exemplified in the contrasting worlds of the wealthy Compounds and impoverished Pleeblands. In contrast, life inside the Compounds is sanitized, genetically enhanced, and surveilled, a sharp commentary on techno-elitism and systemic inequality.

Atwood critiques the hubristic impulse to control nature. The BlyssPluss scheme makes this explicit: "The BlyssPluss Pill would also act as a sure-fire one-time-does-it-all birth-control pill, for male and female alike, thus automatically lowering the population level" (306). Here, biopower extends to reproduction itself, revealing how the dream of perfect management slides into coercion and harm. The novel's unfolding chaos, like mutating species, collapsing ecosystems, existential despair, shows that such control is always illusory. The novel is not only a critique of genetic engineering but also a meditation on the fragility of ethics in a rapidly transforming world. By blending speculative fiction, posthuman theory, and careful literary craft, it raises complex questions that extend beyond the page about what it means to be human, what can be engineered, and what should be left untouched.

Conclusion

Oryx and Crake is more than a dystopian warning about genetic engineering; it is a speculative mirror of our anxieties about consumerism, corporate power, and the will to master nature. By imagining posthuman figures like the Crakers and transgenic hybrids such as pigoons and rakunks, and by filtering events through Snowman's ironic, mournful narration, Atwood probes the ethical cost of designing life without regard for complexity, memory, or autonomy. The novel's future, shaped by unrestrained scientific ambition, presses urgent questions about humanity's right to manipulate nature and the tension between innovation and the sanctity of the living world. As gene-editing and synthetic biology advance, Atwood's vision insists on ethical reflection and responsible stewardship, reminding us that innovation must not outpace imagination, and that the well-being of both humanity and the natural world must prevail over short-sighted ambitions.

This study shows how the novel engages bioethics, posthuman theory, and environmental critique through both content and form. Future work could compare Atwood with biopunk and climate-fiction writers (e.g., Paolo Bacigalupi, Kim Stanley Robinson) and connect her fictional constructs to real debates on governance of biotechnology, regulation of synthetic species, and cultural memory in posthuman ethics. Ultimately, Atwood's vision is not a call for scientific retreat but a demand for moral foresight: innovation must not outpace imagination, and even the most advanced technologies must answer to the ethical complexities of life, whether human or otherwise.

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