



# A Hybrid World: Genetic Engineering in Margaret Atwood's *Oryx and Crake*

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Received: 13 Jun 2024; Received in revised form: 15 Jul 2024; Accepted: 22 Jul 2024; Available online: 28 Jul, 2024

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**Abstract**— *Oryx and Crake* is Margaret Atwood's most influential work, focusing on the current trends and extrapolates them to explore what the future might look like. I consider the heavy use of science in the novel, as a clear genre marker of science fiction. The speculative fiction deals with transgenic biotechnology and scientific innovations that run amuck throughout the novel. The representation of genetically engineered animals as a commodity for human consumption, or a creation of a whole human race genetically modified for a better future, altogether challenges the existing dichotomies. The understanding of genetically engineered animals and human requires the redefinition of humans and animals. Along the line, the paper will analyse the capitalistic agenda behind growing technology and the way it is perceived.



**Keywords**— animal labour, biotechnology, genetic engineering, human, and hybrid.

## I. INTRODUCTION

*Oryx and Crake*, written by Margaret Atwood, urges readers to delve into the narrative of Jimmy, also referred to as Snowman, who was forsaken by his community and confronted with the consequences of uncontrolled biotechnology experimentation. The book intricately weaves together Jimmy's memories before and after the horrific event. Jimmy, wearing a bed sheet, lived like a prehistoric man on a tree, exposed to sunlight, eating food, and safeguarding Crakers—genetically modified hominids designed to replace humans—while reminiscing about a pre-disaster world where unrestricted biotechnology created hybrid animal workers for the ultimate goal. However, everything ended when Crake, a genetically altered human, created an incurable virus to eradicate the human population and make way for the Crakers to take over. Atwood's book highlights the contemporary advancements in biotechnology and cautions readers about the irreversible consequences that could pose a threat to human survival. According to Atwood, this novel is a combination of fact and fiction, and it follows a route that is already apparent to us. She describes it as speculative

fiction that delves into the ongoing discussion surrounding genetic advancements and presents a vivid portrayal of the imminent catastrophic downfall of civilization as a consequence.

Literature has consistently endeavoured to anticipate and portray the potentialities of future scientific advancements even before they materialise in written form. Warwick asserts that science fiction has the ability to provide inspiration to scientists and properly depict possible future situations. Hybrid creatures have been a recurring theme in literature for a considerable period of time, starting with the publishing of H. G. Wells' *The Island of Doctor Moreau* in 1896. This book presents the concept of hybrid creatures in a manner that is exceptionally credible and true to life. This is a dystopian narrative set in the near future, where a Biotechnology Corporation governs the world until it is completely annihilated. *Oryx and Crake* introduces the reader to a range of hybrid creatures, including rakunks (a mix of raccoons and skunks), wolvogs (combining the aggression of wolves with the appearance and behaviour of dogs), pigoons (organisms that generate human organs), and Crakers (a genetically

modified species of humans). When humans do not intervene, these animals eventually become uncontrollable as the deadly virus spreads and kills everyone, constantly endangering Jimmy. Like Atwood, hybrid animals have traditionally been depicted in literature as peculiar, uncanny, alarming, and a fusion of human and animal, as well as human and machine. These hybrid creations challenge the existing societal divisions between the natural and artificial (man-made) and between animals and humans. A child born through surrogacy or in vitro fertilisation is currently facing a dilemma between artificial and natural birth, or a combination of both, which is causing significant worry. This amalgamation challenges the commonly recognised concept of human identity. According to the Oxford Dictionary, a human is defined as a person, distinct from both animals and machines. In the era of biotechnology, humans have started to surpass their natural limitations by integrating artificial organs from animals (known as xenoplantation) and mechanical support (cyborgs) into their bodies. This has led to the emergence of the posthuman era, when humans are no longer separate from machines. As Francis Fukuyama writes:

“[T]he most significant threat posed by contemporary biotechnology is the possibility that it will alter human nature and thereby move us into a ‘posthuman’ stage of history. (7)

The idea of the human body has undergone a substantial change, moving from its natural state to one that is artificial or man-made. This makes a new posthuman perspective on the human body necessary. In the 20th century, scientific methods and technological advancements made substantial contributions to the field of posthumanism. Humans and robots have been in a partnership for ages. In the past, machines were employed to distinguish between non-human animals and people. But in the posthumanist era of today, there is a debate about how the lines separating the human body from technology are becoming hazier. As Donna J. Haraway writes:

Late twentieth-century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines. Our machines are disturbingly lively, and we ourselves frighteningly inert. (152)

Genetic engineering has been around since the early 1980s, when scientists developed an oncomouse specifically for studying cancer. Over the course of the past twenty years, scientists have successfully developed

various genetically modified animal species that possess advantageous characteristics. These include goats that produce anti-clotting protein, fish with accelerated growth, and pigs that are environmentally friendly. Genetic engineering is driven by a strong desire for its potential benefits, such as providing a source for human organ transplants, studying diseases like cancer and heart disease, producing substances for pharmaceuticals, and even creating pets. Genetic engineering thrives not only on its mentioned benefits, but on the comprehensive network that supports it. While I won't be able to cover every single one, I can provide some insight into a selected few. I will explore the topic of hybrid animals in relation to their role in labour, the influence of biotechnology on society, the capitalist agenda, the commercialization of these animals, and the absence of effective policies to regulate them.

## II. GENETICALLY ENGINEERED ANIMAL LABOUR

Throughout the history of humanity, animals have served as a source of sustenance and as a means of labour. From studying the interactions between humans and animals, it is evident that animals have often been viewed as passive beings, exploited for human gain. In today's technologically advanced world, the significance of various aspects has been diminished, including human labour. However, animals continue to play a prominent role in the workforce. Animals have experienced a significant increase in their responsibilities. In the past, they were primarily utilised for farming, carting, and food consumption. However, they now also bear the weight of being subjected to experiments, used to develop human organs, tissues, and cells, and serve as a source of protein that can be altered or created to fulfil human desires. As Steven Best and Douglas Kellner call attention to the transformative power of biotechnology which created:

...a surreal zoo of mutations that includes tobacco plants with firefly genes, mice and pigs with human genes, potatoes with chicken genes, fish and tomatoes with antifreeze genes, and dozens of different genetically modified foods spliced with bacteria, viruses, antibiotic-resistant marker genes, and insect genes. (Atwood 134)

The earliest pages of the novel opens with young Jimmy memories of a “bonfire was an enormous pile of cows and sheep and pigs”(Atwood 18). Devastated by the virus that was intentionally injected, the animals suffered a tragic fate, leading to their mass extermination in order to safeguard human lives. In Britain during the 1980s and again in the mid-1990s, there was a significant incident involving the disposal of cows due to concerns about the

spread of Bovine Spongiform Encephalopathy (BSE), a human disease.

Through experimentation, the utilisation of animal labour transitioned from being a natural process to being situated on the periphery of human intervention. *Oryx and Crake* extensively examine the topic of hybrid, genetically modified creatures. Pigoons, a pig created to grow an "assortment of foolproof human-tissue organs in transgenic knockout pig host-organ" (Atwood 25) that would defend against the attack of viruses. These organisms were designed to grow quickly, allowing human organs to be available for transplantation as soon as possible. There is currently a strong interest in the scientific community to develop a method for growing and preserving multiple kidneys at once, with the goal of customising them for individual patients. These pigs were deliberately bred to be larger and more robust to better accommodate extra organs. At first sight, they may seem a bit intimidating with their pink eyes, nimble movements, and a tendency to bite into humans rather swiftly. The Pigoon is involved in the production of human organs, which are later sold as commodities for consumption by buyers. In the past, animal research focused on draining the animal's energy, but unfortunately, it ended up taking the animal's life for the sake of human gain.

Along with long life, human emphasises on the idea of beauty, and youthfulness. This project under Nooskins design Pigoons to replace the older epidermis with a newer one, "a genuine start-over thing that would be wrinkle and blemish-free" (Atwood 62). This project is centred around the intriguing phenomenon observed in algae, where younger skin cells ingest older cells and produce duplicates to take their place. The progress in biotechnology has generated distinct beauty criteria that value perfect skin as the ultimate gauge of attractiveness. Regrettably, this has resulted in sentiments of insufficiency and apprehension, which subsequently have bolstered the expansion of this sector. One additional remarkable hybrid creature is the wolvog, which merges the traits of a canine and a lupine. Wolvogs originated as a result of escalating competition among firms and their intrusion into one other's domains. These creatures are specifically engineered to protect and secure business goods. While describing Crake says that:

They aren't dogs, they just look like dogs. They're wolvogs- they're bred to deceive. Reach out to pat them, they'll take your hand off. There's a large pit-bull component....Yeah better than an alarm system-no way of disarming them, not like real dogs. (Atwood 241)

These creatures were beneficial and manageable even though they were kept in a cage and under constant observation. But when the humans went extinct, they were set free and started attacking Jimmy. As a result of their hostility, Jimmy is now compelled to seek safety in a tree. While genetically changing animals has undoubtedly been greatly influenced by technology, they organically evolved into different creatures after they were left to fend for themselves without human intervention or care. They started acting in ways that went against their innate tendencies as:

Pigoons were supposed to be tusk-free, but may they were reverting to type now they'd gone feral, a fast forward process considering their rapid-maturity genes. (Atwood 43)

### Conception of meat

Everything that was once deemed an unrealistic and satirical concept ten years ago is now within the realm of possibility. The notion of flesh has undergone a transformation in the universe of *Oryx and Crake*. Chickienobs, a genetically modified breed of chicken, is specifically bred and cultivated for human consumption. The portrayal of chickienobs in the book is not completely fictional; laboratory-cultivated, in vitro meat has indeed been created for both industrial and therapeutic purposes. Furthermore, this synthetic method of production not only holds significant financial significance but also acts as a means to appease environmental and animal welfare organisations who strongly object to the cruel and harmful activities of the animal industry. As Crake says "animal welfare freaks won't be able to say a word, because this thing feels no pain"(Atwood 238). The lack of pain is because of neurological alteration, and the physical alterations are to such extent the onlooker feels disgusted and pity at the same time. While describing them:

There's a mouth opening at the top, they (workers) dump the nutrients in there. No eyes or bleak or anything, they don't need those....they'd removed all the brain function that had nothing to do with digestion, assimilation and growth....You get chicken breast in two weeks. (Atwood 238)

Humans have demonstrated a significant level of freedom when it comes to creating genetically engineered species. Limiting animal options to match human preferences through neurological and physical alterations. All of them have been designed to mimic chickens, but they are missing crucial functionalities. They have no limbs, no head, and can be described as a "meat tube" - a living, walking mass of flesh that is specifically adapted for human consumption. As the project advances, the

expensive traditional method of factory farming for "genuine" chicken is slowly being phased out in the market.

*Oryx and Crake* has emphasised the notable inclination towards meat intake and the raising of cattle. The characters in the narrative yearned for a world where actual flesh existed, which served as a reminder of a time when life held greater complexity and importance. Access to genuine meat is limited to individuals who possess privilege and wealth. Jimmy is astonished when he witnesses the genuine presentation of meat at the prestigious Watson-Crick Institute. When Jimmy joins Crake for dinner, he is astounded by Crake's selection of authentic Japanese beef, a rare delicacy comparable in scarcity to diamonds, at this Jimmy thinks that "It must have cost him a fortune" (Atwood 289). In the world of the story, eating real meat is only permitted for the wealthiest members of society. This demonstrates the persistent social taboos surrounding food access, especially in the setting of industrialization, when women and children were frequently excluded from meat consumption while the male head of the family indulged in it. Even though beef created artificially is widely available, the product nevertheless has to live up to the stigma of being unnatural. When Jimmy returned home with a pail of deep-fried chicken nobs, his roommates were not amused and they didn't talk for a week.

All the aforementioned genetically modified animals are expressly designed for human consumption. Humans have beyond the limitations of basic work and have entered the domain of designing and producing work. The human brain is humanity's most valuable resource, a wonderful wellspring of limitless potential. Due to the swift progress of technological developments, people have exceeded their inherent constraints and are presently exerting deliberate control over nature.

### III. CRAKERS: GENETICALLY ENGINEERED HUMAN RACE

Scientific ambitions know no bounds, as researchers shift their focus from experimenting on animals to studying humans. Crake's narrative involves the creation of a significant portion of the human population as a replacement for humans after the deadly virus spreads. Crake skillfully combined various traits from different species, giving rise to a remarkable hybrid organism. Crackers, similar to cats, possess the remarkable ability to heal themselves by purring, a skill that Craker has diligently honed over the years. Just like rabbits, crackers have the ability to survive in food-scarce conditions by practicing coprophagy. The reproductive behaviour of

crackers is structured to resemble that of baboons in order to address issues related to racism, hierarchy, and territoriality. The female's abdomen changes colour to a vibrant blue, emitting pheromones that naturally draw the attention of males. A ceremonial dance is performed, during which the female chooses a group of males to engage in sexual intercourse with, taking turns until the blue colour fades. There is a lack of clarity surrounding the parentage of the offspring. The crackers have an impeccable design, complete with UV-resistant skin and a built-in insect repellent, making them visually appealing.

They're (crakers) every known colour from the deepest black to whitest white, they're various heights, but each one of them is admirably proportioned. Each is sound of tooth, smooth of skin. No ripples of fat around their waists, no bulges, no dimples orange-skin cellulite on their thighs. No body hair, no bushiness. They look like retouched fashion photos, or ads for high-priced workout programs. (Atwood 115)

Because of their adaptability, they choose not to build homes or use tools, which would later develop into kingdoms, clans, and materialistic desires. Crake posits that God is merely a cluster of neurons that he has extracted from the minds of Crackers, referred to as the G-spot in the brain. Crake's main objective is to eliminate art due to his belief that any type of symbolic cognition has the potential to bring about the downfall of humanity. With art "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 361). After all his efforts they still do dream and sing, and they are only introduced to plain and simple language.

Upon leaving their protected human habitat and encountering the wild environment, the Crackers initiated a process of evolutionary change. At first, Crake effectively eradicated their questioning about where they came from. Crackers have started to doubt their origins and the entity responsible for their creation. Furthermore, crackers are deliberately engineered to possess a harmonious framework, devoid of any individuals taking on leadership positions or blindly conforming to others. This has the ability to cultivate a strong desire for power and control. Nevertheless, Jimmy notices that one of the crackers, dubbed Abraham Lincoln, is gradually acquiring the characteristics of a leader. They hold the firm conviction that there is no higher entity and do not engage in idol worship. Nevertheless, once Jimmy did not come back from his adventure within a short period of time, the crackers created an idol and started participating in religious rituals and reciting prayers. Although Crake

made significant attempts to enhance the human species, they nevertheless have an inherent propensity to acquire knowledge and adjust as necessary.

Crake explains to Jimmy that the crackers are simply prototypes, allowing humans to choose the desired traits for their future generations. It is about designing babies, as per the parent requirement, "They'd be able to create totally chosen babies that would incorporate any feature, physical or mental or spiritual, that the buyer might wish to select" (Atwood 357). I have concerns about three specific problems. Initially, major advancements in scientific knowledge typically entail a significant financial burden that is accessible only to individuals with substantial resources and influence. This society is enabling the affluent to enhance the mental and physical capabilities of their offspring, so making them stronger and more intelligent. This is exacerbating the already subpar educational experience and further extending the socioeconomic disparities. My second concern is that over time, as these changes become widespread and accessible to everyone, individuals will become indistinguishable from one another, as they would all possess qualities such as intelligence, youthfulness, attractiveness, and intelligence. This will erode the distinctiveness that makes each person unique and render it impossible to maintain individuality. Lastly, my concern pertains to power dynamics: what if those in authority clandestinely manipulate individuals, rendering them intellectually impaired, compliant, and subservient, in order to form sizable cohorts? As Crake says:

Whole population could be created that would have pre-selected characteristics. Beauty, of course; that would be high in demand. And docility: several world leaders has expressed interest in that. (Atwood 358)

#### IV. BIOTECH IMPERIALISM: POWER, AUTHORITY AND CAPITALISM

The thirst for power has been a constant fight throughout human history. Power has transitioned from clans to corporations. The advent of biotechnology has significantly transformed the realm of mass regulation. As Haraway says "The social goal of new life sciences was clearly statically control of the masses" (46). Initially, humanity has always harboured a desire to possess god-like abilities, particularly in the realm of creation. This aspiration is now being realised through the advancements in biotechnology. Using it, each individual within a community can be modified according to one's wishes. As Jimmy recalls:

There'd been a lot of fooling around these days: create-an-animal was much fun, said the guys doing it; it made you feel like a god. A number of the experiments were destroyed because they were too dangerous to have around... (Atwood 57)

The second aspect of the novel focuses on the power of surveillance. In this universe, a bio-firm governs and controls the population through collaboration and regular monitoring. There are strict security measures in place, which involve regular monitoring of online activities. Power frequently encounters resistance, while cooperation encounters obstacles when its opponent infiltrates its territory and threatens its researchers.

*Oryx and Crake* portrays the lasting schism in society, with a unique and noticeable deviation. In this context, individuals are separated according to their degree of technical advancement. The proponents and contributors of technological advancement in corporations reside in a secure and meticulously kept community, where they enjoy the advantages of legal protection, robust security measures, and a health-conscious way of life. Conversely, individuals who are not employed within these enclosed areas and primarily function as customers for companies sometimes reside in the outskirts, which are occasionally described as less advanced or uncultivated. Atwood underscores the internal difference among the working class by portraying Jimmy and Crake as representative characters. In this context, the crucial determinant of one's position is whether they choose to work for the business or not, rather than the conventional distinction between the bourgeoisie and the proletariat.

Technological improvements have had a huge impact on the market and its ways of progress and transactions. The primary and noteworthy change is the replacement of manual labour with mental labour. In Atwood's novel *Oryx and Crake*, the corporation views Crake, a character with exceptional cognitive abilities, as a valuable asset. The firm will exploit its ability for invention (intellectual value) for its own gain, while Jimmy, a character lacking any tendency towards creativity, gets marginalised. The cognitive labour in the text is being exploited based on the ownership of their innovation. In the novel *Oryx and Crake*, the Watson-Crick Institute claims ownership of the creation made by the students by patenting it under their own name, thus replacing the students' ownership. Corporations often obtain patents for their employees' creations, leading to a race among financiers to acquire as many patents as they can, in order to become the exclusive producers of a particular product. This greediness results

in the creation of several inventions that are completely superfluous.

The story successfully illustrates how technology and the desire for power directly led to the Crake action. He has established his power through the use of technology, both by eradicating particular populations that previous rulers have always desired but were unable to accomplish, and by producing bio-engineered organisms. This is how he envisions the perfect world.

All it takes . . . is the elimination of one generation. One generation of anything. . . . Break the link in time between one generation and the next, and it's game over forever. (Atwood 223)

He is responsible for creating the Blysspluss Pill, a highly sought-after medication that aims to decrease population levels by increasing sexual desire, providing protection against sexually transmitted diseases, and prolonging youthfulness. Additionally, he orchestrates an act of bioterrorism. In addition, the pill includes a hemorrhagic virus that was specifically created to eradicate the human population, but this information is not revealed. Unregulated biotechnology has the potential to enable a single person to ingest a pill and eradicate the whole human population without detection. Biotechnology is deceptive to those who are easily fooled; it makes false promises and achieves results it cannot legitimately assert.

The proliferation of genetically engineered animals can be attributed to the influence of corporate dominance. Not only does a colossal corporation have power over the market, but it also exercises dominion over every facet of the general population's existence. This includes their access to food, clothes, security, and education, as well as their social control and even the manipulation of genetics to shape the desired sort of consumer for the capitalist. This signified the commencement of the epoch of colonising existence on Earth. The corporation's profit is derived from the exploitation of both human beings and the environment. HealthWyzer, OrganInc, and RejoovenEssence flourish by capitalising on the anxieties of the general population, specifically fears related to ageing, facial wrinkles, physical disabilities, and mortality. These corporations effectively instill these fears in the public solely through social media advertisements. In modern times, individuals conveniently display adverts on their mobile phones and laptops due to technological advancements. The theoretical discourse surrounding the correlation between capitalism and living organisms has persisted for an extended period of time. In her book *Life as Surplus: Biotechnology and Capitalism in the Neoliberal Era*, Melinda Cooper argues that the

economy's expansion beyond natural limits has led to its excess state. The devaluation of humanity has occurred as a result of excessive monetary influence. As she writes:

As long as life science production is subject to the imperatives of capitalist accumulation, the promise of a surplus of life will be predicated on a corresponding move to devalue life. (Atwood 45)

This commercialization can only be implemented in a society that opposes public and governmental interference and advocates for the neoliberal market. The whole human population was eradicated due to the commercialization of life. Consumption is the primary force behind the market, encompassing the deliberate production of goods and services for the purpose of consumption. Atwood's work specifically questions the principle of scarcity in the economy, focusing on the disease market. In this market, corporations deliberately create the illness and then introduce a more costly and limited solution. This phenomenon generates an inclination towards collaboration and consumption. "Lingering illnesses" are considered the most advantageous type of ailment from a commercial perspective (Atwood 248). The commercialization clearly demonstrates the paternalism exhibited by companies.

The novel delves into a series of political assassinations, strange occurrences, and unexplained vanishings that can be attributed to the power held by the Cooperation. These events clearly illustrate that those who are against cooperation are swiftly silenced, discredited, or made to disappear. Jimmy's mother, a microbiologist, consistently voices her disagreement before leaving the facility to pursue activism. She is pursued relentlessly by a corporation for several years until they finally track her down and eliminate her. The ineffectiveness of these forms of action is evident in the Happicuppa coffee protest. The creation of Happicuppa coffee was a result of Healthwyzer's desire to simplify the process of collecting fully grown coffee beans on a large-scale farm. The genetically modified bean presented a substantial threat to a humble coffee farmer. The demonstration lasted for several days, with riots and multiple fatalities, but no tangible outcomes were achieved. As Uncle Pete said:

They'll get tired of it, they'll settle down. Everybody wants a cheaper cup of coffee—you can't fight that. (Atwood 212)

## V. CONCLUSION

Upon completing the novel *Oryx and Crake*, it becomes evident that technology has the potential to bestow bliss,

albeit with certain restrictions. Unrestrained experimentation possesses the capacity to precipitate the collapse of humanity. Crake was able to execute his nefarious scheme because there were no ethical norms or regulations in place. The inquiry that requires a response is; what is the maximum extent or boundary? What is the threshold for being considered excessive, and what is the limit for going beyond acceptable boundaries? It is crucial for them to establish clear limits that must not be violated. Atwood warns readers about the inherent risks of biotechnology and its profound influence on the human race. Considering the present level of technical progress, it is crucial to pause and contemplate whether this is genuinely essential at this juncture. Is this truly essential for the well-being of human beings? The correlation between wealth and influence fuels the quick progress in diverse sectors. Atwood expresses apprehension on the possibility of a disastrous future characterised by genetic manipulation and biological control in the advancing era. She emphasises the perils of scientists assuming the role of a deity by manipulating the fundamental components of life, while the rest of us, like Jimmy, remain oblivious to the possible repercussions we might encounter.

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