



Biotechnology and Bioethics: Examining the Role of Science in *Oryx and Crake* and *The Year of the Flood*

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Abstract:

This research paper investigates the complex relationship between biotechnology and bioethics in Margaret Atwood's seminal novels *Oryx and Crake* and *The Year of the Flood*. Through a close examination of key themes, characters, and plot elements, this study illuminates Atwood's profound exploration of the ethical implications of scientific progress. In both novels, Atwood constructs dystopian futures where biotechnological advancements have reshaped human existence, raising pressing questions about the moral responsibilities of scientists and the potential consequences of unchecked technological innovation. Drawing on theoretical frameworks from bioethics and science fiction studies, this paper scrutinises Atwood's nuanced portrayal of genetic engineering, corporate greed, and environmental degradation, shedding light on the broader societal discourse surrounding the intersection of science and morality. By analysing the ethical dilemmas faced by characters such as Crake, Jimmy/Snowman, and the God's Gardeners, this paper emphasises the importance of considering the ethical dimensions of scientific research and technological development. Through Atwood's masterful storytelling, readers are challenged to critically engage with the ethical complexities of biotechnology and to reflect on the implications of scientific progress for human society and the natural world. This research contributes to a deeper understanding



of the ethical challenges posed by emerging biotechnologies and highlights the need of integrating ethical considerations into scientific practice and policy making.

Keywords: Biotechnology, Bioethics, Science, Genetic Engineering, Environment

Introduction

Science and technology have been pivotal in human progress throughout history, driving advancements that improve our quality of life and increase our ability to survive. However, alongside these benefits come moral quandaries and ethical challenges. The 21st century is marked by significant progress in biology, particularly in genetic engineering and biotechnology, which offer both convenience and potential harm. As society grapples with these advancements, numerous social and ethical dilemmas emerge. The question shifts from “Can we do this?” to an ethical inquiry, as our capabilities extend to manipulating genes, human will, and even altering fundamental aspects of nature and fertility. In essence, humans are assuming a god-like role, possessing the power of creators, raising profound ethical questions about the limits of our actions.

Within the genre of science fiction, Margaret Atwood’s *Oryx and Crake* and its companion novel *The Year of the Flood* stand out as compelling explorations of a future shaped by biotechnological advancements. Atwood’s narratives offer a chilling vision of a world where scientific progress has drastically altered the fabric of human existence, raising profound questions about the ethical implications of biotechnology. In this paper, we delve into the intricate relationship between science, ethics, and society as depicted in these novels, aiming to illuminate Atwood’s nuanced commentary on the role of biotechnology in shaping our collective future. At the core of Atwood’s dystopian vision lies a deep-seated concern with the consequences of unchecked scientific experimentation. Through vividly imagined worlds and complex characters, she invites readers to confront the ethical dilemmas posed by biotechnological innovation, challenging us to consider the moral implications of playing with the building blocks of life. By juxtaposing the allure of scientific progress with its potential for unintended consequences, Atwood compels us to reflect on the ethical responsibilities inherent in the pursuit of knowledge and technological advancement.



According to Eckhard Voigts, “Literature can function as a seismograph for socio-cultural and technological developments; it can mirror or anticipate current or future topics. While we are used to the dichotomy of science and humanities, science and literature have also been engaged in a fruitful exchange of themes, metaphors and even narrative structures” (283). Voigts’ assertion resonates deeply with Atwood’s approach, as her novels serve as poignant reflections of contemporary concerns regarding biotechnology and its ethical implications. Indeed, through her masterful storytelling, Atwood not only mirrors current debates surrounding scientific advancements but also offers prescient insights into potential future trajectories. Thus, by integrating scientific themes into her literary works, Atwood underscores the interconnectedness of science, literature, and society, emphasising the importance of engaging with ethical questions raised by technological progress. This paper delves into Margaret Atwood’s novels, *Oryx and Crake* and *The Year of the Flood*, exploring their portrayal of biotechnology and ethics. It emphasises the importance of ethical considerations in scientific advancements, drawing parallels between Atwood's dystopian futures and our current society. Through analysis of themes, characters, and plot elements, the paper aims to provoke reflection on the ethical dilemmas posed by modern biotechnology.

About the Author

Margaret Atwood, a renowned Canadian writer, poet, and essayist, has significantly influenced contemporary literature through her profound examinations of dystopian futures, feminist ideals, and environmental issues. Born in Ottawa, Ontario, on November 18, 1939, Atwood’s early exposure to literature and academic pursuits in English laid the groundwork for her distinguished writing career. Spanning various genres, including novels, poetry, and essays, her works reflect a sharp intellect and imaginative flair. While her debut novel, *The Edible Woman* (1969), introduced themes of gender roles, it was *The Handmaid's Tale* (1985) that propelled her to global recognition, winning the Booker Prize and establishing her as a feminist literary figure. Atwood’s storytelling prowess shines in works like *Cat's Eye* (1988) and *The Blind Assassin* (2000), showcasing her ability to navigate complex themes adeptly. Beyond her literary achievements, Atwood advocates passionately for environmental sustainability and social justice, as seen in her dystopian trilogy, including *Oryx and Crake*

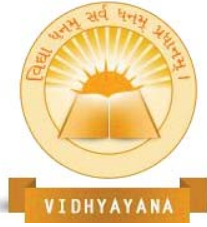


(2003) and *The Year of the Flood* (2009). Through her writings, Atwood not only leaves a lasting literary legacy but also challenges societal norms and prompts critical reflection on contemporary issues.

Biotechnology and Scientific Innovation

Science and ethics intersect at the centre of biotechnology. An ethical viewpoint influences technological advancements, which are influenced by the science and technology that is now accessible. Hans Jonas believes that the new technological age raises several ethical challenges that earlier technology did not have to address. “Modern technology has introduced actions of such novel scale, objects, and consequences that the framework of former ethics can no longer contain them”.(6) Biotechnology, as a modern science “is the use of biology to solve problems and make useful products. The most prominent approach used is genetic engineering, which enables scientists to tailor an organism’s DNA at will.” (Britannica, Biotechnology) There are many developments in biotechnology that are beneficial to humanity. But there is a darker element to technology. Unexpected effects of biotechnology have the potential to damage or dehumanise individuals. It is necessary to carefully consider the ethical consequences of proposed advancements. It takes a different perspective to ethics to evaluate new technologies, especially biotechnology, ethically. Modifications are required due to the possible impact of new technology on the world, the limitations associated with a rights-based ethical framework, the significance and challenge of consequence prediction, and the manipulation of humans by biotechnology.

Atwood remarks that *Oryx and Crake* belong to the realm of speculative fiction rather than conventional science fiction, noting, “*Oryx and Crake* is a speculative fiction, not a science fiction proper. It contains no intergalactic space travel, no teleportation, no Martians... it invents nothing we haven’t already invented or started to invent” (285). She emphasises that the novel embodies a fact within fiction perspective, asserting, “we’ve taken a path that is already visible to us” (Case & McDonald, 41). In this novel biotechnology plays a central role, shaping both the world of the characters and the narrative itself. Through various references and incidents, Atwood explores the ethical, social, and scientific implications of



biotechnology in a future where genetic engineering has run amok. In the opening of the novel *Oryx and Crake*, the world is depicted as a post-apocalyptic wasteland, with civilization in ruins. The protagonist, Snowman, resides alone on a tropical shoreline, having undergone a transformation into a primitive, semi-arboreal being. He struggles to survive amidst extreme conditions of heat, thirst, and hunger, embodying a savage existence. “Literature does not exist in isolation; it is influenced at every moment by science and technology, as well as by other arts and disciplines.” (Zhenzhao, 42) Male scientists predominantly control the biotechnological advancements used to manipulate genes in plants, animals, and humans, resulting in potential misuse and abuse of these technologies. Science and technology, therefore, exhibit gendered dynamics, with power and control primarily resting in the hands of men.

In *Oryx and Crake*, biotechnology emerges as a pervasive force, particularly through genetic modification, which characters like Crake wield to create new life forms such as the Crakers, blurring ethical boundaries. The novel also exposes the commodification of life by corporations like OrganInc Farms, emphasising the ethical dilemmas posed by corporate control over biotechnology. Furthermore, environmental degradation is depicted through bioengineered organisms, illustrating the unintended consequences of tampering with nature. The narrative delves into the impact of biotechnology on human identity and relationships, exemplified by characters like Jimmy and Crake grappling with questions of authenticity in a world where genetic manipulation blurs distinctions between natural and artificial. Various incidents, like the BlyssPluss pill’s development and Oryx’s exploitation, highlight the dangers and ethical complexities inherent in biotechnological advancements. Ultimately, this novel serves as a cautionary tale, prompting reflection on the ethical implications of unbridled scientific progress and the necessity of responsible stewardship amidst technological innovation.

The Year of the Flood delves into the realm of biotechnology, examining its ramifications within a dystopian setting. The novel explores various facets of biotechnology, encompassing genetic engineering, pharmaceutical development, and corporate exploitation. Atwood paints a picture of a world where corporations like HelthWyzer manipulate genetic material for



profit-driven purposes, epitomised by characters like Crake, who engineer a pandemic to reshape society. Through dialogues and incidents, Atwood underscores the ethical dilemmas inherent in genetic manipulation and corporate control. The exploitation of women as drug trial subjects and the unintended consequences of genetic engineering, such as ecological havoc caused by genetically modified animals, serve as cautionary tales. Additionally, Atwood intertwines themes of spirituality and environmental stewardship through the God's Gardeners group, challenging the reductionist worldview of biotechnology with an alternative ethical framework rooted in ecological awareness. This novel prompts reflection on the ethical implications of scientific progress and the necessity of responsible stewardship in navigating the complexities of biotechnology.

Bioethical Considerations in Genetic Engineering

“Bioethics, a branch of applied ethics that studies the philosophical, social, and legal issues arising in medicine and the life sciences. It is chiefly concerned with human life and well-being, though it sometimes also treats ethical questions relating to the nonhuman biological environment.” (Britannica, Bioethics) It means bioethics examines ethical dilemmas in medicine and life sciences. Focused on human well-being, it explores philosophical, social, and legal aspects. Occasionally, it considers ethical concerns about the natural world beyond humans. When science and technology become the sole measures of human achievement, there is a risk of techno maniacs seeking to restrict freedom, control economies, and dominate the spiritual aspects of humanity. This erosion of subjectivity and humanistic values leads to individuals becoming mere puppets or robots, resulting in the stagnation of human development when art and humanistic values are disregarded. From the perspective of ethical literary criticism, “it argues that literature is a product of human ethics and a form of ethical expression at a particular stage of history” (Zhenzhao, 83). Technological ethics, as part of human ethics, represents a distinct ethical expression in the Anthropocene era. However, when faced with ethical choices regarding technology, the scientists in this narrative appear to have made the wrong decision, leading to the decivilization of human society. Because the “ethical choice stage is the most important stage in the process of human civilization. At this stage, the ethical choice is the choice of human beings and the choice of human



moralization.” (Zhenzhao, 83). The arrogant ideology of the techno-maniacs in *Oryx and Crake* seeks to eradicate individual subjectivity, disregard humanities, and exert complete control over the human spiritual realm, which they achieve in this narrative. In a male-dominated society, science and technology become instruments for men to dominate nature, with gendered science asserting dominance over humanity while marginalising women and individuals living in pleebland. These techno-maniacs transgress technological ethics. Technological ethics should govern the conduct of technology, prompting technology’s actors to consider not only the possibilities of technology during technological activities but also the purpose, means, and legitimacy of the outcomes of such activities.

In Margaret Atwood’s dystopian narrative *Oryx and Crake*, the theme of bioethics is intricately threaded, delving into the moral dilemmas surrounding scientific progress, genetic manipulation, and the manipulation of life forms. Atwood’s exploration unfolds in a world where bioengineering’s repercussions are profound, prompting reflection on the ethical obligations of scientists and the limits of their pursuits. The character of Crake epitomises this discourse, embodying the morally ambiguous scientist archetype. His relentless quest for genetic perfection leads to the creation of genetically modified organisms, notably the Crakers, blurring the lines between scientific advancement and ethical boundaries. Additionally, the narrative portrays the creation of Pigoons, genetically engineered pigs with human organs for transplantation, highlighting ethical concerns regarding animal treatment and the potential commodification of living beings for human needs. Through characters like Jimmy (Snowman), Atwood illuminates the human struggle to reconcile participation in unethical experiments with moral responsibility, echoing broader societal dilemmas surrounding technological progress. Moreover, Atwood critiques the commercialization of life by powerful corporations, illustrating the ethical hazards of prioritising profit over human welfare. The character of Oryx further underscores the ethical complexities inherent in exploitation and manipulation for scientific gain, offering a cautionary perspective on the dehumanising effects of unchecked scientific advancement.

The Year of the Flood intricately intertwined bioethical themes within its dystopian storyline.

The novel delves into various ethical considerations, such as the ramifications of genetic



manipulation, corporate dominance in biotechnology, environmental degradation, and the fusion of spirituality with ethical discourse. Through characters like Crake, Atwood examines the ethical complexities of genetic engineering, portraying the consequences of playing god with life forms. Additionally, the novel scrutinises the moral bankruptcy of profit-driven corporations like HelthWyzer, highlighting issues of exploitation, informed consent, and power dynamics in pharmaceutical research. Environmental degradation emerges as a central concern, emphasising humanity's ethical obligations to the planet and its ecosystems, as depicted through the havoc wrought by genetically modified creatures. Moreover, Atwood presents a contrasting ethical framework through the God's Gardeners, advocating for ecological stewardship and interconnectedness as opposed to corporate greed. Through its multifaceted exploration of bioethical dilemmas, this novel prompts readers to contemplate the ethical responsibilities inherent in scientific advancements and human interactions with the natural world, underscoring the imperative for thoughtful reflection and ethical decision-making in shaping the future of life on Earth.

Conclusion

The interconnected plots of biotechnology and bioethics in Margaret Atwood's novels *Oryx and Crake* and *The Year of the Flood* serve as cautionary tales, asking readers to consider the ethical implications of technological advancement. This research paper has shed light on Atwood's complex representation of biotechnology and its ethical implications through a thorough analysis of major themes, characters, and plot components. The novels explore the complicated ethical issues of genetic engineering, corporate control over biotechnology, environmental damage, and the relationship between spirituality and bioethical issues. Characters like Crake, whose morally dubious efforts have disastrous results, serve as an example of the perils of separating advances in science from ethical considerations. The made-up companies, like HelthWyzer, represent the moral conundrums that arise from profit-driven biotechnology, where human rights are ignored and exploited. The novels also highlight the importance it is to think ethically in order to direct the pace of scientific advancement and study. Through organisations like the God's Gardeners, Atwood offers substitute ethical frameworks and promotes a comprehensive view of biotechnology that is



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based on respect for all living things and ecological awareness. Atwood challenges readers to consider the moral dilemmas raised by developing biotechnologies in our own reality through the thought-provoking tales of these novels highlighting the necessity of making morally sound decisions that will affect both the future of humanity and the planet.



References

“Bioethics.” Encyclopedia Britannica, Encyclopedia Britannica, Inc., www.britannica.com/topic/bioethics. Accessed 16 Feb. 2024.

“Biotechnology.” Encyclopedia Britannica, Encyclopedia Britannica, Inc., www.britannica.com/technology/biotechnology. Accessed 16 Feb. 2024.

Atwood, Margaret. *Oryx and Crake*. McClelland & Stewart, 2003.

Atwood, Margaret. *The Year of the Flood*. Bloomsbury, 2009.

Atwood, Margaret. *Writing with Intent: Essays, Reviews, Personal Prose: 1983-2005*. Carroll & Graf Publishers, 2005.

Case, Eleanor and Maggie McDonald. “Life after Man.” *Interview*. *New Scientist*, vol. 178, no. 2393, 3 May 2003, pp. 40-43.

Jonas, Hans. *The Imperative of Responsibility: In Search of Ethics for the Technological Age*. University of Chicago Press, 1984.

Nie, Zhenzhao et al. “Conversations on the Ethical Literary Criticism and the Frontier of Interdisciplinary Studies of Literature.” *Journal of Central China Normal University (Humanities and Social Sciences)*, vol. 2, 2022, pp. 79-105.

Nie, Zhenzhao. “The Interdisciplinary Development of Literature: The Revolution of Science and Technology and Academic Research in Humanities.” *Foreign Literature Studies*, vol. 2, 2021, pp. 31-43.

O’Mathuna, Donal P. “Bioethics and Biotechnology.” *Cytotechnology*, vol. 53, no. 1-3, 2007, pp. 113-119.

Voigts, Eckhard, and Alessandra Boller. “Eco-Dystopia and Biotechnology: Margaret Atwood, *Oryx and Crake* (2003), *The Year of The Flood* (2009) and *MaddAddam*



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Indexed in: Crossref, ROAD & Google Scholar

(2013).” *In Dystopia, Science Fiction, Post-Apocalypse: Classic, New Tendencies and Model Interpretations*, Oct 2015, pp.283-289.

Xinzhu, Zhu. “The Ethics of Technology: Reflection on Gendered Science in *Oryx and Crake*.” *World Literature Research Forum*, vol. 793.