# STEM AND SURVIVAL: A FUTURIST-HUMANIST CRITIQUE OF MARGARET ATWOOD'S *THE MADDADDAM TRILOGY*

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**ISLAMABAD**

**MAY 2023**

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M.A. University of Sargodha, 2013

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

**MASTER OF PHILOSOPHY**

IN **ENGLISH LITERATURE**

TO

FACULTY OF ARTS AND HUMANITIES


NATIONAL UNIVERSITY OF MODERN LANGUAGES, ISLAMABAD.

# THESIS AND DEFENSE APPROVAL FORM

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**Thesis Title:** Stem and Survival: A Futurist-Humanist critique of Margaret Atwood's *The Maddaddam Trilogy*

**Submitted by:** ASFA BIBI **Registeration#:** 1907-MPhil/Eng/Lit/f19

Masters of Philosophy
Degree name in full

English Literature
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Candidate of **Master of Philosophy** at National University of Modern Languages (NUML), Islamabad, do hereby declare that the thesis **Stem and Survival: A Futurist-Humanist Critique of Margaret Atwood's *The MaddAddam Trilogy*** submitted by me in partial fulfillment of MPhil degree, is my original work, and has not been submitted or published earlier. I also solemnly declare that it shall not in the future, be submitted by me for obtaining any other degree from this or any other university or institution.

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# ABSTRACT

**Title: STEM AND SURVIVAL: A FUTURIST-HUMANIST CRITIQUE OF MARGARET ATWOOD'S *THE MADDADDAM TRILOGY***

This is a futurist-humanist study of Margaret Atwood's trilogy comprising *Oryx and Crake* (2003), *The Year of the Flood* (2009), and *Maddaddam* (2013). Futurology has functioned as one of the chief interests of speculative fiction in Contemporary literature. In such fiction, the representation of rapid advancements in STEM (Science, Technology, Engineering, and Mathematics) appears as a persistent and pathological challenge to the future of the Homo Sapiens inhabiting the planet. Hence, speculative literature and futuristic theories are laminated by the adverse effects of STEM. The dystopian feature of speculative fiction leads to the nightmarish predictions of the end of the world where human beings become helpless before the technology that they have crafted themselves. However, they are also focused on finding a middle way for the safety of the planet. The purpose of my research lies in studying the interplay between the future of humanity and scientific progress in Atwood's speculative texts. The futurist-humanist study of *MAT* is significant because it promotes the belief that keeping the safety of humanity intact alongside the thoughtful application of scientific and technological knowledge should be the primary priority of humankind. This research invokes Gerd Leonherd's theory of digital transformation that deals with algorithms, androrithms, and Hellven (which is a portmanteau for hell/heaven). This study uses textual analysis as a research method for the study of selected texts.

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# LIST OF ABBREVIATIONS

*MAT: The MaddAddam Trilogy*

*OC: Oryx and Crake*

*TYF: The Year of Flood*

*MA: MaddAddam*

# ACKNOWLEDGEMENTS

Alhamdulilah, my first and foremost praises to Allah Almighty for his showers of countless blessings throughout my life, especially during the successful completion of my coursework and the daunting venture of my dissertation.

There are many people I would like to extend my thanks to. First of all, I must thank my affectionate Uncle, Mr. Zahoor Ahmad, who supported me in every possible way in my pursuit of this degree. Secondly, it is my privilege and a genuine pleasure to express my gratitude to my advisor, interviewer, and mentor Dr. Sibghatullah Khan, an enthusiastic academic of English at NUML, Islamabad. He has been a source of continuous inspiration since my journey in NUML began. I thank him for his passion and willingness to share his knowledge. His meticulous scrutiny, insightful criticisms, and scholarly advice have thoroughly helped me to accomplish my project. I thank him for bringing his considerable experience, vast knowledge, and value to my project. His dedication, interest, and above all his sincerity to help his students have been mainly responsible for the completion of my project. I also really enjoyed being his supervisee when he always nudged me with his good sense of humour while I wandered off track.

Thirdly, I also owe a deep sense of gratitude to my unofficial aide, guide, and mentor Professor Umar Shehzad, Doctoral Candidate at The University of Edinburgh, UK, and a gem of Professors at the University of Chakwal, Pakistan, for his immense support at every stage of my degree. My words are powerless to express my gratitude to him. His constant encouragement, consistent guidance, and timely suggestions have enabled me a great deal to complete my coursework and dissertation. I am obliged for his time and patience. I also profusely thank Dr. Shehryar Khan, Assistant Professor of English at Govt. Graduate College, Attock, and Madam Tehmina Yasmeen, Doctoral Candidate at NUML, and Assistant Professor of English at Govt. College for Women, Chakwal, for their much-needed cooperation, whenever I asked for it. My thanks are due to my coursemates, Nayab Murad, Sidra Razzaq, and Sajmas Arooj for their cooperation in many moments of need. My appreciation is also due to my informed and insightful interviewer, Dr. Saleem Khan, HOD of the Department of English at ISP, Multan, and former Assistant Professor of English at NUML, for

considering me the right candidate for this degree. Finally, thanks to the English Department of NUML for offering me the academic and creative space, to bring this thesis to life.

# DEDICATION

This thesis is dedicated to my mother for her prayers, my sister for her motivation, and my husband for his love.

# CHAPTER 1

# INTRODUCTION

This study is based on the futurist-humanist study of Margaret Atwood's *The MaddAddam Trilogy*[1]. A futurist study is the scientific study of the time to come. It is based on the analytical study of what may happen next in life on the planet if scientific and technological activities are not controlled. The proposition of Gerd Leonhard establishes that it is also a humanist study because it argues for a future with humans and warns for the days without humans.

At the outset, I want to clarify that the idea of a posthuman future is completely different from the branch of knowledge called Futurology (Future Studies). The former term, "posthuman future" focuses on the celebration of scientific acceleration and AI takeovers (Braidotti 185). The followers of this movement, like the English philosopher Nick Land who is also called the father of accelerationism, normalize the idea of the end of the human population by posthuman species. They believe in the "future without human existence" (Fisher 344). However, in contrast, Futurology as the scientific study of the future was introduced by a German professor, Ossip K. Flechtheim, around the middle of the 1940s. Although it also does not defy the progression in different fields of knowledge, especially science, its prime interest lies in confirming a safe future for human beings alongside the maintenance of scientific advancements. The followers of this area of study discuss the existential crisis and they construct their theorization on a belief in the future with human beings. More often than not, the futurist approach has been considered subsidiary to the posthumanist point of view. My study contends that they are two distinct approaches. Futurist-humanist thought concedes the centrality of science to human existence in the contemporary world. It believes that any future cannot be imagined without both human beings and science. However, where posthumanism is fixated on apocalyptic scenarios and does not see humanity surviving future developments. Futurist-humanist thought is more sanguine and solicitous over the possibility of human survival and anticipates a future where humanity should move towards a more ethical

[1] Henceforth I will use *MAT* for *The MaddAddam Trilogy* across my dissertation for all citations.

relationship with nature. The futurist-humanists believe that the identity of human beings must not be marred by anti-human notions. They study future from the multi-dimensional perspectives and bring forward the pros and cons of human-made empirical developments. On the other hand, where posthumanist studies abound, there is a lamentable dearth of futurist approaches used in research.

Gerd Leonhard is one of those futurist-humanist thinkers who favour the perpetuation of human identity alongside the development of the rest of technological advancements. Being a futurist author and speaker, his book *Technology vs. Humanity: The Coming Clash between Man and Machine* proposes similar concerns. His theory of digital transformation is influenced by Moore's law of exponential growth. It suggests that technological developments will take a leap resulting in a completely transformed world in a few strides (Leonhard 2, my paraphrase). Leonhard speaks of the characteristics which make human beings different from the rest of the creations. He proposes those characteristics are the special essence of human existence. He says that these essences are called androrithms.[2] He defines andorithms as the unique components of being that cannot be prepared in any manufactory (Leonhard 23, my paraphrase). He sums up these characteristics with the acronym HECI which stands for humanity, ethics/emotions, creativity/curiosity, and imagination/intellect. He shows the apprehension that the rule of androrithms will be overhauled by the algorithmic powers[3] with the progress in technical fields. Losing them in any way would simply mean "a loss of humanness" (Leonhard 4). It will lose the position of human beings as the center of the world. STEM (science, technology, engineering, and mathematics) is making reforms in our "automated and proactionary[4]" society (Leonhard 107). Human beings should not let any branch of technology decide what they are. The control depends on human beings to the hilt. It

[2] Leonhard, in his book *Technology vs. Humanity: The Coming Clash of Man and Machine* (Amazon UK, 2016), uses Androrithms and Humarithms alternatively referring to the similar instinctual qualities that make a man different from machine. He elaborates these instincts with acronym HECI which stands for humanity, ethics, creativity, and imagination.) For details see chapter of my dissertation. Also check Leonhard's aforementioned book especially chapter 1 "A Prologue to Future."

[3] Leonhard defines algorithms as units of the non-biological entities like computers, robots, and smart phones etc (23). Refer to chapter 3 of my dissertation for detailed difference in concepts of algorithms and Androrithms. For details, also see Leonhard's *Technology vs. Humanity: The Coming Clash of Man and Machine* (Amazon UK, 2016) especially chapter Chapter 2 "Tech vs US."

[4] According to Leonhard, proactionary society is the culture with unrestricted experimentation without any established scientific boundaries. Please see chapter 3 of my dissertation for detailed overview of proactionary society vs precautionary society. Also see Chapter 8 "Precaution vs Proaction" in Leonhard's book.

is their responsibility not to give in before the scientific and technological revolutions. The realization of being human and the chief essences that make them human should not be dissolved. Similarly, according to Leonhard, the oscillation between the uncertainty of the circumstances lands human beings in the state of Hellven[5]. He says that a life of progression is like living in heaven while a life of regression will be like living in Hell. However, the unsurety about the progress or regress, as followed by the consequences of scientific experiments, is like living in Hellven. Hence, the chief purpose of invoking the theory of Leonhard in my research is its profound link and wide relativity with the topic under debate i.e., the concern for the future of human centrality and the importance of beneficial techno-scientific progress. Furthermore, STEM is undertaking speculative and science fiction by all means. The world created in such fiction speaks akin to the futurist thinkers. Although both fiction and theory envisage the future in different patterns of fictionality and factuality respectively, they follow similar purposes. Kim Selling, in an essay "Understanding Speculative Fiction: The Genre of Fantasy and Science Fiction," narrates speculative fiction as an umbrella term that categorizes the features of science fiction, dystopian fiction, apocalyptic or post-apocalyptic fiction. Tolkien defines the term speculative fiction as the kind of story writing in which the reader is made to believe in the created world within the text. It is fiction that does not necessarily introduce the intrusion of aliens but introduces "what could be true" (Tolkien qtd. in Selling 24).

Similarly, Margaret Atwood, in an interview with the newspaper "The Guardian" says, "science fiction means rockets, spaceships, talking squids in space, time machines, monsters, Martians, chemicals while speculative fiction means to narrate that actually could happen" (Atwood qtd. in Selling 23). It means that she dwells on writing fiction that is based on the probable future. Hence, we can state that speculative fiction written by Atwood is based on postulations about the events to come. The significance of my study lies in finding the interplay among techno-scientific researches, speculative fiction, and the theory of exponential developments by futurist-humanist, Gerd Leonhard. It emphasizes the continuation of human stability alongside digital and technical advancements. I propose that we are facing a decisive moment where techno-scientific advancements might not only

[5] Hellven is a portmanteau for hell and heaven. See my theoretical framework in chapter 3 of my dissertation. Also see Chapter 12 "Decision Time" in Leonhard's book *Technology vs Humanity: The Coming Clash between Man and Machine* (Amazon UK, 2016).

augmentationally and generatively escalate but will also become unavoidable. Hence, it is significant that we begin to prepare ourselves against the inchoate challenges of emerging developments in the fields of information technology, biotechnology, and biochemistry. It would be instructive to explain that my argument is not favouring anthropocentrism only because, in that case, the beneficial role of scientific progress would be grounded. Therefore, this futurist-humanist study is geared towards upholding the centrality of human agency and beneficial techno-scientific advancements at the same time. On the strength of this argument, it may be said that this investigation is not focusing purely on biocentrism either, though I have engaged with the question of environment and human agency in my analysis.

## 1.1 Situating *The Maddaddam Trilogy* within Futurist-Humanist Literary Tradition

In this part of the introduction, I attempt to situate *MAT* within the futurist-humanist tradition. I deal with both science fiction and speculative fiction foreboding the future of planet Earth. In this fiction, the writers base their works mainly on the particular aspects of scientific and technological advancements while the characters deal with the marked consequences. The focus of my study is not posthumanism based on the prospect of celebrating and undertaking change in the world and its inhabitants. I bring to light the dystopian works, in science and speculative fiction, that create a cringe within the readers. They usher a sense of accountability that must be created when readers read the texts through futurist-humanist thought.

*The Blazing World* by Margaret Cavendish is the first science fiction novel published in 1666 and it also can be studied as a futurist critique. *The Blazing World* is the body of scientific ideas of the past that were born after the birth of the Royal Society of London. The protagonist keeps natural and scientific theories as the center of her attention. The text is filled up with scientific inventions which were in their infancy or merely thought of during those days. There are clear references to the use of microscopes, telescopes, submarines, and human-animal hybrid creatures. However, historically when the novel was published, no proper engine-powered boats and strong metallic submarines had ever been prototyped, until 1690 which dates after the publication of this novel. In her non-fiction work, *Observation Upon Experimental Philosophy*, Cavendish also shows a belief in organicist materialism i.e,

modern science, unlike naturalism and spiritualism. Hence, the writer is a futurist thinker because she believes in the magic of science.

*Frankenstein* (1818) by Mary Shelley is another science fiction text which brings forth awful events caused by the scientific activity of Victor, the protagonist, and the scientist. He dreams of leading scientific advances by doing weird experimentation of creating living human beings from the dead. His experiment goes successfully but the creation turns into an exceptionally monstrous object of awe. Victor, himself is not brave enough to accept the wrath of his created individual and shows deep regret. The book pilots the question of humanity and what one is supposed to expect from it. It also tricks the mind to re-access his doings in life. Hence, *Frankenstein* postulates the humanist thought that human beings must be watchful with what they desire.

*1984* by George Orwell is a science fiction written in 1949. Life in the setting of Oceania is widely monitored by technology. Everything is under the surveillance of telescreens, monitors, microscopes, and cameras. The record machines are changing the records by documenting new but false history alongside the elimination of past facts. Technology swallows all the natural flow of life. Hyperreality engulfs the state by algorithmic human entities. They are void of everything that makes them human. The same technology that can be used for good is handed down with vile purposes. Thus the futurist picture of the future is not palpable in the mentioned text. Nowadays, people are also on record in our world. They do not anticipate the use of technology to record their life routines and willingly share everything they have to show off. They are sharing their data recklessly. This is why futurist humanists, like Gerd Leonhard, are afraid of such facts and warn people to be wary of the ultimate slavery of AI.

Similarly, *Eyes of Darkness*, a 1981 text by Dean Koontz speculates the spread of viral infection by the conspiracy of a Chinese scientist. Coincidentally, the character Dombey describes the spread of a viral infection that is suspected to spread from Wuhan city of China and later taken to the United States. The virus in the text is named Wuhan-400. The details of the killer virus as described in the text make an uncanny comparison to the actual spread of Covid-19. This is why it gained huge attention during the days of the pandemic spread in 2019. Although such literary works with their fictionally crafted plots could not necessarily be connected to the

Prophetic, Theban, Biblical, or Quranic predictions, the attention they seek by their specific auguries is amazing. Hence, *Eyes of Darkness* also proclaims futurist-humanist warnings. Although the credibility of the prophetic notes in speculative fiction is questioned, in the recent past, some of such literary texts have surprised readers during the pandemic Covid-19. Similarly, the late American Psychic writer Sylvia Brown, in her non-fictional work *End of Days: Predictions and Prophecies about the End of the World* (2008), foretells the spread of the pandemic in 2020 leading to Doomsday. She writes:

> In around 2020, a severe pneumonia-like illness will spread throughout the globe, attacking the lungs and the bronchial tubes and resisting all known treatments. Almost more baffling than the illness itself will be the fact that it will suddenly vanish as quickly as it arrived, attack again ten years later, and then disappear completely. (Brown and Harrison 172)

Although this prediction was not proven completely true, it has also surprised the literature readers for its closeness to the actual events of Covid-19.

It is here where I can situate Atwood's *MAT*. Margaret Atwood is one of the most visible contemporary Canadian authors whose works are greatly admired by academia. She was born and bred in scientific surroundings that intensely heightened her interest in whatever changes were and are happening in the environment. For her being a writer, the notion of being free from authorial accountability is very fetching, while in contrast, she also finds herself bound to answerability. In an interview published in a journal article, she openly confesses the blending of realism in her speculative and fictitious books (Tolan 455, my paraphrase). She also admits that her fiction is speculative fiction and "speculative fiction encompasses that which we could actually do" (Thill qtd in. Gonzalez 18).

Some of Atwood's works that fall into the genre of speculative fiction include, *Cat's Eye* written in 1989, *The Blind Assassin* written in 2000, *The MaddAddam Trilogy* written between 2003 and 2013, *The Penelopiad* written in 2005 and *The Tent* written in 2006. In addition, she has also penned a book of essays called *In Other Worlds: SF and Human Imagination* written in 2011 (Gonzalez 18, my paraphrase).

In an interview, Atwood also adds that if she writes about the future then that implies her faith that there will be a future. Hence, I can imply that a similar faith sustains the survivors from post-apocalyptic damage. Similarly, as Fiona Tolan says about Atwood, "[i]f anything, Atwood in the twenty-first century has become more visibly engaged in the contemporary moment of creative inventions: it is its global contexts, its anxieties, and its possibilities" (Tolan 455). She is a believer in the magical inventions that happen in the scientific world. However, I can confidently state that her books preach developing an ethical code for living in the present world predominated by science or technology. As in an interview with The Guardian newspaper compiled by Fiona Tolan, Atwood also suggests, "So we should first examine our drives and desires. Science and technology are tools. We can use them to better our condition and the planet's condition, or we can use them to destroy" (Tolan 459).

Atwood wants human beings to show a safe shift in their behaviours. Similarly, *MAT* is not just a narrative of survivors. It also deals with the issues which are under discussion in my dissertation, i.e., exponential strides in scientific advancements that have already happened or are possible to take place and the consequences that the planet and its inhabitants might have to face. From the futurist-humanist point of view, my study extends to how *MAT* underlines the guidelines for the safe survival of the planet.

The strength of Margaret Atwood's speculative fiction is quite intense. It investigates the effects of scientific progression in detail. It focuses a lot on the harms of the inappropriate use of technology alongside the future of Homo-Sapiens (human beings) who are threatened. My study also rationalizes where humanity fails! The critical assessment of the texts marks the fact that we should not make light of what is said in the fictional texts. In her trilogy *MAT* comprising *Oryx and Crake*[6] (2003), *The Year of Flood*[7] (2009), and *MaddAddam*[8] (2013), she writes about the struggle for survival, scientific innovations, and an exploration of the end of this world. The trilogy is marked with the picture of a dystopian future leading to the end of humanity except a few people. However, I highlight the fact that this dystopian prediction of the

[6] Henceforth I will use *OC* for *Oryx and Crake* across my dissertation for all citations.
[7] Henceforth I will use *TYF* for *The Year of Flood* across my dissertation for all citations.
[8] Henceforth I will use *MA* for *MaddAddam* across my dissertation for all citations.

end of humanity is not celebrated in *MAT*. It is regretted by the survivors and it raises a sense of responsibility amongst the readers as well.

The first two parts of *MAT* do not function as a prequel or a sequel to each other. *OC* and *TYF* happen in the backdrop of a similar pandemic event that sweeps the human race by the outspread of the contagious virus. Both parts happen simultaneously dealing with the lives of the different characters.

In *OC,* Snowman is seen as the last surviving human being who is living with another human-made creature similar to human beings. Everything in the setting seems destroyed and Snowman is seen trying to survive in the ruins. The narrative flashes backward and forward and Snowman keeps remembering life in the past in flashbacks. Life in those days appears as the heyday of techno-scientific inventions. Everything seems automated. The inventions of the text in the genetic engineering and pharmaceutical industry have reached a point beyond their existing modes nowadays. Digital technology is presented in its present form with both advantages and disadvantages. The flashbacks of Snowman's memory introduce his childhood friend, Crake, who is a moderator of scientific inventions and causes the dehumanization of the human species by creating the Crakers and JUVE virus. His projects suggest his wayward desire for control. Ironically, in the end, he fails to save himself as well. My futurist-humanist study does not approve "proactionary" style of living as depicted by scientists and researchers from Compounds (Leonhard 69).

*TYF* is the story of another part of the world called Gardens. It pictures what was happening in Gardens from *TYF* during the times of unruly experimentation in Compounds from *OC*. The plot is narrated from the viewpoints of Toby and Ren. Like *OC,* the story also keeps moving between past and present events. It shows how Gardeners try to save themselves from the pitfalls of unreined advancements. It also reveals that Gardeners once also belonged to Compounds but they predicted the "waterless flood" and left Compounds with the intention to save humanity (*TYF* 35). However, they are also not morally and ethically justified in their defence against the anticipated hazards. They dehumanize human beings by sedating their curiosity and creativity as well. Their life is deprived of even harmless human-made products. In the end, ironically none of the precautions work and the circumspect Gardeners also happen to be powerless to the ruins spread by Crake's conspiracy. My futurist-

humanist study also does not authorize “precautionary” style of living as depicted by Gardeners (Leonhard 161).

*MA* is the third text in *MAT*. It brings forth the story of the union of the survivors from the first two parts of the trilogy and their post-apocalyptic lives. As the virus was created for human beings, the population appears to be swept by the spread of a viral infection leaving behind only a few human survivors alongside many nonhuman entities. This narration is described from the perspective of Toby, Snowman, and a Craker. The text shows that the survivors are trying to deal with circumstances in survival mode. The text indicates the dangers of genetically made animals. The conversations of survivors are a reflection of stress, regret, and hope. The text becomes an indication of how uncurbed inventions can mar human centrality and lead to dehumanization. However, the novelist tries to track down a way of survival for the survivors in this part of the trilogy when they take charge of breeding the human species anew. My futurist-humanist study of the text solemnizes how Hellven can transmute into Hell. It gives a warning against the heedless attitude in fields of research.

The overview of *OC, TYF,* and *MA* shows that the texts can be studied from the perspective of futurist-humanist critique because it indicates the escalation of scientific research projects which are in their infancy at present. It also poses the consequences revamped by the lawless use of scientific activities on the human subject and its dangers. Although the credulity of fictional pieces can be questioned, we must not ignore their pronouncements. The purpose of my research is not to play down all of the ongoing scientific activities in the world. My disclaimer is that I am writing against only those workings of science that aim to belittle human centrality and supremacy. Thus human beings as researchers, especially in STEM (science, technology, engineering, and mathematics), need to check their designs and motives behind their experimentation. An aspiration for human enhancement should bring benefit for all. The selected texts of Atwood and the theorizing of Gerd Leonhard serve the purpose of my study.

## 1.2 Delimitation

The focus of this research project is delimited to Margaret Atwood’s *MAT* from the perspective of Gerd Leonhard's theory of great digital transformation with a

special focus on STEM, proactive society, precautionary society, algorithms, androrithms, and Hellven. The rationale for delimitating the research to *MAT* lies in extracting its futurist-humanist concerns by the invocation of Leonhard'd postulation.

## 1.3 Thesis Statement

Margaret Atwood's MAT explorably engages with the possibility of balance between the techno-scientific advancements (as an imbalance may lead to a catastrophe) and the human efforts to survive and maintain their centrality in the world. The selected speculative fiction exhibits the after-effects of exponential technological and scientific furtherance, and suggests human efforts to survive and maintain themselves as dominant agents of this world. Gerd Leonhard's theorizing on 'algorithms,' 'androrithms,' and 'Hellven' supports a necessity of the futurist-humanist balance in the world.

## 1.4 Research Question(s)

Q1. What are the principal concerns of the selected speculative fiction regarding the future, safety, and survival of humanity?

Q2. How does Margaret Atwood negotiate the scientific developments and technological advancements in *The MaddAddam Trilogy*?

Q3. How has Margaret Atwood engaged with the prospective dangers towards the mutualism of humankind and the environment in her selected texts?

## 1.5 Research Plan

The dissertation is divided into the following seven chapters:

The first chapter introduces the futurist-humanist study. It renders how the ideals of futurist-humanist thinkers differ from posthuman thought. It gives an overview of Leonhard's theorization. In addition, it briefly provides how STEM is inculcated in speculative fiction. In the next half of the chapter, I chronicle and situate *MAT* within the futurist-humanist literary tradition. It also gives a disclaimer that I am not writing against favourable fields of STEM.

In the second chapter of my research titled "Literature Review," I situate *MAT* within the critical scholarship available in my field of study. I have surveyed the available critical sources to look for the gaps found within the established body of

critical scholarship. In the third chapter of my research, I have put down the theoretical postulates of Gerd Leonhard's book, *Technology vs Humanity: The Coming Clash between Man and Machine*. It also deals with my research methodology which includes the rationale for choosing textual analysis as the method of my study.

In the fourth chapter titled "*Oryx and Crake*: A threshold to Metamorphosis," I have sorted out *OC* through the lens of proactionary society and algorithms. I have also weighed the probability of Atwood's imagination by augmenting Leonhard's theorization about the scientific investigations happening in our world. In the fifth chapter named "*The Year of the Flood*: A Gateway to Precautionary Prudence," I have brought forward the ideals of preventative society established by Gardeners and their androrithmic attributes. It discusses how Gardeners are always in pain to save the planet from damage. It also specifies their fallibilities. In the sixth chapter named "*MaddAddam*: From Progression to regression," I have brought into debate how human beings are responsible for their unreined inklings. If they are not handled with care, the centrality of human beings will be lost. In this chapter, I have also studied the idea of Hellven in relation to *MAT*. Additionally, I have discussed the literary nature of *MAT* by bringing out its narrative structures and narrative devices.

In the seventh chapter titled "Conclusion," I have assembled my findings and summarized the developed rationalization from previous chapters of analysis. I declare how the various reasons that I have gathered help me to prove my dissertation.

## 1.6 Significance of Study

The significance of my study exists in the fact that *MAT* has not been previously studied from the perspective of the futurist-humanist thought. Although it has garnered the interest of research scholars from various angles, the text needs to be read from the perspective of exponential developments and their anticipated consequences. It explores the interest of self-centered researchers who lose their humanness and appear to be programmed by their boundless aspirations.

The research project has captured my interest because of the recent modern world apocalypse in the form of Covid-19 dispersal. The first two parts of the trilogy, *OC* and *TYF*, limn the spread of a virus causing a massive and catastrophic death of the whole nation. It is similar to the rise of Covid-19 cases initiated on 8$^{th}$ December

2019 in Wuhan, China. Hence, the closure of world trade centers and the death of millions of people around the globe stretch my attention toward the analogy between the first two texts of *MAT,* and the Covid-19 pandemic event. The third text, *MA,* adds to the significance of the study because it is studied from the perspective of futurist-humanist forewarnings.

The significance of my study also resides in the fact that it deals with the connection between scientific knowledge in our world, speculative fiction in literature, and the futurist humanist theorization of Gerd Leonhard. It communicates the implications of what is happening in our scientific and technological world and how it can affect the stability of human position in the world.

*MAT* was completed in 2013. Six years later the pandemic event of Covid-19 happened which turned fictional dystopia into an everyday reality for the whole world. Hence, the significance of my study lies in tracing a prognosis about our world in today's speculative fiction. I have already discussed in the introductory section of my dissertation that speculative fiction is the broad term that covers the features of science fiction (Tolkien qtd in Selling 24). Hence, my study implies that "Science fiction is becoming science fact" (Leonhard 10). As it is also suggested by Atwood that speculative fiction packed with scientific advancements brings to light real-life happenings (Atwood qtd in Seling 23). Therefore, fictional writings better not be trivialized. My study maintains what should be done rather than what can be done from the perspective of futurist-humanist thought. In the next chapter, I review the existing critical scholarship which is directly related to my study because of certain crucial gaps left in it.

# CHAPTER 2

# LITERATURE REVIEW

## 2.1 Introduction

The purpose of this section is to situate my research within available critical scholarship in my area of study. The second aim of this study is to find the gaps in the already existing critical works. The literature review in this section ranges from the field of futurology in general to the already done diverse study of Margaret Atwood's *MAT*. Although *MAT* has been studied from various perspectives yet there exists a gap in finding its futurist-humanist aspects.

The purpose of my research lies in studying the interactivity of the future of the scientific world and the safe survival of human beings. For the sake of lucidity, I have divided the literature review into three parts so that I can proceed with my research coherently. I review the existing research works thematically, not chronologically. I have used different sources that fall into the categories of articles, book chapters, and essays. My thematic division falls under the following categories:

- Critical sources on science fiction
- Scholarship on climate fiction
- Critiques of Posthumanism

## 2.2 Critical sources on science fiction

Zia Uddin Sardar's essay, "The Namesake: Futures; futures studies; futurology; futuristic; foresight—What's in a name?" suggests the etymological significance of the term futurology. He also discusses the origin of the branch of knowledge in future studies as a fifty-year-old field of learning. He calls the scholars and learners of this field of study "futurists, futurologists, perspectivists, foresight practitioners, even horizon scanners" (Sardar 178). He believes that futurists put their firm belief in innovations and the changing world. Such practitioners study the future concerning the past and the present. The focus of this study lies in guessing what may be the new shape and form of the world after analyzing the ongoing activities in various fields, especially science. However, the knowledge gained and distributed through this field is not confirmed but it is based on the manipulation of common

sense. Quoting Jim Dator, Sardar declares, “The future cannot be ‘predicted’ but alternative futures can be ‘forecast’ and preferred futures ‘envisioned’ and ‘invented’ continuously” (Dator qtd. in Sardar 178). The study of the future is myopia which is built on the foundations of logical assumptions rather than the empirical processes of discovery. The Canadian Association for Future Studies (CAFS) recommends that futurism must be based on foresight. In that case, this branch of study does not only highlight the problems but also recommends ‘what should be done,’ to avoid the forthcoming dangers. Hence, future studies can be brought to use for improving the quality of life. The article is based on the general reading of the future as the field of knowledge. It does not discuss how fiction writers are also playing their part in thinking about the days to come. Hence, through my study, I intend to fill this gap by reading *MAT* via Gerd Leonhard’s theory of exponential developments and anticipation of the human future.

D. Lashua’s article “*The Time Machine*: Leisure Science (Fiction) and Futurology” relates the future prohibitions of the text *The Time Machine* written by H.G. Wells to future studies. Following the principle of futurology, the writer might have unknowingly also built the knowledge of keeping in focus the probable future inventions. Lashua calls H.G Wells the professor of foresight because he bears the prescience of things to be invented in future times. Similarly, the text is categorized as Leisure Science fiction because it credits scientific advancements as a source of human comfort and pleasure. The researcher remarks, “there were no shops, no workshops, no sign of importations among them. They spent all of their time playing gently, bathing in the river, making love in a half-playful fashion, eating fruit, and sleeping. I could not see how things were kept going” (D. Lashua 91). The article provides an optimistic outlook on the text *The Time Machine* by the use of principles of futurism. It indicates a utopian picture of the world against the backdrop of scientific advancements. It displays how science can induce and bestow favors on humanity if done rightly. Hence, this article written on H.G Well’s *The Time Machine* paves the way for my research because it displays that there is no harm in scientific advancements if done for human betterment. The article does not deal with uncurbed scientific activities and therefore it creates a disparity in the existing field of critical knowledge. My research fills out this gap. It is not antithetical to human ameliorations

but it serves to explain human boundaries. It points out that if a fiction writer can think perversely, what can stop a scientist from dreaming the same?

Jay Sanderson's article "Pigoons, Rakunks, and Crakers: Margaret Atwood's *Oryx and Crake* and Genetically Engineered Animals in a Hybrid World" only brings to focus the creatures that are a mixture of two categories of animals that are not new in the twenty-first century and this is why there is a large number of such hybrid animals in the text. Hence, these animals in the text are fictional but the concept behind their making is not fictional. Pigoons, Rakunks, Wolvogs, and Crakers are genetically engineered animals that share the characteristics of pigs and humans, raccoons and skunks, dogs and wolves, and lastly a genetically mutated group of people with only wanted virtues. The article implies a theory of Latour about hybridity for the study of genetically engineered animals. Furthermore, it discusses how biotechnological companies gain power over others through projects. It is their endless greed for the rule that keeps them ignited toward such scientific innovations and projections. Hence, the extreme likelihood of the influence makes them radicalized against their fellow human beings and they do not think about the safety of others but only for their own.

Sanderson quotes Cooper in the article, "Going beyond natural limits is achieved through the promise of future economical and biological achievements. It means biological life is made to do more than what is 'naturally' feasible. As a consequence, an excess of biological life (such as new immunity devices, self-assembly artificial life forms, and embryonic stem cell lines) is created and a price is paid" (Cooper qtd. in Sanderson 222). Ultimately, for Cooper, this leads to the devaluation of human beings. The article brings forth the capacity of human beings for exploiting their natural environment by the desired addition of unnatural, mechanical, technological, scientific, and genetically engineered entities. It is beneficial for my research because it displays the motives of human beings behind whatever they do to rule the world. However, the article lacks in displaying the outcomes and probable solutions that human beings might have to face and follow as a result of their unbridled desire for scientific and technological power. My study seeks to cover this gap with a possible prescription for the future safety of the planet and the preservation of human centrality.

Katherine V. Snyder's article "'Time to go': The Post-apocalyptic and the Post-Traumatic in Margaret Atwood's *Oryx and Crake*" states the connection between speculative fiction and the traumatic experiences of the characters. The article discusses how time quantifies the events of the world. The protagonist of the novel has lost his sense of time when he finds his watch has stopped. He is spilt between his past and present which was once a future. However, with many journeys back into his days of the past, he takes us to the times that he has experienced. Snyder also quantifies trauma by saying that it comprises two distinct moments in life; one in the present and the other in the past. This junction of the times causes traumatic experiences to happen. This happens with Snowman, Jimmy. The memories of Snowman remind him of the pre-catastrophic times when he was not in the vortex of despair like his present days.

The readers find that the post-apocalyptic time of the protagonist's life in the text is parallel to the post-traumatic time of his life. His life ahead (future life) seems undecided. Hence, his announcement of "time to go" at the end of the text defines him as the captain of the boat of his life and his healing (Snyder 477-489). He is hopeless but thinks to leap for himself in a divided state of mind. The article favors my study because it deals with the psychological state of the people who become victims of any catastrophe. Trauma is not easy to deal with and it requires a great amount of mental courage while reckoning with it. The research leaves the readers to question whether healing and dealing with such a catastrophe would be easy to cope with. The research poses the thoughtful notion to stop and think about the outcomes of such 'could-be real-life' (my phrase) incident and its forbearers. My research fills this gap.

Marinette Grimbeek's article "Wholesale Apocalypse: Brand names in Margaret Atwood's *Oryx and Crake*" sets about a foundational critical analysis of the first novel. It is the discerning work of research that explicates the identification of various scientifically engineered creatures and their names in the selected text of Margaret Atwood. It subtly broods over various brand names in the novel which play a role in commodification, commercialization, consumerism, environmental disruption, and human corruption. Many humanoid characters (Crakers) are named after renowned historical figures like Abraham Lincoln, Madam Curie, and others. Similarly, the names of various activities are based on extinct species. In *OC*, the name Maddaddam plays the role of meta-textual importance. It is because later in

2013, Atwood published another eponymous novel that intertextualizes a similar character as the main figure of the plot. Many other names are the "doublethink," because they propagate dual and contradictory beliefs. The wrong attitudes and vices of the people from the pre-catastrophic earth are also revealed in the "websites visited by the characters" (Grimbeek 88-98).

The study mainly focuses on the names, namesakes, and naming styles and conventions in the first text of the trilogy. The author tries to build the relationship between scientifically transformed individuals and their human creators. It is limited to the first part of the trilogy and the rest of the two texts need deep scrutiny as well. However, it is helpful in my study because it develops the foundation of knowledge about different animal species i.e., who is who? Also, it leaves room for further scrutiny of the texts and the possibility of what is anticipated. This is where my study intervenes.

Slawomir Koziol's article "Crake's aesthetic: Genetically modified humans as a form of art in Margaret Atwood's *Oryx and Crake*" locates contrastive ideas of aesthetics in the man-made bio-engineered creatures in the text. The focus of the article is on the notion that genetically engineered Crakers should not be looked down on as a menacing sign of biotechnology. They must be appreciated as a piece of perfect art. These hybrids which are created in the text, *OC,* should be envisioned with as much importance as we give to ourselves as an independent creation. Similarly, the perfection of art must be located in the perfection of the artist and his talent. Crake in particular has designed Crakers because of his deformed beliefs in the Psycho-politico-socio-Economic aspects of life. He becomes the emblem of all those multinational corporations which have the "ambition of totality," for gaining full-fledge subordination of the creation.

The writer states the work of Anne Carson titled *The Beauty of Husband*, to prove the point of view. The claim is made that most of the time a creation is accepted because of its beauty rather than the moral standards. The article presents that Crake being the demi-god of bio-engineered creatures makes both the torso and the soul of Crakers in a beautiful form. The Crakers are made as the perfect specimen of art who are deprived of all unwanted instincts of flesh and blood. Hence, Crake's aestheticism speaks and works in support of art in complete form rather than an incomplete form

(Kozioł 2-15, my paraphrase). This article leaves the readers to wonder whether human beings should compromise themselves for their self-created sense of aesthetics. It creates a gap in whether the standard of physical and spiritual goodness and perfection set by Crake is universally accepted or not. My research fills this gap and explains whether compromising humanity for technological satiation is worth it. It explains how humanity must be preserved and it should not be sold out whatever the cost may be. This article contextualizes my research because it renders a contrastive idea to my study.

Valentina Adami's article "Between Bioethics and Literature: Representations of (post-) human identities in Margaret Atwood's *Oryx and Crake* and *The Year of The Flood*" is written with a special focus on the first two parts of *MAT*. It gives the connection between humanities and science as subjects. The concern of the researcher is to prove the role of literature in defining what it means to be human. The article discusses both works separately and gives an analysis of how human beings become the source of destructing their surroundings (environment). The article anchors at the focal point that both human beings and their environment are daggers drawn. Bioethical studies may serve to bring peace between them both. However, the article also presents a critique of Margaret Atwood's ideals of bio-engineering (Adami 249-261, my paraphrase).

In the same article, Grimbeek quotes geneticist Anthony Griffiths who has criticized Atwood's representation of genetic engineering because, according to him, "it not only harms the perception of the respectable science of genetics but also distracts readers from other, far more pressing and important scientific issues" (Griffith qtd. In Adami 249-261). In his 2004 article "Genetics according to *Oryx and Crake*," Griffiths argues that "Atwood seems to have formed her views of genetics only from her reading of the popular media," without consulting any "expert sources" such as geneticists or genetics journals. For him, this is "an unreliable way of doing research" which "has predictably, resulted in problems" (Griffiths qtd. in Adami 256). Accordingly, these investigations into literature, ecology, and bioethics pave the way for my project by creating a gap because the present body of available research studies takes sides. It either completely forces us to follow science and forget humanities or vice versa. My study fixes these gaps because it is based on the parallel significance of both areas and finding the balance.

The book *Biopunk Dystopia: Genetic Engineering, Society and Science Fiction* by Lars Schmeink comprises a chapter "The Anthropocene, the Posthuman, and the Animal" specifically detailing the relationship of Anthropocene and posthumanism in Margret Atwood's trilogy under discussion. The book categorizes our primary text into the sub-category of science fiction called "biopunk," "biological science fiction," and "dystopian literature" (Schmeink 71). The writer means to focus on the implications of biotechnology in the text. It argues how posthumanism is the global concept enrooting the world through the use of technology. The writer declares the study to be completely post-human. The chapter also compares Margaret Atwood with another science fiction writer Paolo Bacigalupi. Both writers in their works deal with the narration of pervasive Capitalism, Consumer fetishism, environmental disruptions, and finally the creation of posthumans. It also brings forward 'nine scientific human stops'[9] as suggested by Crispin Tickell. According to Schmeink humanity can survive if these nine stops are respected. Since these stops are avoided in *MAT* and *The Windup Girl*, thus a menacing end is seen (Schmeink 76, my paraphrase). However, the stops are not discussed in detail. The chapter also relates the interconnectedness of the different species and the transference of human beings to their animalistic instincts. The study aligns with my study because it underscores the anthropocentric form of living on the planet from another theoretical framework that dismisses the progression and this gap is to be filled by my research project using a completely different lens. My study does not stipulate that scientific research should come to a halt. It serves to fill this breach that exists in the present body of critical works.

## 2.3 Scholarship on climate fiction

Adeline John Putra's article "Climate change in literature and literary studies: From cli-fi, climate change theater, and eco-poetry to ecocriticism and climate change Criticism" talks through climate fiction as a new genre of literature with climate change as a widely ventilated theme. The article names scores of novels, dramas, and

[9] Crispin Tickell has suggested a theorization based on nine postulates of maintaining moral boundaries for the safe maintenance of world and its systems. For details see, chapter "The Anthropocene, the Posthuman, and the Animal" from *Biopunk Dystopia: Genetic Engineering, Society and Science Fiction* by Lars Schmeink. Also refer to article "A Safe Operating Space for Humanity" by John Rockstrom et.al in weekly scientific journal *Nature* vol, 461 (2009), pp. 472-475.

poetic pieces that maintain their dealing with climate change in the world as a futuristic aspect. As Putra states:

> In such novels, climate change is depicted not just as an internal or psychological problem but for its external effects, often as part of an overall collapse including technological over-reliance, economic instability, and increased social division. This is not to say that such novels fail to deal with climate change's psychological or political ramifications but to show that they emphasize its physical dramas over its emotional or mental ones. Often, then, the difficulty of survival becomes a dominant theme. (269)

She pronounces Atwood as the noteworthy artist working in this area. However, all the genres deal with climate change as a contemporary challenge. All the literary artists including Atwood, lament in a satiric tone over the widely expanding global changes with negative implications. After Ecocriticism, cli-fiction has been given a proper place, scholarly societies like "Association for the Study of Literature and Environment (ASLE) in the United States, the Association for the Study of Literature and Environment in the UK and Ireland (ASLE-UKI), and the European Association for the Study of Literature, Culture, and Environment (EASLCE)" scrutinize climate change more deeply with both noticed and unnoticed problems (John-Putra 272, my paraphrase). All these genres and scholarly research institutions reconfigure a network of interconnected interests. Hence, the study of climate change as a critical theory stirs an anthropocentric interest among all the concerned parties. It reasons a relation between climate fiction and Ecocriticism to the research centers by declaring it a cultural phenomenon. The article gives a generic analysis of climate fiction and it lacks a particularly detailed examination of Atwood's works. My research plugs this structural gap by treating human beings as the subject. Dealing with human beings as the central subject and alarming the need for controlling activities is the cynosure of my study.

Caren Irr's article "Climate Fiction in English" brings forward Margaret Atwood alongside many other names like Paolo Bacigalupi, T. C. Boyle, Michael Crichton, Ian McEwan, Amitav Ghosh, Barbara Kingsolver, Ursula Le Guin, Lydia Millet, David Mitchell, Ruth Ozeki, Nathaniel Rich, Kim Stanley Robinson, Leslie Marmon Silko, and Marcel Theroux, who have significantly contributed to the climate

fiction. The researcher puts forward a broad picture of dysfunctional lifestyles and life systems in the genre of climate fiction. The life of the characters is wrapped by crucial situations and deteriorating changes. The article also draws a boundary between the destructions on the planet brought by capitalocene versus global capitalism. However, the fiction drawn from both genres radiates human guilt for the irreversible damage that they bring to the world. The article sweeps a difference between science and climate fiction. Science fiction centers the attention on the extrapolation of science and recreation of the present. On the other hand, climate fiction relates to already changing times by the horrendous catastrophe. It forces the creatures to adapt (Irr 7, my paraphrase).

The substance of the revelation in cli-fi is not that our progressive liberal civilization is doomed by a transition. It describes the transition that we have yet to experience but ought to anticipate. Consequently, quoting Aravamudan, Irr suggests,

> Cli-fi reveals a complex preoccupation with posthuman modifications to the body. Here again, the genre draws on sci-fi fascination with cyborgs, robotics, and technological extensions of the biological body. There is also some, though not much, interest in cli-fi in digital systems of ultra-rapid "cyberpunk" communication. These mainly manifest in the figure of the human with alterations to the genetic code, a figure imagined—at least by Atwood and Bacigalupi—as a potential survivor of the social collapse triggered by climate change. (9)

Like Adeline Putra's article, Caren Irr's study also brings forth a general analysis of climate fiction. However, this article regulates a friendly collaboration of climate change and posthumanism. There is no prime disinterest in both climate change and lifestyle change. The article fails to mark the disregard for humanistic aspects of life. Viewing this gap in the study, I plan to bridge this void by forging a favorable place for human and non-human entities in *MAT*.

Hannes Bargthaller's article, "Housebreaking the Human Animal: Humanism and the Problem of Sustainability in Margaret Atwood's *Oryx and Crake* (2003) and *The Year of the Flood* (2009)" forms a close connection to my project. The article discusses improving human conditions. The interest of the research lies in the global Oikos and Nemos. Both terms refer to family and its management, respectively.

Bargthaller is concerned about the continuity of human life on the planet. The study also shows that humanities (social sciences) can play a role in the scrutiny of natural sciences. Hence, the article safeguards humanities (literature) against the traditional conception. The article also linchpins the relationship of sustainability of human beings by the building of a symbiotic relationship with the environment. It confirms when the global equilibrium is disturbed, radical disarray happens (Bergthaller 728-743, my paraphrase). The article builds a way for the safety of humanity by the protection of the environment. It proposes the idea that the humanities should be favored over the sciences. However, the gap lies in the disapproval of sciences as a field of knowledge. My research work fills up this gap by favoring beneficial research of science alongside the humanities. It lights up the significance of both fields of knowledge instead of declining one of them.

The book chapter titled, "Collapse, resilience, stability, and sustainability in Margaret Atwood's *The MaddAddam Trilogy"* by Dana Philips reasons all the fore-mentioned concepts as central to speculative fiction. Like all the fiction of this genre, Philips unsheathes these concepts from *MAT* by Atwood. The chapter details collapse as, "the breakdown of natural and central processes of the world," sustainability as, the "alternative of the failed system," stability as, "the system that tends to be steady," and resilience as, "a midway process between collapse and sustainability" (Philips 139-143). Environmentalists believe that collapse can be countervailed by the pliability and stability of the environment. The management of the system; ecological resilience, after it is damaged (collapsed), is difficult to maintain. According to the writer, Atwood's *MAT* is also modeled by given paradigms. In addition, Philips also discusses the historicity of the present as an important element of speculative fiction. Treatment of the present as the past compels the attention of readers towards the present. They learn to keep a check on their present-day pursuits. Such texts bring the investigation from the pro-retrospective to prospective courses. *MAT* depicts ecological failure rather than a complete collapse pictured by climate change and then a warning for sustainability followed by adaptability. The chapter levels the way for my study because it explains how the collapse in the system is challenging the stability and sustainability of the planet. The chapter does not provide any possible way for safety and, thus, it gives my investigation a chance for fixing the gaps in the previous body of scholarly knowledge.

The book chapter “Fiction” from the book *Anthropocene Unseen: A Lexicon* by Anindita Banerjee draws a relationship between “science fiction” and “cognitive estrangement.” Practically, dystopian literature leads to anthropocentric scrutiny of the world and what is to come. In contrast, utopian fiction impels the notion of “everything is well” without developing a hint towards plausible damage to the maintenance of life in the real world. Banerjee quoting Gerald Vizenor exclaims that survival in the storytelling takes us towards the “future imperfect” and not exactly to the “everything perfect” (Gerald qtd. in Banerjee 188). It teaches the readers to adapt to any change no matter how damaging it is to the survival of human beings. Similarly, Banerjee does not entitle “fiction of Margaret Atwood as Climate change only but everything change leading to a future with no exit in it” (185). Hence, the text differs from my study because it also lays out the sacrifice of humanity before the prevailing change. However, my research means to challenge the validity and the spread of this word. It scrutinizes the prevailing change as a great loss because it costs human centrality.

## 2.4 Critiques of posthumanism

Shelley Boyd’s article “Ustopian Breakfasts: Margaret Atwood's MaddAddam” weighs up the adaptability of the world towards invading change. The article especially keeps an emphasis on The Handmaid’s Tale and the third novel of MAT. The article also introduces the concept of the unison of utopia and dystopia as given by Atwood. She terms it “ustopia” (Boyd 161). She includes the viewpoint of Atwood which says, both utopia and dystopia are found concealed in one another if observed closely. Quoting Annette Giesecke and Naomi Jacobs, Boyd emphasizes, “the latter is utopian because the links between gardening and utopian dreaming are ancient and deep” (Gieseck and Jacobs qtd. in Boyd 169). The third text MA allies the survivors from both dystopian and utopian worlds. It studies how the change in breakfast and eating habits explore an acceptance of the change and therefore, this change becomes a sign of hope for the researcher. For her, the reception of alternative post-apocalyptic breakfasts as compared to the normal pre-apocalyptic times is an indication of the ability to adjust oneself to a “new possibility” that is still to happen (Boyd 162). However, hope and new possibility seem to invite everyone into the post-human lifestyle.

Boyd's interest lies in auditing the food narratives. For her, breakfasts and foods disclose the transformative processes of the world. The breakfasts containing eggs become the rendition of reproduction and sustainability of life. The eggs in both texts serve both purposes. However, later their scarcity and replacement alarms all. The Kudzu vines in *MA* that Crackers consume; grow and spread like a pandemic that happens in the text. They signal the swap of time and circumstances that might happen in the post-human future. Hence, although the food transformation in *MAT* declares the disrupting change yet hoping against the hope, she offers the readers to be cautious in building their futures so they could save themselves the good present times and their means of consumption. Like all the other works of research, this article supplies an announcement of the arrival of post-human times. It provides plausibility to my project because its complete inclination remains towards food, consumption, and its way of production. Boyd sees the acceptance of posthuman life as normality. However, when I look into the texts, several instances reflect a clear rejection and regret of the characters for post-apocalyptic and posthuman life. My research is likely to fill up this gap to support my idea of futurist humanist critique.

Eduardo Marks de Marques' article "Children of Oryx, Children of Crake, Children of Men: Redefining the Post/Transhuman in Margaret Atwood's 'ustopian' *MaddAddam Trilogy*" defines the posthuman and transhuman thoughts in the texts of Atwood. As a common perception both the post/transhuman thoughts are meant to bring improvements and trounce the weaknesses in the lives of human beings. Both thoughts; posthumanism and transhumanism gain remarkable weightage and consideration yet they have been quite discomforting for people since the 1990s. Similarly, according to Marques, the trilogy shows the transgressive modes of the dystopian world containing transhumanist and posthumanist attitudes as the center. Both posthumanism and transhumanism are considered to work for the glorification of the status of the human world. It has the elements of cultural, social, and political thoughts spread all around the world. *MAT is* working ironically opposite to expectations. There is the depopulation of the human species, the creation of humanoids, and finally the birth of human-humanoid hybrids. Crakers as humanoids are more like pre-humans rather than post-humans.

Quoting Francis Fukuyama, Marques defines posthumanism as, "the recommencement of history" (Fukuyama qtd. in Marques 145). As Crakers in their

prelapsarian innocence restart life on the planet and this life is not human but a hint towards posthuman life, it is a re-inception of human history and culture making it partially posthuman. The article expresses how in Atwood's predicted world all hopes dash into the ground after the up-and-running projects of science. Here lies the gap. It accepts the newly formed posthuman identities. This study does not deal with human beings as a subject. It does not talk about their improvement and how the centrality should be maintained. Hence, my dissertation fills up the leftover gap.

Eduardo Marks de Marques' article " 'God is a cluster of neurons': Neo-posthumanism, theocide, theogony and anti-myths of origin in Margaret Atwood's *Oryx and Crake*" debates about the intersection of transhumanism and posthumanism for the birth of dystopian fiction. It believes in the relation of the dystopian world and posthumanism to late capitalism and postmodern ideology. However, the fluidity of interests does not believe in satiation and always runs for a change which results in the formation of former new identities. Quoting Bryan S. Turner's "The Body and Society: Explorations in Social Theory," Marques identifies "human beings as a commodity in the era of modern capitalism which requires individuals to be upgraded like the objects of everyday use. The superiority of this life lies not only in wanting but extending the desire to reality" (Bryan qtd. in Marques 157). Therefore, Marks believes that dystopian trends bring the posthuman creatures in focus in contrast to the hegemony of politics and capitalism, unlike the rest of fiction. Marques also theorizes that human beings can imagine worlds that are higher or lower in scale than their factual world but they cannot likeably visualize existence in an intrinsically different yet better world from the present one. If they do, they bring themselves into conflict with the fundamentals of God. The article also highlights Fredric Jameson's postmodern idea of "incredulity towards metanarratives" (Jameson qtd in Marques 158).

The text reflects the postmodern dubiety over both religion and human beings as models of perfection and then the formation of Crakers. It also involves the complex categorization of Crakers as posthumanist or transhumanist individuals in *MAT* battling the generalized theological beliefs. Marques suggests, "the Crakers can only exist as Crake's posthuman project because they ignore most (if not all) cultural and technological elements that define humans nowadays and focus their existence on the animal side of their biology" (Marques 161). It means the researcher believes that

the arrival of the posthuman world is the parallel of imagining a world of apocalypse and ultimate disaster. Despite this fact, the article limits the study of text and Crakers to posthuman studies. It is a gap that does not question the humanistic perspectives of the text spread throughout. My research study satisfies these gaps by the futurist humanist critique of *MAT*.

Katarina Labudova's article "Paradice Redesigned: Post-Apocalyptic Visions of Urban and Rural Spaces in Margaret Atwood's *Maddaddam Trilogy*" thrashes out the relation between various binaries that have been unfurled in the text during zero time. She finds a continuous flux forming permeable boundaries among various identities like utopia and dystopia, urban and rural spaces, human and machine, and finally human and animal. She includes all of the spliced individuals who identify themselves with flaccid identities. Crakers outvie this flow out. Quoting Atwood Labudova states, "The Crakers also have some technological accessories that would help them to survive in an ecologically devastated world: built-in sunscreen and insect repellent, the ability to digest grass and leaves, and thicker skin" (Labudova 31). Hence, according to Labudova, these characteristics make them locomote between humanistic and posthumanist recognition. The study creates a chasm because its focus does not include human survival and safety. My research helps in bridging the gap that is left for the study of human beings as the center and Crakers as disoriented bodies.

Shane Donnelly Hall's essay "Learning to Imagine the Future: The Value of Affirmative Speculation in Climate Change Education" debates the role of educators and education in the world bearing global warming. The essay goads the thinking of students to imagine a triumphant future after battling all sorts of ecological crisis. It is also an effort to deal with climatic changes in possible ways during times that preclude safety measures. The interest of the essay does not only lie in finding the individuals adapting to the climatic change but introducing the ways that initiate accomplishing political response to that change. By replacing the basic principles they try to impede the possible disastrous change. The writer thinks that the activity will uplift the students' imagination and escape them into a life of thorough climate change. However, there is still a big number of people who are living in climate denial and they do not believe that human activity is causing potential damage to the climate and thus vice versa. The educator in the experiment lets the students imagine

what kind of future they wish for and he believes it would bring both ethical and pedagogical benefits. Alongside this, the students are given a chance to reflect on their eco-friendly thoughts about the world. Their utopian fantasies about future prospects bring out their integrity and positivity for the well-being of the world. They also offer interventions for the entire world to see (Hall 2-13, my paraphrase). The essay does not introduce any literary works of Atwood for this purpose. My study fills up this gap in the study of *MAT*.

This review of the literature shows that the selected texts have already been dissected from multi-disciplinary angles. However, the futurist-humanist study of the texts is yet an uninvestigated area. Therefore, the present study stays hinged on the predictive problems that may be brought by great transformations in science, technology, biotechnology and genetic engineering as proposed by Gerd Leonhard. It contributes to the study of Margaret Atwood's texts from a new facet**.** In the next chapter, I explain my theoretical framework and research methodology to carry out my research.

# CHAPTER 3

# THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY

## 3.1 Theoretical Framework

Gerd Leonhard, a futurist-humanist thinker, predicts the days to come in 20 or 30 years of the world. His book, *Technology vs Humanity: The coming Clash between Man and Machine* is based on a similar concept of scientific transformations and technological shifts that may happen in the upcoming years of the planet. He says that the future of humankind on earth will be quite different from its present. It is because the rate of development will not be measured on a linear scale but in the exponential form as proposed by Moore's law. He writes, "At the same time, fortunately, we are not yet at the point where those doublings are so great that the results will overwhelm our understanding and inhibit our capacity to act. To put things in perspective, in my view, we are at a relative performance level of around four in most fields, and the next exponential step will take us to eight, rather than a more linear rise to five!" (Leonhard 2). It means that the developments are not linearly taking place from four to five and five to six. Instead of linear progression, the development is taking place in an exponential form (in relation to existing value by the power of two). In his book, Leonhard brings forward many scientific and technological developments which are happening now and may happen at grander levels in the future. I have divided my theoretical framework into the following sub-section:

- Proactionary vs Precautionary Society
- Algorithms vs Androrithms
- Technological Ethics and Hellven

### 3.1.1 Proactionary vs Precautionary Society

One main proposition that Leonhard tries to convey in his book is the realization of how important it is to know, learn, and maintain the difference between human beings and science. He shows the readers a two-sided picture of the world. He suggests that the world can be divided into two possible groups and scenarios. They can be named as proactionary society and precautionary society. He defines

proactionary society as the idea of a world that will allow any kind of scientific and technological research and development without any proper checks (Leonhard 106, my paraphrase). He maintains that uncontrollable and life-threatening situations arise out of unchecked scientific activities. Thus, there must be proper surveillance of scientific investigations. The conduction of uncontrolled experiments should be prohibited.

In addition, Leonhard gives the contrastive concept of a precautionary society. He defines it as the idea of a world that will be empowered to prevent any unlikely research projects (Leonhard 108, my paraphrase). He believes that this mode of control may result in the obstruction of progression. Hence, he does not favour this unreformed form of living as well. As he sums it up, "The safest and still most promising future is one where we do not postpone innovation, but neither do we dismiss the exponential risks[…]" (105). However, if this precautionary (controlled) mode of research is not practiced, the proactionary scientific workings are sure to take humanity toward catastrophe. Hence, he furthers his stance that purpose of the scientific research must be thoughtfully considered. For example, the research done to put an end to the menacing diseases is worth the risk. But working on hideous projects with diabolical motives that are a threat to humanity must be given second thoughts.

### 3.1.2 Algorithms and Androrithms

Leonhard proffers that everything under the sky whether God-made or human-made, works based on certain principles. The human-made technological things function in the authority of algorithms while the God-made entity; humankind, is governed by the rules of humarithms or androrithms.

He defines algorithms as the system of zeros and ones which governs machines (Leonhard 5, my paraphrase). On the other hand, human beings are a combination of androrithms. He defines androrithms as essential essences which constitute human nature and make them unique (Leonhard 34, my paraphrase). Algorithms have no link with the integral ingredients that make human beings what they are. However, the essences comprising them cannot be prepared in any manufactory. Thus they are more valuable than anything else in the world.

Furthermore, Leonhard comes forward with an inclination towards technological advancements and considers them a way to prosper in life. He believes

that they can change the meaning, purpose, and status of one's life. They provide a way to lead a life progressively. However, at the same time, he is also petrified by the fact of what would happen if the world is overtaken by the digital and scientific inventions that are orchestrated by algorithms. As he proposes: "On the one hand, unimaginable technological breakthroughs may dramatically improve our lives and hugely further human flourishing; on the other, some of these exponential technological changes are likely to threaten the very fabric of society and ultimately challenge our very humanness" (Leonhard 4).

On the one hand, there will be a huge number of materialistic benefits while on the other the working opportunities will be decayed. The unison of human beings and machines may confirm the replacement of human beings yet in the words of Leonhard, "the simulation is not the same as duplication[…]" (Leonhard 18). It means that although human beings will become able to get godlike creative power yet they are not godlike in any way. Similarly, the replacements of human beings will not entirely function as a human of flesh and blood does. Hence, it seems the main concern of the theorist lies in the fact, that human beings, by losing their common sense and compassion for their fellow beings would start choosing machines over real men. Would the connection with the scientific products become stronger than the members from their similar species? And he answers his fear with an affirmation.

Leonhard believes that to keep their humanness intact, human beings must not lose humarithms i.e., the essential juices which he describes with the acronym HECI (humanity, ethics, creativity, and imagination). Thus the humarithms are the chief characteristics that constitute and confirm the humanity of human beings. These characteristics not only separate human beings from the rest of the creatures but also support them as the chief creature on the face of the earth. He believes that STEM is not what makes a human. All the fields of knowledge including science, engineering, technology, and mathematics (STEM) only provide a pathway to polish what already exists in human beings. He sketches the ideas of people in the developing technological world in the following words:

> In silicon valley in China, it is a made belief that we are already technology. We are internally complex but we are the same like the tools that we make. So then the argument is that we transcend our humanity and I really belief that

> concept of transcending humanity by technological means actually results in us becoming like machines. That's really dangerous because that's a downgrade and not an upgrade. The things that make us human are not data and algorithms, they are humanity, emotions, creativity, and intelligence. (Leonhard 23)

Hence, if human beings lose the above-mentioned essences collectively termed as HECI, they will be just left with mechanical or robotic decoctions.

The theorist also anticipates various developments which have already been taking place in other fields of science like biotechnology. For example, he considers the field of bio-engineering which is working proficiently in the field of genetic engineering for multi-purposes. He refers to author, inventor, and futurist, Ray Kurzweil who in late 2015 declared at Singularity University: "There is beauty and love and creativity and intelligence in the world—it all comes from the neocortex. So we're going to expand the brain's neocortex and become more godlike" (Leonhard 9). For Leonhard, genetic mutations will deal with possible impossibilities like, the cure of various diseases, augmentation (increase) of intelligence by the robots, the longevity of age by genetic alterations, and enhancement of the brain capacity by bringing out the changes through neuronal migrations of the neocortex.

The ideological predictions of Gerd Leonhard are influenced by technophobia leading to eco-anxiety. It means his fear of technology governs a sense of worry for the biosphere. However, his fear of the overwhelming and wrong use of technology also derives from the fright that the environment may backfire on human beings. This is why he reflects the idea located in the maxim, human beings are the architect of their fortune and they must be wary of all the possible hazards. He believes that it is chiefly dependent on human beings, whatever they make of their future through the upcoming advancements in STEM (science, technology, engineering, and mathematics). This is why, he enforces the idea, "Technology is not what we seek, but how we seek!" (Leonhard 22). It means that developments in the scientific and technological fields can challenge the exquisite essences of humanity that make a human being.

### 3.1.3 Technological Ethics and Hellven

Another argument that Leonhard brings forward is that if the difference between technology and human beings is not maintained, the products of scientific developments may lead to the formation of a dystopian society. Leonherd puts it in the words of Nikola Tesla, "You may live to see man-made horrors beyond your comprehension" (Tesla qtd. in Leonherd 5). This idea is also pictured and predicted in the text *MAT*.

If human-made progressions will keep going beyond the control of human beings, what would the world be like hell or heaven or both? Leonhard says it will be either hell or heaven depending on the consequences. However, there is a third possibility of floating amid both extremes. It means living in Hellven. He defines Hellven as a place where there is no probability of total loss or complete gain (Leonhard 148, my paraphrase). He says, "science is progressing rapidly. Technology has the potential to solve gigantic problems like food and water. This is heaven but it could be hell if we don't give it to the ones who need it or use it for the benefit or we use it as a weapon" (Leonhard 84). The theorist is also afraid that such developments will be approachable to all people or it will only intensify the grip of a bunch of economically and financially well-off people. For him, it will only build up the capitalistic behaviours of a state and the people it is governed by.

Such an "automated society" will bring imbalance into the world (Leonhard 107). Hence, how will human beings figure out whether certain advancements would make earth into the image of a heaven or a hell? The answer to it lies in joining up with ethically controlled actions. Leonhard states: "Technology does not (and probably should not) have ethics, what will happen with our norms, social contracts, values, and morals when machines run everything for us?" (Leonhard 10). He adds, "The fundamental challenge here will be that while technology knows no ethics, norms, or beliefs, the effective functioning of every human and every society is entirely predicated upon them" (Leonhard 17). So, if a human discards his belief in the ethical value, would we still be able to team him along with fellow human beings or he would be just an emotionless and moving mass of flesh and bones working like an inhuman machine? Leonhard is afraid of the latter situation being a possible possibility.

### 3.1.4 Conclusion

The time is arriving when humanity and technology are intersecting with each other and becoming one, however, such a union is expected to bring a clash of both aforementioned societies. Leonhard says that the balance between both forms of living i.e, proactionary society and precautionary society is the solution. Ethical concerns should never be compromised for proactionary living. He says that such situations raise the question of whether it is crucial to have algorithms (technology) or androrithms (humanity). The answer is both. However, on that account, algorithms must not be preferred over androrithms. It must be imprinted on the heart and mind that the purpose of a scientific project should be to flourish the human population and spread happiness: The eudaemonic happiness that cultivates long-lasting happiness passing on to the next generations rather than a momentary one. If a human wants to save the planet for his fellow species, he must look into the pros and cons of developments in scientific and technological progressions.

Leonhard believes in scientific developments alongside the safety of human centrality. He neither favours the rejection of scientific advancements nor the dismissal of the central position of human beings in the world. The believe in maintaining progressions and human centrality side by side makes him a futurist-humanist thinker. In this regard, I am implementing his concept of exponential development as a framework to study Margaret Atwood's *MAT* from futurist-humanist perspectives. This framework is going to help me study how Atwood's text also exhibits an indispensable need for the ethical balance between proactionary and precautionary society. An imbalance of any kind is not going to benefit human centrality at all. The theoretical framework helps me to confirm the futurist-humanist surmise that the stability of the human position in the world should be a prime priority for a human being.

## 3.2 Research Methodology

The research paradigm that I am following is qualitative research. It is an exploratory and interpretive research design. My research tends to confirm the prescribed theoretical vision of Gerd Leonhard. In addition, the proper findings of the research can be found through a proper research method. According to Creswell, "in qualitative research design, textual analysis as a research method is apt to do quality

research of the literary texts" (5). Hence, I have chosen textual analysis as my research method. It provides an interpretative study that helps to identify the strengths and weaknesses of the viewpoints established by the writers. The dissection of the textual references has helped me to reach the proper conclusion.

However, the texts have been studied through the futurist-humanist lens of Gerd Leonhard's philosophy delineated in his book *Man vs Technology: The coming clash of Man and Machine.* Hence, textual analysis as my research methodology has helped me in finding out the futurist-humanist aspects of Atwoodian insights and philosophy. This philosophy is the talk of the town nowadays because it brings forward the notion of validating human identity alongside technological advancements. It breaks away from post-human ideals. Through this study, it has been proved that the phenomenal environmentalist and writer, Atwood, is concerned about the stability of human position in the world. She is passing the intimidating warning through the cringing experiences of the characters in her texts.

My dissertation is followed by a hermeneutic research strategy because of its basis on subjective textual interpretations. The key theoretical terms from the book of Gerd Leonhard that envelop my research help me scout the answers to my research questions by using the selected research strategy. The text that I have used for my research includes Margaret Atwood's trilogy *MAT*. It comprises the novels under the titles *OC*, *TYF*, and *MA*. Alongside keeping the research needs in consideration, I have used critical scholarship in my area of research as further support for my theoretical framework.

In my research process, after the collection of required sources, I have done a textual analysis of the related parts of the selected text. Catherine Belsey gives a wide vision to research undertaken via textual analysis. In her essay "Textual Analysis as a Research Method" she favours textual analysis because it allows the association of multiple meanings to the text and inspires discussions. It comprehensively includes a broad reading and wide interpretation of the texts. (162-163, my paraphrase). She supports the origin of distinct and multiple ideas from a single piece of text. According to her, readers add value to the text through their readings (Belsey 161, my paraphrase). The various steps that my textual analysis includes are as follows:

I have organized all of the sources that include the primary texts from *MAT* and the secondary sources that consist of the critical scholarship in my area of research for relevance and support to my point of view. Secondly, I have read all the textual sources to have an impression of the overall information and find the voids. I have read the novels in detail to mark the parts which focus on the ideas of proactionary living, algorithms, precautionary society, Androrithms, and Hellven. I have also extracted the underlying meanings of some relevant parts of the texts including the discussions of characters and the narrative passages and then documented them. The deduced meanings are never fixed and multiple in their range because "we might deliberately refuse the position the text offers, might choose to look at it from somewhere else" (165).

I have done a textual analysis of the first text in *MAT* via the support of a critical scholarship from the fitting fields. I have taken the justification of my method from Catherine Belsey's previously mentioned essay. As she refers to the use of references outside the text in the following words:

> Research is expected to be a contribution to knowledge, it uncovers something new…. However, it does not have to be original in a much more daunting sense that it springs fully armed from the head of the researcher without reference to any previous account. On contrary, it is much more likely to involve assembling ideas that have not been brought together in quite that way before. (160)

Hence, according to this proposition of Belsey, I have completed the textual analysis of my primary texts alongside the support taken from the available critical scholarship and theory. As Leonhard has also theorized real scientific happenings in our world. However, I have attempted to address its lacuna and extended the theoretical basis of Gerd Leonhard as established in his book *Technology vs Humanity: The coming clash between man and machine*. Hence, the concept of my reading is that the things happening in the real and literary world are mutually inclusive. They support each other. Therefore, I have stitched the information together into an array of ideas. I have also listed the ideas and assembled them into different categories. Finally, I have vitalized the conclusion of the research after a complete analysis of *MAT* under research objectives and research questions.

## 3.3 Conclusion

My research is qualitative in nature. I have deployed Gerd Leonhard's theory of exponential developments on *MAT* by Margaret Atwood. Textual analysis as proposed by Catherine Belsey has helped me in the elaborative investigation of my primary texts. It also seeks to answer my research questions. The next chapter is particularly based on textual analysis of the first text, *OC*, in *MAT*.

# CHAPTER 4

# *ORYX AND CRAKE*: A THRESHOLD TO METAMORPHOSIS

> Why is it he feels some line has been crossed, some boundary transgressed? How much is too much, how far is too far?
>
> -Margaret Atwood, *Oryx and Crake*

In this chapter, I attempt to invoke Gerd Leonhard's postulation of proactionary society and algorithms from his theory of exponential developments. The title in the main heading delivers a similar idea to that which I have explored in the analysis of *OC*. The text raises an engaging futurist-humanist conflict of science versus human beings. The events in the text oscillate between fictional pre-apocalyptic times and fictional post-apocalyptic times. The text is grounded on the scientific discoveries introduced by rigidly self-centered scientists. They presume themselves with the powerful decisions and intercessions that suit only God. In this chapter, I discuss the scientific and technological inventions contrived by Atwood's sharp insight and their probability in the light of futurist-humanist thought. I also extend Leonhard's theoretical basis by bringing forth examples from available critical scholarship fitting to my area of research.

In this section, I first discuss how a society with unfettered experimentation and scientific workings can take human beings to a completely metamorphosed environment chock-full of opulence. I also discuss how the deluxe life of Compounds[10] is undertaken by proactive scientific activities which are not readily devised by ethics that are crucial to humanitarian need and survival. The life of Compounds often appears to resonate with global centers for innovation in the world today. *OC* frames the question of unreined progressions primarily in the context of the exercise of power, and in that respect, attitudes of subversive scientists towards both human and nonhuman entities. In terms of a scientifically proactive society, I briefly

[10] In *OC*, Compounds are the highly developed areas with privileged class of people living the luxurious life. Their lives are completely inclined towards the development of the latest scientific thoughts. They have restrict and controlled lives.

contextualise examples from *OC*, particularly focusing on genetic engineering from biotechnology, algorithms from digital technology, and pharmaceutical industries from biochemistry. There are many obvious incongruities between the first two texts of *MAT* because the issues of science, technology, and their outcomes are overlapping. Hence, I take required textual references keeping in view both *OC* and *TYF* to avoid the repetition of ideas in my dissertation. Firstly, I give a brief overview of *OC.*

*OC* deals with the plot narrative of Snowman's story who, in his memory, recognizes himself as Jimmy. The narrative tells us that Snowman is alone on the planet alongside a recently scientifically made creature, similar in disposition to Human beings. The plot also exhibits different settings like HelthWyzer,[11] Org. Inc,[12] Paradice Dome,[13] AnooYa Spa,[14] Watson Crick institute,[15] Martha Graham Academy,[16] Neoagricultures,[17] NooSkin,[18] Compounds, and others which are a hub of scientific and technological experimentations. The stories and the memories of Snowman introduce the opulent days of life, growing and expanding in big strides. We are introduced to Crake who is the subversive scientist and childhood friend of Jimmy. The flashbacks reveal how life was growing fast in the past. It also deals with the causes of ruin like the spread of the human-made virus that brings the world back to square one. The whole planet is depopulated and destroyed. Snowman being the only human left on earth seeks solace by narrating stories from the past to the Crakers. He makes peace with the Crakers who are spliced creatures made in the image of human beings. On the other hand, he struggles with Pigoons which are a genetically modified version of pigs. The world in post-apocalyptic times seems crowded with genetically engineered organisms. Finally, at the end of the text, Snowman watches

[11] In *OC* and *TYF*, HelthWyzer is the pharmaceutical and surgical corporation working for the cure of several contagious diseases. They also aim for the lab-grown body organs.
[12] Org. Inc is one of the company which owns residential flats and research centers in *OC.*
[13] In *OC*, Paradice Dome is the artificial paradise created by Crake for his newly invented human chimeras called Crakers.
[14] In *OC* and *TYF*, AnooYoo Spa is a branch of Helthwyzer. It is a health and beauty clinic which has medical speciality in plastic surgery.
[15] Watson Crick institute is the spectacular and majestic campus of genetic engineering in *OC*. Its name seems to be inspired from the famous nobel prize winning molecular biologists, Francis Harry Compton Crick and James Dewey Watson.
[16] Martha Graham Academy is the dwindling institute of arts and humanities during the maytime of sciences in *OC*.
[17] Neoagricultures are the food industries working for the processed and genetically modified food products in *OC*.
[18] In *OC*, NooSkin is another functional biotechnological corporation working in the field of Health and Beauty.

some of his fellow human beings but the story comes to an end with his speculation of taking them either as friendly or hostile entities.

As narrated earlier, *OC* is divided into past and present events. The present shows the after-effects based on the outcomes of the research from the past. However, past events depict how lavishness, poshness, and supremacy had been part of life in the Compounds. The jurisdiction of scientists is seen in their hegemonic and hedonistic interests. The memories of Snowman reveal some real-life facts applicable to life today. There are colossal ongoing developments in the fields of high-tech and genetic engineering. Everything happening sounds familiar and an ultra-modern version of reachable science in the world today. I have analysed *OC* under the following sub-headings:

- Algorithms and Computer Informatics
- Research and Innovations: A Hope
- Trailblazing Genetic Engineering

## 4.1 Algorithms and Computer Informatics

According to Leonhard, we are becoming slaves to information technology as we are always under tech-surveillance. Our data is gathered by Cloud, Google Drive, or other browsing and storage sites. We are continuously being watched. The world tomorrow may not leave a choice and everyone will be watched at each step (Leonhard 144-149, my paraphrase). In a world where people like Leonhard with a sharp insight can look into the delicacies of technological perils and risks. Jimmy's mother is going through a similar dilemma because they are discernibly watched. In *OC,* life in the year 25 of the unnamed yet most probably the same or the next century is overwhelmed by massive projects working under information technology, biotechnology, and biochemistry.

The world created by Atwood in HelthWyzer compounds is similar to a panopticon. The watchmen are human beings but they keep an eye on everyone's each move. They are laced with the latest technologies to keep a strict record of entrance and exit from the compounds. In an interview with The Guardian newspaper Margaret Atwood says that in the future we might be longing to retrieve our privacy from digital records (Tolan 458, my paraphrase). Hence, when she portrays Sharon, in *OC*, she intensifies her fear. She seems continuously living in psychological discomfort.

She is concerned that Lavalier microphones are hiddenly fixed in the Compounds to even track the private conversations happening in the house. This is why, in an argument with Jimmy's father, Sharon complains about their "phones and e-mails being bugged" (*OC,* 39). She thinks that life is hampered by digital technologies. For her life laden with information technology is like a prison. She wants to break herself free from that and ultimately she does it through her mysterious disappearance.

Leonhard thinks that like all technologies, information technology has no mind, ethics, or moral sense. However, it still has control over everyone in every possible way. In our world today, we are tracked down likewise, and this is what he fears. He is afraid that we hand our data to the algorithms of databases including various social networking sites and search engines, controlled by varied and unknown mindsets. We do not fear this scenario because we do not understand where it can lead. Nonetheless, many futurist-humanist thinkers spotlight the issue because they bear a crystal clear understanding of the fatal facts (Leonhard 162, my paraphrase).

Goodman in his book *Future Crimes: How Our Radical Dependence on Technology Threatens Us All* records, "The Internet has become a vast and free treasure trove of information and entertainment, and so we dutifully gorge ourselves at the trough. And at every step of the way, we are collectively leaving behind a daily digital exhaust trail…. most of us readily gloss over, but do so at our peril" (Goodman 67). He suggests that we have given ourselves into the hands of technological algorithms. We are risking our privacy at our own risk because we do not know what we are doing and where it can lead.

Like the present world, internet surfing keeps Jimmy and Crake prevalent with the new knowledge of the world. Just like the individuals of the world today, both Crake and Jimmy are seen with digiphrenia.[19] They experience battling with their real-life happenings and the digital microcosm representations of the world. They want to reach multiple places at the same moment by the use of the internet and

[19] Digiphrenia is term introduced by Douglas Rushkoff in his 2013 book *Present Shock:When Everything Happns Now* (United States: Current, 2013). Leonhard also uses this term in Chapter Six titled "Magic to Manic to Toxic" of his book *Technology vs Humaity: The Coming Clash between Man and Machine*. He defines digiphrenia as "the way in which our media and technologies encourage us to be in more than one place at the same time (79)."

playing games. They play games based on virtual reality. Hence, they remain muddled about what they see during web surfing versus real life.

The concern of futurist thinkers like Leonhard is that either human beings are ready to put their privacy at stake or they are doing it without proper knowledge. Similarly, Atwood gives her point of view in an interview "science and technology are not taking us anywhere. These things do not have an autonomous life of their own apart from human beings. There are people who practice science and invent and expand technology" (Tolan 459). Hence, the crux of the discussion is that algorithms do not judge what they are spawning in the world but human beings with a conscience can and they must do. Hence, my question is, does a lack of conscience makes human beings any less human? Well yes, in the words of Leonhard, what separates human beings from the algorithms is their possession of Androrithms (Leonhard 10, my paraphrase). As already discussed in the theoretical framework these juices are special features of human nature. For example: love, emotions, anger, thoughts, curiosity, mystery, empathy, conscience, and so forth. If anyone loses them, one cannot be justly categorized in a human group. Human beings must not lose them.

Similarly, in Compounds where parents like Crake's mother are careful about the privacy of their children, many individuals are blind to the fact that their interests are not safe. Just like Gerd Leonhard points out that using AI, the internet, and other technology, human beings strip themselves of their doings. There remains nothing hidden on Google Drive, Cloud, or other search and storage engines when they demand access to the location of the user (Leonhard 83, my paraphrase). Side by side, parents do not necessarily find a need to know what their children are doing while surfing the internet. The users are continually tracked by the global network even without realization. As Marc Goodman states very clearly: "The gradual siphoning of your data begins innocently enough when you first start using Google to search the Web" (70). Information technology prevails in our lives and designs our whole mode of living. It changes our sense of identity and it is not surprising to say that the minds of both, ones working behind the various websites and others using them are compelled to transform their ethics. Thus the notion of "man becoming the machine" is implicated (Leonhard 133).

Similarly, everything seems automated in the memories of Snowman in such a way that even the relations have started working by machine and technology. Life is so mechanical that people have no time for investing it even for their families. As Leonhard also says that technology is significantly escorting human beings to emotionally disengaged behaviours (92, my paraphrase). Similarly, parents of Jimmy are all immersed in materializing their scientific dreams. They forget to remember and give due importance to each other. They are forgetful of memorable days. Although they live in the same house, they contact on e-cards to lighten the weight of their guilts:

> His mother on the other hand could never seem to recall how old Jimmy was or what day he was born. He'd have to remind her…. Then his father would put them all through an awkward excuse about why this really, really special and important date had somehow just slid out of his head, and ask Jimmy if everything was okay, and send him an e-birthday card…. and come up with a gift for him the day after, a gift that would not be a gift but some tool or intelligence-enhancing game or other hidden demand that he measure up. (*OC* 35-36)

Both the father and mother of Jimmy are working members of the HelthWyzer and NooSkin compounds. The devotion to their lifelong science professions keeps them busy, hence, technology leads to a strain on relationships. It has squeezed into their personal and professional lives. Thus, there is an eerie strangeness among Jimmy's family. Jimmy seems equally alienated from his parents and there is a clear void built within the family ties. Here the postulation of Leonhard also implies that technology has been subsumed into people to a huge extent. Hence, it results in isolating them from the surrounding world and human experiences (91, my paraphrase). On the other hand, after a couple of years when Jimmy and Crake move out to different institutes of learning, they do not get a chance to meet one to one for a couple of years. From sharing their paltry routines to deep darkest secrets, everything is brought to notice via the use of the internet (*OC* 154-160, my paraphrase). Hence, it is the same technology on a different occasion but it serves differently. It helps to retain the close ties of Jimmy with his friend.

Jimmy and Crake are the children of technology. They are not ordinary kids but ones with up-to-date knowledge of the modern sciences. They are both brainy but it is Crake who outsmarts the other. Their school days are covered by the overwhelming presence of artificial intelligence and information technology. It is the system that seems to shape their mindsets and so fashion their future lives. The gaming-obsessed lifestyles of Crake and Jimmy emblems the hedonistic pleasure boosting their dopamine for a short period.

Similarly, the algorithms of any system cannot detect the actual face behind the use of illegal or legal internet sites. According to Leonhard, just like "AI is cheating the world," people with sheer understanding can also cheat the algorithms (144). He also adds "anyone with the right credentials or enough authority, fake or otherwise, could.… profile you, or flag you as a suspect, a dissenter, or as a dangerous individual…" (88). For example, in *OC*, this is what Crake does. He enters into the felonious browsing sites unlawfully pretending to be his uncle Pete. He enters his username and sensory details to reach his desired and required content. The algorithms of those websites never decide whether the face behind the screen is Mr. Pete or his nephew, Crake. The narrator unfolds, "they dutifully lit up a joint, hacked into Uncle Pete's digital charge card via a new labyrinth, and started surfing" (*OC* 71). Leonhard terms it as "willy-nilly form of abuse" and it has integrated into our world very deeply (88).

Additionally, in the second text, *TYF* technological instruments are seen lying dead, and animals like Pigoons, Biolams, and Vultures are carrying on with their lives as they were. But the loss that we see, the pain that Amanda, Ren, Toby, and the rest of the survivors feel, belongs to one. It does not make any difference to algorithms no matter what happens to the world. Thus, it is an indispensable need of time that human beings develop an understanding of what are they doing to themselves in the name of invention and evolution.

## 4.2 Research and Innovations: A Hope

In this part of my analysis, I talk about the serviceable projects of science. In *OC*, Crake makes an informed decision about learning and working at Watson-Crick institute. Life at the institute has a decent standard of living and is home to many scientific and technological projects. It has precise iris recognition for biometric

authentication of individuals for safety purposes. They do not want any intruders to lay hands on their sensitive works and projects. They have a deep inclination to save their systems from getting crippled. Side by side, it also confirms that no one could pretend to be somebody else.

*OC* also applies to the time when people would start dodging the biometric verifications of hand geometry. Jimmy recalls, "Despite the fingerprint identity cards now carried by everyone, public security in the pleeblands was leaky: there were people….who could forge anything[…]" (*OC* 21). Hence at that time, Iris recognition[20] makes sure that the chances of identity deception fall to the lowest. Omidiora in the article "Iris Recognition Systems: technical View" states, "[I]ris has distinct phase information…. [that] allows the iris recognition to be the most accurate and reliable biometric identification" (Omidiora et.al 63). When Jimmy visits the Compounds, a long time after joining Martha Graham Academy and being separated from his mother, he is identified as the son of a former disappointed and disillusioned microbiologist, Sharon. When Jimmy visits Compounds after a long time his identification happens as a result of iris detection devices erected at the guarded gates of Compounds. The text reveals: "[T]hey took Jimmy's iris imprint and ran it through the system, and then two surly weightlifters pulled him aside for questioning…" (*OC* 165-166).

As discussed in the introduction of my dissertation that speculative fiction is not about things from another world or planet. It belongs to the magic of science belonging to our world (Atwood qtd. in Tolan 455, my paraphrase). Similarly, iris recognition is already in use in the world, working as an accelerated biometric system, which, however, is limited to the big sectors of life. Omidiora states in his article, "This identification system is been used in United Arab Emirate (UAE) for border-crossing" (63). Furthermore, Leonhard also establishes the authenticity and possibility of the development, "Face scanning technology is so advanced that it can read thousands of faces in split seconds… and create complete face maps of what we were feeling, anywhere, anytime" (166). Face recognition systems are nowadays also an integral part of our smartphones where facial features are stored in the database of

[20]Omidiora suggests "Iris recognition algorithms" obtain the information of required iris texture and do the corresponding matching to the submitted iris from the subjects in the databases. For details, see Omidiora Elijal, "Iris Recognition System: Technical Overview," in *Impact Journal* Vol.3, Iss. 6 (2015), pp. 63-72.

systems and later their algorithms calculate, authenticate and verify. The system has gotten better over the past few years. The identification and authentication reliability of the system is rapidly improving. However, the subject is very controversial. Published in 2003, *OC* also gives a vision of such an identification system under casual and common use. One day instead of swiping their cards, and using touchscreen and fingerprint sensors, people might only have their eyes scanned and gain entry through guarded doors. Such technology can be used as a celebratory idea. However, it also creates a Hellven situation for the people. I have explored how this invention can be a Hellven in chapter six of my dissertation.

Similarly, the infrastructure of the Watson Crick institute speaks volumes about the ongoing activities and projects. The pathways are decorated with transgenic plants which suggest making the planet environment-friendly (*OC* 167, my paraphrase). The whole place abounds in biological and abiological objects. All these objects are the symbol of a positive revolution in life.

In his book, Gerd Leonhard does not stay hinged to only a few kinds of digital inventions. He touches almost every possible field that reflects futurist humanist concerns. In the chapter "A Prologue to Future" he discusses the revolutions happening in the automotive industry[21]. He favors the evolution that has been happening in the electric vehicles industry. He also believes in the exponential evolution of electrical vehicles. He says that in the future the battery efficiency will be so high that people might be charging their vehicles only once a year. In his book published in 2016, he adds, "We've gone from a handful of charging locations to the astounding fact that New York City already has more electrical vehicles charging stations than gas stations" (3). Reading the history of the automotive industry, I have come across the facts that events from the past showed a lack of surety for the affordable and successful working of mass electrical vehicles. However, in 2002 Toyota produced its first mass commercial electrical vehicle. In 2006 Silicon Valley[22] embarked on a commercial venture of creating mass electrical vehicles. And nowadays, all of the major manufacturers in the automotive industry are exclusively

[21] Automotive industry includes the development, production, marketing, retailing and wide range of other services in motor vehicles.

[22] Silicon valley is the technological hub in America which houses many internet and software companies.

working on the batteries of electrical vehicles with larger life spans and halved prices (Mierlo 3, my paraphrase).

Similarly, Atwood in her 2003 text *OC* is giving the vision of a movement with eco-friendly electrical vehicles which are dropping their carbon footprint, i.e. the total number of greenhouse gases heating the planet. They do not emit dangerous gases and are safe to use. The automotive industry of Compounds is also surfacing a broader vision of keeping the environment which will ultimately benefit human beings. When Jimmy visits the Watson Crick institute alongside Crake, he observes, "Students and faculty were beetling along with them in their electric carts" (OC 167). It aspires to have a world with eco-friendly vehicles giving the vision of getting rid of the internal combustion engines which have polluted the world. Hence, if we see the glow of hope and success rate rising to high in the automotive industry, after the publication of *OC*, then it is persuasion to the plausibility of insightful visions of Atwood. The evolution of electrical vehicles seems environmentally and humanly friendly. Therefore, it can be publically acknowledged as a celebratory invention.

## 4.3 Trailblazing Genetic Engineering

In parallel, scientific professionals from biotechnology have been working on the latest advances in the disciplines of bioengineering or genome editing[23]. The multifaceted aspects of the field are serving in different industries such as agriculture and farming, the food industry, the pharmaceutical industry, and medicine especially fetal development, pregnancy, and the strength of immune systems. Leonhard in his book terms the advances in genome editing and machine intelligence as the game-changing revolutions[…] (6, my paraphrase). However, my study is further delimitated to the genetic engineering leading to the successful formation of transgenic, spliced, hybrid, or cloned animals. In my research, I find out that in the world of *OC*, Atwood has materialized many such inventions in the field of genetic engineering that were either in their infancy or started to happen after the publication of her text. For example, in our world scientists have started experimenting on human-pig chimeras approximately a decade after the publication of *OC*.

[23] Muller and Auerbach demonstrated the possibility of Genetic engineering or Genome editing. These are the processes of playing with gene sequences in biological labs. Gene editing includes the process of alteration of genes sequences to remove the defects and prevent the individuals from diseases. Genetic engineering is the process of engineering new abilities into the individuals by gene alterations. For details see, Danna Carroll, "Genome editing: Past, Present, and Future" in *Yale Journal of Biology and Medicine* vol. 90, Iss.4 (2017), pp. 653-659.

Taking the inspiration, biomedical engineers are keenly working on other forms of recombining genes in labs for their purposes to be served. In genome editing, after taking a gene from one animal and deleting a part of its genetic code, it is induced with the target gene of another animal. The animals thus formed are called transgenic, spliced, or cloned species. These animals with an introduction of foreign gene expression bring novelty to their genetic makeups and in this century they do not belong only to the world of fantasy and films. For example, Geeps were formed by the genetic union of goats and sheep in the 1980s. In another historic 2010 study, Kobayashi and his scientist colleagues succeeded splicing mice with rats that do not interbreed naturally (Savulescu 38). These experimentations take the human beings to perform studies that would be impossible otherwise. However, the individuals formed "are not monsters but organisms with more than one cell line" and therefore termed as Chimeras (Bourzac 7).

Similarly, there is a variety of animals that have evolved with the genetic recombination of DNAs from more than one animal. Mules (male donkeys and female horses), Hinnies (male horses and female donkeys), Zebroids (zebras and donkeys), Dzos (yaks and domestic cattle), Beefalos (buffalos and cows), Ligers (male lions and female tigers), Leopons (leopards and lions) and Tigons (males tigers and female lions) are some of the naturally and unnaturally occurring hybrid animals formed by the union of parents from completely different species (Patel 94-97, my paraphrase).

As a futurist-humanist thinker, Leonhard also keeps a strong faith in the revolutions that he predicts are expected to happen in the field of genome editing. He states:

> The scientific possibilities that will be unleashed will blow away anything we have dreamed of, while simultaneously bringing enormous ethical challenges: dramatic longevity increases for those that have the budget, the ability to reprogram the human genome, and potentially the end of aging, or even dying (3).

Although, genome engineering is not unrecognized yet the fictional creatures of Atwood are miraculously awe-inspiring like the Mythological Chimera[24]. Scientists in NooSkin are seen actively experimenting with the creation of chimeras from distantly

[24] Mythological Chimera is a mythological monster and mix of three animals i.e. lion, goat, and snake.

related animal species. It is the horizontal gene transmission[25] that leads to a variety of genetically transgenic animals like Pigoons (pigs and human neocortex), Wolvogs (dogs and wolves), Skunks (snakes and rakunks), Biolams (lions and lambs), Spoats/Giders (goats and spiders) and finally Crakers which are a mix of the human gene with genes of a variety of animal species. It is stated in the article "Across the Great Divide: Chimeras and Species Boundaries" writes, “Dogs already back cross with wolves” in our world while the rest of the species are innovations of labs from Atwood’s *OC* written in 2003 (Bourzoc 14). The readers in the world of *OC* witness a great revolution in the field of bioengineering.

Jimmy’s mother in *OC* takes the side of the human team while his father is supportive of a tech-friendly environment. Jimmy’s father in *OC* is also dugged into experimenting with the transgenesis of pigs. They are both on clash and their relationship is completely strained. Although she was once part of the same company, she decided to leave the job for its depraved nature. Sharon seems to be a character having futurist humanist notions. She is quite vigilant about the uncontrollable consequences of uncontrolled research. Similar is the belief of Leonhard. As he apprises in his book, “Such exponential developments suggest that continuing to imagine our future linearly will probably lead to catastrophically flawed assumptions about the scale” of potential exponential developments (Leonhard 3). It means that any development will not stop at a certain point and it will keep advancing to higher scales. Similarly, Sharon thinks that playing with the integrity of human genes is nasty. She thinks it is going to take human beings nowhere but only to the loss of their human pride. She expresses her thoughts before her husband, “[T]here’s research and there’s research. What you’re doing – this pig brain thing. You’re interfering with the building blocks of life. It’s immoral. It’s... sacrilegious” (*OC* 42). Similarly, for her, splicing the human’s DNA with pigs is a malevolent idea. She understands the risks, that her husband is willing to take, would lead to implausible consequences. This is why, she wants Jimmy’s father to desert anything that he is up to in the labs, “Don’t you remember….everything we wanted to do? Making life better for people….you

[25] Altia R. Burmeister defines Horrizontal gene transmission also called lateral gene transfer as the genetic process of transferring the genetic information of organisms from one species to the genes of organisms from another species. For details see, “Horrizontal Gene Transfer,” in *Evolution, Medicine and Public Health*. Vol. 2, Iss. 1 (2015), pp. 193-194. Since I am discussing genome editing in genetic engineering, it is crucial to understand the concept of genome editing techniques.

had ideals, then[…]" (*OC* 41). She thinks she knows the diabolic purpose behind the biotechnological advancements.

She is logically afraid of the unknown consequences of the change of an individual's genetic makeup through foreign gene expression. Sharon unfolds her fears, "That's all we need….More people with the brains of pigs. Don't we have enough of those already?" (*OC* 41). Hence, she must also be thinking that new species would bring new challenges like diseases, allergies, and antibiotic-resistant genes. For her, anything could happen and it does. However, the denial of Jimmy's father shows his obsession with the completion of his ego-serving projects having biological and ethical kinks.

Scientists from this discipline have started to show a deep interest in the innovation of genetically engineered animals. Scientists, like Paul Davis from Washington, believe in the endless hope in such laboratorial magics. Atwood materialized the formation of human-pig chimeras in the form of Pigoons in 2003 by writing *OC*. On the other hand, the article "Time to rethink the law on part-human chimeras" records:

> In a 2017 study, researchers from the Salk Institute for Biological Studies announced that they had created chimeric human-pig fetuses….The embryos were then implanted into a sow and allowed to develop for 28 days. By the end of this process, human cells could be found throughout multiple tissues of the human-pig chimeric fetuses (albeit at a low rate). It suggested that interspecies blastocyst complementation could potentially be used to generate human organs inside part-human chimeric animals. (Savulescu 38)

Similarly, Bourzac puts down in his article, "the scientists surprisingly factually see the making of human monkeys, human pigs, and human-chimpanzee chimeras" (4). In addition, he says that a molecular anthropologist, Marks, has a deep faith in the compatibility of the genes of humans and chimpanzees. He thinks nothing in the world can hamper the success of this genetic recombination (Marks 27, my paraphrase). In *OC*, Sharon touches on many possible aspects of the similar ongoing research in the NooSkin Compounds and reveals her fears about splicing human and pig genes. As Leonhard also theorizes in his book that the upcoming technological change is going to be so sudden and huge on the bar that it will be ineludible and

inescapable (iii, my paraphrase). Hence, the concerns of Jimmy's mother and Crake's father seem bearing in themselves the futurist humanist notions.

In contrast, Leonhard also thinks that halting a proactive society from research is not a solution. In fact, he says that "it is our human duty to discover and investigate things which will ultimately benefit human beings, such as the possibility of ending cancer" (108). Bourzac records in his article, "in our world, scientists have started using the chimeras to test early anti-HIV drugs and model diseases from cystic fibrosis to rheumatoid arthritis to cancer" (16). All these events raise many moral concerns that I discuss later in the third chapter of my analysis.

Additionally, as suggested by Leonhard, another threat that we see in *OC* is researchers, like Crake, in the field of genome editing, are trying to engineer a newer form of human beings. Leonhard suggests, "another application of this scientific magic may also bring about programmable babies, dramatically increased longevity, or even the end of dying for humanity—but likely only for those few who have the significant resources that would no doubt be required!" (127). In *OC*, Crake names them Crakers. They are the fruit of his research which has seen many failures. In the end, he succeeds in making a creature that is so close to human beings and at the same time quite far away from any resemblance. As they are the product of bio-engineering, so, they are created by genome editing in the human embryo. There have been various discussions about their creation and borrowing of variable qualities from various animals. Crake has his philosophy and purpose for the creation of Crakers. He unties his thoughts about the human species as a "series of biological mismatches, a misalignment of the hormones and pheromones?" (*OC* 138) and this is why he wants many of the characteristics to be removed from them by genome editing.

Crake thinks the qualities that a human possesses are all inherent yet leaving it to nature to design a child, when a human being can do, it is utter foolery. Why is he so depleted with emotions and what is it that brings him to show so much hatred towards love? Is it his empathy towards Oryx that pushes him to think this way or is he a biologically messed up design of nature or mentally trained so? But whatever it is, it seems his experiences have shaped him. It means that the childhood experience of watching perverted content had a deep and harsh psychological impact on him. As in the words of Marshall McChan, "first we build tools then tools build us[…]"

(McChan qtd. in Leonhard 81). Hence, he is shaped like that and he has started watching the world from that subjective perspective of his. His ideals are representative of a proactive society as suggested by Leonhard.

Consequently, Crake wants to take the power into his own hands and intrudes on natural phenomenon. He also introduces the bonus that human parents would be able to customize their children both in appearance and nature. As Leonhard also anticipates the possibility of such happenings outside the fictional world. Hence, they also bring up the issue of whether it is going to be harmful or beneficial. The thought process of such experimentation can be very lethal to the survival of human beings. Crakers as the successful Watson-Crick Project are placed safely at Paradice dome for the first time, "They were naked….there was no self-consciousness, none at all. Jimmy at first couldn't believe them, they were so beautiful. Black, yellow, white, and brown, all available skin colours. Each individual was exquisite…" (*OC* 255). However, they are not anything to be compared to the superiority of human beings. Karlsson in the article "A study about human identity in Margaret Atwood's *Oryx and Crake*" states, "[A] human is a human for certain reasons, not only due to their heritage but also because they think and ask questions, such as humans do," all of these critical qualities are missing in them (6).

All of the fictional inventions and progressions discussed above ensue the question of possibility because it is making place in our real world as well. In 2004 in an interview, Newman described, "My own recommendation would be to ban…research that modifies human embryos" (Newman qtd. In Bourzac 21). He believes, such modifications "will lead to genetically engineered people" (Newman qtd. In Bourzac 21). He further exclaims, "I have no doubt that we can make things that are quasi-human or part-human and this will undermine our sense of ourselves" (Newman qtd in Bourzac 21). All these referred scientists must be thinking impossible but all it initiates is from one thought. There is a momentous need to hypothecate limitations on one's doings.

Moreover, bioengineering labs for food products are called Neoagricultures in Compounds. They are undertaking another project of preparing Chickinobs which are only animal proteins i.e. a form of artificial meat. All-natural animal meat production has been put on a halt while artificially cultured animal protein is in vogue. When

Jimmy visits Neoagriculture labs at the Watson Crick institute, he finds out, "[L]arge bulblike object that seemed to be covered with stippled whitish-yellow skin. Out of it came twenty thick fleshy tubes, and at the end of each tube another bulb was growing" (*OC* 170). When he inquires about the uncanny objects, he is told, "Those are chickens," said Crake. "Chicken parts. Just the breasts[…]" (*OC* 170). Additionally, Jimmy also questions their market value and to his surprise, he is informed "Investors are lining up around the block. They can undercut the price of everyone else" (*OC* 171).

In this section of the chapter, my inclination lies in finding the relation between the vision of Atwood and the future of laboratory-prepared meat in our world. According to the article, "The Epic of In Vitro Meat Production—A Fiction into Reality," the idea of culturing meat muscles is not new and the history of laboratorical meat[26] goes beyond the third decade of the twentieth century. The article documents it in the following words:

> The revolutionary progress was recorded in the year 2013 when the first in vitro meat-based burger was prepared and presented to the panel by the Riverside Studios of London. Later, in 2013, New Harvest invited the start-up schemes to enhance cellular agriculture for in vitro meat production. Several cultured meat projects such as Shojin Meat Project, Memphis Meat, Super Meat, and Finless Foods were initiated in 2014, 2015, 2016, and 2017, respectively. (Balasubramanian 3)

Before that, it was prepared in labs in Petri dishes with a very small capacity. However, Winston Churchill and Rene Barjavel have talked about commercially preparing artificial meat in their fiction. Thus Atwood also appears to be one of those writers whose imagination has also materialized inside the laboratories successfully. It is after a decade of her work that the launch of a lab-grown burger patty happens at a London news conference. The time also became an era for a factual initiation of

[26] Balasubramanian brings to light the historical evolution of laboratorial meat preparation. The pilot idea of preparing meat in laboratory was put forth by Alexis Carrel, who cultured the steak of chick heart muscle in a Petri dish under live condition in 1930… Later Winston Churchill in 1932, Rene Barjavel in 1943, and Willem Van Eelen in 1953, promoted the idea of cultured meat. In 1997 Benjaminson alongside his research team, cultured the muscle tissue in petri dishes and supplied them as food to NASA astronauts after the ethical approval. In 2003, Mark Post, a scientist, engineered meat in his lab in The Netherlands.
For details see, Balasubramanian, "The Epic of In Vitro Meat Production__A Fiction into Reality," in *Foods* Vol.10, Iss.6 (2021), pp. 2-21.

preparing artificial meat for commercial purposes. However, technology can be used both positively and negatively. I have discussed it further in chapter six under the subsection of Hellven.

The text also ranges over other branches of sciences including Biomedicine and Pharmaceutical Sciences. It is an exploration of hidden and preplanned ongoing motives behind scientific and technological projects. It is human beings who go beyond the requirements of being human and lose empathy for the rest of humanity. The lust for money beguiles them to compromise their humanity. We witness similar things happen in the text *OC*. Crake divulges the hidden motive behind the Helthwyzer and its projects. He exclaims if science and medicine would always keep working for the reduction of pains and troubles then, one-day people would not need it anymore. Institutions cannot afford people to start living without them. They would always prefer their role to be inevitable. If scientists would successfully remove the diseases, if NGOs would succeed in removing afflictions, and if honesty would prevail, then who would need doctors, lawyers, and social workers to work for them? Every institution has its benefits attached to the loss of others. If people are fully treated, no one would like to approach doctors or hospitals for the compassion or love they have in their hearts for them. Every business of life has its needs attached to the rest of the population for its survival. The text *OC* witnesses the same. Crake torches the schemes of health institutions at Helthwyzer (*OC* 166-167, my paraphrase).

Theodor Frank Peters; a renowned theologian, in her essay titled "DNA and Dignity," writes "it is a mark of cosmic shame for a species to become extinct through human actions" (Peters qtd in Bourzac 9). However, we observe the spread of such a huge humiliation through Crake's RejoovenEsense project of BlyssPlus pills. He prepares medicament to treat hereditary and contagious diseases which have some hidden effects on health. They are also considered to be a source of prolonging youth with the treatment of the ailments but the last effect of the tablets is kept secret which reveals them later as a Janus-faced scheme. The medicine is supplied with a life-threatening bioform. When Oryx is near death because of the bioform, she reveals in a conversation with Jimmy, "It was in the pills. It was in those pills I was giving away, the ones I was selling. It's all the same cities, I went there. Those pills were supposed to help people! Crake said [. . .]" (*OC* 275).

Hence, the spread of the pandemic in *OC* is caused by Crake's conspiracy. As Leonhard in his book also suggests, "The new wars will be digital….in exponential game changers such as AI, human genome modification[…]" (12). This is what happens in *OC*. Oryx unknowingly becomes the brand ambassador of a bioweapon. Similarly, our world during the Covid-19 pandemic that started on 8th December 2019 in Wuhan city, China, saw quite similar times. When the pandemic was declared as an outbreak the people started taking it as an outcome of different conspiracies. An article titled "A bioweapon or a hoax? The link between distinct conspiracy beliefs about the Coronavirus disease (COVID-19) outbreak and pandemic behavior," states: "Conspiracy mentality, however, a generalized belief that powerful forces operate in secret to rule the world" (Imhoff 4). However, a similar conspiracy theory strategized by Crake is materialized in *OC* and *TYF,* about a decade before the Covid outbreak.

On the other hand, after the spread of Covid, in a research conducted by Marios Constantinou from the University of Nicosia and his research associates, the researchers discovered that the public has declined faith in science. They asked participants the questions: "[Do you think] there is already a vaccine for COVID-19 that will be released when millions are infected [and do you think] COVID-19 was created on purpose in a laboratory by scientists?" (Constantinou et. al 3). The participants showed a strong belief with a percentage of 47.30 and 43.50, not too weak a belief with a percentage of 35.80 and 26.6, and finally moderate belief with a percentage of 16.90 and 29.90, respectively (Constantinou et. al 3, my paraphrase).

The speculation of Atwood in her texts, the closure of the World Trade Centres, and the death of millions of people around the globe stretch the attention towards the analogy between the *MAT* and the Covid-19 pandemic. As *OC* illustrates the symptoms of the disease by the commentators on the media and social media platforms as follows:

> It was a rogue hemorrhagic. The symptoms were high fever, bleeding from the eyes and skin, convulsions, then breakdown of the inner organs, followed by death. The time from the visible onset to the final moment was amazingly short. The bug appeared to be airborne, but there might be a water factor as well. (*OC* 260)

Additionally, like *OC, Eyes of Darkness* by Dean Kootz speculates a similar situation in which the students of biotechnology create a bioweapon to sweep millions of people from the earth. The text describes, "They call the stuff 'Wuhan-400' because it was developed at their RDNA labs outside of the city of Wuhan, and it was the four hundredth-viable strain of man-made microorganisms created at the research center" (Kootz 137). Hence, like Atwood, science, and technology are also seen being used as a part of human conspiracies by Kootz.

However, in the text, ironically, *OC* propagandist, Crake, is also caught in his set trap. Thus, my conjectural analysis of the text states the fact that he contaminated the world because he thought he could. But ultimately the yield of his research traps him as well. It is a famous maxim that rats do not make traps for rats but humans do. This is what Crake does. On the other hand, in our world, conspiracy theories during the pandemic affected the psychological and mental states of the people yet they cannot be completely denied. Imhoff states in his articles about the Covid-19 spread "[As] there is no easily comprehensible mechanistic explanation of the disease, it is an event of massive scale, it affects people's life globally, and leaves them with lots of uncertainty" (3). Thus it is the responsibility of the institutions to rebuild the trust of the public by stating facts and adopting clear boundaries in their scientific and technological research. If it does not happen, the life of every human being on the face of the earth is at stake.

## 4.4 Conclusion

The analysis of *OC* pertains to the crucial inquiry of what is the possibility of fictional content. Keeping in mind the research that I have done by leafing through *MAT*, invoking the theory of Leonhard, and reading the literary scholarship, my study convinces me that the speculative fiction of Atwood is inspired by real-life knowledge. The probability of these techno-scientific inventions and modifications, either in a less advanced or more advanced form, is not frail. The current state of our scientific advancements in the world is such that we are either beginning to indulge in these activities or crossing the moral limits. In a proactionary world, scientists could be indulged in achieving whatever they want but their mercenary interests may engulf whatever sits within the world. Atwood has rightly sketched the real-life issues in her dystopian fiction because we do not know which moment might become the doomsday clock.

Human beings are rapidly developing in the field of digital technology, biochemistry, bioengineering, and several other fields of sciences. The analysis shows how commendably Atwood thematizes proactionary societal engagement and the role of algorithms through *OC*. The latest technologies have got the best of human life by thorough integration. Algorithms in technology, genome editing in bioengineering, and pharmaceutical calculations in biochemistry know no moral limitations. It is the responsibility of human beings to improve human position by suitable application of knowledge. We see Atwood recommending the proactionary world with uncontrolled socio-scientific activities as the failure towards the stability of human survival. The next chapter is based on the textual analysis of the second text *TYF*, from *MAT*.

# CHAPTER 5

# *THE YEAR OF FLOOD*: A GATEWAY TO PRECAUTIONARY PRUDENCE

> The ancestral primates fell out of the trees; then they fell from vegetarianism into meat-eating. Then they fell from instinct into reason, and thus into technology; from simple signals into complex grammar…. from firelessness into the fire, and thence into weaponry…. The Fall was ongoing, but its trajectory led ever downward. Sucked into the well of knowledge, you could only plummet, learning more and more, but not getting any happier.
>
> -Margaret Atwood, *The Year of Flood*

In this chapter, I invoke Gerd Leonhard's postulation on precautionary society and androrithms for the textual analysis of *TYF*. The title in the main heading conveys a similar idea that I have worked on. The consistent reference to the terminologies from Leonhard's theoretical postulation helps me to present the circumstances in which the text in focus serves the purpose of my study.

After a sexennial of writing *OC,* in *TYF,* Margaret Atwood introduced another part of the world with people having completely different mindsets. This chapter centers on the compendium of precautionary society run by philanthropic and philozoic God's Gardeners limiting the scientific and technological rule in the background of *TYF* by Atwood. Like *OC, TYF* also deals with the fictional past pre-apocalyptic to fictional present post-apocalyptic times brought by the genetically human-made disease. This text is centered on the Gardeners and their demeanor during these times. They are people who believe planet Earth is the responsibility of human beings. It is the garden of God and the people here are the ambassadors for its shielding. *TYF* frames the subject of reined scientific advancements and the controlled behaviour of human beings. Hence, in this chapter of my dissertation, I study the established cautious behaviour of Gardeners and how it convinces them of a safe mode of lifestyle to survive. I also study whether the androrithmic attributes of

gardeners serve them better than the mechanistic[27] inclinations of scientists in *OC* or not.

In *TYF*, Margaret Atwood based her characters on different grounds with a contrastive background but in a similar time frame in history as compared to *OC*. *TYF* divulges the days of the pandemic spread from the perspective of two characters named Toby and Ren. In addition, God's Gardeners (Adams and Eves), Amanda, Blanco, Zeb, and company become part of the plot as well. Although the story is more focused on the past of their lives which is not covered up in the technological interests yet they become unable to keep the pernicious repercussions at bay. The Gardens of the narrative are quite guarded and they are owned by God's Gardeners. It presents an allegorical hint towards a biblical garden with Adams and Eves in it. They are apprehensive about the survival of human beings and thus serve their maximum part for their safety. However, the setting outside the Gardens is not seen as deprived of human corruption at any rate. The predictions of the Gardeners about the horrible "Waterless Flood" come true (*TYF* 35). Thus the narration *TYF* is a prediction within the prediction. The text can be related to the event of Covid-19. The spread of the virus from its particular nest to the rest of the world shows that grass suffers when animals fight. The text is also about the tribulations that the characters Toby, Ren, and the rest go through after the apocalypse.

My dissertation aims to provide an intersectional reading of both precautionary and proactionary activities held under the prospect of *OC* and *TYF* and derives futurist-humanist findings from it. Hence, in this section of my dissertation, I particularly study *TYF* in terms of Leonhard's theoretical postulation of precautionary society and androrithms. As mentioned in the previous chapter there are several ideas in *OC* and *TYF* which overlap each other. Therefore, through the mentioned theoretical postulation, I study the related sections from both texts to avoid repetition in my dissertation. I have analysed *TYF* under the following sub-headings:

- Precautionary Principles
- Anrorithms: Humanity and Survival

[27] The Cambridge dictionary defines mechanistic as "taking human beings as if they were machines" (McIntosh).

## 5.1 Precautionary Principles

The history of the development of the world is tightly interlaced with the history of techno-scientific developments while the future is packed with the possibility of reaching the impossible. The work of fiction *MAT* by Margaret Atwood does the same by laying out a shocking future world but at the expense of Earth and its environment. However, unlike the first part of the trilogy, the second part titled *TYF* defies uncontrolled scientific interests. It comprises an opposite landscape to the narrative of the first text, *OC*. Hence, the novel describes the different ways in which people show precautionary practices to challenge the speculative dangers in the world.

Although scientific institutions and their practices are the key factors for the world imbued with magnificent progressions, the thinkers like Leonhard also reason against it. They opine that alongside all the opulence, drastic climatic, environmental, and geological changes are also brought by the same institutions of science. They believe that the safety of the planet should be the first concern of human beings (Leonhard 114, my paraphrase). David E. Story in the article "Protagonist Earth," asserts, "If we can make the shift from egocentric to ethnocentric, and from tribe to nation, why not to world-centric or planet-centric?" (133). Similarly, Leonhard in his book *Technology vs Humanity: The coming clash between man and machine* says:

> I argue that we must place human happiness and well-being at the heart of the decision-making and governance processes that will shape future investments in scientific and technological research, development, and commercialization because, in the end, technology is not what we seek, but how we seek. Now is our last chance to question the nature of these coming challenges, from artificial intelligence to human genome editing. (Leonhard 2-3)

Practically scientific headways carry a privileged position from their fundamental to the advanced fields but their failing inadequacies cannot be passed over. The connection between science and its workings contributes to the ethical and moral issues arising in the world of technical and life sciences. Harold Shane believes "[I]n the next decade or two if we don't redesign our modes of thinking, behaving, and interacting in a humanistic manner and with humanistic considerations, we will assuredly do irreparable harm to the environment and squander the resources on which the well-being of our human community depends" (Shane qtd in Morris 130).

It indicates that futurists believe in educating minds about the responsibility of human beings for their future. This is why, keeping the same stance, *TYF* ensures a struggle against the urge of damaging the environment. As Leonhard also remarks "The safest and still most promising future is one where we do not postpone innovation but neither do we dismiss the exponential risks[…]" (Leonhard 106). Consequently, *TYF* attributes human beings to be the highest in the hierarchy of animals and ascribes them to the biggest of responsibilities for the safety of the world.

God's Gardeners are the people with good incentives. Their work is limited to a certain specific Pleebland[28] yet they think of the whole planet with their rule-bound approach. They want their principles to be implemented around the whole globe, as they say:

> Dear fellow gardeners on the earth that is God's Garden. In our efforts to rise above ourselves we have indeed fallen far, and are falling farther still; for, like the Creation, the Fall, too, is ongoing. Ours is a fall into greed: why do we think that everything on Earth belongs to us, while in reality, we belong to Everything? We have betrayed…our sacred task of stewardship. (*TYF* 39)

Gardeners consider human beings to be the envoy of this world. Thus they are the ones who are linked to the rest of the creatures in the world. It is the prime duty of human beings to work for the safety of the rest. Here arises the first prompt contrast between the Gardeners and the scientists of the Compounds. They believe human beings must maintain their dignity by protecting the earth rather than destroying it. Human beings must not mess with the order of the universe only because they can. They should maintain order. Their understanding of the world should make them humble rather than overpowering monsters of science. According to Gardeners, the birth of human beings is not highly but they are the highest in the hierarchy. Thus, there is little difference between them and the closest fellow animals and the difference must be maintained. As Leonhard proposes that human beings are the blend of several humanistic juices like humanity, ethics, emotions, empathy, creativity, curiosity, intelligence, and originality (17, my paraphrase). Similar is the belief of Gardeners. They think human beings are animals with compassion. So, if the androrithmic attributes of human beings are gone; what is left in them that makes

[28] Pleeblands are the unpredicted and less developed areas in the setting of *TYF*. Gardens are the parts of these Pleeblands where middle class people live, unlike Compounds in *OC*.

them different from the rest of the primates? Absolutely nothing. Thus is the belief of Gardeners, and so is their sermon and hymn, "so keep us far from worser traits/aggression, anger, greed" (*TYF* 40). This is why, against the unleashing bioengineering industries of Compounds, Gardeners have administered their benchmark rules of control and reserve. They are teamed in the planet-saving group by working in a safe environment but their orthodoxy is questionable. As Leonhard is also of the view, "Too much precaution may paralyze us with fear and create a self-amplifying cycle of restraint" (108).

Similarly, in the text, *TYF* God's Gardeners with their limited approaches want everything to survive without a mild sign of injury. They obey a very precise conduct of living. Their prime interests are reserve and restraint. They behave watchfully towards every aspect of life. The foods they consume are biological, natural, and unlike compounds unprocessed. For instance, Toby remembers the vegivows. These vows pledge them not to kill any animal beyond any religious or moral logic, even for one's benefit. She recalls the singing and chanting of the Gardeners, "God's Gardeners for God's Garden! Don't Eat Death! Animals R Us! No meat! No meat! No meat!" (*TYF* 30). Hence, in a period where none of the animals are safe in Compounds, Gardeners withstand their undue killings for a safe environment. The text evangelizes compassion for all creatures of the earth. It tells us to be kind to other similar and dissimilar species. They know the wild desires of the human heart. They preach, "Beware of man and evil heart" (*TYF* 57).

Leonhard suggests "[T]he burden to prove that a venture isn't harmful falls on those who want to undertake it" (107). Hence, it is important to notice that God's Gardeners are not made disbelievers of research and experimentation by tell-tales. They have stopped promoting science and its workings after realizing that they can not carry the burden. For example, Adam One and many others like him including Pilar, Toby, and Zeb were once part of scientifically equipped Compounds. As Adam One states in *TYF:* "My dear Friends. My name is Adam One. I, too, was once a materialistic, atheistic meat-eater. Like you, I thought Man was the measure of all things[…]" (31). The moral scruples and realization of every Adam and Eve have brought them to the point of parting their ways with the Scientists of Compounds who are deteriorating the environment, destructing the habitats, and damaging the food webs with their experimentations. It means that Gardeners find peace of mind in being

cautious. Adam One also admits in the text "I was a scientist….But then, I saw a great Light. I heard a great Voice. And that Voice said….Spare your fellow Creatures!" (*TYF* 31).

Adam One is freaked out at the killing of animals because he has seen them being butchered by the scientists of the Compounds. He has an empathic soul and thus he wants his environment to be saved from ruin. Hence, he is seen preaching his interests in the name of morality, purpose, and religion. On another occasion, he speaks:

> We God's Gardeners are a plural Noah: we too have been called, we too forewarned. We can feel the symptoms of a coming disaster as a doctor feels a sick man's pulse. We must be ready for the time when those who have broken trust….will be swept away by the Waterless Flood, which will be carried on the wings of God's dark Angels that fly by night[…]. (*TYF* 62)

Well, just like Noah, the Gardeners are blessed with the sense to predict the flood and they believe it is their foremost duty to save their fellows. Their Gardens are like the arks which were built for safety. Hence their religion is their acting guide leading them to the reserve. The prediction of Gardeners can be studied as the intellect of human beings who have the ability to judge the outcomes of their doings.

Leonhard gives an ultimatum demanding to be observant. He suggests that although the precautionary lifestyle is conceived by the use of human foresight for expected possible threats, the chief principle of this mode of living is also a source of apprehension (110, my paraphrase). In contrast, in *TYF*, Gardeners do not realize that they are halting human welfare with their unsound precautions. They are the unswerving believers that the system of the world must not be interfered with at all. Just like, human beings do not want to be interrupted in their affairs and dealings, how could they think God would allow them such offense? However, Adam One blows a ray of hope among the people many times. Whatever the times are like and how unsatisfied they feel, with the surrounding upheaval, he still shows hope in life. Yet, they do not look for a balanced solution. They forget that curiosity and creativity are the core part of their humanity. As Leonhard also proposes the idea that a precautionary attitude is not only the repulse and refusal of the techno-scientific progressions. It advocates the idea that human beings should keep proceeding with

their life in the favour of technologies after all the risk assessment and clearance (106, my paraphrase). However, we do not see Gardeners building any logical moral boundaries. They do not believe in finding a balanced moral route.

Resultantly, over time, the predictions overlay the anticipation and in the intense extremity of safeguards, the Gardeners have put a ban even over beneficial and prime scientific practices or the normalized norms of daily life. Their everyday restrictions are beyond belief and reason. They think their patchwork of safeguards would keep them far from damage. However, this is untrue. All the safety protocols and truces are misleading them and they are not living freely even in their freedom. A perilous gap exists between the belief systems of people on both sides of the Compounds and Gardens. Gardeners seem suspicious about the use of any technically made object. And as narrated earlier, it is also another form of demoting humanity. Gardeners present their rules without clear substantiation, hence, their actions also end up seeming arbitrary and whimsical.

As Leonhard instructs in the book that the demand for the proactionary principle exists in the drawbacks of the precautionary society and vice versa (pg110, my paraphrase). The text includes multiple examples of the simplest human-made tools that do nothing but good to human beings yet they are disallowed to be used by Gardeners. Such confusion abounds in the Gardens. They are staunch disbelievers of the benefits that science brings. Restraint is the frame that Gardeners use for saving the planet, precisely because they don't see any other way for the anticipated upheaval to end.

Looking more closely at the practices carried out in the Gardens, the labour that stands out the most throughout the text is a rejection of human-made appliances. They are seen as averse to the usage of dryers, escalators, vehicles, and even consulting medical practitioners. For example, Ren gives her experience: "My clothes were always dank, because of the humidity and because the Gardeners didn't believe in dryers. God made the sun for a reason," Nuala used to say, "and according to her, that reason was for drying our clothes" (*TYF* 46). In addition, Ren on her way to Bernice's explains how the use of automatic escalators was forbidden. She says: "We had to climb six flights of stairs to get to Bernice's floor because the Gardeners didn't believe in elevators except for old people and paraplegics. There were forbidden

objects in the stairwell. The Gardeners said Pleeb crooks and thugs and pimps got in at night and used the stairwell for nasty parties[…]" (*TYF* 56). The textual reference explains that gardeners do not believe in ethically upgrading themselves. They are so fanatically involved in precautions that they find faults in anything unnatural. For example, in schools, they promote the oral traditions of learning. They do not favor the idea of writing. As it is narrated in the text: "Anyway, paper was sinful because it was made from the flesh of trees. We spent a lot of time memorizing things and chanting them out loud" (*TYF* 44).

These references from the text are proof of the fact that objects themselves are not good or bad but their usage makes them so. There is a sheer need of developing morality, and ethics and drawing a fine line between right and wrong. C.S Lewis states in *Mere Christianity*:

> Law or Rule about Right and Wrong used to be called the Law of Human Nature. The idea was that, just as all bodies are governed by the law of gravitation and organisms by biological laws, so the creature called man also had his law-with this great difference, that a body could not choose whether it obeyed the law of gravitation or not, but a man could choose either to obey the Law of Human Nature or to disobey it…. They know the Law of Nature; they break it. (4-8)

Hence, everybody has a sense of right and wrong. If anybody does not decide to adopt them then they should be held responsible for that. In the text, the Gardeners share similar beliefs but they are only grasping straws with their precautionary measures.

In his book, Leonhard says that the use of technology should be decided "how the outcome would feel for us humans….It's about whether we are rooting for Team Human or Team Technology" (57). In *TYF*, Gardeners are too biased in their disapproval of any branch of STEM. They do not even explicitly approve of the things which are of benefit to humanity. In medicine, they have confidence only in phytomedicine i.e., herbal treatments. Their faith staggers in synthetic and pharmaceutical products and it is questionable. I am using the word questionable because repudiation of medication brings them loss of lives in the end. In the text, Pilar, the senior Eve, tells Toby that there had been doctors from Compounds who have left their jobs due to their guilty conscience. They could not sell their soul at the

price of slaying their humanity. They preferred living and working with the Gardeners and leaving their luxurious lives. (*TYF* 66, my paraphrase).

All of this scenario, that is built up in *TYF*, brings forward the issue of whether they would be able to save the planet just by stepping back and letting others do what they want. The answer to it exists in the statement of Robert C. Morris and Robert Krajews from Auborn university "Education can have a futuristic role - a role that is an optimistic perspective with a humanistic viewpoint[…]" (130). This is why the futurist-humanist reading of the text emphasizes that should not we prick the conscience of others in the right way for the greater benefit! It highlights the concern that if Gardeners can predict the upheaval, why don't they use it for the right purposes in well-balanced ways? Like all the futurist thinkers, the text *TYF* also promotes it as the responsibility of human beings to educate their fellow humans about right or wrong.

Although Gardeners are playing their part yet it is not thoroughly reasonable. They have banned every medical person from internists to surgeons living outside the Gardens[29]. For example, taking treatment from dentists and using mouth and tooth cleaning products like medicated gel dentifrices are nasty to use for them. They like brushing only with frayed twigs. Ren remembers, "The Gardeners were against refined sugar products and were strict about brushing, though you had to use a frayed twig because they hated the idea of putting either plastic or animal bristles inside their mouths" (*TYF* 142). The senior Eve, Pilar, is considered to have been suffering from a stomach virus. She keeps taking herbal medicines for the stomach. However, through a friend from Compounds, she has already been diagnosed with cancer. She unfurls in a conversation with Toby: "I got the diagnosis," said Pilar. "It's cancer…. I sent in some biopsy samples…. We hid them in a jar of honey and smuggled them to the diagnostic labs at HelthWyzer West — under a different identity, of course" (*TYF* 118).

However, when Toby suggests her treatment from Compounds, she denies crossing the boundary of the Gardens. It is because she understands that entering into the gates of Compounds even for the treatment would be counted as fickleness to the pledges which she made with the Gardeners. She says, "You know our views on

[29] In *TYF*, Gardens are the eco-friendly areas in which Gardeners strictly abide by the rules to protect the biosphere.

hospitals. I might as well be thrown into a cesspool. Anyway, there's no cure for what I've taken" (*TYF* 118). She keeps her disease hidden and later passes away by consuming a poisonous mushroom; Amanitas Ocrelas, "the death angel" to relieve the pain caused by the growing disease. It is so ironic to find that their rejections are for the betterment of humanity yet they are losing their fellows without any regrets and calling them "unfortunate incidents of nature" (*TYF* 121).

Gardeners fail to understand "Technology is neither good nor bad…We must decide and agree which exact use is evil or not" (Leonhard 75). Avoiding Corps medication and pills is a vent of not believing the medicinal progression. Lucrene had been ill in the text and the Gardeners considered it implicitly prohibited to use the medication from a corporation like Helthwyzer. She also relies on home remedies after she has started living with Gardeners. Her daughter, Ren, recounts "Corps pills were taboo among the Gardeners[…]" (*TYF* 75). Lucrene does not think the precautions taken by the Gardeners would do any good to them or anyone else. She thinks they are only making the rest of the people subject to flogging by their disciplines. Furthermore, following a keen shunning of Scientific ideals, the narrative of *TYF* displays a further fact-finding into life at the Gardens. Gardeners just think about living, they do not plan about summiting the impossibilities as governed by Compounders. Their urge to the aversion of replacing and playing Gods, by interfering with the systems of Earth and letting things be, arises from their religious rather than moral foundations.

According to Gerd Leonhard, an unduly precautionary society is of no benefit because it may cease the world system. He does not support a thorough inert form of life because humans are not born only to breathe, eat, sleep, and reproduce. If they are bestowed with a thoughtful brain, it obligates them to calm their wonders. We see Gardeners are living in a delusion of saving themselves. They are exercising a similar stratagem of blacklisting everything on the index of scientific achievements. They suffer and the reserve serves no benefit to the Gardeners in the end. It means that safety does not exist in what Gardeners think. So, what will be a great line of cleavage between the regression and progression? It is morality. As Leonhard proposes in his book, "Technology has no ethics—but humanity depends on them" (Leonhard 146). Comparatively, Gardeners behave too skeptical towards everything and without any rational moral bearing.

Coming to the narrative of information technology, Gerd Leonhard dictates that our laptops, smartphones, and the internet are already ruling our world. They know everything about us. Although everything is at our fingertips and one touch away, we must not forget technology is calculating and keeping records of all that we do. Every socializing website uses "real-time feedback algorithms" which calculate the interest of the viewer and direct videos to their addresses accordingly (Goodman 70). Algorithms know us more than our friends and families. "You search, and it tracks and records the queries, not to mention every link you click on" (Goodman 70).

There are many pledges that we agree to without our knowledge of the fact that we are compromising our privacy in the name of convenience. Talpalaru strengthens her ideology of man's historical blip from one form of knowledge to the other from classical times of the seventeenth century to modern times of the nineteenth century by quoting Foucault's pedagogical transformation of man i.e., "discovery of man as a scientific unit" (Foucault qtd. in Talaparu 246). It means that contemporary human beings are more science-driven than the human beings in past times. The Gardeners have similar fears and thus out of fear they have banned the usage of any such cellular and digital product which can be harmful. For example, Ren recalls when she once finds a camera phone on her way home. She keeps it hidden from Eves yet is caught off guard by them. They tell her, taking the phone away, "Such a thing can hurt you" (*TYF* 45). The contradictory beliefs of the Compounders and Gardeners have created an imbalance in society and this is what Gardeners believe in.

Gardeners' high level of managing a precautionary society can be perceived as controversial through the futurist-humanist lens. The partiality of Gardeners to the usage of technology and not preaching its fine use to others is contentious yet understandable. As Leonhard suggests that once marketed the use of precautionary principle will not be able to halt the ineluctable scientific progressions. All the hazard clearance and declaration should be done before undertaking a project (75, my paraphrase). In the world of *OC*, we witness that they have the latest automotive technology for the development of eco-friendly vehicles while Gardeners are still stuck on the use or no use of vehicles. For instance, despite unyielding restrictions on all of the members, the leaders own objects like mobile phones, laptops, and trucks secretly. Hence, there is a wide void in their precautionary society. Toby is shocked

when she hears about Gardeners having cell phones. The text reveals the reassurance of Adam One:

> [T]hey never went online with it except with extreme precaution, they used it mostly for the storage of crucial data…and they took care to conceal such a dangerous object from the Gardener membership at large — especially the children. Nevertheless, they had one. (125)

Hence, even Gardeners can not resist the inevitable use of information technology but alongside this, they also fear unconstraint science and technology.

## 5.2 Androrithms: Humanity and Survival

In his book, *Technology vs Humanity: The Coming clash of Man and Machine,* Gerd Leonhard reflects on the possibility of the holistic existence of technology. Would technology be able to replace or transcend human beings? According to Leonhard, the answer is no (14). For him, it will always be void of "meaningful relationships" (90). It is because technology might become able to simulate human beings yet it will not produce machines with values, belief systems, mindsets, and other essences like HECI (humanity, ethics, Creativity, and Intelligence) (Leonhard 17, my paraphrase).

Human beings are social beings. They thrive together with the challenges and with the cooperation of each other. They survive by sharing love, passion, compassion, and empathy which exist within the core of the human heart. In case of any loss, they live through the pain. It shows the presence of androrithms in them. The rest of the species don't have the intellect to decipher the reasons behind what is happening around them. Existing alone without fellow beings is not part of human instinct and if such a time arrives it would only end in destruction. This is what God's Gardeners fear. They sing the hymn which is a clear proclamation of the green earth. It picturizes how the earth had been made in the image of heaven with creatures of all kinds living with freedom equally. However, they verbalize their mourning over these things because the times are changed. There is disfigurement of everything around which they believe is caused by some "greedy spoilers" (*TYF* 4). Thus nature is no more in its zenith and Gardeners are there to mourn the vandalism until it is restored miraculously. *TYF* states:

Twas once the finest Garden

That ever has been seen.

And in it God's dear Creatures

Did swim and fly and play;

But then came greedy Spoilers,

And killed them all away. (*TYF* 4)

The hymn speaks volumes about the humanistic concern in which there is not any celebration of the impeding havoc. They indeed include everybody working for the benefit of their interests in *OC*. This is why, there is a yearning to regain what has been lost in times of negligence, manipulation, and experimentation. The text states "Oh Garden, oh my Garden,/I'll mourn forevermore" (*TYF* 4).

Leonhard says "we must act with much greater foresight, with a decidedly more holistic view, and with much stronger stewardship as we unleash technologies that could end up having infinitely more power over us" (7). In post-apocalyptic times, the lamentation of Gardeners speaks about the undeniable loss with the undying wish to get things back to normal. Gardeners believe the world in its earliest times had been in peace and harmony because at that time human beings were humble and dignified. They had empathy for others. It was the time when human beings had ethical concerns and they were careful not only about themselves, and their rights but also for the rest of the animals beyond their species. Individual freedom mattered to all. Gardeners delegate themselves the duty of saving the planet. Their sermons teach us to respect and bear proper morals for all the creatures that human beings possessed since the beginning of the world.

Human beings are the ambassadors of the world with minds and thoughtfulness. So, they are more responsible for it than anybody else. God has given them the existentialistic truth. They are brought into the world with freedom of choice. They can make choices and then live to bear the fruit of what they chose. Human beings are bestowed with the greatest finesse. So, it is upon them to protect the environment, the surroundings, and everything that makes up the planet. As the Gardeners wonder in the text: "How much have we lost…How much have we

willfully destroyed! How much do we need to restore, within ourselves!" (*TYF* 11-12).

Here exists the conflict between the Gardeners' thought with the futurist-humanist thought. It is because Gardeners want all human beings to halt without the formation of any rational boundaries. Brooding, working, and winning a situation is something in-built into humans. Seeking knowledge and hunting for the unknown is human instinct but according to the Gardeners, it is the lust for knowledge that caused their fall in the past. As it is narrated in the text: "Toby would be granted a smile and a change of subject, and a hint that she might try avoiding the original sin of desiring too much knowledge, or possibly too much power. Because the two were connected[…]" (*TYF* 69). For Gardeners, the reason for fall will be the same in the future. In contrast, futurist-humanists believe that human beings need to understand that evil instincts lie within every human being and it is the restraint that keeps them afloat.

Like Snowman from *OC,* Toby, the first survivor and narrator of *TYF* also keep the hopes and fears of Snowman. She anticipates the life of her fellow Gardeners, especially Adam Seven, Zeb. After the flood, Toby who seems isolated in some farmland becomes extra conscious of the surroundings. She worries about them, more than anything else. Although she finds herself safe with nature, the pain of loss pricks her with regret. Her compassion, kindness, and empathy, have not died along with all of the death laying around. She is angry over her fate. She is not happy with being safe. Her loneliness takes her into the grips of anger and at times she does not even know who is she angry at! (*TYF* 59, my paraphrase). However, her part here gives the lesson that human beings are social animals and living without a society of their own is like hell. She is restless in some ways in her loneliness and finds herself shrinking like Snowman but her belief in being kind still exists especially when it comes to killing animals for her self-defense. When Toby is alone and she is encountered by Pigoons, she still chooses to be kind. The text reveals: "She holds one of the pigs in the scope — the boar, an easy shot, he's sideways — but then she hesitates. They're God's Creatures. Never kill without just cause, said Adam One" (*TYF* 15).

It is the quality of human beings that they remember and long for the foregone days. Memories, either good or bad, implant a place in the consciousness of humans. The craving to bring back the good times keeps human beings on their toes. They relate their present times to the olden ones, especially if golden. Hence, it makes them different from the rest of everything existing around them. For example, Toby keeps a record of every day during the flood. She feels herself going through similar risings of the desire to find creatures like her. "There must be someone else left, though; she can't be the only one on the planet. There must be others" (*TYF* 10). She constantly hears the voices of Adam One and Zeb which keep her going. Although a lot has been destroyed and there is very little or no hope at all for the other survivors, Ren out of her sincerity goes to search for Amanda, her friend. Later, with the efforts of Ren, the two unite, fortunately after bearing the same challenges of hovering between life and death all alone. They would dance together to live the moments of agony with less pain. They treasure the company of each other and miss their lost companions. It is their androrithmic quality that they feel the pain and they struggle to lighten it.

In contrast, Leonhard in his book says, "We need to take precautions, and we need to remain proactive" (69). However, all these instances bring up for consideration that creativity and curiosity are also part of androrithmic qualities. Are Gardeners any less human because they do not support creativity and curiosity? The answer to the question is yes because the gap in their human instincts makes their humanity dwindling and unsteady.

Similarly, the dilemma of Snowman in *OC* is the same. What a wry irony of life he seems to be facing! The creatures that he had seen being developed by Crake are bringing him discomfort. He does not want to face them for his comfort and satisfaction. In contrast, he has a sense of realization, memory, thoughts, and repentance that the scientifically engineered creatures do not have. He regrets, "Things happened, I had no idea, it was out of my control!" (*OC* 34). While Crakers lack the emotions, feelings, and pain of the loss in them. It is narrated in the text:

> [T]here's a stream with fresh water a quarter of a mile away; at one place it widens into a pool. Initially, he'd gone there to cool off, but the Crakers might be splashing around in it or resting on the banks, and the kids would pester him to go swimming, and he didn't like being seen by them without his sheet.

> Compared to them he is just too weird; they make him feel deformed. If not people, there might well be animals: wolvogs, pigoons, bobkittens. (*OC* 32)

Crakers don't fill the aura of being human beings. Human beings cannot pass on their feelings to their genetically engineered simulations. They can not make them feel like human beings do. While missing the company of other human beings, Snowman remembers how Oryx would tell him about the importance of company and conversation. "Someone to talk to was nice" (*OC* 35). Hence, the events narrate how human juices (HECI) make human beings different from other creatures. Thus none of the other creatures should be grouped in a human group.

Gardeners realize that Adam and his progeny are not created to be replaced by non-human beings. This is not the purpose of human beings and they must recognize their purpose to be good. The realization becomes stronger once the flood hits the Gardens. For instance, Ren speaks her heart out when they see Crakers safe but devastation and death of human beings around. In *TYF*, Ren raises the morally anemic behaviour of human beings:

> Are the new people Your idea of an improved model? Is this what the first Adam was supposed to be? Will they replace us? Or do You intend to shrug your shoulders and carry on with the present human race? If so, you've chosen some odd marbles: a clutch of one-time scientists, a handful of renegade Gardeners, and two psychotics on the loose with a nearly dead woman. It's hardly the survival of the fittest[…]. (*TYF* 269)

No matter what it is, human beings count the loss and their realizations are beyond any creature. Technology does not understand the catastrophe that has befallen the earth. Sprayguns work the same in the hands of Painballers and human beings  They do not differentiate between harmed and harming. As Talaparu also suggests "the first two novels from Margaret Atwood's projected *MaddAddam* eco-trilogy, *Oryx and Crake* and *The Year of Flood* demand an investigation into the causes of the dire image they present of the near future. Greed-driven disregard for the environment emerges as the palpable surface cause" (1). This is why we see Gardeners regretting the catastrophe.  Human beings with their conscience have the power to take responsibility and they do. Although they give their best in guarding the planet, they could not save the skin of all humanity from misfortune. The earth is vandalized

(destroyed). The vandals are none other than its knights (homo sapiens). As Leonhard also proclaims in his book "One fears it is almost certain that technology will eventually trump humanity if we merely follow the proactive approach as set forth today" (108).

*TYF* raises a similar question of whether such kind of rearward living would do. However, the answer is, if two societies come to a conflict as depicted in *OC* and *TYF,* there is the extreme possibility that the proactionary society with its grand yet undesirable consequences would take the precautionary society in its whirlwind as well. As Leonhard also remarks:

> Too much precaution may paralyze us with fear and create a self-amplifying cycle of restraint. However, a purely proactionary approach won't work for us, either, because there is just too much at stake given the exponential, combinatorial, and interdependent nature of technological advances we are now experiencing. (108)

The people working recklessly will not be able to lock up the consequences only. For example in the text, the virus does not build fences between two different societies. It only grows and spreads from the people of the Compounds to the people of the Gardens without any demarcation of ethical and moral boundaries. The text particularizes it:

> This was not an ordinary pandemic: it wouldn't be contained after a few hundred thousand deaths, then obliterated with biotools and bleach. This was the Waterless Flood the Gardeners so often had warned about. It had all the signs: it traveled through the air as if on wings; it burned through cities like fire, spreading germ-ridden mobs, terror, and butchery. The lights were going out everywhere, the news was sporadic: systems were failing as their keepers died. It looked like total breakdown[…]. (*TYF* 20)

And finally what happens to most of the Gardeners' population is nothing but death. Hence, the outcomes of uncontrolled scientific workings do not watch out for their boundaries. The consequences are malicious with everybody either guilty or not. As Leonhard also says "Our challenge will be to find and keep that balance between Pandora's box and Aladin's Lamp" (108). Hence, as soon as we move further in the text, it is put on the view that the sole restraint of a group does not save the planet.

The wrath of science takes everyone in its flurry including the Gardeners. Accordingly, Atwood's texts and the downfall they portray are the clear claims that there is no future for unhampered research in the world.

## 5.3 Conclusion

In the above sections of my chapter, I have analysed *TYF* under different subheadings according to my need for the topic. I have discussed that Gardeners have an understanding of the potential outcomes of ongoing scientific activities. Hence, they have adapted themselves to the restricted ways of life in this text. However, surprisingly, they prohibit the utilization of even simple human-made products. My study discusses that like proactionary lifestyle, this kind of preventative lifestyle is not completely moral as well, and it can be studied as a foil to the lifestyle observed in *OC*.

In my study, I have examined that human beings are specially made with essential essences called androrithms. Humanity, emotions, empathy, creativity, curiosity, and intelligence are coherent to human existence. Their presence differentiates them from the rest of the creatures. This part of the chapter also analyses how keeping possession of human essences is necessary for the maintenance of balance between humanity and science. My study conveys that the process of halting curiosity and creativity is not an innate aspect of human experience. A rigidly precautionary form of life is also a kind of dehumanization. Hence, human beings need to find an ethically well-balanced life for themselves. The next chapter of my dissertation is based on the textual analysis of *MA*.

# CHAPTER 6

# *MADDADDAM*: FROM PROGRESSION TO REGRESSION

> We are no longer who we thought we were, if we thought we were modern, human, and progressive.
>
> -Caren Irr, "Climate Fiction in English"

The third chapter of my analysis starts with the background of *MA* from *MAT*. In this chapter, I critically bring forward the ideology that works behind Atwood's persuasion about the unsafe future. It is about the aftermaths of self-indulgent and hedonistic scientific and empirical activities. In his book, Leonhard shares a belief that overtake of technology would be a relegation rather than amelioration (9, my paraphrase). The journey from progression to regression and then a stay at the bottom of the slope can be quite darkening and gripping for the nerves.

Leonhard asserts at the beginning of his book, "[T]he future does not just happen to us—it is created by us, every day, and we will be held responsible for the decisions we make at this very moment"(1). This is why, in my analysis of *MA*, the consequences brought by the uncontrolled experimentation and works of the scientists from Compounds prove to be a downhill move. It is the movement that happens within no time and things plummet in the blink of an eye. To be more specific it is the wrong use of technological objects that always brings human beings toward a downgrade in society rather than an upgrade. Similarly, Elizabeth Fenton in her article states, "[H]uman rights be the new lingua franca of bioethics. Both seek to provide the conditions under which humans can flourish" (3). Thus according to futurist-humanist thinkers, all human action should be carried out under proper supervision of such ideology that qualifies moral rules. In *MAT* we observe how the heedlessness of scientists brings a vivid disruption of both bioethics and human rights in post-apocalyptic times. This is why the survivors who live in the premises of *MA* are seen facing the conditions of pre-historic times since the apocalypse happened. Every center in Compounds that had been once the place of skyscrapers, the latest technology, labs, testing rooms, the wide web, Nanotechnology, and everyday

systems are replaced by sweeping marks of deceased families. We see the desolated setting and every character acting as bereaved in his way.

*MA* deals with the union of the survivors from the first two parts of the trilogy. It identifies the challenges that they go through and their survival instincts. The story becomes quite grim than the two former parts because human beings have gone extinct. The text begins with the joining of Toby, Ren, and Amanda. She is freed from the constraints of Painballers by Toby and Ren. It is also the point when they meet Jimmy in a wounded condition. The sense of the passage of time is given by the adolescence of a Craker's child. The narration also reveals the truth of the epidemic while Toby narrates the story of the past to humanoids. Amanda and Ren become the victim of inconceivable bestiality when Crakers assault them. Toby terms it a "cultural misunderstanding" while it gives the readers a soul-shaking sense of human replacement by human-made individuals (*MA* 19). However, the ending of the text inclines to the blurring of human and humanoid boundaries.

The text also envelops Snowman's regret over whatever is happening to them. He becomes a figure to prick the conscience of the readers. As the article "These Overheating Worlds" rightly states "[N]ovels are hypothetical, they can speak the unspeakable, they can say what they know is wrong, they expose the speculative nature of all knowledge and, in this, what they do know is unassailable" (Saunders qtd. in Strauss 344). This is why *MAT* seems to justly serve the purpose.

Futurist-humanist thinkers like Leonhard show deep concern over the diplomacy behind unchecked scientific thoughts. They believe such businesses run down human centrality in the world. I have already discussed in the previous chapters of my analysis that neither unconfined technology spares subversive scientists from Compounds nor Gardeners from Gardens. Nobody is at bay from the torments and traumas of the "waterless flood" (*TYF* 44).

Talapalru in her article "Extinctathon: Margaret Atwood's Urge for an Immanent Episteme in *Oryx and Crake* and *The Year of the Flood*" writes "the scientific knowledge as a malignant form of study because of its lacking humanistic episteme" (243). Human beings must occupy a driving seat to drive society in the direction of progression with stability and ultimate human ease. *MA* deals with the end of most of the human population at a later stage yet it directs the attention of the

readers to the fact that Atwood is not solemnizing the regression. Canavan remarks "Atwood presents a bleak, declinist vision of the future that is fundamentally at odds with the traditional science fiction trope of continuous progress….To Atwood, dream of flight turns out to be only a delusion—at least for us" (149). In this chapter, I discuss how ethical boundaries should be necessarily drawn for secure existence. It means there is a crucial need to find the rational gaps which could not confirm the complete welfare of humanity. I also discuss how science and sustainability are co-related according to futurist-humanist ideology. Lastly, I examine the concept of Hellven keeping in view my primary text *MAT*. I have divided this chapter under the following sub-headings:

- Apocalypse: A Forewarning
- Science and Sustainability
- Hellven: Hell or Heaven
- Literary nature of *MAT*

## 6.1 Apocalypse: A Forewarning

In *MA* we have Jimmy who is the only survivor from Compounds while all the other characters including Amanda, Ren, Toby, Zeb, Crozier, Swift Fox, and the rest belong to Gardeners and MaddAddamites. We don't see any of them roistering and reveling sequela or the unbound technological progressions of their past. They are trying their best to makeshift with whatever is left for them, i.e. the surviving challenges followed by the pain, nostalgic chaos, and future anxiety. They try to keep up with life and find solace. The living standards of survivors including Compounders, Gardeners, and MaddAddamites in *MA* are wracked. As Canavan also opines in her article "We quickly come to understand that the ethical and ecological horrors that constitute this society, on every level from top to bottom, structure survivors' entire life" (142). As the narrator in *MA* informs, they build themselves a shelter, Cobbhouse; made of mud and wood, "this morning Ren and Lotis Blue are mixing up the mud, straw, and sand in a plastic wading pool[…]" (*MA* 93).

Similarly, the writers like Jared Diamond, Marshall Sahlins, and Daniel Quinn argue "[N]ot only that we were happier in the pre-technological tribal context, but also that one way or the other, ready or not, we will be returning to it shortly" (Diamond et al. qtd in Canavan 147). Additionally, in *OC* we see Snowman thinking

to himself, “If only he could find a cave, a nice cave with a high ceiling and good ventilation and maybe some running water, he’d be better off” (*OC* 32). The event takes us back to the pre-flood times in *TYF* when Ren remembers her life in the Compounds. These occurrences indicate that a move from “fully furnished and superficially comfortable rooms of new buildings of Compounds” to post-apocalyptic mud huts is shown in the form of relegation (*TYF* 138). The survivors have learned to compromise with a primitive way of living with no latter-day technologies that used to be part of Compounds. Similarly, the post-apocalyptic experiences in *MA* show that the survivors are “living to see man-made horrors beyond comprehension” (Tesla qtd. in Leonhard 5). They have not adopted this primitive form of lifestyle by choice. Hence, the text relays a warning that maintaining boundaries is conveniently practicable instead of risking life and starting life from scratch.

## 6.2 Science and Sustainability

*MA* is about the efforts of characters for the maintenance of the human future. As Leonhard voices in his book “The scientific possibilities that will be unleashed will blow away anything we have dreamed of, while simultaneously bringing enormous ethical challenges” (3). We witness ethical challenges all along *MAT*. In the past, as they had been playing with the splicing of different animal species, in the post-apocalypse times the biosphere plays with them and they are bound to be reduced to a few individuals only. The writer unclads the dismay of Toby in the narration as: “She’s conscious of counting heads each morning, making sure all the MaddAddamites and former Gardeners are still in place: that none among them has strayed away during the night, into the labyrinth of leaves and branches, of birdsong and wind song and silence” (*MA* 133). Thus it is the humanistic note of the text that they respect all the creatures but they prefer the safety and survival of their fellow human beings.

Alongside recognition of the detriments of science, *MA* also recompenses the benefits it ushers. As Leonhard also proposes that technology is neither good nor bad. It is the way, we use it, that makes it so (75, my paraphrase). However, in post-apocalyptic times when people are having trouble living a normal way of life, many a time, it is scientific inventions that are accommodating them. The exploration of text evinces that it is not the science and its products that have the darker side only, it is the use. In *MA*, all the survivors from the Gardeners initiate using basic scientific

products without any ill will. For example, while living in the Cobbhouse and forest, their beds become bug-ridden. When Swift Fox cannot sleep because of the biting, Rebecca suggests the use of pesticide spray. Swift Fox and Rebecca exclaim in a conversation:

> "Ooh, I could go right back to bed! Hope you slept well. I fucking didn't! We need to do something about the bugs."
>
> "There's spray," says Rebecca. "We've still got some of that citrus stuff." (*MA* 138)

Hence, the Gardeners, who were rejecting the use of the simplest beneficial products of science or technology, have revived their belief in science as a helping hand in sustainability. On another occasion, when they are sick, they head for the drug and grocery stores which provide medicines and food unlike the organic foods and natural treatments of the Gardens. For example, during their visit to the drugstore, Rebecca munches choco neutrino cereal without caring about the sell-by date because she thinks it is better than eating mud to trace the lack of minerals. Toby and Rebecca discuss after they visit drugstore, "There's some Choco-Nutrino…. Anyway it's fortified with vitamins and minerals. Says so on the box. So we won't have to eat mud for a while" (*MA* 136-137).

Although these are very small instances alluding to common agricultural and manufacturing productions yet it is reinvigorating the influence of beneficial industries. This episode of the text also takes the readers back to *OC* where readers see Snowman consuming a caterpillar. The text manifests it as follows:

> A caterpillar is letting itself down on a thread, twirling slowly like a rope artist, spiralling towards his chest. It's a luscious, unreal green, like a gumdrop, and covered with tiny bright hairs. Watching it, he feels a sudden, inexplicable surge of tenderness and joy…."We are not here to play, to dream, to drift," he says to it. "We have hard work to do, and loads to lift." (*OC* 30-31)

Snowman seems so helpless, defeated, and vanquished that a human being in his memories who used to be a part of a great glorious past is seen feeding himself on food consisting of insects to meet his vitamin deficiencies. Hence, we gather from the

discussion that as Leonhard suggests that the progressions are happening at an exponential rate then the disgrace of failure may happen at a faster rate than progress (107, my paraphrase). Similarly, the book review titled "The Return of the End of the World" also clearly emphasizes "As science fiction continues to mature, scholars continue to grapple with the myriad ways in which our present mistakes might destroy our future" (Hicks 348). Hence, the human beings need to understand that if they do not pay heed, the loss of power may happen irreversibly in a snap.

Leonhard admits the fact that science is already astonishing human beings with its inventions. However, he also believes that the magics of science have tendency to turn into menaces. As he predicts in his book: "The challenge to our humanity is lurking larger every day, the magic quotient is exploding and maniac is never far away[…]" (77). Therefore, my study finds out the post-apocalyptic situations of *MA* as an allusion to the mania as suggested by Leonhard. He also believes that human beings are standing at a point where exponential developments can either glorify or vilify the human position. It does not suit human beings to choose vilification of their glorification (77, my paraphrase). However, in *MAT* the human centrality has been run down. However, after the reunion of the human group in the novel, *MA*, there is little breath of hope among them. No matter what their past lives were like, they are willing to get themselves prepared for the safety and rehabilitation of the human race. They make pairs and decide to live on loving each other. Their will to live and restart the human race indicates their sense of authority and consideration.

Human beings are the center of the world and the leader of all species. They must survive not only for the present times but for the days to come as well. The survivors admit there is no replacement for their species. Humanity must be preserved without any further loss of life as this form of post-apocalyptic lifestyle is not temporary. For all the survivors, survival means beginning from scratch. They know that they have to manage and things must be managed intelligibly. As Toby instructs in the text "They're so few in number, so necessary to one another. Sometimes this encampment feels like a vacation of sorts, but it isn't. They aren't escaping from daily life. This is where they live now" (*MA* 183-146).

Leonhard proposes that the development of technology is like a compass that guides human beings to empowerment. After that, it augments their power. Finally, it

threatens their humanity (138, my paraphrase). In *MAT*, in the past life, the survivors and their late fellows had seen empowerment and glorification. However, their doings have brought them to the point in life where they are worried about the few leftover members of the human race. They think that the world belongs to them and it is up to them to keep life going when there is a low possibility of saving humanity on the planet. It is put in danger at the hands of their fellow species so they have the responsibility to make amends. Swift Fox thinks about the restart of the human population and recommends gestation. Her idea of getting into the family way shows an inclination to save the human race. It also elucidates the responsibility rests on the few individuals who are left. During a hunt in the marketplace, Swift Fox, Ren, and others unravel their thoughts in the following manner:

> "Count me out," says Ren. "Who'd bring a baby into this?" She sweeps her arm: the cobb house, the trees, the minimalism. "Without running water? I mean …"
>
> "Not sure you'll have that option," says Swift Fox. "In the long run. Anyway, we owe it to the human race. Don't you think? " (*MA* 152)

On a similar occasion, Lotis Blue communicates her interest in breeding the human population. "Who'd be the dads?" says Lotis Blue with some interest. "I'd say take your pick," says Swift Fox (*MA* 152). Thus, the will for continuity of life keeps the hope of moving forward. They are not eager to leave the planet in the hands of creatures that are not human. Their eagerness to live despite being on the verge of dying explores their readiness to exist and retain their progeny.

Hence, *MA* is the warning that human beings are the center of the world and they must keep control of the systems. However, in the words of Leonhard, the proposed technically well-equipped life anticipates both victory or defeat of human centrality in the hands of technology. They must have their freedom regardless of any bounds that keep them cut off from the rest. However, the life of human beings like all creatures is precious and it must be taken care of.

## 6.3 Hellven: Hell or Heaven?

Leonhard says that the knowledge of human beings in any form, and its usage can be either hell or heaven (161, my paraphrase). He says, "I come from a background

that supports technology. I think technology has the potential to solve the gigantic problems of the world. Science is progressing rapidly but it could be both either heaven or hell. Hellven—an inevitable path!" (148). Correspondingly, the fictional creativity of Atwood reflects how the world in *MAT* dwells on the idea of Hellven. There are many events that manifest technology as a "could be the source" (my phrase) of both heavenly or stygian outcomes of living. For example, during the intense situation of the apocalypse in *MA* portable communication technology is missed by Toby. Zeb and the others are away on the food and medicinal hunt in the drugstore and they lose contact with the rest of the survivors. At that time Toby thinks about the breakdown of the cellular connections. She regrets not having any source to interact with those who are lost in their hunt for food and medicine. She grows so desperate that she even fears Zeb to be dead. She contemplates:

> But where is Zeb? Why isn't he back yet? Has he found Adam One? If Adam's injured, he'll need to be carried. That would slow them down…. If only the cellphones still worked. But the towers are down; even if there were still a power source, no one here would know how to repair the tech. There's a hand-cranked radio, but it ceased to function. (*MA* 148)

This post-apocalyptic event with dead digital technology shows how it has crept into our lives. In *MAT,* it is an indication that although cellular use was alarming in pre-apocalyptic times yet the fact cannot be denied that "Mobile devices and hyper-connectivity have become integrated onto and into our bodies[…]" (Leonhard 163). However, in contrast at the later stage, Zeb also reminds the possible insecurities from these online devices. He remembers Adam telling him, "[E]ven if you thought your space was secure. The net had always been just that –a net, full of holes[…]" (*MA* 294).

Although information technology has mitigated labour, dropped off distances, accelerated pace, and alleviated isolation yet it is also impoverishing human beings from human company by the provision of hedonistic pleasures. It is also invading the privacy of individuals. Hence, *OC* promulgates the fact that how information technology is reigning over human values while in contrast, pragmatically it also has brought much ease to human beings. Information technology or artificial intelligence is not a thorough replacement for human beings. However, human beings need to

understand algorithms do not have a built-in ethicality and value system but they, Homo sapiens, have them. Hence, the contrastive opinions, in *MAT,* convey a message for both ideologies, i.e., the wider capacity for connectivity and the existing insecurity alerts. Therefore, as proposed by Leonhard, digital technology creates a state of Hellven for its users.

Inequality of progressions and provisions is also seen in the world of *OC*. On one hand, the advancement is so high that they are introducing newly genetically transformed animals while on the other hand, in another part of the world, we hear "people are dying because of a disease identified as Kidney disorder" (*OC* 92). All the transgenic animals like Pigoons, Wolvogs, Rakunks, and Crakers are later kept safe in the Paradice and a large sum is spent on their survival, breeding, and safety while the poor people are not provided with the proper medication or any other source of treatment. They get the fundamental provisions of life at the cost of selling their children. For example, Oryx is sold by her parents alongside many other children from the same region. Hence, this is also the unequal dispersion of resources as anticipated by Gerd Leonhard. It also paints a picture of our present world. It is no lie but a seen and observed truth.

In addition, in *OC*, the project of rockulators in Compounds is the source of attention for its water storage properties during times of heavy rains. The water can be later consumed for the benefit of humanity. However, most of the projects at the Watson-Crick Academy are patent. Keeping profitable projects patent is unnerving because it is not prescribed whether the water and other facilities will be equally made available to the needy during times of need for free regardless of their nation, state, culture, and race or not. Would plantations of such projects be done in faraway places where there is a desperate need for water? According to Leonhard theoretical postulation of Hellven, if these technological and scientific projects discussed above are only money spinners and are supposed to benefit partially a portion of the population then ultimately it is going to be a Hellven state (128, my paraphrase). If they work properly it is heaven and if they are not intended for any good then obviously a hell. The uncertainty of consequences that exists there, in the intentions of man, makes the situation a Hellven. However, the ideas are publically celebratory.

Similarly, in chapter four of my dissertation, I have also talked about iris recognition as a celebratory idea. It is one of the finest developments, but it also creates doubts nonetheless. It creates the question of whether this technology will ever be fooled. The answer to the question is probably yes. The vulnerability of iris recognition and face scanning is under process. There exist spacious chances of dodging these technologies. As Leonhard suggests that technology knows no ethics but human beings have them (133, my paraphrase). Hence, as discussed earlier, the technology made to fool and hack the face and iris recognition system will also be ultimately created by another human being. Thus the study emphasizes the need for the inculcation of ethics and morality. In the words of Leonhard, it is necessary "to decide for the pursuit of happiness as a universal benefit" (111). The uncertainty once again leads to Hellven.

Furthermore, many of the experimentations from biotechnology pan out to be a regression for human beings in the text. In *OC*, we see an inclination to the expansion of the human brain's capacity. There is the beginning of this thought and therefore, the initial stages of experimentation are observed taking place. To serve their purpose, scientists like Jimmy's father are seen working on the animals by genome editing, in *OC*. Just like medicines and vaccines are tested on animals before proper permission is granted for trial tests on human beings, scientists are seen working on pigs for the augmentation of intelligence. In the text, we don't see the expanding capacity of the human's brain but the intelligence and thinking capacity of pigs is increased more than unspliced pigs. They become animals with human brain. The ability to cultivate human organs in animals might sound like heaven but it leads to many ethical issues. This is why in *MAT* the consequences of the experimentation do not prove it to be a success but a regress for human beings.

For example, in *MA*, the survivors like, Swift Fox, Zeb, Rhino, and Katura travel to the drugstore for some food and medicines. However, on the way back to their camp, they are cornered by the spliced species of pigs which delays their return. The behaviour of Pigoons is not like normal pigs. The survivors from Pleebs and Compounds are aware of their capacity and this is why they keep themselves trapped within the drugstore while they encounter them. They delay the return and later on Swift Fox sets forth how they were trapped by the Pigoons in the drugstore, as follows:

> "At first they were just lurking along behind us, but when we'd finished in the drugstore and were coming out, we saw they were heading us off. So we ran back into the drugstore, but the front windows were smashed, so there was nothing to keep them out. We managed to get up onto the roof through a little trapdoor in the storeroom ceiling – they can't climb." (*MA* 151)

Similarly, in *OC,* Snowman is chased by Pigoons, therefore, he is also forced into a position of no escape when he visits a watch tower in complete desolation of post-apocalyptic times. The tower is laden with dead high-tech tools. He is scared of animals with human brains that have posted themselves downstairs on guard. They also bait him with his lost bag that he is seen searching for:

> He goes back to the stairwell, looks down. There's the bag all right, four stairs from the bottom. He starts cautiously downward. As he's stretching out his hand, something lunges….They were waiting for him, using the garbage bag as bait….Cunning, so cunning. His legs are shaking by the time he reaches the top level again. (*OC* 227-228)

Both the instances from *MAT* show that Pigoons are intellectually efficient, hence, they have become able to strategize picketing like human beings do. Consequently, in *MA,* the survivors feel potential danger towards the genetically engineered animals. The readers wonder about the probability of such animals with human brains. As in chapter four of my dissertation, I have already discussed the probability of the creation of human-animal Chimeras that exists in our world. Leonhard also unfolds that there is the possibility of human cells to be grown outside the human body as a result of exogenesis (146, my paraphrase). We do not know of any valid consequences to where they can lead, yet the ethical risks can be predicted.

Springer in his research on human hybrids states "The Japanese government just approved a groundbreaking experiment in July 2019 that allows animals to be used to cultivate human organs" (59). Growing the capacity of the human's brain must be a heavenly thought but what if the experimental units start replacing the capacity of human beings? As we see it happening in *MAT* that the spliced animal species appear more forceful than their parental types. Pigoons and all other mentioned genetically engineered animals keep human beings vigilant in the prevailing circumstances. Toby remains afraid of being killed by them. As it is

revealed in her thoughts: “They are omnivorous. They’ll eat anything. But hungry or not, they’d kill in spite. Or for revenge. We ‘ve been eating them” (*MA* 151). Hence, the mere thought of such circumstances in which the consequences are not certain put the futurist-humanist thinkers at unease. It creates the question of whether the risks are worth human sacrality. The answer is no (Leonhard 106).

Moreover, in *OC,* a similar scientific experimentation, in the field of genome editing, upshots into hell from the state of Hellven. Crake desires to make a newer form of human beings by preserving all of the desirable attributes and suspending all the vices in his sense of thought. Everything about touching the zenith with experimentation of making customized humanlike individuals sounds like heaven to the scientists. However, they fail to think about the damages it can cause. It creates confusion about whether the Crakers would be able to bring some fringe privilege to humanity or whether the tables would turn. Leonhard also puts it in his words, “Think of breakthroughs like gene editing that might prevent the development of cancer…[I]magine the potential to create human-animal chimeras, leading us to self-determine our genetic make-up[…]” (75). In the text, on one hand, Crakers are made while on the other Pilar dies without treatment. Thus the text also presents the developments of genetic engineering as Hellven. Similarly, for Leonhard, innovations like these are like the use of nuclear energy which can be of both profit and loss. Their undecided nature puts the futurist-humanist in a state of utter unease and curiosity.

In *MAT*, there are many occasions when genetically engineered humanoids called Crakers give us hope while other times they give us a cringe. For example, when survivors are in pain, Crakers know how to console them but not empathize with them. The text portrays, “Amanda and Ren were clinging to each other and crying, with several of the beautiful Craker women stroking them anxiously” (*MA* 21). Similarly, Crakers try to calm Snowman with their purring ability. Thus both the characters and the reader become of the opinion that keeping submissive creatures like Crakers might be heaven because they are docile and tamable. However, with time a continuous danger starts lurking over human beings of the lacking tendency of the Crakers to differentiate between humans and humanoids. The text narrates “How to make it clear to them that, even with the aid of floral display and serenading and penis-wagging, they couldn’t just pile on to any young non-Craker woman who smelled available to them?” (*MA* 25-26).

Apparently, humanly designed Crakers are not of much harm to them and are a good passing of time, yet they bring forth moral questions. Their creation shows the probability of Leonhard's idea that human beings will be able to "design human babies" (127). In the text, survivors do not show animosity towards Crakers. They bear soft corners for them knowing their existential crisis yet the void remains there. Crakers yield into being so gullible that they cannot think. The chief quality of critical thinking, which makes a human, is disintegrated and the newly made critters are at a loss when it comes to intellectual processing. They do not even realize the damage that has happened around them. Canavan asserts, "[The] humanistic excesses in the face of Crake's carefully crafted perfection are what allow the Crakers to transcend Crake's attempts to reduce the human to the level of an animal" (146). Hence, the cognitive abilities of Crakers are disrupted and therefore, they do not appear to be a better form of human beings. They are void of the supremacy that belongs to human beings. They indicate the dehumanization of human beings and this is what Leonhard fears. He directs that human beings need to be meticulous in any choices they make. The forewarning of Atwood instructs the same.

An article titled, "Ethical aspects with human cloning" states, "Dignity, the right to life, to consciousness and intelligence are supreme values of the human species and inalienable birthrights. Denying these values entails the possibility of subjugating the individual and thus its right to evolve" (Terec et.al 5). Similarly, I do not see the difference between animals and Crakers. Only because Crakers can speak and they are made in the form of humans, does not make them human. They are a clear insult to the superiority of human beings over the rest of the creatures. Human beings are made the ambassador of this world. Declining them of their fundamental roles and qualities is an injustice to them. It is not an upgrade because taking a human away from his best and preparing it artificially is so morally and ethically wrong. The way Crakers are described is so humiliating for the status of human beings. An article states, "Atwood's texts thus suggest to the reader that contemporary technological society needs to re-imagine these narratives if she wants to experience a future that is better than the one presented to her by the trilogy" (Bosman 166).

Furthermore, as ethical demarcations are crossed in *MAT*, this is why Hellven precipitates into hell when Crakers being the quasi-human beings cannot differ between the quasi-women of their species and a human-female. As Strauss opines

"The crakers have been designed without human characteristics deemed most destructive by the crake" yet they appear to be one of the biggest dangers to the genetic credibility and integrity of the last surviving members of the human species (346). They are ready to copulate with any of the women because they sense them releasing neuro-transmitting hormones linked to mating, all the time, unlike the Crakers women. After the Crakers misunderstand humanoid females with human females, the resulting assault devises a dreadful future that the unrestrained science and its products have offered.

It seems like critters which had been made as wonders of human intellect and science have got the better of the world than human beings. Sargent puts down, "[D]ystopia involves extrapolation from the present in a way that includes a warning" (Sargent qtd in Strauss 347). The projects do not bear any ethical boundaries and thus end in demoting humanity. Hence, the results of heedless scientific activities in *MAT* foreshadow a hellish future, dystopic posthumanism,[30] and an unimaginable closure because in the words of Snowman, "some line has been crossed, some boundary transgressed?" (*OC* 173). In *MA*, Snowman is also hackled over Crake and the Crakers when he discusses with Toby his authority and centrality over the Crakers:

> That's like having a certain authority with a bunch of … Crap, I'm so wrecked I can't even think of a smartass comparison…. My guru juice is all used up…. I never want to think about Crake again, ever, or listen to any more crapulous poop about how good and kind and all-powerful he is, or how he made them in the Egg and then sweetly wiped everybody else off the face of the planet, just for them[…]. (*MA* 249)

The study of *MA* reveals that all of the discussed innovations especially in the field of genetic engineering bring forth many ethical concerns, especially, the creation of Crakers and Pigoons. The regret of Snowman can be solidified with the notion of Leonhard. **As** he says, "I can only hope it (my book) will help shape a global debate

[30] Dystopic Posthumaism is used by Tamar Sharon as an idea supporting futurist-humanism. Sharon argues "dystopic posthumanism should be considered part of humanist branch. It circles around, an ethical debate that hinges on incommensurable views of human nature. It circles around the long-term effects of biotechnological enhancements and deems them potentially dangerous for the sustainability of human nature." (Sharon qtd in Holm 11)
For details of dystopic posthumanism, see Tamar Sharon, "A Cartography of the Posthuman Humanist, Non-Humanist and Mediated Perspectives on Emerging Biotechnologies," in Journal for Contemporary of Philosophy (2012), pp. 4-19.

on the purpose and ethics of technology—and the ethics of those who invent and provide it" (Leonhard 158). Hence, the futurist-humanist critique of *MAT* asserts that "[I]n order to launch each research, we must first demonstrate the purpose, means, application scope and expected effects of the research, and at the same time assess whether the research is in line with human ethics" (Springer 60). J.Sandel in her article "The Ethical Implications of Human Cloning" also states that our world today is divided upon the decision of doing human cloning or not (244, my paraphrase). Hence, the references indicate that our world is beginning to go through similar oddities. It is the need of time to understand that it is not the process that is responsible for the consequences but its use.

Similarly, in her trilogy, Atwood problematizes that human beings are playing God with their abilities and hence it would haunt their survival because they may not survive amid their scientific experimentation. Such quantum leaps do not give any ethical validation. Like *MAT,* all of these experimentations are done for commercial and egoist purposes which only lead to ruin. Hence, *MA* is generating a warning through the "what if" situation in the world of *MAT* (Holm 10). This is why in the later section of the trilogy we see a waning hope for the survival of humanity.

## 6.4 Literary Nature of *MAT*

Atwood's *MAT*, which imagines science and technology grounded in uncontrolled advancements, can be studied with futuristic-humanistic critique. The narrative structure of *MAT* keeps shifting between the voices from the pre-pandemic past to the narrative present to post-apocalyptic times. *MAT* in its structural narrative consists of two narrators in the first two parts of the trilogy. In the third part of the trilogy, the narrative voices increase two times as compared to the first two parts of the trilogy. It means *MA* has four distinct narrative voices.

The discourse of *MAT* has many futurist-humanist inclinations when it comes to the safety of human beings and their environment. As Bartosch states, "Following the environmental mentality that Atwood employs in her text, she proposes a re-thinking of what it means to be human" (252). Hence, Atwood seems engaged in displaying all the scenarios where human beings fail at their humanity. Jimmy (Snowman) and Glenn (Crake) being the two important characters in *MAT* indicate two groups of people, the word people and the number people. The word people, like

Snowman, indicate humanities while the number people, like Crake, represent sciences. Crake has flawed humanity because he misreads what it means to be human. Guignon says it in these words, "Crake, particularly his Platonic view of personal idiosyncrasies, desires, and feelings, as negative traits, inhibit the subject from fulfilling his ideal human functioning" (13). Hence, he becomes a cause of bringing disaster to humanity in *MAT*. On the other hand, the rudimentary humanity of Snowman does not save the planet either. Similarly, Atwood's textual discourse is bursting with her neologism when she names her imaginary genetically engineered animals, such as Pigoons, Wolvogs, Skunks, Biolams, Spoats, Giders, and finally Crakers.

Similarly, Crakers that are disclosed in the first book but completely developed in notion in the third book, *MA*, are the symbol of threat to the identity. Reading the text through the futurist humanist reading, I have found that they are the dehumanized form of human beings. They are a threat to human centrality. They are the mere product of unreined human desires and thus a forewarning of how human beings should choose to act (Maryam et.al 749). The Crakers are objectified as "a meat-computer set of problems to be solved" (*MA* 48). As already discussed, it is the flawed humanity of Crake and his fellow scientists who carry on the project of their creation. However, in contrast, the survivors like Amanda, Ren, and Rebecca indicate an abject depreciation of discovering their human genes within Crakers. It also discussed in detail in chapter 5 of my thesis, how Ren questions the moral and genetic integrity of Crakers. It means the characters with androrithmic concerns show an inkling of the stability of the human subject and they do not appreciate playing with the integrity and privacy of human genetics.

In *OC*, Crake as a scientist is metaphorically yet appropriately defined by Atwood with the word "Tentacles" (244). It is because he has the power to grasp, influence, and manipulate anything and he does. He materializes the damage which is predicted by the futurist thought.

Similarly, Paradice Dome is an enclosed part of Compounds for the ongoing science projects in *OC*. The strict guard around Paradice Dome is symbolic of the exploration of privacy followed during such secretive projects happening at the research centers. Hence, the name Paradice Dome becomes symbolic. Paradise which

is misspelled as Paradice is indicative of Heaven. It becomes the birthplace of Crakers. Similarly, it is also the first center for the formation of the JUVE virus. The name, Paradice Dome, brews curiosity in the readers about whether it is going to stay heavenly? However, it reveals itself to be Hellven which later rejigs into hell. It is because the virus becomes the significant cause of the whole catastrophe in *MAT*. Similarly, in the context of Crakers, in the beginning, readers do not comprehend the total benefit or harm from them but later on, it reshapes into hell. A discomforting uncertainty remains plugged in *MAT* until the end of *MA*. Therefore, Paradice becomes symbolic of Hellven as coined by Leonhard.

Moreover, Atwood shows hope, in *TYF*, when she shows springtide for the description of the Gardens as "Many rooftops were blossoming as the rose" (*TYF* 86). It means that Gardeners, in the beginning, had a very hopeful start toward the betterment of humanity and the planet. However, the Gardeners for their precautionary state of living represent their lack of knowledge and logic regarding the environmental ethics in *TYF*. If people in Compounds are following one extreme, the people in Gardens are adherent to another. Atwood takes the responsibility to show the consequences of all the possible extremes. We can not deny that Atwood does not look for better times and aspires worse times only. As E.G Ingersoll in a collection of Atwood's interviews, *Waltzing Again: Margaret Atwood*, also defines her instincts as, "a very strong voice for… for human rights in general" (Ingersoll qtd. in Gonzalez et. al 15). Gardeners become a symbol for those who are trying to save the planet from catastrophe.

The post-apocalyptic world of *MA* does not become a blank slate, removing everybody from the world. It bears the human survivors who indicate both desperation and hope. These are the human survivors like Toby, Snowman, Ren, Swift Fox, Amanada Zeb, and a few others. Their survival does not represent the end of the world or humanity. They give hope for a new beginning. It is discussed in chapter six of my thesis how the survivors consider it their responsibility to propagate the human species once again on the planet. However, the disruptive and fragmented narrative structures throughout *MAT* indicate the spatiotemporal chaos which the futurist-humanist thought bears. The text is saturated in futurist-humanist literary techniques.

## 6.4 Conclusion

Finally, I wrap up the insights gained from the discussion of this chapter. I conclude that STEM can bring both positive and negative outcomes, and cannot be taken as completely malign. It is important to understand that science in itself is not detrimental. While exponential scientific advancements may result in regress, they are also responsible for progress on the planet. Hence, the oscillation between predictability and unpredictability makes the situation Hellven. It underscores the significance of the implication of ethics and morals. It implies that it is the complete responsibility of human beings to make sane choices about the application of knowledge in STEM. To ensure human beings keep benefiting from scientific experimentation in the long run, the balancing of risks and rewards is crucial. Nevertheless, without proper ethical boundaries by human beings, Hellven could turn into hell. I conclude that Atwood follows a downward trajectory alongside the apologetic demeanor of survivors in *MA*. Atwood protrudes her role as a moralizing author who keeps the strength and power to highlight the socio-scientific issues of the world. She valiantly speaks up against the baneful and pernicious activities which are a threat to human survival.

# CHAPTER 7

# CONCLUSION

In this chapter, I wrap up my research argument. My dissertation is undertaken to find the answers to three significant questions. Firstly, it seeks to confirm the principal concerns of speculative fiction regarding the future, safety, and survival of humanity. Secondly, it renders the answer to the question of how Margaret Atwood is engaged with the prospective dangers towards humankind and its environment. Thirdly, it also deals with the question of how Margaret Atwood negotiates the scientific and technological advancements in *MAT*. As qualitative research is largely subjective and ungeneralizable, hence, it allowed me to interpret the reading of primary texts, subjectively. To find the answers to my research questions, I have studied *MAT* by invoking Leonhard's theoretical framework on exponential developments in science and technology with notable proposing on the ideas of algorithms, androrithms, proactionary society, precautionary society, and Hellven as presented in his book *Technology vs Humanity: The Clash of Man and Machine*. It has changed my research questions into affirmative statements. Hence, in this chapter, I discuss my research questions and findings one by one.

In my dissertation, I have tapped both primary texts and critical scholarship belonging to my area of research while accomplishing my study. Hence, my research convinces me to state confidently that Atwood through speculative fiction presents factual and thoughtful concerns about the future of the human world in *MAT*. My findings suggest that being a part of speculative fiction, the trilogy renders the readers with the needed anticipation for the safe future of the earth and its inhabitants. She imagines the threats which have wrapped our world in the form of proactionary research. It pricks the conscience of readers to maintain the balance between trammeled and untrammeled inventions in the scientific fields. Like futurist-humanist thought, it champions the cause of profitable scientific evolutions following ethical boundaries. It confirms how it is indispensable to challenge the existing unhampered advancements for the avoidance of irreparable societal change. Atwood's speculative

trilogy *MAT* puts a premium on modern scientific and technological developments that are already happening in the world and are in their infancy.

For highlighting the prospective dangers to humanity and the environment, Atwood's *MAT* turns the attention to two different kinds of societies. In *OC*, she delineates a scientifically energetic, proactive, and vigorous society in the field of IT, biotechnology, and biochemistry. Her detailed artistic impression of the scientific compounds, labs, and their products indicates how far the ingenuity of scientists may take the world. In *TYF*, she displays a contrastive and precautionary mindset which keeps everybody caged in restrictions. Society is extremely bound by precautions when it comes to the use of the simplest scientific inventions. In *MA*, we observe the after-effects of unhampered activities. It also indicates the androrithmic regret and realization of the characters. The study confirms Atwood's proclamation that human beings and the environment have a mutual relationship. Therefore, human beings need to act wisely. If human beings cause any damage to their environment, their lives are also in dire danger. I have reached the settlement that Atwood wants human beings to be assured that it is "decision time" (Leonhard 158). It is the responsibility of human beings to maintain a balance in their lifestyle. My research findings advocate that if we do not learn to harness our doings by taking moral and ethical stands, then humankind, its environment, and the whole planet is in unseen and unimaginable trouble.

The central argument of my dissertation is that science and technology are getting the better of this world. They are spreading so much that even human centrality is at stake. Now, in such a scientifically proactive society, human beings must save their central position. Human beings are given the power to use their intellect and creativity to better their lifestyles and they should. However, they must not lose their humanness in achieving that lifestyle. It will not be permanent. Human beings need to understand that they must not compromise anything that makes them human. Additionally, in maintaining and restricting themselves, they should not go so far that they lose the chances of enhancement for themselves. Human beings need to develop a middle ground that neither takes them away from modernization nor it makes them completely toolless. They should design this middle ground by the building of proper ethical standards.

Although algorithms are playing a big role in fashioning human patterns of attitudes, behaviours, and mindsets yet ultimate control of algorithms is within the reach of humans. Human beings share their personal information with the algorithms of personal storage platforms such as the Cloud and Google Drive but the service providers have principal control over it (Leonhard 162, my paraphrase). If algorithms do not realize what ills they are causing to the human world, humans do. Similarly, we need to understand the content on different websites is hosted by the site owners and not the algorithms primarily. The liability of algorithms can not be ruled out. However, the sole responsibility does not lie on algorithms but on the minds working behind them (Leonhard 57, my paraphrase). Atwood purveys that there is no inherent advantage or disadvantage attached to the different fields of research in STEM. It is the use that approves or disapproves of any of its working. Knowledge is not harmful, it's the application of knowledge that is the real threat. Atwood brings forward the earnest need for ethical issues which are to be decided by human beings themselves.

Similarly, when it comes to Margaret Atwood's negotiation of scientific and technological advancements, the texts set out that it is not completely dark. It is grey. There is hope and it should not die. Technologies can lead to bifold outcomes. The same technologies used for bad motives can also lead us to better outcomes too. The belief in lucrative technologies must be reserved and retained. Living in such an era is like living in a Hellven. A small transgression can push the inhabitants of the planet into hell. For example, the services of genetic engineering and computer informatics can not be denied yet human beings need to stay vigilant.

One of the prospective dangers that my study gets from the futurist-humanist reading of *MAT* is that human beings are not entitled to dehumanize their species. The trilogy displays big revolutions in genetic engineering leading to the progression of newer species of animals. Although Atwood's texts lead to playing with the probity of human genes, I see the regret and realization of what has happened. Hence, the ultra-modern researches happening in *MAT* manifest the need for many ethical concerns. My study advocates that human beings must give a million thoughts before undertaking projects which are fraught with social and moral risks or else they would live to see the menacing consequences. The textual investigation affirms that Margaret Atwood negotiates the constructive advancement of science and technology in *MAT*.

Similarly, my findings affirm that the assumption of dividing the world into proactionary and precautionary societies will not be of any profit. My findings ratify that it is neither the instinct of human beings to stay stagnant nor it is the responsibility of only one group to take responsibility for safety and survival. Both cases have an anticipation of demoting humanity and moral qualm. In addition, there is the possibility that the appalling consequences of proactionary society would swallow both segments of the population. Hence, the responsibility lies on the shoulders of everybody who is part of this global existence. *MAT* provides many instances of how unprincipled research will reverberate. If people from proactionary society do not draw a line of distinction to hold sway over their research activities then what ensues would be a huge and irrevocable loss. Curiosity and creativity are inherent to human identity, if these characteristics are used with responsibility, then, the contemporary world can be made into the image of heaven rather than hell.

My findings also suggest that the focus of Atwood's speculative fiction regarding safety and survival exists in the right use of science and technology. Her text preaches that human beings should hand down their knowledge to establish a productive future. This is why, even after the catastrophe happens, on the one hand, they look for harmless scientific and technological ease while on the other hand side, the survivors like Snowman also display penitence over the past activities of researchers. Hence, my study is not against profitable scientific and technological research. It only shows unsettlement over the disgraceful activities bringing risks to the human subject.

In addition, my findings advocate that the speculative fiction of Atwood shows real-life issues. Speculative fiction and contemporary life are not completely divorced from each other. Similarly, *MAT* is also inspired by science and the happenings of the time. The trilogy appears to claim that the prognosis of unchecked scientific discoveries would be no different in the real world. Therefore, my research claims staked out in chapter one largely stand vindicated. My findings absolve that, at various levels, similar frights bug the minds of both fictional writers and futurist thinkers. This study aims to provide that Leonhard's clarion call is similar to Atwood's warning. It brings them both on the same page with exactly similar concerns for safety and survival. *MAT* offers us a reality check that human beings may fail to avert the reckoned future of human beings if they do not take heed. Like

futurist-humanist thinkers, Atwood is foregrounding the voice that nothing on earth can redeem human beings from the guilt of damaging the planet but their thoughtful and timely self-control laden with ethical concerns.

## 7.1 Recommendations for Further research

My research is delimited to the futurist-humanist critique. It provides a futurist-humanist framework for the future research on how human beings should decide to prioritize humanity over anything mechanical or non-human. There is much room to explore futurist-humanist concerns in contemporary science and speculative fiction. My research is a small contribution to this field of knowledge. However, my selected texts, *MAT*, can be further read through the theory of postmodernism due to their form, narrative style, and open ending. The texts can also be studied from the perspective of existentialism due to the existential crisis of its characters. A critical engagement of the texts with ethics also creates a scope for the study of texts via theories of social ecology. The ongoing systems of control in *MAT* also create a space for the study of texts through the theoretical lens of capitalism and socialism. Further, I give a few recommendations for future research to be undertaken.

Science fiction and speculative fiction are associated with humanism because they vicariously refer to human rights and responsibilities. Hence, the futurist-humanist postulation of Gerd Leonhard can be used in various genres like literature, TV, and the film industry. It may be particularly invoked for those cinematic or textual stories that have a scope of constructing the meanings of life with the help of science and technology. *Star Trek: First Contact* (1996) is a science fiction-based film that emphasizes the role of technology and human rights alongside various other themes. The chief driving force in the film is the betterment of people. Hence, it can be studied through the futursist-humanist lens. *The Pod Generation* (2023) is a recently released science fiction film. The film offers exponential advancement, in the field of medicine, by offering the development of fetuses outside of the body of their mothers. The parents adopt the idea of this technological advancement. Hence, the film has scope to be studied from a futurist-humanist perspective.

*Neuromancer* (1984) by William Gibbson is a cyberpunk fiction highlighting human beings' alienation caused by technology bringing forth contradictions in relationships. In the text, every bit of data is stored in cyberspace while the real space

of the world is diminished. Similarly, *Snow Crash* (1992) by Neal Stephenson pictures a contrastive world of cyberspace and meatspace. Both worlds are trending with the newly made drug, snow crash. The protagonist creates a virus. The difference between the mind and IT is so reduced that a virus in metaspace (cyberspace) can infect the mind in meatspace (real world). Hence, both texts can be studied from the perspective of futurist-humanist notions.

*Early Departures* (2020) by Justin A. Reynolds is a wild ride into emotions. It talks about bringing the deceased back to life for a short period of a few weeks. The scientists in the text achieve the milestone of bringing the deceased protagonist, Quincy, back to life. He is brought back to life only to be lost again but it lessens the pain and regrets of the bereaved. Nowadays, hyperrealistic sculptures or the creation of life-like sculptures is one form of this thought. It creates intense emotions and becomes the source of healing for the people. Similarly, 3D photos have been letting people talk in pictures. Thus these technologies are making it possible to sense and feel long-lost people, out of the norm. However, as the novel talks about an imaginary innovation and it has been suggested to appease the human subject, the futurist humanist aspects of the text cannot be overlooked.

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