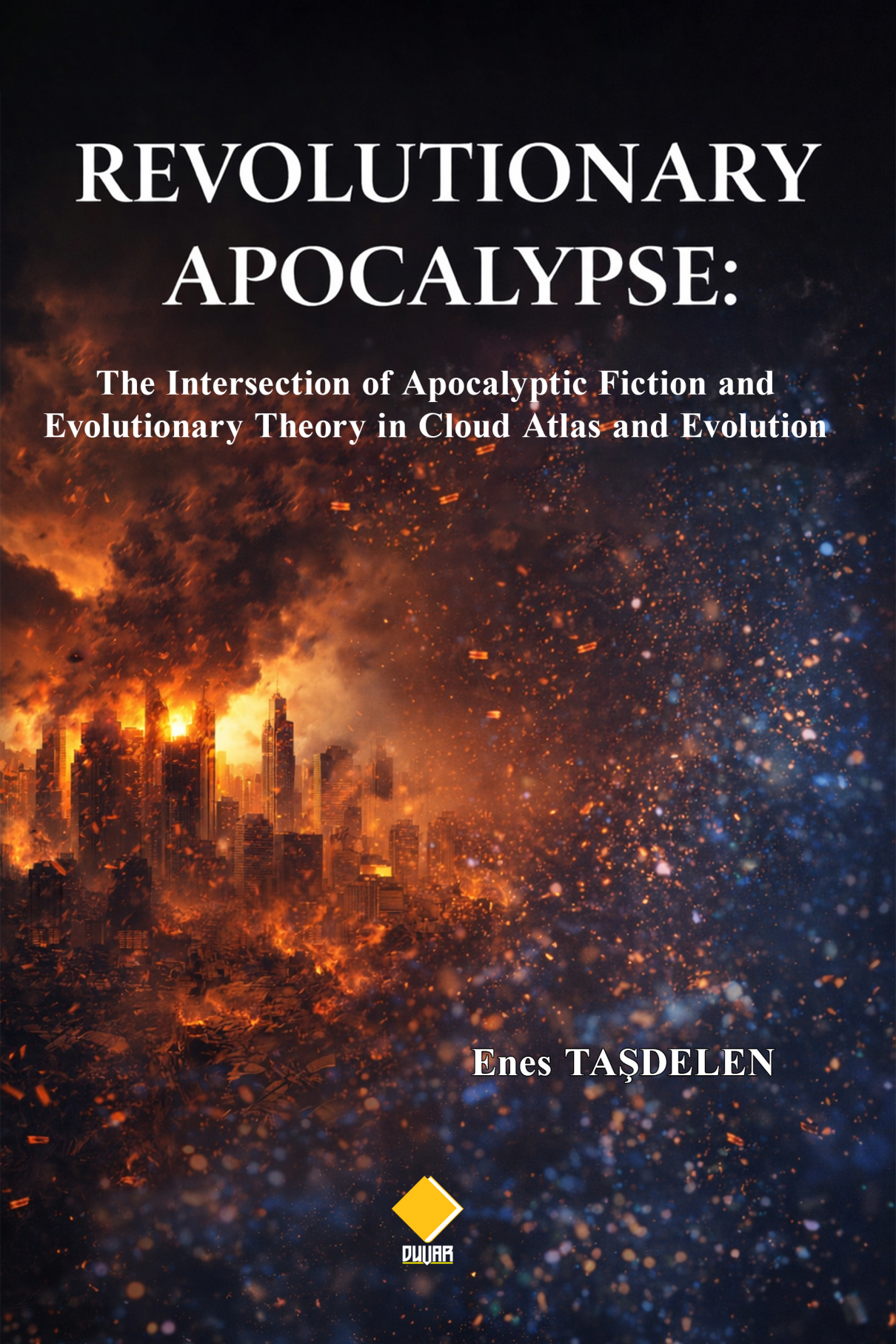
REVOLUTIONARY APOCALYPSE:

The Intersection of Apocalyptic Fiction and Evolutionary Theory in Cloud Atlas and Evolution



Enes TAŞDELEN

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Assoc. Prof. Dr. Harith Ismael TURKI

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FOREWORD

While writing this book, I was frequently reminded of the proverbial phrase, “It takes a village to raise a child.” In much the same way, while solitary in its execution, this work has been sculpted, moulded, and brought to life through the profound impact and unequivocal support of many. Within these pages, you will find not only the result of a long academic journey, but also the everlasting footsteps of every individual who has participated.

My heartfelt thanks go first to my wife, Hatice DENLER TAŞDELEN. Her consistent encouragement, patience, and belief in my abilities have been the pillars upon which I relied when confronted with difficulties. Her support was not merely significant; it was transformative. To say she was my rock would be an understatement; she was the very foundation.

I am deeply grateful to my family and friends, who have patiently waited, understood my prolonged absences, and celebrated every small milestone. Your steadfast belief in this work and in me has often provided the crucial push needed to continue.

Finally, a special note to my son, Erdem TAŞDELEN. Every time I gazed into his eyes, I was reminded of the future I hope to shape and the legacy I wish to leave. Throughout this entire process, his innocent presence has been a constant beacon of hope, joy, and love.

To all of you who have been my village, thank you. This book is as much yours as it is mine.

1. INTRODUCTION TO SCIENCE FICTION, APOCALYPTIC & POST-APOCALYPTIC FICTION, AND DARWINISM & SOCIAL DARWINISM

1.1. A Brief Overview of Science Fiction's History, with Specific References

Humanity has witnessed significant changes in recent centuries. Now we live in an age when scientific and technical developments are intensified, and people administrate their lives under the complete influence of these advancements. These developments are a subject of interest for scientists and indirectly for the rest of the world as their consequences affect all the branches related to human beings, including literature. People have reflected their fear and enthusiasm against these advancements in different forms such as stories, novels, cliffhanger radio programmes, TV series, and movies.

In literature, these feelings have usually been reflected in prose form, and novels have been an essential means of transferring writers' ideas about technology and science and how they affected humans, nature, society, ideologies etc. Thus, a new genre was born to accommodate this need, which is now called Science Fiction (SF). However, some critics claim that SF was present even before the emergence of novels as a form, even before written literature.

There needs to be a clear consensus on the origins of SF. Some critics claim that in Western literature, it goes back to the 7th century BC. Roberts defines "the trope of odyssey, or *voyage extraordinaire*" as one of the central traits in discourses of science fiction and states that this could be originated back to Homer's Odyssey and the other literary works from Ancient Greece: "through epics, plays, histories, dialogues and later prose romances, Greek culture produced many hundreds of examples of fantastic voyages". Some critics are pleased to categorise these *voyage extraordinaire*s as former examples of the SF genre (Roberts, 2016, p. 26). However, after experiencing Renaissance and Reform periods, and initiating the great Industry Revolution, Europe in the 19th century accommodated a healthy habitat for SF to prosper. It is no surprise that technologically sophisticated nations have been better at producing SF works because the development of SF depends not only on the advancements in literature but also on scientific progress in that specific country. This might explain why SF initially started in Europe and had its golden age in the USA.

SF's definition is likewise up for debate. Typical images and themes associated with science fiction include aliens, robots, laboratories run by lunatics, spaceships, future worlds, time travel, extra-terrestrial planets, and parallel universes. Readers may consequently mistake SF for escapist writing that offers exciting, enjoyable scenarios. Still, writers and critics who research the genre emphasise its more profound implications and function in literature. Darko Suvin is the author of the most well-known and lauded definition of science fiction and defines it as "a literary genre whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition" (Suvin, 2016, pp. 7-8). Suvin argues that the alienation produced by SF is a cognitive one, as opposed to the estrangement effect produced by fantasy or Gothic literature, which does not have a logical justification. In other words, SF appropriates the alternative worlds and technology into the realistic frame by providing rational explanations for their existence rather than creating alien worlds or alternate timelines to escape reality's harsh facts. Suvin's definition of SF and opinions on it are crucial for separating it from other types of non-realistic fiction and emphasising its analytical, speculative, and critical qualities, which make it adaptable to different kinds of fiction.

In his *Positions and Presuppositions in Science Fiction*, Suvin notes "…, I defined SF as a literary genre or verbal construct whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition, and whose main device is an imaginative framework alternative to the author's empirical environment" (Suvin, 1988, p. 37). Estrangement and cognition, which he exploits as the primary device, appear to be essential components of SF writing. With the term "estrangement", Suvin means the things that are entirely different from what one may experience in their daily lives. It refers to something free of historical, cultural, social or political norms. It is peculiar or unexplained.

He refers to "cognition" as a work's logical framework to comprehend an estranged environment filled with foreign ideas or objects. In Suvin's opinion, both characteristics must exist for SF to be relevant to our world and in a position to challenge the normative and the taken-for-granted (Roberts, 2006, p. 8). Thus, from this perspective, SF recounts tales about an unknown setting and uncharted characters, but it does so inside a framework of plausibility.

The reader would need help understanding a piece if the estrangement part were dominating. They would be unable to comprehend the people, their motivations, social and cultural norms, and particularly the technology or "novum", which would be described below, that would cause the readers to become alienated from

work and lose contact with reality. However, if the hypothetical science fiction work addressed the "cognition" notion, it would merely be a scientific manual and cease to be fiction, specifically a literary work.

The "novum" framework, which Suvin (2016) refers to as the primary device, is what creates the balance, and the balance between these concepts is essential (p. 37). A "point of difference" in a science fiction book that is depicted differently than our everyday world is indicated by the Latin word novum, which means "new (thing)". A novum can be a scientific discovery, technological innovation, or a brand-new idea not currently prevalent in our culture. The main characteristics that set SF apart from other genres like realist fiction or fantasy fiction are called novums or novas in science fiction works.

Extrapolation, defined as "the process of using information that is already known to guess or think about what might happen" (Cambridge Online Dictionary, 2023), is a crucial component of SF. Science fiction writers frequently extrapolate scientific concepts or inventions by employing nova, which is practically required for SF.

Although the SF writer must explain how Nova operates, the main concern is whether or not these novae are scientifically feasible. Most important is how it is conceptualised and logically presented (within the limits of those works). As a result, science in SF is more concerned with its logical plausibility than its "reality," which is why it is sometimes described as pseudo-science. While it might not be consistent with conventional scientific procedures, Suvin defined SF as "fictionalised science" when it exceeds certain "cognitive" limitations.

A novum is more than the intellectual or technological components stated. Of course, this great variety of nova appeared over time as the human journey through history and the advancement of knowledge undeniably modified the function of the nova employed in SF works. That is, compared to the early modes of SF writing; it is more likely to see more fiction than science today.

People in the past had the misconception that SF was a non-serious high art because they anticipated the science to be more accurate and did not consider fiction to be as important. However, for many readers and academics, SF is unique due to the change of nova, its metaphorical overtones, and its scientific component (Suvin, 2016).

Most definitions of science fiction, as seen in the example of Suvin's report, are based on identifying distinctive characteristics assigned to it to depict it as an independent literary genre.

However, according to Ursula K. Le Guin (1969), extrapolation is only one of the most crucial aspects of science fiction. In the introduction to her book *The Left Hand of Darkness,* she claims that although extrapolation is a part of SF, it is not the main focus by any means and that her most recent book is not "extrapolative".

According to Le Guin (1969), the essential element of science fiction is the thought experiment, whose purpose is to describe reality and the present rather than foretell the future; in other words, science fiction is descriptive rather than predictive. This perspective contests the widespread perception of science fiction as a genre about imagined happenings in an imagined future (or place).

Le Guin contends that science fiction cannot describe the unexplainable and that its writers need to possess a unique insight into the future compared to other writers. They are limited in their ability to conduct thought experiments by their knowledge of the present. This characteristic of SF also makes it a practical form for analysing current events and making predictions using existing knowledge.

These definitions capture the core ideas of SF, including extrapolation, thought experiment, and cognitive estrangement. The way readers and academics interpret SF depends equally on these characteristics.

The earliest works in the genre were written in the late 19th century by post-industrialist authors like H.G. Wells and Jules Verne. Adam Roberts thoroughly investigates the genre's beginnings in his book *The History of Science Fiction*. According to him, depending on how one views the genre, there are various approaches to looking for the origins of SF. Therefore, if one searches for imaginary breakthroughs, such as newer technologies unavailable today, they might discover evidence in science-fiction literature, even in ancient stories where gods or individuals with exceptional inventive abilities, like Hephaistos, create new technological gadgets. If one believes that a certain age's scientific advancements were the catalyst for the development of SF, they could assert that that particular century's scientific advancements were the catalyst themselves. For instance, an SF writer from the 17th century might take Isaac Newton's scientific findings as the source of inspiration for their fiction. Alternatively, an SF writer from the early 19th century could illustrate the engine of a futuristic vehicle as a steam engine since it was the ultimate technology at that time.

SF authors and critics do not have a common perspective, but Roberts (2016) compiles the diverse viewpoints on the history of SF under three headings: an era starting at the beginning of the 17th century, another era starting in 1818 with the introduction of Mary Shelly's famous *Frankenstein*, and lastly, a period which begins in 1926 with Hugo Gernsback, an American magazine editor, also the inventor of the term "Science-Fiction" (p. 38). Unsurprisingly, all SF-related ideas have equal importance in forming what we conceive as SF today.

As a genre, SF started attracting readers' interest at the beginning of the twentieth century. Editors of some low-priced magazines began to publish SF works. As Brian Attebery states: "Early in the twentieth century, a number of inexpensive periodicals, called pulp magazines because of the poor-quality woodpulp paper on which they were printed, included sf stories by writers such as Jack London and Edgar Rice Burroughs as one of several categories of exotic adventure." (James & Mendlesohn, 2003)

There were some examples of SF in the novel form, but they used to be less valuable than the realist novels of the time. Andrew M. Butler indicates that

Science fiction was emerging as a genre at the same time that literary modernism was passing its high-water mark, perhaps in the same way that the gothic emerged with the growth of the realist novel in the late eighteenth century. It is tempting, then, to try and situate sf as the other of literature, or to assume that it follows a similar but delayed evolution to literature (James & Mendlesohn, 2003, p.144).

The writer of *Another Tale to Tell*, Fred Pfeil offers another historical model of SF which places the New Wave as the time when the genre "briefly becomes modernist," while works published before 1960 are either serious utopian/ dystopian mapping or masturbatory thrillers suitable for readers with a 13-year-old mental age" (James & Mendlesohn, 2003, p.145).

Some critics claim that the late 19th century when famous writers like Jules Verne and H.G. Wells lived, was SF's starting point (Roberts, 2006). They believe that SF has a developing and forward-focused portrait. Some other critics believe that one may find science-fictional or fantasy aspects in a literary work created at any time in literature history. Early epics, such as "*Gilgamesh*", contain elements like searching for new worlds and encountering curious new civilisations. The difference between these two methods centres on various approaches to comprehending the essence of SF. The first idea of SF's having a juvenile profile leads the critics to argue that SF is an artistic reaction against a particular set of cultural and historical phenomena. SF might only have appeared in an

environment experiencing the Industrial Revolution. On the other hand, the latter idea emphasises SF's antiquity. Therefore, critics supporting this idea suggest that SF has always been a common factor worldwide, free of cultural or historical backgrounds. It has a universal perspective of human imagination, which is willing to think about different realms rather than the one we live in.

Adam Roberts (2006) states that the history of "fantasy" is as ancient as the literature itself and significantly older than the "realist" writing. Nearly all the ancient texts contain "magical" parts. However, the materialistic idiom of fantastic starts with a book: *Kepler's Somnium* (published in 1634). He claims texts before 1600 are challenging and impossible to identify as science-fictional. He believes that texts related to outer space, written before 1600, used to take space as a "pure and religious realm" (Roberts, 2006). Any object above the Moon was considered godly, eternal, and incorruptible. Only after Copernicus proposed a heliocentric cosmos did a scientific and materialistic view of the solar system start to gain more importance over the traditional understandings.

In the 17th century, scientists started to be able to observe and understand the cosmos more with the help of advances in astronomical instruments. As a result, SF became a new form of writing (Roberts, 2006). This vibrant subgenre of interplanetary adventures had expanded by the eighteenth century. It had become a significant element of European literature: "Romances were being published all over Europe taking characters on adventures into the solar system" (Roberts, 2006, p. 40).

There were many examples of the texts about journeys to imaginary realms where living conditions and governing systems were better than in the actual world. There were also some texts describing speculations about what the future might bring.

Jonathan Swift's *Gulliver's Travels* visits fantastic societies like Lilliputians or Brobdignagians. Swift also satirically criticises the scientists of 18th Century Britain by stating that they spend so much time speculating about the cosmos, which is why they were alienated from real life. This extract from the book summarises the situation: "He had been Eight Years upon a Project for extracting Sun-Beams out of Cucumbers." (Swift, 2005, p. 167)

Roberts (2006) suggests that for a literary work to be accepted as SF, it should be "alive". That means it should appeal to the tastes of contemporary readers. He continues giving examples from H. G. Wells's *War of the Worlds* (1898) as it is still being read and inspires other adaptations. Today, writers still work on alien

invasion since it still attracts the readers' interest. "…if we are interested in SF as a presently vibrant cultural fact, then only those texts still 'alive' in some sense should be included; and the earliest such text is probably Mary Shelley's novel *Frankenstein* (1818)" (Roberts, 2006, pp. 41-42). For him, this concept of being "alive" is an important trait of SF works.

Paul Alkon states, "Science fiction starts with Mary Shelley's *Frankenstein*" (Alkon, 2002, p.1). The principal character, the monster's role as an embodiment of difference, makes the book successful. Even today, SF writers use similar elements, such as a living thing created by a scientist, and the creature's abandonment by its creator, gradually becoming destructive. The scientist's ambition for power leads to their alienation from society. The Monster's being scientific – as it is a scientist who created him – rather than organic alienates him from the ordinary processes of nature. Manipulating the natural order results in catastrophe after catastrophe. Suvin explains this in other words as "progress becomes indissoluble from catastrophe" (Suvin, 1982, p. 10).

Shelley's *Frankenstein* is regarded as a gothic novel. In gothic literature, the setting is generally gloomy; a castle or chateau accommodates sub-terranean passages and dungeons. People disappear mysteriously, or some supernatural events happen. The author's aim is generally to evoke a sense of fear in the reader. The Gothic, however, was a symptom of the more remarkable literary and cultural phenomena known as "Romanticism", which is characterised in particular by the pre-eminence of ideas of the Imagination and the Sublime. The development of SF is driven by the Sublime, a term connected to Romantic literature. Both Romantic poets and Gothic novel writers regarded "the Imagination" as the critical aspect of literary creativity. The use of the Imagination and the Sublime set the aesthetic parameters within which all contemporary SF authors operate (Alkon, 2002).

In the late 19th century, with the works of Verne and Wells, SF became a familiar form. Primarily Wells employed and developed the theme of an encounter with the "different one". For example, in *The War of the Worlds* (1897), Martians try to invade the world. The Martians use "heat rays" carried on "monstrous tripods", and people try to run away from these "fighting machines". These are all products of an unknown technology to the men, and encountering the "different one" almost brings humanity to the verge of extinction. Moreover, the encounter with difference again causes the Martians to become unsuccessful. Their bodies are vulnerable to a special kind of bacteria resulting in a disease for which the Martians' system is unprepared. An ordinary man from an ordinary town

witnesses the extraordinary event of the Martian cylinder's crash. There is a balance between the familiar and the strange, and this is where the beauty of the work comes from.

Additionally, according to Roberts (2006), some critics asserted that it was no surprise for SF to emerge as a genre in the late 19th century since it was a time when imperialism was favoured as "bringing civilisation" to their cultures. SF then was claimed to be used to express the feelings and concerns of the dominated ones. Roberts states: "But my point is that science fiction first emerges as the underside to this set of cultural dominants, as, in a sense, the dark subconscious to the thinking mind of imperialism" (Roberts, 2006, p.50). For some critics, *War of the Worlds* inhabits an example of this again. Martians land in the Victorian British motherland. British people experience the same feelings as the people they colonised. SF here functions as the reflection of the subconscious.

"Imperial anxiety" is a term that became the central theme of the "Golden Age of Science Fiction" in the 1950s and 1960s and the ongoing decades; the *Star Trek Series* may be given as an example of this anxiety in the movie form.

Before the 1920s, SF was written by some writers to appeal to the tastes of the audience, generally published in cheap magazines that use a special kind of paper made of wood pulp, thick in form and tends to get yellower soon. There were many readers of these magazines, and in the USA, this demand brought about the consideration of SF as a serious genre.

Hugo Gernsback is an essential figure in the history of SF. In 1926, he started to publish the famous SF magazine *Amazing Stories*. He believes SF is an educator for the public, letting them become happier and making the world a better place to live by broadening the readers' worldviews. John W. Campbell, another critical figure, asserted that SF should not be limited to machines and ideas. It is also important to emphasise how people respond and create their opinions in SF (Roberts, 2006, pp. 51-52).

Another important figure in SF history is Isaac Asimov. In his *Foundation* series, he considers SF differently than preceding works. According to Asimov, if appropriately applied, science could find an answer to any question. In his view, even history is a concept that might be manipulated and controlled by scientists. All the possibilities that the future might bring could be calculated using scientific methods.

Hari Seldon predicts the destruction of the Empire and the ensuing ten thousand years of anarchy. Therefore, he sets up the *Foundation* to preserve and rebuild the civilisation. It works well until a mutant individual, the Mule, enters the stage. Sheldon's calculations can predict what might come next; however, the introduction of mutant freaks seems to be not something that Sheldon expected and causes some flaws in the system. Nevertheless, Sheldon had a plan B; if the *Foundation* failed, a secret *Second Foundation* would compensate for the problems. This looks ironic, but a hidden second foundation proves Sheldon's calculations' correctness.

Asimov sets up his psychohistory through dramatic revelations of more profound truths and unsolved puzzles. The Foundation organisation is concealed beneath the guise of a team assembling the *Encyclopedia Galactica* and only becomes apparent in the first novel. Asimov lifts another curtain to unveil the *Second Foundation* with the reversals of the Mule. By the time we reach *Foundation's Edge* (1982), the last book in the series, Asimov has disclosed a more profound truth: the world as it currently exists is due to an ancient race of Eternals who selected it from a wide range of alternatives. In this reality, man is the sole sentient life form. His character Seldon's view of history as something to be controlled is motivated by a larger, equally deterministic agenda (Roberts, 2006, p. 59).

Critics disagree on the precise moment that SF stopped being a niche interest and became a widespread craze. Edward James thinks SF became popular due to the increased paranoia of the Cold War as people started to worry about their future in the 1950s. On the other hand, John Huntington (1989) believes that SF became popular along with the other works of literature called "cult" novels of the 1960s. It is no coincidence that the new wave in San Francisco flourished during a decade marked by political action and scepticism toward technical solutions to social and environmental issues.

1.1.1. *Evolution as an Example of Science Fiction*

Baxter's *Evolution* is a science fiction novel for some reasons. First, Baxter uses his present scientific knowledge to make conclusions and predictions about 645 million years of history, thirty million years of which take place in the future.

In the "Ancestors" section, Baxter describes a world with a completely different atmosphere than the present. This warm atmosphere allows dinosaurs to live and spread around the world. Some Jurassic dinosaurs have sophisticated minds and

surviving skills even millions of years before the humans' arrival. Then he continues with a rat-like animal, Purga, which experiences the catastrophic event of a meteor hit, after which dinosaurs become extinct. Purga manages to survive, and her DNA string is still found in all humans. The period between Purga and contemporary people is also explained by telling stories from the ancestors' lives, like the early social primates, African primates travelling to America on wooden rafts, and the first social communities stepping out into the savannah.

The second section, "Humans", tells the readers about some critical turning points in human progress, including advancements in tool-using, intelligence development and social circumstances, the appearance of religion, battles between different human species, the Roman Empire, and the collapse of civilisation.

The "Descendants" section is about a time after the collapse of civilisation. The section starts with a group of soldiers awakening from the capsules that helped them stay alive for an unknown period into a world where ferocious beings like posthuman animals and monstrous rats live. Even the sky is different, as one soldier notices Mars no longer exists. Furthermore, it continues millions of years later when all the lands on Earth reunite again and create a one-piece supercontinent. It is not a habitable place for today's modern people; however, cooperation between a species of plant and another species of animal manages to survive even in this unhabitable world for a limited time until the circumstances make it impossible for any living being to survive in this barren world.

Although he admits that some parts of the book are a product of his wild speculations, Baxter builds his stories on scientific logic, getting help from professors like Prof. Jack Cohen and Ian Warwick. He thanks them in the *Afterwork* section of the book for "providing expert advice to shore up my layman's guess-work" (Baxter, 2002, p. 375).

According to James Gunn (1988), SF is less about science than it is about change, and it was first created as a creative reaction to the changes that specific 19th century authors started to notice in their surroundings. It was developed by science and technology; therefore, the authors began to compose stories and books that speculated about potential changes in the future. Baxter's book fits this definition because it explores the possibilities of evolution on Earth and beyond and the potential impacts of technological advancements and human behaviour on the environment, including the times before and far after humans.

Baxter's use of scientific concepts and theories is also an essential characteristic of science fiction. Brian Attebery (2002) explains science fiction as not just about scientific concepts but about how those concepts interact with human experience and understanding. *Evolution* incorporates scientific ideas from fields such as evolutionary biology, palaeontology, and astronomy and imagines how they might play out in the distant future.

In addition to the characteristics mentioned earlier, Baxter's *Evolution* also contains other elements commonly found in science fiction literature. One such element is the use of futuristic settings and technology. As defined by David Seed, "…science fiction is popularly associated with the evolution of technology, by which is usually meant tools or implements" (Seed, 2011, p. 47). Baxter's book is set in various futuristic periods, including millions of years into the future, and incorporates advanced technologies such as space travel and genetic engineering.

Another common element of science fiction in *Evolution* is using aliens and extra-terrestrial life. SF has long been fascinated with the prospect of alien encounters, exploring the implications of extra-terrestrial life for human identity, culture, and society. As Csicsery-Ronay Jr. (2008) notes, SF combines the traditions of romance, epic, and myth to create narratives that explore the consequences of scientific and technological change. The encounter with aliens is a metaphor for the meeting with the unknown, the other, and the different, challenging our assumptions and values and prompting us to rethink our place in the universe. This fascination with alien encounters is evident in works such as H.G. Wells' *The War of the Worlds*, which depicts the invasion of Earth by Martians, and Octavia Butler's *Xenogenesis* trilogy, which explores the encounter between humans and a race of alien genetic engineers. Through these narratives, SF offers a unique perspective on the complexities of human existence, inviting us to reflect on our relationship with the world and the cosmos. Baxter's book includes various forms of alien life, including intelligent life on other planets and hypothetical forms of life that might exist in the far future.

Furthermore, *Evolution* also explores ethical and philosophical questions related to science and technology. As Istvan Csicsery-Ronay Jr. argues, "SF has established its own domain, linking literary, philosophical, and scientific imaginations, and subverting the cultural boundaries between them" (Csicsery-Ronay Jr., 2008, p. 4). The book grapples with questions such as the morality of genetic engineering and the impact of human actions on the environment.

The elements like using scientific concepts and theories to explore possible futures and their impact on human society and the natural world, containing various features that are typical of SF literature, such as futuristic settings and technology, extra-terrestrial life, and philosophical questions related to science and technology contribute to the book's classification as a work of science fiction.

1.1.2. *Cloud Atlas as an example of Science Fiction*

David Mitchell's book *Cloud Atlas* uses science-fictional concepts and speculative scenarios as the basis for its narrative structure, which fits Suvin's description of SF: "as a literary genre or verbal construct whose necessary and sufficient conditions are the presence and interaction of estrangement and cognition, and whose main device is an imaginative framework alternative to the author's empirical environment" (Suvin, 2016).

According to Rob Latham, SF is a literature of ideas that invites exploration, discovery, and speculation. He states that SF consists of "…stories whose objective is to explore, to discover, to learn, by means of projection, extrapolation, analogue, hypothesis-and-paper-experimentation, something about the nature of the universe, of man, of 'reality'" (Latham, 2014, p.28). *Cloud Atlas* fits this definition because it uses science-fictional concepts such as time travel, artificial intelligence, and genetic engineering to explore possible futures and their impact on human society.

Mitchell's use of speculative scenarios and extrapolation is also an essential characteristic of SF. As Tom Lombardo states, "…science fiction can be defined as a literary and narrative approach to the future, involving plots, story lines and action sequences, specific settings, dramatic resolutions, and varied and unique characters, human and otherwise. It is imaginative, concrete, and often highly detailed scenario-building about the future set in the form of stories" (Lombardo, 2015, p. 7). *Cloud Atlas* uses speculative scenarios to imagine possible futures, ranging from a post-apocalyptic world to a futuristic society where clones are used as a source of labour.

Furthermore, *Cloud Atlas* uses literary techniques such as narrative structure and intertextuality to explore science-fictional themes. Mitchell uses a non-linear narrative structure and intertextual references to create a multi-layered, interconnected story that explores themes such as humanity's nature and technology's impact on society.

Another reason *Cloud Atlas* can be considered as SF is its exploration of social and political issues relevant to contemporary society. In the book, Mitchell explores corporate greed, environmental degradation, and the struggle for individual freedom in a dystopian society. Through his exploration of these themes, Mitchell offers a commentary on contemporary social and political issues and encourages readers to consider the potential consequences of their actions.

Moreover, *Cloud Atlas* incorporates elements of postmodernism, a literary movement that challenges traditional notions of narrative and truth. Mitchell's use of a non-linear narrative structure, multiple narrators, and intertextual references can be seen as a postmodern approach to storytelling that challenges readers to question traditional notions of narrative and reality.

The book also employs elements of the apocalyptic and dystopian subgenres of SF. The book includes several dystopian scenarios, such as a world where corporations control everything and a future society where clones are used as disposable labour. These scenarios are cautionary tales about the dangers of unchecked corporate power and technological progress.

The reasons such as the exploration of science-fictional concepts and speculative scenarios, the use of literary techniques to explore science-fictional themes, the engagement with social and political issues, the incorporation of postmodern elements, and the use of apocalyptic and dystopian scenarios to explore the potential consequences of contemporary social and political issues and possible futures and their impact on human society allow *Cloud Atlas* to be defined as an SF work.

1.2. Development of Apocalyptic Fiction

Apocalyptic fiction is a genre of literature that explores the potential consequences of catastrophic events that could lead to the end of the world. The history of apocalyptic fiction can be traced back to ancient civilisations such as the Babylonians, who created epic poems and mythological stories that included descriptions of the end of the world, or to ancient religious texts such as *the Book of Revelation* in the *Bible*. The genre has continued to evolve, with various authors and literary movements contributing to its development.

According to John J. Collins, "'Apocalypse' and 'apocalyptic' are modern analytical categories that coincide only partially with ancient generic labels" (Collins, 2014, p. 1). The genre of apocalyptic literature is ancient, with roots in the Near East and the Mediterranean world, and it has evolved to encompass a

wide range of narratives, from religious prophecy to SF. This highlights the long history of the genre and its ability to adapt to changing cultural and social contexts.

In the 20th century, apocalyptic fiction became increasingly popular as a response to the geopolitical tensions of the Cold War era. Apocalyptic narratives in the twentieth century, whether in the form of science fiction, horror, or religious prophecy, were often shaped by the anxieties of the Cold War and the possibility of nuclear war. Hall notes, "In 2008, Russia's invasion of Georgia provoked rhetoric about an apocalyptic resurgence of the Cold War, and the New York Times described economic conditions as 'sliding from grim to potentially apocalyptic.' We no longer just have an apocalyptic counterculture; there is an apocalyptic culture to boot." (Hall, 2009, p. 2). This shows how real-world events and societal concerns can shape the genre.

Moreover, apocalyptic fiction has been linked to broader cultural and literary movements, such as postmodernism. Lyotard states, "the annihilation of humanity as a whole; this catastrophe takes place with each individual death. There is no common measure able to persuade me that a personal mourning is less grave than a nuclear war" (Lyotard, 1984, p. 403). This juxtaposition of the universal and the local destruction experienced both globally and personally can be depicted as a postmodern interpretation of the apocalyptic mode. This suggests that the genre can be regarded as a response to more significant philosophical and cultural movements.

In recent years, apocalyptic fiction has continued to be popular, with works such as Cormac McCarthy's *The Road* and Emily St. John Mandel's *Station Eleven* gaining critical acclaim. Contemporary apocalyptic fiction can respond to contemporary anxieties, including concerns about environmental catastrophe, political instability, and technological advancement.

Today, it is more possible for people to consider the apocalypse from an entirely different point of view than the people living in ancient times. The apocalypse mentioned in the religious sources might employ some extraordinary elements, and the people at that time could easily be affected by the terrifying setting of those myth-like phenomena. However, contemporary apocalyptic texts must appeal to the concerns and anxieties of the modern audience. As Kermode states, "…it would be childish to argue, in a discussion of how people behave under eschatological threat, that nuclear bombs are more real and make one experience more authentic crisis-feelings than armies in the sky" (Kermode, 2000, p.108).

Apocalyptic fiction may serve as a means of processing and working through these "real" anxieties, offering readers a space to confront and explore their fears about the future.

One early example of apocalyptic fiction is Mary Shelley's novel *The Last Man,* published in 1826. "When it is studied today, it usually is examined either for its affinities to other Romantic works in the apocalyptic mode or as a *roman d chef* of the Shelley- Byron circle" (Snyder, 1978, p.436). Another notable example is H.G. Wells' *The War of the Worlds,* published in 1898. In this novel, Wells imagines a Martian invasion of Earth that results in widespread destruction and chaos. Stableford (2006) notes: "The early science fiction pulps were resonant with echoes of *The War of the Worlds*..." (p. 282). He implies the book to be one of the earlier examples.

The 20th century saw a proliferation of apocalyptic fiction, particularly in the aftermath of World War II and the advent of nuclear weapons. One notable example is Nevil Shute's novel *On the Beach,* published in 1957. In this book, a group of survivors in Australia wait for the inevitable arrival of deadly radiation from a nuclear war that has destroyed the rest of the world. Conor Pitetti observes the relationship between apocalypse and science fiction and gives *On the Beach* as an example of that:

Most sf texts hew more closely to the model of *Revelation* and describe end-events that inaugurate new births, but there are literary examples of similarly sterile ends. In Nevil Shute's *On the Beach* (1957), for example, the world goes out with a whimper, slipping away into darkness as humanity succumbs to radiation poisoning in the aftermath of a nuclear war (Pitetti, 2017, p.442).

Apocalypse in modern horror fiction exposes and exorcises fears and anxieties accompanying the historical sense of a civilisation in crisis. According to Robin Wood (2003), the monsters in American horror movies symbolise the repressed Freudian return. Every society preserves its perception of normality by suppressing from an early age the urges that oppose the established cultural roles and social norms in that community. For Wood, another example of this repression returning is in horror movies. As "our collective nightmares," horror films portray the monsters we have struggled to repress normally (Wood, 2003, p.70). From this regard, apocalyptic fiction can be seen as a way of processing and dealing with contemporary social, political, and environmental issues, functioning like catharsis.

In *Millennial Dreams and Apocalyptic Nightmares,* Angela M. Lahr (2007) discusses the role of apocalyptic fiction in American evangelicalism. She states: "Conservative evangelicals employed their apocalyptic understanding of the world for political and religious ends, becoming staunch advocates of 'Christian America' and opponents of 'atheistic communism'" (Lahr, 2007, p. 4). According to Lahr, apocalyptic fiction is a powerful means of shaping the worldview of those who believe in the imminence of the end of the world. It has played a significant role in the development of the Christian Right's political and social agenda.

In his article "The End of Apocalypticism?" Bull (2000) defines apocalypticism as a complex of beliefs, attitudes, and practices that envisions the imminent end of the present evil age, a new age of peace and justice, and the final judgment of all people. He notes that apocalypticism has significantly influenced many different religious traditions throughout history.

Science fiction and apocalyptic fiction share a concern with the end of the world. However, they approach this topic from different angles, with science fiction generally focused on the causes and consequences of global catastrophes. In contrast, apocalyptic fiction is more concerned with the aftermath of such events. Rose asserts: "a fictional exploration of human situations made perceptible by the implications of recent science" and its impact "upon the people who must live with those revelations or developments" (Rose, 1976, p.55) mentioning this relationship in his definition of SF.

In "Space for Speculation: American Fictions of Racial Futures", Julie A. Fiorelli (2015) discusses the role of apocalyptic fiction in contemporary African American literature. According to her, "In the late 1960s to early 1970s, when hopes for social and economic equality in the U.S. raised by the Civil Rights movement remained unsatisfied – a fact made visible in the outbreak of urban rebellions and birth of the Black Power movement – a cluster of African American novels responded by narrating apocalyptic race war" (Fiorelli, 2015, p. 20). This explains how apocalyptic narratives offer African American authors a way to critique social and political structures that perpetuate systemic racism while also envisioning the possibility of a better future.

1.2.1. *The Literature of Apocalypse*

For some reason, Frank Kermode is a notable character in apocalyptic fiction. His investigations into this genre as a renowned British literary

critic have significantly impacted literary theory and cultural studies. The writings of Kermode, especially his groundbreaking book *The Sense of An Ending: Studies in the Theory of Fiction*, provide a perceptive and significant examination of apocalyptic fiction.

> … there was a bad time coming, possibly a terminally bad time. All of which at least goes to show that the apocalypse can flourish on its own, quite independently of millennia. In some form or another its terrors and apprehensions can threaten us at any time. The possibility of personal disaster is, after all, never quite absent from our lives, and if anything is needed to give additional substance to our anxieties, the world, at what- ever period, will surely provide it. (Kermode p. 182)

In Kermode's exploration of the apocalypse, he delves into its timeless nature and profound impact on our perception of reality. From Kermode's insights, we can better understand the complex interplay between past, present, and future and the enduring influence of apocalyptic thinking.

Kermode asserts that the apocalypse can manifest anytime, thrive on its own, independent of specific eras or millennia. After all, the potential for personal calamity is never completely eliminated from our lives. This highlights the perpetual threat and anticipation associated with the apocalypse, reminding us that the spectre of personal catastrophe is always looming.

Central to the apocalyptic narrative is the alignment between imaginatively recorded past events and imaginatively predicted future events. Kermode argues that the apocalypse seeks to achieve a prophetic understanding for those existing "in the middest," the transitional phase between past and future. He states, "It seeks to achieve a prophetic understanding on behalf of those of us who exist 'in the middest,' the transitional phase between past and future..." (Kermode, 2000, p. 21). This alignment between the past and the future creates a sense of cohesion and meaning, offering solace in the face of uncertainty.

Kermode also explores the adaptability of the apocalypse, even if its predicted end does not come to pass. He asserts that the concept of apocalypse remains resilient and can incorporate various apocalyptic variations. He writes, "It can adapt to changing interests, incorporate other apocalyptic variations, and survive in both sophisticated and naive forms..." (Kermode, 2000, p. 21). This adaptability allows the apocalyptic framework to project simplistic patterns onto the complexities of history, often revolving around the recurring elements of decadence and the anticipation of renovation.

While the apocalypse encompasses prophecy, Kermode contends that it ultimately finds its place within the realm of tragedy. He states, “However, while apocalypse subsumes prophecy, it ultimately finds its place within the realm of tragedy, losing its grandeur when singular, unceremonious deaths become the central point of reference...” (Kermode, p. 39). This highlights the transformative nature of the apocalypse, as it shifts from a grand narrative to the embodiment of suffering and endurance in a world marked by decay and impending doom.

As Kermode delves further into the evolution of apocalyptic interpretations, he emphasises their responsiveness to the changing realities of the modern world. He argues that the notion of a precise, predictive apocalypse has become blurred, and eschatology now extends throughout history. He writes, “The identification of specific figures and events has given way to a broader understanding of the types and their relevance to our perception of the world...” (Kermode, 2000, pp. 39-42). This broadening of the apocalyptic framework allows for a deeper understanding of its implications and their connection to our perception of the world.

In conclusion, Frank Kermode’s exploration of the apocalypse reveals its timeless and transformative nature. The interplay between past, present, and future, as well as the adaptability of apocalyptic interpretations, offers insights into our collective consciousness and our quest for meaning amidst the complexities of human existence. Kermode’s views invite us to reflect on the enduring power of apocalyptic thinking and its capacity to shape our understanding of the world.

Apocalyptic and science fiction narratives share a deep and intricate relationship, as explored by Kreuziger. These two genres intertwine, informing and influencing one another in literary and theological contexts. Kreuziger highlights the permeation of apocalyptic themes within science fiction while noting that the genre opens up possibilities for theological interpretations of the future.

These writings and science fiction narratives profoundly reflect our consciousness and play a significant role in “shaping our perceptions of the past, present, and future...” (Kreuziger, 1982, p. 29). This suggests that both apocalyptic and science fiction narratives hold a mirror to our collective psyche, allowing us to explore and understand our own existence and the world around us.

During the 1960s and early 1970s upheavals, apocalyptic imagery and rhetoric became prevalent in various cultural expressions. This included the music of Bob Dylan and the counter-cultural movement’s engagement with the *Book of*

Revelation. Additionally, contemporary science fiction narratives, with their exploration of space travel, time travel, and encounters with aliens, played a significant role in shaping the consciousness of that era. Kreuziger notes, "Similarly, contemporary science fiction narratives... influence our consciousness in shaping the current age" (Kreuziger, 1982, pp. 28-29). This implies that both apocalyptic and science fiction narratives reflect and respond to their time's social, political, and cultural climate, offering insights and possibilities for understanding the present and envisioning the future.

In conclusion, Kreuziger's exploration of the intertwining relationship between apocalyptic and science fiction narratives sheds light on their mutual influence and impact. These genres inform and shape one another, providing profound reflections of our consciousness and influencing our perceptions of time, history, and the world around us. The prevalence of apocalyptic imagery and rhetoric during specific historical periods, coupled with the transformative power of science fiction narratives, underscores their role in shaping our collective consciousness and understanding of the past, present, and future.

Apocalyptic writings, whether from literature or theology, revolve around the presumption of a predetermined future. These narratives envision an ideal world free from the shackles of sin and suffering, where the wicked are met with everlasting punishment or fade into oblivion. In contrast, the righteous align themselves with God's will, and the consequences of sin -death, suffering, and more- are ultimately eradicated. The precise nature of what follows in these apocalyptic visions may vary, ranging from a renewed earth for human habitation to the translation of the righteous into celestial realms.

These apocalyptic texts offer glimpses of deep-seated hope for a regenerated world through their narratives. They present a vision where the blight of sin and its consequences are entirely wiped away, replaced by the triumph of divine justice. Murphy emphasises this hopeful aspect, stating that such texts provide glimpses into "the hope for a regenerated world, where sin and its consequences are eradicated, and divine justice prevails" (Murphy, 2012, p. 10).

Apocalyptic writings, whether literary or theological, provide a lens through which individuals can explore their beliefs about the ultimate destiny of humanity and the world. They offer solace and reassurance in the face of suffering and injustice, instilling a sense of hope and a belief in the ultimate triumph of good over evil. These narratives serve as beacons of light, illuminating the possibility

of a future where the righteous find their reward and the world is transformed into a realm of harmony and perfection.

In conclusion, apocalyptic writings, grounded in literature or theology, present a vision of a predetermined future where sin and suffering are eradicated, and divine justice prevails. These narratives offer a glimpse into the yearning for a regenerated world, free from the consequences of sin and filled with hope and divine restoration. They provide solace, reassurance, and a belief in the ultimate triumph of good over evil. Through their narratives, apocalyptic writings inspire contemplation about the nature of human existence and our collective aspirations for a better future.

Rauch examined the idea of the "Day of Jehovah", which underwent a significant transformation in Israelite theology. Initially, it focused on triumph and glory for Israel. However, it later shifted to emphasise ethical judgment and justice. The prophets proclaimed that Jehovah's coming would bring sadness and disaster due to Israel's failure to uphold ethical standards. Nevertheless, within the destruction, they also offered a glimmer of hope for the emergence of a new and exalted kingdom. Rauch explains, "It shifted from a focus on triumph and glory for Israel to an emphasis on ethical judgment and justice... They offered hope for the emergence of a new and exalted kingdom" (Rauch, 1919, pp. 7-8).

In apocalyptic texts, specific enemies are often replaced by unnamed adversaries hostile to the chosen people and their religion. The destruction of these adversaries serves as a precursor to realising positive eschatological outcomes. Rauch notes, "Apocalyptic texts often replace specific enemies with unnamed adversaries hostile to the chosen people and their religion. The destruction of these adversaries precedes the realization of positive eschatological outcomes" (Rauch, 1919, p. 11). This underscores the idea that the defeat of adversaries is a necessary step towards fulfilling the promised future.

Even in the oldest biblical documents, the concept of hope, often associated with later apocalyptic traditions, can be found. Rauch argues that hope is present from the outset, stating, "The concept of hope, often associated with later apocalyptic traditions, is present even in the oldest biblical documents" (Rauch, 1919, p. 8). This suggests that the seeds of hope were present from the earliest stages of Israelite religious thought and were later developed and elaborated upon in apocalyptic writings.

Apocalypses envision a glorious future for Israel, incorporating notions of righteousness, the subjugation of enemies, and the establishment of the Davidic

dynasty. This framework is evident in texts such as “Genesis” and “Zechariah”, where prophetic voices anticipate Israel’s triumph, peace establishment, and foes’ punishment. Rauch explains, “Apocalypses envision a glorious future for Israel, taking into account the notions of righteousness, subjugation of enemies, and the rule of the Davidic dynasty” (Rauch, p. 16, 23). These elements form the eschatological vision’s foundation, shaping the chosen people’s expectations and hopes.

In apocalyptic literature, it is common to find pseudonymous authorship. Rauch notes, “Apocalyptic literature frequently adopts pseudonymous authorship” (Rauch, 1919, p. 24). This practice allows authors to present their works in the guise of revered figures from the past, lending authority and authenticity to their writings.

In conclusion, Rauch’s analysis of apocalyptic literature sheds light on the transformative nature of the “Day of Jehovah” concept in Israelite theology. It evolved from focusing on triumph and glory to emphasising ethical judgment and justice. Apocalyptic texts replace specific enemies with unnamed adversaries, and the destruction of these adversaries paves the way for positive eschatological outcomes. The concept of hope is present throughout biblical documents, and apocalypses envision a glorious future for Israel, incorporating notions of righteousness and the establishment of the Davidic dynasty. Pseudonymous authorship is also a common feature of apocalyptic literature. These insights deepen our understanding of ancient Israel’s rich and complex world of apocalyptic thought.

Apocalypse encompasses a range of themes, including the anticipation of disaster, the cyclical patterns of transition, the tension between decadence and renovation, and the projection of fears and hopes onto the future. Through literary and theological expressions, apocalyptic narratives shape our understanding of history, the present, and our place in the world. They continue to captivate our imagination and inspire contemplation of the ultimate fate of humanity.

1.2.2. *Evolution As an Example of Apocalyptic Fiction*

Evolution is an apocalyptic novel that explores the aftermath of a global catastrophe. The book follows a diverse cast of characters struggling to survive in a world radically transformed by environmental upheaval. The novel’s central premise is that the Earth is struck by a cosmic ray burst, which triggers a series of ecological disasters that lead to the extinction of most of life on the planet.

One of the defining features of *Evolution* as apocalyptic fiction is its focus on the end of the world as the result of natural causes. *Evolution* is a classic example of apocalyptic science fiction, in which the end of the world is imagined as the result of natural causes rather than human intervention. This emphasis on natural causes sets *Evolution* apart from other apocalyptic works, which often focus on human-caused catastrophes such as nuclear war or climate change.

Another defining feature of *Evolution* as apocalyptic fiction is its bleak future vision. The novel offers a portrayal of a world in which humanity struggles to survive in the aftermath of a global catastrophe. It presents a very pessimistic view of the future, in which humanity is constantly on the brink of extinction. This bleak vision of the future is a common element in apocalyptic fiction, as it reflects anxieties about the potential collapse of society and the end of the world. In *Evolution*, this vision is realised through the evolution of a new species of humans, which threatens the survival of the old human species. This evolution is seen as a natural process but is also portrayed as a threat to humanity's continued existence.

Evolution can be seen as an example of apocalyptic fiction due to its exploration of the end of the world, the potential extinction of the human species, and its focus on the aftermath of a catastrophic event. The book also depicts the potential end of the human species through a catastrophic event. This event is caused by the evolution of a new species of humans, ultimately leading to the extinction of the old human species. This theme of extinction and the end of the world is a common element in apocalyptic fiction and is also present in *Evolution*.

Another example of why *Evolution* could be regarded as apocalyptic fiction is its ability to reflect contemporary anxieties and fears about the future and that the apocalyptic genre offers a powerful way of exploring the human response to the possibility of impending catastrophe.

Furthermore, the apocalyptic genre often deals with the theme of the end of the world, which can take many different forms, such as natural disasters, pandemics, or nuclear war. In the case of *Evolution*, the end of the world is caused by the evolution of a new species of humans, eventually leading to the extinction of the old human species. This scenario can be seen as a variation of the theme of the end of the world, exploring the potential consequences of human evolution. In conclusion, Stephen Baxter's novel *Evolution* can be classified as apocalyptic fiction, as it deals with the theme of the end of the world and the potential extinction of the human species.

1.2.3. *Cloud Atlas As an example of Apocalyptic Fiction*

David Mitchell's *Cloud Atlas* can be seen as an example of apocalyptic fiction due to its depiction of a future world in which humanity is on the brink of extinction. The novel's six interlinked stories explore different periods, from the 19th century to a distant post-apocalyptic future, and each story reflects on the potential consequences of human actions and their impact on the environment.

Apocalyptic fiction asks readers to consider the consequences of human actions and reflect on what the future might hold if these actions continue unchecked. The reason why apocalyptic fiction is evolved in such a way might be found in the religious origins of the term "apocalypse". In religious texts, the apocalypse is seen as a means of cleansing coming after a punishment. Murphy states:

Apocalypses consider the world to come as ideal. The wicked, human and superhuman, are eternally punished or go out of existence. Those who remain fully accept God's will. Sin is gone, so what sin brought—death, suffering, sickness, warfare, famine, and so on—also disappears. What follows varies from apocalypse to apocalypse. Most expect a renewed earth on which humans will live, but others see rather the translation of righteous humans to fellowship with the stars in the heavens (Murphy, 2012, p.29).

In the case of *Cloud Atlas*, the novel explores the consequences of human actions in different periods and how these actions have led to a future world on the brink of extinction.

Another defining feature of *Cloud Atlas* as apocalyptic fiction is its portrayal of a future world characterised by environmental collapse, societal breakdown, and the struggle for survival. Daschke states:

…the texts' depiction of a cosmos wherein humanity's days are numbered—sometimes literally—and whose secrets are hidden from all but a select few has inspired "apocalypticism," which extends the implications and expectations of the genre of apocalypse into social, psychological, and cultural areas, in fields ranging from environmental protection to politics to computer science to literature and film (Daschke, 2014, p.457).

In addition to exploring environmental collapse and societal breakdown, *Cloud Atlas* also examines the role of technology and its potential impact on humanity. Mitchell's novel presents a dystopian vision of a world in which the power of technology is exploited and abused, leading to catastrophic consequences for the planet and the human species.

Moreover, *Cloud Atlas* also incorporates religious and spiritual themes as it explores the concept of reincarnation and the idea of cyclical time. The novel's cyclical structure and focus on reincarnation suggest a deep-seated anxiety about the future and a concern that humanity may be doomed to repeat its mistakes indefinitely. Kermode mentions this never-ending cycle:

> The subject being so enormous, I ask you to consider only one or two brief points. I said in an earlier talk that tragedy may be thought of as the successor of apocalypse, and this is evidently in accord with the notion of an endless world". And he continues: "The world may, as Gloucester supposes, exhibit all the symptoms of decay and change, all the terrors of an approaching end, but when the end comes it is not an end, and both suffering and the need for patience are perpetual (Kermode, 2000, p.82).

Another aspect of *Cloud Atlas* that characterises it as apocalyptic fiction is its use of narrative fragmentation and intertextuality. Intertextuality is defined as "[any] text is constructed as a mosaic of quotations: any text is the absorption and transformation of another. The notion of intertextuality replaces that of intersubjectivity, and poetic language is read as at least double" (Kristeva, 1980, p.66)" Mitchell's novel deconstructs traditional narrative structures, fracturing the stories and reassembling them in different configurations, creating a fragmented and nonlinear narrative that mirrors the disintegrating world it portrays. This fragmentation and intertextuality highlight the chaos and uncertainty of the post-apocalyptic world depicted in the novel.

Furthermore, *Cloud Atlas* also explores themes of power, control, and resistance, particularly in the context of societal collapse. Weiler explains power as "The notion of power as property rests on the assumption that power is a possession which can be given, controlled, held, or conferred. This can perpetuate a simplistic dichotomy where people are assumed to be either powerful or powerless, to be either the oppressed or the oppressor" (Weiler, 1991). Mitchell's novel emphasises how power structures shape and control society and how individuals can resist and challenge these structures to effect change. This theme of resistance is particularly evident in the story of Sonmi-451, who rebels against the oppressive regime of the future world and inspires others to join her cause.

In summary, *Cloud Atlas* can be seen as an example of apocalyptic fiction due to its exploration of the consequences of human actions on the environment, its portrayal of a future world on the brink of extinction, and its focus on the struggle for survival in a post-apocalyptic world. It can also be seen as a multi-layered work of apocalyptic fiction that explores the consequences of human actions, the impact of technology on humanity, and the potential for cyclical time and

reincarnation. It might also be regarded as a complex work of apocalyptic fiction, which explores various themes, including environmental collapse, technological abuse, cyclical time, power and control, and resistance. Its use of narrative fragmentation and intertextuality adds to the overall sense of chaos and uncertainty in the post-apocalyptic world depicted in the novel.

1.3. Post-Apocalyptic Fiction – History and Definitions

Post-apocalyptic fiction is a subgenre of science fiction that explores the aftermath of a catastrophic event that has devastated human civilisation. This type of fiction typically features a world in ruins, with survivors struggling to survive in a harsh environment where resources are scarce and dangers abound. Both apocalyptic literature and contemporary works of post-apocalyptic fiction push us to "explore the meaning of ultimate issues by using the analogical human imagination to incorporate symbolically the human mind and emotions in narratives of the limits of human experience" (Leigh, 2008, p.223).

The roots of post-apocalyptic fiction can be traced back to the early 19th century, with the publication of Mary Shelley's *The Last Man,* which tells the story of the last survivor of a plague that has wiped out humanity. Other early examples of post-apocalyptic fiction include H.G. Wells' *The Time Machine,* which takes place in a future where humanity has divided into two distinct species, and Jules Verne's *The Earth to the Moon,* which explores the aftermath of a catastrophic event caused by a massive volcanic eruption.

In the mid-twentieth century, post-apocalyptic fiction became more prevalent, with the publication of books like George R. Stewart's *Earth Abides* and Walter M. Miller Jr.'s *A Canticle for Leibowitz*. These books explored themes of survival, regeneration, and the human condition in the aftermath of a catastrophic event.

Post-apocalyptic fiction also became popular in film and television, with movies like *The Road* and *Mad Max* franchise and shows like *The Walking Dead* and *The 100* becoming hits. It remains a popular subgenre of science fiction, with authors continuing to explore the themes of survival, human nature, and the consequences of technology and environmental disaster.

1.4. Darwinism and Social Darwinism

Darwinism is a scientific theory that describes the process of evolution through natural selection. It was first proposed by Charles Darwin in his book *On the Origin of Species* in 1859. Darwinism posits that species evolve through random

genetic mutation and selection of the fittest individuals for survival and reproduction.

On the other hand, Social Darwinism is a set of beliefs that emerged in the late 19th and early 20th centuries, which applied Darwinian ideas to social and political thought. Social Darwinism held that human societies and races could be ranked hierarchically based on their level of evolutionary development and that the strong should dominate the weak to ensure the progress of the species.

One source that discusses these concepts in detail is the book *Social Darwinism: Science and Myth in Anglo-American Social Thought* by Robert Bannister. In the book, Bannister notes that:

> In most scholarly studies during the interwar years this definition held. As late as 1940, an American sociologist defined Social Darwinism as "a technical term [used) to designate a group of writers, sociologists, and eugenicists, who ignore the all-important distinction between man and the lower animals, i.e. the former's possession of culture." No less an authority than the Soviet philosophical dictionary agreed: "Social Darwinian: -is an incorrect transference of the law of the struggle for existence in the world of animals and plants ... to the sphere of social relationships" (Bannister, 1979, p. 4).

Darwinism described the process of biological evolution as a natural, purposeless, and unplanned mechanism. It implied that all species were interrelated and could be traced back to a common ancestor. Social Darwinism, on the other hand, posited that human societies were ranked hierarchically based on their level of evolutionary development and that the strong should dominate the weak to ensure the progress of the species.

Another source that discusses these concepts is the article "Darwinism and Institutional Economics" by Geoffrey M. Hodgson. In the article, Hodgson explains what Darwinism is:

> A host of misunderstandings surround the question of Darwinism and its relation with the social sciences. Contrary to widespread suppositions, Darwinism does not support any form of racism, sexism, nationalism, or imperialism or provide any moral justification for 'the survival of the fittest.' Furthermore, Darwinism does not imply that militant conflict is inevitable, that human inequalities or power or wealth are inevitable, that cooperation or altruism are unimportant or unnatural, that evolution always leads to optimization or progress, that social phenomena can or should be explained in terms of their genes alone, that human intention is unimportant, or that human agency is blind or mechanistic (Hodgson, 2003, pp. 85-86).

Darwinism describes the natural processes by which species change and evolve. "In Darwinism, certain traits of species would get better and better in terms of survival fitness" (Kempf-Leonard, 2005, p. 779). Social Darwinism applies these ideas to human societies and posits that the strong should dominate the weak. It is essential to distinguish between these two ideas, as Darwinism is a scientific theory based on empirical evidence. At the same time, Social Darwinism is a set of beliefs used to justify social and political policies.

Another source that discusses Darwinism and Social Darwinism in depth is the book *Darwin's Conjecture: The Search for General Principles of Social and Economic Evolution* by Geoffrey M. Hodgson and Thorbjørn Knudsen. In the book, Hodgson and Knudsen (2010) state that Social Darwinism is not a scientific theory in the same way that Darwinism is. The authors argue that while Darwinism pertains to the biological evolution of species, Social Darwinism is concerned with applying evolutionary principles to society and the economy. Many scholars have challenged this perspective.

For instance, in *Geography of Globalisation,* Harod mentions Social Darwinism from a state-based point of view:

> Ratzel's theory was a form of Social Darwinism, but in contrast to Darwin's account, the struggle took place among states rather than individuals. As a state's population grows, according to Ratzel, it requires a larger *Lebensraum*, and 'as more and more states grow up, the nearer do they edge together, and … act and react upon one another' (Ratzel, cited in Harod, 2012, p.1)

It can be inferred from this excerpt that biological concepts were applied to human society, economics, and politics. Social Darwinism was used to justify imperialism, racism, and other forms of social inequality, as Ashcroft notes: "The idea of the 'evolution of mankind' and the survival of the fittest 'race,' in the crude application of Social Darwinism, went hand in hand with the doctrines of imperialism that evolved at the end of the nineteenth century" (Ashcroft, 2012, p.334).

Similarly, Maynard (2000) maintains that Social Darwinism was a critical intellectual movement in the late 19th and early 20th centuries as he states: "More than any other writer, including Darwin, Spencer takes the credit or blame for the Social Darwinist milieu of the Victorian age" (Maynard, 2000, p.34). Then he continues with the 20th century: "The concept of culture was being used in something like its modern sense from at least the 1870s, and Social Darwinism remained a presence into the 1920s… Beliefs in the links between biology and

social behaviour that underlay Social Darwinism have never gone away entirely and have been in the ascendant, once more, since the late 1960s" (Maynard, 2000, p.6). He suggests the theory was based on a flawed understanding of biology and evolution.

Some scholars defended the relevance of Social Darwinism. For example, Claeys (2000) shares a quotation from David Ritchie in favour of the benefits of Social Darwinism, suggesting that the theory can shed light on the dynamics of competition and cooperation in social and economic systems:

> By the mid-1880s, when the 'social problem' was once again squarely on the agenda of public debate and was widely understood in Social Darwinist terms, the New Liberal David Ritchie's *Darwinism and Politics* (1889), too, gave Social Darwinism a collectivist slant through the argument that the state, acting as a benevolent institution, could assist social evolution by freeing individuals from a perpetual struggle for the means of existence" (Claeys, 2000, p. 229).

The debate over the relevance and validity of Social Darwinism continues to be a contentious issue in the social sciences. While some scholars argue that the theory is a flawed and dangerous ideology, others suggest that it has important insights to offer into the workings of society and the economy. As Hodgson and Knudsen (2010) point out, the key to understanding this debate is to recognise the differences between Darwinism and Social Darwinism and to approach each theory on its own terms.

In summary, Darwinism is a scientific theory that describes the process of evolution through natural selection. In contrast, Social Darwinism is a set of beliefs that apply these ideas to human societies and posit that the strong should dominate the weak. It is essential to distinguish between these two concepts, as Darwinism is a scientific theory based on empirical evidence, while Social Darwinism is a set of beliefs used to justify social and political policies.

When Samuel Butler (2016) engaged with Darwin's ideas in his writing, he often criticised the idea of Social Darwinism, arguing that it was a misapplication of Darwinism used to justify the mistreatment of the poor and disadvantaged. Butler instead emphasised the importance of compassion and empathy in society and rejected the idea that human worth could be reduced to a simple measure of fitness or utility.

For example, the narration of *The Way of All Flesh* is permeated with evolutionary ideas. Nielsen states, "The novel is deeply rooted in Butler's own philosophical and evolutionary epistemologies" (Nielsen, 2011, p.82). Butler desired a

worldview in which the many requirements of man's nature should coexist, where the pursuit of self-awareness and individual freedom should not be seen as a kind of rebellion but rather as an unavoidable development following social and natural principles. He started to see the setting for his forthcoming novel, *The Way of All Flesh*.

Ernest Pontifex, Butler's primary character, struggles with the limitations of Victorian values. He is aware that his fight for survival, which began at birth and intensified in his twenty-second year, cannot find solace in religion. This realisation is worsened by the external evolutionary pressures shaping his existence, as well as the fragile position religion has been placed by Darwin's theories. Ernest begins to trust his instincts as the guiding force in his life rather than faith. As he adjusts to the demands of his environment, he turns to behaviours instilled in him through repeated shocks and experiences, both consciously and unconsciously.

Butler's novel can be read as a critique of Social Darwinism. The character of Mr Pontifex represents the Social Darwinist ideal of the "survival of the fittest", and that the novel exposes the cruelty and hypocrisy of this philosophy. The values of muscular Christianity and the popularisation of Darwinism in terms of Social Darwinism are all ridiculed in the novel through the character of Mr Pontifex, the representative of the type of man who believes that it is the duty of the strong to trample upon the weak. Ernest places himself inside a Darwinian evolutionary setting by replacing reason with instinct as his guiding concept for life. Except for when his instinct tells him to "cut" his parents or ultimately end things with them, Ernest performs most of what it advises him to do.

Nietzsche did not use the term "Social Darwinism" himself, as it was coined after his death. Nonetheless, his ideas and concepts have influenced the development of Social Darwinism. In his works, Nietzsche often critiques the assumptions and implications of Darwinism, particularly as they relate to human morality and values.

Richardson (2002) states Nietzche's similarity with Darwin: "The better sense for 'will to power' emerges through our recognizing Nietzsche's close affinity with Darwin". Moreover, he continues with why the Darwinian aspect of the "struggle for survival" is in contrast with Nietzche: "Most often, he (Nietzche) conceives will to power metaphysically, as a universal force more basic than Darwinian selection… However, there is also a second, minority way Nietzsche intends 'will to power': as a kind of internal revision of Darwinism itself" (p. 538).

In *Nietzsche's New Darwinism*, Berry (2015) argues that even casual readers of Nietzsche will notice that most of what Nietzsche would say about Darwin and Darwinism is unfavourable. According to Richardson, Nietzsche has a lamentable but dependable habit of biting off the hand that feeds him; the ideas he most criticises are frequently those that inspire him the most. However, his intellectual relationship with Darwin is far more convoluted. As Richardson's assessment of Nietzsche's stance demonstrates, Nietzsche's critiques appear to be incorrect in terms of both Darwin's perspective and biological facts. The underlying theme in Nietzsche's criticism of Darwin seems to be that Darwin places too much emphasis on "survival" and too little emphasis on "power".

Nietzsche's philosophy challenges traditional notions of human nature and morality by drawing on Darwinian ideas about evolution and human behaviour. Nietzsche's concept of the "will to power" reflects a Social Darwinist view of human nature, in which individuals strive for dominance, and the weak are exploited by the strong.

Similarly, in his article "Nietzsche's Naturalism and Nineteenth-Century Biology" (2017), Brian Leiter argues that Nietzsche's philosophy critiques traditional morality by drawing on Darwinian ideas about the evolution of human behaviour. Leiter suggests that Nietzsche's rejection of conventional morality reflects a Social Darwinist view of human nature, in which individuals pursue their own interests and compete for dominance: "…Emden shows, convincingly to my mind, that Nietzsche's position . . . is not anti-Darwinian, but . . . is highly critical of popular Darwinism, in particular its social and political conclusions" (Leiter, 2017, p.72).

However, in *Nietzsche's Animal Philosophy: Culture, Politics, and the Animality of the Human Being* (2009), Vanessa Lemm argues that Nietzsche's philosophy critiques Social Darwinism and its implications for human morality. Lemm (2009) suggests that Nietzsche's rejection of traditional morality reflects a denial of Social Darwinist views of human nature and a call for new ethics based on recognising the interdependence of all living beings. For her, Nietzsche's critique of morality is not a straightforward rejection of moral values but rather a questioning of their origins, function, and implications. Nietzsche's naturalism does not entail the Social Darwinist belief that the strong should dominate the weak. Nietzsche's animal philosophy challenges the anthropocentric assumptions underpinning traditional ethics and opens new avenues for ethical reflection and political action.

Arthur Schopenhauer lived and wrote before Charles Darwin published his theory of evolution, so he did not directly address Darwinism or Social Darwinism in his works. However, some scholars have examined Schopenhauer's philosophy in the light of evolutionary theory and its applications, including Social Darwinism. In his book *Schopenhauer and the Wild Years of Philosophy*, Rüdiger Safranski (1990) discusses Schopenhauer's view of nature and its connection to evolutionary theory. Safranski argues that Schopenhauer anticipated Darwin's theory of evolution in some ways, particularly in his emphasis on the struggle for survival and his rejection of teleology. Schopenhauer anticipated Darwin's theory of evolution by viewing nature as a battleground of living things engaged in a struggle for existence. The goal-directedness of nature is simply an appearance, according to Schopenhauer. In nature, there is just constant striving and no ultimate destination. Only the battle to survive remains continuous in perpetual upheaval.

Darwinism was proposed by Charles Darwin and Alfred Russel Wallace in the mid-19th century. This theory posits that species evolve through variation, selection, and inheritance. Natural selection is the mechanism by which beneficial traits are selected for and passed on to future generations while harmful characteristics are eliminated.

Social Darwinism is a 19th century social theory that applies the principles of Darwinism to human societies. It suggests that human societies and cultures also evolve through natural selection, with the most fit societies and cultures surviving and the less fit ones dying out. This theory has been criticised for its justification of discrimination, imperialism, and eugenics.

He states that Schopenhauer was thinking in a way beyond his time. If taken seriously at the times he lived, he might have got punished because of his ideas: "Schopenhauer was in fact lucky in that he was not yet being taken seriously as a philosopher. Had he been taken seriously, then his affront against religion - something a philosopher could not afford during the Restoration period - would not have gone unpunished" (Safranski, 1990, p. 261). Then comments on how his ideas were more sophisticated than his contemporaries:

> They ignored a philosopher who, far ahead of his time, brought together the three great affronts to human megalomania and thought them through to the end. The cosmological affront: our world is one of countless spheres in infinite space, with a 'mildew of living and sentient beings' existing on it. The biological affront: man is an animal, whose intelligence must compensate for a lack of instinct and for inadequate adaptation to the

living world. The psychological affront: our conscious ego is not master in its own house (Sarfanski, 1990, p. 3).

Safranski also mentions how Schopenhauer's realistic ideas are parallel with Darwin's, stating that

> The presumption of a 'life force', however spiritual, was discredited… It was just those adaptive modifications of living creatures to their environment and their resulting greater chances of survival in the 'Struggle for Life' which Darwin had raised to the motive force of the history of evolution, which, in view of the reward of survival for the adapted, might properly be interpreted as a history of material progress - admittedly progress which did not favour the weak. English economic liberalism was here reflected in the contemporary view of nature. Subsequently this was to be called 'Social Darwinism' (Safranski, 1990, p.333).

For him, Schopenhauer might be regarded as a Social Darwinist. He would have viewed any belief in the progress of mankind as a delusion, a "philistine optimism" that hides the unchanging nature of the world and man's fate. Evolution may have meant advancement in science and technology, but in the realm of morals, it was no guarantee of improvement.

Henri Bergson was a French philosopher who lived from 1859 to 1941. The ideas of Charles Darwin heavily influenced his work, and he made significant contributions to the development of vitalism, a theory that posits the existence of a vital force or principle that distinguishes living from non-living matter (Vaughan, 2007).

Bergson was fascinated by evolution and believed that Darwin's theory of natural selection could not fully account for the complexity and diversity of life. In his book *Creative Evolution,* Bergson argued that an inherent creative force in life drove evolution forward and that natural selection could not fully explain this force (Bergson, 2005).

Bergson also believed that the human mind and consciousness were products of evolution. He argued that the mind was not a static entity but a dynamic process constantly evolving and adapting to new situations. "Bergson appreciates the important contribution Darwinism makes to a theory of evolution, but argues that every generation of form is bound up with a unique history that reflects specific durational conditions of existence" (Ansell-Pearson & Maoilearca, 2002, p. 11).

Although Bergson was critical of some aspects of Darwin's theory, he was also critical of Social Darwinism. Bergson argued that Social Darwinism was based

on a narrow and superficial understanding of evolution and ignored the complex social and cultural factors that shape human behaviour.

"… Still, as Paola Marrati has argued, Bergson's appeal to biology should not be confused with any form of Social Darwinism or evolutionary sociology. The appeal in Bergson to go 'beyond the human condition' does not mean stripping humanity of its bodily, animal life in favour of a purely spiritual, ghostly existence" (Ansell-Pearson, 2018).

Bergson does not detest our biological type of embodiment, including our animality. Bergson also said that life is "with a tendency to change, with an essential mobility, an aspiration to novelty that runs through all living forms" (De Vries & Sullivan, 2006, p.597). If the human animal deserves any privileges, they come from their higher ability for freedom and change. Nevertheless, as Marrati convincingly demonstrates, this ability does not create an ontological gap, as Kant or Heidegger did, and mankind is not cut off from the rest of the living universe. Bergson believes that rational thinking is rooted in life "to the extent that life as such is endowed with a highly cognitive competence: the capability of solving problems" (De Vries & Sullivan, 2006, p.597). Bergson views the problem as a primary biological category rather than just a need "Nutrition, before being a need to be satisfied, is a problem to be solved" (De Vries & Sullivan, 2006, p.597).

Bergson was particularly critical of the idea that competition and struggle were the driving forces behind human society. "Philosophy is noble because, says Bergson, it frees us from social ambition and competition" (Ansell-Pearson, 2018, p. 49). Bergson promoted philosophy as a liberating force, allowing us to rise above the frequently trivial conflicts that dominate our social life. He contended that philosophy provides a higher vantage point from which to examine the human condition, pushing us to comprehend rather than conquer, to connect rather than compete. Bergson saw the relevance of philosophy in its ability to inspire empathy, develop connection, and encourage collective advancement. It acts as a lighthouse of enlightenment, allowing us to look beyond the otherwise stifling confines of rivalry and societal striving, allowing us to glimpse the broader tapestry of human existence.

George Bernard Shaw was a prominent writer and social commentator in the late 19th and early 20th centuries. He was particularly interested in the ideas of Darwinism and Social Darwinism, which were becoming increasingly influential at the time.

Throughout history, evolution has been the focus of in-depth research and discussion, with numerous experts presenting opposing perspectives. George Bernard Shaw's notion of creative evolution departs from the standard Darwinian viewpoint. Shaw's theories align with Lamarckism's tenets, emphasising the influence of a conscious, creative force on the direction of evolutionary processes.

Shaw's theory of creative evolution rejects Darwinian natural selection in favour of a teleological perspective that is at odds with the results of contemporary microbiology (Mills, 1973, p. 123). Shaw, who drew his concepts and rules from Lamarck, declared himself to be a neo-Lamarckian (Mills, 1973). Shaw rejected the idea that random variations cause evolutionary changes and instead believed that organisms had an innate motivation to adapt to their surroundings. According to this viewpoint, organisms actively adapt to their environments instead of just being formed by natural selection (Mills, 1973, p. 124).

Shaw places a high value on Goethe in his theories about developing creative ideas. Shaw viewed Goethe's idea of the "Eternal Feminine" as an expression of a mysterious force propelling the development of creativity (Mills, 1973, p. 125). Shaw's viewpoint and Goethe's conviction in the upward and upward motion of evolution lent support to each other's beliefs.

Butler's notions of creative development greatly impacted Shaw's ideas. According to Mills (1973), Butler and Shaw believed that matter is shaped by a purposeful, innovative, immaterial force that acts to further its goals. Their views are based on this shared ground, which unites their viewpoints on the function of an active force in guiding evolutionary processes (Mills, 1973, p. 126).

Regarding the impact of the environment on biological variations, Shaw's theory of creative evolution shares similarities with those of Buffon, Erasmus Darwin, and Lamarck. According to Mills (1973), these pioneers thought that environmental changes led to organisms' differences. Shaw accepts this idea and applies it to his theory, highlighting how organisms may adapt to their shifting circumstances. According to Shaw, the key to survival is a successful adaptation passed on to the next generations (Mills, 1973, p. 126).

Both Butler and Shaw's theories of creative development heavily rely on vitalism, a philosophical perspective that postulates the presence of a non-physical life force. According to Mills (1973), Butler and Shaw made significant contributions to the idea of an autonomous life force that may animate inanimate objects and

enter the evolutionary process. A substantial addition to evolutionary theory is made by the life force's capacity to interact with matter (Mills, 1973, p. 126).

The theory of creative evolution by George Bernard Shaw presents a distinctive viewpoint informed by neo-Lamarckian ideas, Goethe's insights, and the partnership with Butler. Shaw stresses the active involvement of organisms in determining their evolution in reaction to environmental changes, which contradicts the dominant Darwinian viewpoint. Shaw's beliefs add to the larger conversation on evolution by offering other perspectives and emphasising the relevance of conscious, creative forces in the evolutionary process, even though his teleological approach conflicts with the results of contemporary microbiology.

2. DARWINISM VS CREATIVE EVOLUTION IN STEPHEN BAXTER'S *EVOLUTION*

You can be a thorough-going Neo-Darwinian without imagination, metaphysics, poetry, conscience, or decency. For 'Natural Selection' has no moral significance: it deals with that part of evolution which has no purpose, no intelligence, and might more appropriately be called accidental selection, or better still, Unnatural Selection, since nothing is more unnatural than an accident. If it could be proved that the whole universe had been produced by such Selection, only fools and rascals could bear to live.

George Bernard Shaw

2.1. Darwinism and Social Darwinism in *Evolution*

A word like 'apocalypse' is often thought to mean cataclysm, chaos, or the end of the world, because that is the Biblical subject of the *Apocalypse* or *Revelation of St. John*" (Castleman, 1994, p. 6).

Throughout history, the earth has witnessed several apocalypses ending in cataclysm and chaos, such as the meteor hitting the ground around 65 million years ago and causing a mass extinction, several ice ages, plagues etc. However, life has always found a way to flourish. Nothing ever lived indefinitely. "Reproduction" was the sole means of preventing the terrible devastation of death. Genetic material about oneself was passed on to progeny through reproduction (Baxter, 2002, p. 64). Not only living beings but also all the human-made cultural, political, financial, and sociological concepts and systems have experienced apocalypses followed by a rebirth. This chapter will focus on how these apocalypses result in a kind of evolution that eventually changes existing entities into a better-adapted form in Stephen Baxter's *Evolution*.

Evolution starts with a story taking place in the year 2031. The story is divided into three parts: Prologue, Interlude and Epilogue. Furthermore, each part is integrated into the book throughout the different chapters of the three sections; One: Ancestors, Two: Humans and Three: Descendants. The main story functions as a centre or a scaffold to the other sections. Throughout the book, explicit or implicit references are given to create a sense of recognition in the readers' minds.

Purga, a proto-mammal from the Cretaceous period, is reflected as the progenitor of one single strand of DNA. Purga, her mate and daughter are illustrated as walking under the meteor rain, managing to survive and carry all the potential of

mankind: “So the three tiny, shrewlike creatures— carrying all the potential of mankind within them— made their way slowly across the battered, smoldering plain while meteors rained around them” (Baxter, 2002, p. 50). Her genes travel in time through different “transporters” in each chapter, beginning somewhere 65 million years before now and ending in an unknown time and place. The journey of this DNA strand reflects the book’s central theme: the species’ will to survive. Baxter states, “And when she was dead in her turn, there would be nothing to say he had ever existed, and he would be gone into the final blank darkness that had swallowed up all of his ancestors, everyone.” (Baxter, 2002, p. 130). The fittest ones manage to live, while others are doomed to vanish into the darkness so that nobody would remember them.

Evolution takes place considering the requirements of the evolver. The first species to evolve in the book use the elements they can find. For example, all animal metabolisms are based on the slow cellular burning of food in oxygen (Baxter, 2002, p. 21). The environment also influences the requirements. Due to the lack of food, the difficulty in finding a place to lay the eggs, bring up the off-springs, or for many other reasons, some swimming animals migrate onto the land and survive. The environment makes them evolve into a “tetrapod body plan of four legs, a backbone, ribs, fingers, and toes” (Baxter, 2002, p. 21). Dinosaurs, mammals, birds, and crocodiles, even whales and snakes have this same body formation.

Later, some predators evolve to burn food more briskly to have a better chance to chase their prey. This means an entirely different design; the need for more food results in a better digestion system and an adequate waste elimination capacity. The metabolic rate increases and even the cells start working faster. Eventually, a higher body temperature is set.

Cold-blooded animals, including dinosaurs, draw heat from the places they live. Nevertheless, the hot bloods do not depend on the environment. They can move no matter how cold or dark the atmosphere is. This ability let them survive the catastrophic meteor disaster.

“In a dangerous world, humility made for longevity” (Baxter, 2002, p. 47). Humility is described as “the quality of not being proud because you are aware of your bad qualities” (Cambridge Online Dictionary, 2023). Baxter’s *Evolution* consists of many examples of spectacular species evolving into more sophisticated forms. Although these creatures seem to have more chances to leave

a legacy to their descendants, there are times when the humble ones manage to survive.

For example, when the Devil's Tail hits, all those gorgeous dinosaurs die; including the dominant dinosaur species, condylarths, which were in their prime as the top predators of the global forests, but small mammals like Purga manage to survive. (Baxter, 2002, p. 70).

Extinctions have always been an everyday occurrence, despite how terrifying they are. Nature is teeming with species; each is interconnected with the others through conflict or cooperation and perpetually fighting for existence. No one can ever be permanently in the lead; anybody can fail due to unfavourable circumstances, disasters, or invasion by a rival with more substantial resources. Baxter (2002) notes, "The cost of failure had always been extinction" (p. 58). Variations compatible with a species' changing environment are selected for survival, whereas those that are no longer viable gradually vanish. They could become part of the fossil record or vanish. This process of adaptation and extinction is continuous and unending, resulting in a never-ending cycle of change and renewal within the species.

Nature has its own pace. According to human perception of time, periods considered long may occur in rapid succession when viewed in the context of the universe's functioning. Slowly but decisively. Tectonic plates shift location, climates, habitats, floras change, and devastating events occur. If given enough time, even seemingly impossible occurrences like crossing the seas from Africa to South America would unavoidably happen repeatedly and ultimately influence the course of life (Baxter, 2002, p. 108). From a cosmic point of view, the travel of the Devil's Tail, the comet that has been thought to be the cause of the extinction of dinosaurs, could be given as another example.

Baxter mentions a period when planets are forming, and some comets enter the gravitational fields of these planets and collide with them, while others miss and are flung far away from the solar system. It is a risky period for comets. Many of them are pulled into Jupiter's and the other significant planets' gravity wells, where their mass feeds the giants' growth. Others are launched inward towards the boiling, crowded centre by the giants' gravitational slingshots, where they hit the inner planets with their blows.

However, a few fortunate survivors are flung in the opposite direction, away from the sun and into the vast, chilly voids of the outer dark. This area soon develops

a loose cloud of comets, orbiting the sun's nearest star in the middle of their vast, sluggish orbits. The Devil's Tail is one of them.

Baxter (2002) continues illustrating the comet's journey. The comet is secure outside. For the majority of its lengthy existence, its closest neighbour is as far away from Earth as Jupiter. The Devil's Tail eventually arrives where the sun is lost against the star fields, and its crowded planets are invisible, sailing just a third of the way to the closest star at the furthest point of its orbit. The comet rapidly cools and hardens away from the fire. A primordial frost creates strange, delicate ice sculptures on its low-gravity surface, creating a meaningless wonderland that no eye would ever behold. Silica dust turns its surface black. During the four and a half billion years that the comet swims here, on Earth, continents dances, and species rise and fall. However, the soft gravity of the sun pulls. The comet reacts gradually, more so than civilisations do. It then starts to revert toward the light.

The period when The Devil's Tail starts to get closer to the inner solar system and eventually hits the earth is depicted in detail. The colossal body of the meteor releases a great deal of energy resulting in the death of many species. Some even go utterly extinct. It is an apocalypse for most of the organisms on Earth. The moment the meteor hits the Earth and the following events cause significant changes in the environment of the living organisms. This change initiates a chain of events that lasts for many years and influences each other (Baxter, 2002). To survive, organisms have to adopt new strategies suitable for every situation. Their bodies also evolve over time to adapt to the changing circumstances:

> The key to the evolution and preservation of living organisms was the pressure they constantly experience to be well adapted to their environment; individuals who best meet that criterion have a greater chance of survival than those less well adapted. The natural occurrence of variations within species provides for change: if a variation offers a selective advantage, it will be favored through differential survival and reproductive success (Darwin, 1989, p. 139).

The earth is not an inhabitable place for dinosaurs after the meteor hits. Although some dinosaurs survive the crash, the change in the earth's chemistry does not allow them to reproduce. Their eggs go sterile, becoming a source of nutrients for the more adaptable animals, as seen in the example of the euoplo: "None of the eggs had hatched. The euoplo, mournful, baffled on a deep cellular level, had moved away. Immediately after she was gone, a furry cloud of mammalian predators had descended on the eggs, in their squabbling reducing the nest to a muddy battlefield" (Baxter, 2002, p. 56). The bodies, eggs and all the remains of the ones who cannot adapt to newly encountered circumstances become a source

for the adaptive ones, helping them possess the required elements to survive and get stronger in that ultimate habitat. “Now they moved closer to this giant, the last of the monsters who had dominated their world for a hundred million years. In the long empty months since the impact, as they spread out through a world like a charnel house, many of them had learned to exploit a new food source: dinosaur flesh” (Baxter, 2002, p. 57). From this excerpt, one can understand that the survivors feed on dinosaur flesh.

Sometimes one’s death might give the other a chance to live. Whoever lives may affect the destiny of the genes that would pass through generations. Moreover, just one moment, the gene carrier’s unexpected death without having offspring, is enough to send all the biological heritage into oblivion. Baxter exemplifies the situation by showing a moment from Purga’s daily life. A raptor chases after Purga and gets it trapped; she has nowhere to flee away.

The attacker is about to kill her but suddenly directs its attention to a bigger animal, which helps Purga run away and continue to live: “The raptor would not trouble with such small fry as Purga while such a giant meal awaited it. Moving cautiously, watchfully, Purga left the shelter of the fern, and scurried across the scrubby floodplain, through the devastated track left by the anatotitan herd, until she reached the security of the trees.” (Baxter, 2002, p. 20). Baxter regards Purga as the ancestor of all human beings. If she died there, the whole data or experience related to humanity might not have existed. Life has been going on for millions of years. According to Baxter, humans are all the descendants of the ones who have continually survived until having at least one offspring to hand down the entire genetic legacy.

Paul states, “The proposition that the fittest survive is necessarily true if fitness is defined as success in surviving and reproducing” (Paul, 1988, p. 422) reflects this concept. Purga’s and others’ survival symbolises the essence of this notion of fitness, emphasising the intrinsic relationship between survival and reproduction.

The meteor hit also results in a change in the Earth’s chemistry:

The impact had hurled vaporized ocean water into the air. After weeks of suspension, it began to fall back.

There was a lot of vapor. An epochal rain fell, all over the planet.

But the rain itself brought further devastation. It was full of sulfuric acid from the ice clouds, and the impact had injected thin clouds of toxic metals into the atmosphere, metals that now rained out. Nickel alone reached twice the threshold of toxicity for plants. Runoff

water washed substances like mercury, antimony, and arsenic out of the soils, concentrating them in lakes and rivers.

And so on. For years, every raindrop would be poisoned. (Baxter, 2002, pp. 54-55).

However, even after the most devastating catastrophes, life finds a way:

And even now the survivors were breeding. Even now, despite the cold and the shortage of food, in the absence of their ancient predators, their numbers were increasing. Even now the blind scalpels of evolution took raw material adapted for a vanished world and cut and shaped it for the conditions of the new. (Baxter, 2002, p. 55).

As the world recovered, so its changing conditions shaped its living inhabitants. (Baxter, 2002, p. 64).

From a Darwinist point of view, the species would get better and better in time. "In Darwinism, certain traits of species would get better and better in terms of survival fitness" (Kempf-Leonard, 2005, p. 779). In *Evolution*, organisms continually get better adapted to their environment, and then another apocalypse happens, the environment changes, and they would need to adapt to the newer circumstances. By the end of the novel, the Earth's conditions deteriorate to the point where species must evolve in unexpected ways, including the renunciation of their sophisticated brains. This extreme adaptation highlights evolution's harsh nature and the ongoing drive to alter to survive, even if it means losing previously valuable features.

Death is more decisive in evolution than life. The species adapted to the environment have the opportunity to survive longer and have more offspring (Darwin, 1859). For example, suppose the same kind of insects evolved in the same domain. They would have the same look and characteristics. The only difference would be in their colours. One is yellow; the other is green. The green insects have more chance to live in a green forest than the yellow ones. Their predators say birds, would easily see them and feed on the yellow ones, while the green insects could hide amongst the green leaves. Alternatively, vice versa, in a plateau full of yellow meadows, the green ones would be the preferred insects to be fed on; the yellows would hide in the dried grass. In each case, birds kill one species of the insect.

This does not mean that the other colour is less evolved. This means one colour helps the insects hide from predators and live longer enough to have babies. It is no surprise to see green insects more in a forest and yellows in a meadow. Furthermore, the decisive mechanism here is the death of one species by the hand of its predators.

According to Baxter, evolution has no design, feeling of improvement, or purpose. Each organism constantly fights to protect itself, its offspring, and its kin. As the environment slowly changes, so do the species that inhabit it through relentless selection. This is not a process driven by life or pursuit of betterment but rather by death: the elimination of those less well-adapted, the endless culling of possibilities that do not fit. It is a brutal reality prioritising survival over apparent advancement or development (Baxter, 2002).

For billions of years, Earth's conditions have been constantly changing. Across multiple periods, a single piece of land could have been covered by a sea, a forest, and a desert. Because of this continual transformation, neither the greens nor the yellows can take comfort in the prospect of an unknown future. Even if they adapt to their current surroundings, those surroundings are prone to change. However, the possibility of an unforeseeable future offers no solace to those who must bear the constant culling of the less well-adapted. It is a violent procedure that stresses the transient aspect of life and the never-ending struggle for survival (Baxter, 2002).

A new type of animal evolves in Asia around 50 million years ago and begins to traverse the Earth. These mammals cross the Bering Strait into the Americas and meet native monkeys. As noted by Baxter: "This small encounter was a skirmish at the start of an epochal conflict for resources between the primates and the rodents." (Baxter, 2002, p. 79); this meeting sets the foundation for competitiveness. Rodents will complete their invasion of North America in a few million years, with squirrels, gophers, marmots, pack rats, chipmunks, and field mice flourishing in this new ecology. Human hunters, distantly related to the notharctus, cross the Bering Strait on foot for the next 51 million years, bringing primates back to North America (Baxter, 2002, p. 80). The primates are like the yellows in the forest in this natural fight; they are pushed into unfavourable regions by the rodents, with the environment and predators cooperating in the service of Death, assuring their eventual extinction.

Death here is a critical agent because "death is inevitable" (Caplan, 2005, p. 73). It has both direct and indirect effects. The primates in the example above are literally killed, pushed away, or made to die. As a result, their absence gives the rodents more space, food, and other requirements for a better chance to live, give more offspring, and pass their genetic codes to the next generations; these are the direct effects. Some of the fleeing primates survive; death does not affect them directly. However, after the tragedies they have experienced, the fear of death and the will to survive force these primates to migrate to other places and start a new

life. As Kermode (2000) states, “tragedy assumes the figurations of apocalypse, of death and judgment, heaven and hell; but the world goes forward in the hands of exhausted survivors” (p.95). Death, directly and indirectly, results in a new way of life for the victorious and the defeated parties.

Death is also an indispensable part of the apocalypse; Trelstad (2018) states, “Apocalyptic logic and fear excite violence and propagate death” (p. 263). Although the destruction and death of a tribe in ancient texts was addressed as an apocalyptic catastrophe, this understanding has changed over time. Now, an individual’s own death has also begun to be considered apocalyptic. Lyotard states, “the annihilation of humanity as a whole; this catastrophe takes place with each individual death. There is no common measure able to persuade me that a personal mourning is less grave than a nuclear war” (Lyotard, 1984, p. 403). This juxtaposition of the universal and the local destruction experienced both globally and personally can be depicted as a postmodern interpretation of the apocalyptic mode.

In addition, Kermode (2000) also discusses that literary and theological apocalypses converge in their focus on implications rather than the original apocalyptic pattern. They have responded to modern realities by integrating elements of crisis, personal death, and epochal shifts into their narratives. These adaptations have influenced our ways of making sense of the world as we stand in the middle of history.

One can assume that considering an individual’s death as apocalyptic entails the reasons causing it to be treated as a catastrophe that destroys an entire community, a region, the whole world, and even the universe, as in traditional apocalyptic texts. The causes of death might be common illnesses like diarrhoea: “Among Mother’s people, the first to die was an infant. Her little body had been depleted by diarrhea… Next day another died, an old man. And two the next, two more children” (Baxter, 2002, p. 204). Alternatively, a respiratory tract infection: “Olith herself had one grown boy, but his father had died of a coughing illness two winters ago, leaving Olith alone” (Baxter, 2002, p. 244). Even if such simple ailments do not cause the extinction of an entire species or multiple species, they can be considered apocalypses because they lead to the demise of the individual.

The individual in question does not need to be a living organism. Although mountains, plains, seas, rocks, and waters are not living organisms, throughout time, they have ceased to exist in certain areas and re-emerged again in different shapes and qualities.

An ancient ocean's apocalypse tremendously impacts the world's climate. This massive ocean, known as the Tethys, separates Asia from Africa, and its water currents keep the planet warm and free of ice caps. "A giant ocean called the Tethys - like an extension of the Mediterranean - cut off Asia from Africa… The world was warm, so warm there were no polar ice caps." (Baxter, 2002, p. 17). However, as continents move and other geological processes occur, the Tethys shrinks, eventually transforming into seas like the Black, Caspian, and Aral Seas. "But as the continents closed, the Edenic flow of the Tethys was doomed, though fragments of the shrinking ocean would survive as the Black, Caspian, and Aral Seas, and in the west as the Mediterranean" (Baxter, 2002, p.95). As the Tethys disappears, a massive drying sweep across the planet's centre, transforming former mangrove forests in the Sahara into barren scrubland. This vast belt of semi-arid land stretches through North America, southern Eurasia, and northern Africa, following the path of the Tethys. This transformation then influences ocean currents, resulting in long-term climate changes.

The oceans are massive energy reserves, restless, unstable, and mobile. Currents link the oceans, forming enormous invisible rivers that exceed any river on Earth. Driven by the sun's heat and the Earth's spin, the top few meters of the oceans contain as much energy as the entire atmosphere. A shift in these circulation patterns can reshape the planet's climate dramatically. While equatorial currents promote warming, the north-south interpolar currents lead to significant cooling.

The current climate belts are shrinking toward the equator all over the world. Tropical vegetation varieties persist only in low latitudes. A new type of ecology emerges in the north, a temperate woodland of mixed conifers and deciduous trees. It spans vast swathes of the northern continents, covering North America, Europe, and Asia from the tropics to the Arctic. "This climatic collapse triggered a new dying - what paleobiologists would later call the Great Cut. It was a drawn out, multiple event. In the ocean, the plankton population crashed repeatedly. Many species of gastropods and bivalves disappeared" (Baxter, 2002, p. 96).

And on land, after thirty million years of easy success, mammals are experiencing their first mass extinction. Mammalian population is halved. The unique assemblages of Noth's period perish. However, new, larger herbivores with heavy-duty ridged teeth capable of coping with the new, coarser plants typical of seasonal woodland are beginning to arise. The earliest proboscideans, armed with trunks and tusks, roam the African plains by Roamer's time. Except for an octopus' arm, the trunk is unsurpassed in muscle flexibility. It is utilised to cram the animal's mouth with the massive amount of food it requires. These

deinotheres have stubby trunks and strange, downward-curving tusks for peeling tree bark.

During this prosperous period for the horses, the descendants of Noth's forest world's timid creatures diversify into many woodland browser types, some as large as gazelles, but with tougher teeth than their ancestors, suitable for consuming leaves rather than soft fruit, along with longer-legged plains animals that gradually adapt to a grass diet. Most horses now have three toes on their front and rear feet, but some plains runners lose their side toes and rely entirely on their centre toes. However, as the woods decrease, so does the diversity; many forest species eventually face extinction. The rodents are also diversifying, marking the advent of the first gophers, beavers, dormice, hamsters, and a wide variety of squirrels - and the first rats.

The new conditions are proving to be unfavourable to the primates. Their original habitat of tropical forests is shrinking to the southern tropics, leading to the extinction of many primate families. Fruit eaters like Roamer now remain only in the tropical woodlands of Africa and South Asia, clinging to these trees' year-round food supply. By the time Roamer is born, no primates are left north of the tropics, and none in the Americas at all since the arrival of the rodents, resulting in the complete absence of a single primate species in these regions.

According to Kermode, the concept of a precise, predictive apocalypse has evolved, losing its rigid barriers, and eschatological elements now permeate history more broadly. He says, "The identification of specific figures and events has given way to a broader understanding of the types and their relevance to our perception of the world..." (Kermode, 2000, pp. 39-42). This broadening of the apocalyptic framework makes the concept more adaptable and allows for a more in-depth examination of how apocalyptic thoughts relate to the world's view. Given Kermode's observations, it is conceivable to examine historical or geological events, such as the disappearance of the Tethys Ocean, in apocalyptic terms, expanding the term's relevance beyond conventionally catastrophic scenarios.

Kermode's observations on the apocalypse concept shed light on its adaptability and flexibility, as indicated by its historical resilience. He discusses the apocalyptic framework's potential to change and survive in multiple forms. He claims, "It can adapt to changing interests, incorporate other apocalyptic variations, and survive in both sophisticated and naive forms..." (Kermode, 2000,

p. 21). This adaptability can be seen outside of the literary or philosophical spheres, for example, in the history of the Tethys Ocean.

The ancient apocalypse of the Tethys Ocean exemplifies a physical representation of apocalyptic alteration, triggering a chain reaction of environmental changes. Its separation into the Black, Caspian, Aral Seas and the Mediterranean resulted in substantial temperature changes and ecological system complications. This domino effect resulted in the demise of certain life forms and the birth of new species, changing the world's ecological fabric. The catastrophic drying of the Tethys is a striking example of how massive geological and climatic alterations can cause mass extinctions and the emergence of new life forms, echoing Kermode's notion that the apocalyptic framework can project patterns onto the complexity of history.

The development of the Panama isthmus, like the loss of Tethys, contributes to climate change. This isthmus is formed by the collision of North and South America. The movement of tectonic plates, which creates new territories, is a natural process, but in this context, it results in something far more dramatic. According to Baxter, "this region had once more become the epicentre of a worldwide catastrophe" (Baxter, 2002, p. 150). The resulting shift in ocean currents and global climate appears to be apocalyptic in scope and implications. This silent apocalypse, caused by the ongoing movement of tectonic plates, has tremendous effects on life on Earth.

Baxter (2002) continues to illustrate the effects of the closure of the Panama land bridge. It triggers massive climate shifts and subsequent ecological changes, ushering in a new age. The reorientation of the Atlantic currents leads to increased cooling, prompting the Ice Ages, an unparalleled phenomenon in the last two hundred million years. Landscapes transform significantly, cleansing themselves of long-standing biological traces, while ecosystems struggle and respond to climate oscillations. Cold-adapted creatures and migratory species that exploit seasonal temperature swings show resilience, but for others, such as South America's diversified marsupials and ungulates, new competitors from the north prove too powerful, leading to their extinction.

Despite massive extinctions and obstacles, this period paradoxically stimulates a productive age of diversification and evolutionary ingenuity. "In Darwinism, certain traits of species would get better and better in terms of survival fitness" (Kempf-Leonard, 2005, p. 779). This idea is demonstrated throughout the period following massive extinctions and violent climatic upheavals when life survived

and proceeded through a prolific age of diversification and evolutionary creativity. The dynamic resilience and diversity of the Earth's biosphere in the face of apocalyptic changes are a spectacular representation of Darwinism in action. This period represents a natural kind of Social Darwinism, in which a species' biological ability to traverse dramatic environmental transformations, either adapting to or being wiped out by its new circumstances, determines survival and adaptability rather than societal structures.When considering the Earth as a planet, the occurrence of tectonic movements, the construction of new land or sea portions, and the influence of surface movements on the Earth's climate are all common phenomena. Even the experience of ice ages and temperate climates, which appear to be very long periods from a human perspective, swing back and forth like the two ends of a pendulum. Each new development signals the demise of the "old," preparing the way for the "new." These changes impact not just the world but also life on it, with particular creatures adapting and surviving while others are wiped out. The constant transformation, growth, and adaptation cycle exemplify our planet's dynamic and ever-changing nature.

The physical change in the evolution of certain living beings influences a range of disciplines, particularly social ones, much as the physical transformation of the Earth impacts the planet and life on it. A clear example of this "physical change" concept may be seen in primates' transition from quadrupedal to bipedal mobility. The demise of quadrupeds gave rise to bipedalism, a new kind of mobility. In other words, a quadruped apocalypse results in a revolutionary shift in mobility and adaptability, illustrating the interdependence of physical development and its broader ramifications.

Bipedalism causes a variety of anatomical, physiological, cultural, and social alterations. Baxter (2002) depicts the transformation from quadrupedalism to bipedalism by giving examples of anatomical changes. The pelvis is simply a connecting element in a quadruped, transmitting pressure from the backbone down and outward to the hips and legs. The birth canal is angled so that childbirth is relatively easy. However, when primates evolve to walk upright, the pelvis must adapt to a new purpose: carrying the weight of the abdominal organs and a growing embryo. The pelvis transforms into a basin shape, and the birth canal opening widens side to side rather than front to back, mimicking the oval shape of a baby's skull. These transformations reveal how subtle changes in movement and posture can have far-reaching consequences on anatomy and physiology, setting the framework for new cultural and societal evolution aspects.

Because of these changes, the birth canal narrows in comparison to the newborn's head, requiring the baby to twist and turn during birth to transit the passage safely. As a result, unlike earlier primates that may see and guide the baby's exit, the newborn frequently emerges facing away from the mother, making it more difficult for the mother to participate in her own birth. This transformation demonstrates the complexities of physical evolution and how a change in posture and anatomy can affect such a fundamental event as birthing.

This shift in childbirth logistics requires a midwife to ensure the infant is appropriately positioned and to intervene as needed. The emergence of such a function implies enhanced cooperation and complexity in hominid social systems and the formation of novel social ties as individuals depend on one another in highly intimate and essential situations. The ability to negotiate these new demands is likely to generate an atmosphere that encourages social cooperation and empathy, resulting in increasingly sophisticated social institutions (Baxter, 2002).

Adapting to the open savannah requires significant changes in body layouts. In *Evolution*, the bodies grow bigger and heavier, making them better suited to long-distance trekking and water storage. The metabolism switches to favour subcutaneous fat storage, a necessary energy storage. Other adaptations include an effective heat management system through sweating and essentially naked skin, linked to the need to find water sources. They evolve feet better suited for walking and sprinting rather than climbing, their brain size expands to cope with complex societies and harsh environments, and their bodies preserve signs of their tree-dwelling history.

The alterations are not only physical; the social structure develops as well. The birth of larger-brained, less physically mature babies demands more intensive care for the children. This leads to longer lifespans, particularly post-reproductive lifespans, as older people assist with childcare, food gathering, and knowledge transfer. This shift in work distribution substantially impacts the walker society's survival strategy.

Despite their more extended development periods and slower breeding, the walker types begin to outcompete the fast-breeding pithecines due to their ability to have more frequent offspring, courtesy of grandmother care. Pithecines cannot compete with the walkers' survivability rate, resulting in their extinction.

This demonstrates that apocalypses resulting in physical alterations lead to differences on Earth and in the organisms' bodies. Hominid species boost their

chances of survival compared to their predecessors. The physical transformation from quadrupedalism to bipedalism has several consequences, including the necessity for midwives, an extended lifespan, a higher need for cooperation among hominids, and, consequently, the establishment of more robust social bonds.

One may not claim that the initial spark needed to start the changes that trigger each other and, in a way, have unpredictable results comes from the natural environment. According to Baxter (2002), physical changes in the human body, like being bipedal, can lead to social and cultural differences. On the other hand, relationships, behaviours, beliefs, and concepts humans create can also result in physical changes in their bodies. For example, significant physical changes occur in the human body because of the evolution of a manmade concept, trade. Baxter (2002) describes how and under what conditions the first trade happened: "Meanwhile, the two kinds of people started a new kind of relationship. They did not fight, nor did they ignore each other, the only two ways people had had to relate to each other before. Instead, they traded" (p. 181). A woman who has mastered the art of gathering food from swampy terrain stumbles upon a stranger from another clan. Rather than fleeing or fighting, they trade her roots for his meat. This is the beginning of a trend in which they meet and sell various products despite their mutual suspicion and misunderstanding. This habit spreads, and the people become nomads, moving and exchanging as they go. The trading networks evolve over time, and it becomes possible to find traded items far from their origins, such as shaped rocks or seashells.

However, living in a way like this can be challenging. Trading entails creating a new kind of world map. Other individuals are no longer just passive elements of the landscape, like rocks and trees. It becomes necessary to keep track of who lives where, what they can give, how welcoming they are, and how honest they are. The swamp people are under intense pressure to become smarter quickly.

The physical traits of these early humans evolve dramatically over time due to changes in their diets and lifestyles. Their skulls enlarge to accommodate larger brains, while their teeth weaken as they are no longer required for chewing tough food or processing leather, and their faces retreat, eliminating the last sign of their apelike muzzles. This evolution also decreases physical strength as intellect grows, culminating in a return to a more graceful litheness.

Agriculture, combined with trade, results in humanity's physical and social progress. In the 14th Chapter of *Evolution*, "The Swarming People," Baxter (2002)

investigates the journey of a girl named Juna from a hunter-gatherer tribe to a population that lives off agriculture. Following the agricultural revolution, hunter-gatherer societies face an impending apocalypse. Although one cannot claim they possess healthier bodies, agrarian communities, with larger populations and the infrastructure to produce better technology to defeat opponents, gradually limit the living space required for hunter-gatherer communities to maintain their traditional way of life.

The chapter paints a vivid picture of the transition from a hunter-gatherer to an agrarian culture, emphasising the unforeseen effects of this change. Principles of natural selection and adaptation become apparent in the framework of Darwinism as humans deliberately and unconsciously select and cultivate particular plant and animal species to fit their requirements. "By spreading the seeds of their preferred plants and eliminating those they did not favour, the people had begun to select" (Baxter, 2002, p. 263). This conscious selection process is similar to Darwin's theorised mechanisms of natural selection, in which favourable features are chosen and transmitted down to succeeding generations.

It also recalls how "The idea of the 'evolution of mankind' and the survival of the fittest 'race,' in the crude application of Social Darwinism, went hand in hand with the doctrines of imperialism that evolved at the end of the nineteenth century" (Ashcroft, 2012, p.334), linking natural and social evolution.

"The Swarming People" also features examples of Social Darwinism, representing the broader historical context in which the concept was investigated. As described in the text, the transition to agriculture causes significant changes in people's daily lives. According to the chapter, "farming meant giving up your entire life - your skills, the joy of running, the freedom to choose what you would do - to the toil of the fields" (Baxter, 2002, p. 263). This sacrifice of personal liberty and well-being corresponds to the understanding of Social Darwinism during the late nineteenth century when Claeys explains the concept as "a collectivist slant through the argument that the state, acting as a benevolent institution, could assist social evolution by freeing individuals from a perpetual struggle for the means of existence" (Claeys, 2000, p. 229). This viewpoint, which resonates with societal developments and beliefs of the time, emphasises the collective role in survival rather than solely individual competition.

The evolution of a hunter-gatherer civilisation into an agrarian culture provides insights into Darwinism, Social Darwinism, and the concept of an apocalypse. Natural selection and adaption principles are revealed through deliberately

selecting and nurturing desired features in plants and animals. However, as Hodges points out, the consequences of this change are that "competition and cooperation have become unbalanced in Western society through the ideology of Social Darwinism, which exalts competition and thereby places Western society at risk" (Hodges, 2006). This mismatch is reflected in the agricultural transformation's sacrifice and competition for survival. "The Swarming People" is a cautionary story that contemplates the unintended repercussions of human acts, the complex relationship between development and the human condition, and the possible perils of unconstrained competitiveness within a societal framework.

2.2. Apocalyptic Elements in *Evolution*

The eleventh chapter explores a near-apocalyptic shift in human perception. The formerly dominant influence of nature-driven forces on human evolution begins to wane, giving way to the emergence of ideological influences, particularly in the selection of ideal partners. Individuals with shared views tend to couple off under this new paradigm, allowing their shared values to contribute to the genetic inheritance passed down to future generations. This trend allows for a more marked divergence in human evolution, potentially leading to a more apocalyptic trajectory.

People gradually start to believe in gods as the ultimate cause of every event, as they understand causality. This growing belief in unseen forces controlling their lives and the world is apocalyptic, reflecting a significant change in worldview. The chapter also underscores the sacrifices made to worship these gods, such as losing time, wealth, and even childbearing rights. Despite the repercussions, the assurance of no longer fearing death offers a form of redemption, enhancing the apocalyptic nature of this belief system.

Due to the breakdown of previous categories, the river people's ability to view specific individuals as objects or animals reduces them to something less than themselves. This perspective is depicted as apocalyptic as it symbolises a profound shift in their thinking and paves the way for lengthy and violent conflicts in the future. The term "killing objects" conveys a detachment from the intrinsic value of human life, accentuating the catastrophic nature of this change. It signifies a transition from one worldview to another, typically involving destruction, struggle, and sacrifice, leading ultimately to the creation and development of religious or spiritual concepts.

Mother navigates a barren, drought-stricken landscape. She appears as a solitary, physically challenging lady bearing the scars of childbirth and life's trials. The world around her is lifeless, with the once-thriving lake now reduced to a sluggish mist in the distance. Mother sees the devastation the drought causes, recognising that the absence of clouds results in scorching sunshine, dried-up water supplies, and animal extinction. Her curiosity peaks, and she longs to discover what makes the clouds vanish.

She suffers from a migraine. On her way back to the camp, she notices two boys practising spear-throwing. Mother's focus shifts to teaching Sapling how to use a spear-thrower. Her exasperation grows as she tries to explain that the stick, not the hand, throws the spear. Sapling eventually grasps the idea, delighting Mother and sparking debate about her ability to observe objects from various angles. "There were very few people on the planet who could have thought this way, drawing an analogy between a stick and a hand, a natural object and a part of the body. But Mother could" (Baxter, 2002, p. 193). Tragedy then strikes as Silent falls ill and dies, leaving Mother grief-stricken. She frantically tries to save him, but his condition worsens, and his lifeless body is taken away for burial. Mother's grief overwhelms her, and she cannot accept the arbitrary nature of his death.

As Mother weeps, the story broadens to present a more comprehensive view of the world and its people. The interglacial period ends, bringing forth a brutal cooling that changes the landscape. Mother contemplates heading into the desert alone but eventually returns to her regular duties. During this time, she feels a sudden urge for artistic expression, using a scraper to draw lines in the granite and experimenting with ochre. Her fascination with patterns and forms grows, and she sees connections and causation everywhere.

Mother guides the people to a new camp by a lake, but life remains tricky due to the persistent drought. Sapling presents Mother with the head of a young ostrich, showing his improved hunting skills. Mother acknowledges his eagerness and guides him, stressing the importance of intention and will in hunting. Her understanding of causation and her worldview expands as she realises the value of every action and occurrence. In a moment of conviction, she confronts her enraged aunt Sour, accusing her of causing Silent's death, and kills her, exerting her power and spreading fear in the community.

The tribe mourns Mother's death but celebrates her life and legacy. Sapling becomes the leader and continues Mother's lessons, leading the tribe to prosperity. They embrace their changing consciousness, explore new territories,

and advance culturally and technologically. Dissension grows among those who question Mother's teachings and Sapling's authority. Despite these challenges, Sapling remains committed to Mother's vision, stressing the importance of shared values and common goals.

The tribe's impact extends across generations, shaping human history. Mother and her clan are hailed as pioneers of human awareness, sparking invention, development, and cultural evolution. Even in death, Sapling is remembered as a visionary leader who carried Mother's wisdom into the future. The story of Mother's tribe is just the beginning of a complex journey filled with triumphs and sorrows as humanity searches for understanding and survival.

This story depicts Mother's tribe evolving from an apocalyptic period to a new epoch known as a post-apocalypse. This transformation, like Yeats' sense of the "moment of supreme crisis," reflects a process he described as a "gradual coming and increase," representing an antithetical multiform influx" (Kermode, 2000, p.112). Themes such as perseverance, loss, belief, and the search for knowledge are explored, reflecting apocalyptic paradigm aspects such as "Terrors," a conviction of "decadence," and a "prophetic confidence of renovation" (Kermode, 2000, p.112). Mother's outstanding gifts, creative awakening, and charismatic leadership alter the destiny of her town in the same way that Kermode characterised the impact of an educated aristocracy. Her teachings inspire cultural and technological advances, reflecting the intricacies of human existence and proving the ongoing impact of visionary leaders on humanity's evolutionary journey.

"One generation passeth away, and another generation cometh: but the Earth abideth forever Ecclesiastes 1: 4" (530-31). This biblical phrase resonates powerfully with Mother's and her tribe's story, encapsulating the essence of Darwinism and Social Darwinism that underpins their journey.

Mother and her tribe's struggles in the harsh and dry region portray Darwinism. The drought serves as a pressure for natural selection, testing their adaptability and resilience. Only those with the necessary survival skills and attributes, like Mother's keen understanding of causation and pattern recognition, can overcome the obstacles and emerge stronger.

The final section of the book is set in a post-apocalyptic world. A bunch of people awaken after a cold sleep. The world they encounter is vastly different from what they are accustomed to. They have no idea how long they have been sleeping or where they are. Snowy's remarks reflect this clearly: "I don't know. That fucking

volcano, maybe. Famine. Disease. Refugees everywhere. War in the end, I guess. I'm glad I didn't live through it" (Baxter, 2002, p. 318). They discover Mars is missing when they glance up at the sky. Humans build replicators to occupy Mars over time, using all of Mars' resources to produce newer and more advanced replicators, depleting the entire planet. They then proceeded deeper into space in search of more resources. "The swarm of replicators had moved out through the solar system, seeking raw material" (Baxter, 2002, p. 329). The characters are taken aback by the discovery of Mars' absence and the relentless advancement of the replicators into the furthest regions of space. This disturbing discovery becomes a metaphor for humanity's uncontrolled ambition, a chilling warning that even the most spectacular achievements can have disastrous effects, portraying a bleak and foreboding image for the reader.

According to Baxter, the apocalypse of one species causes the extinction of other related species. Wheat, which humans have modified from their original forms through observation and experimentation, and domesticated animals such as cows, cats, and dogs, have not survived the extinction of humans. This is clear from Sidewise's words:

People have gone, right? Civilization has fallen, blah, blah, blah. Cats and dogs were pampered, domesticated, all the genetic variation bred out of them. They wouldn't have lasted long without us… Where do you think you're going to find wheat?" Do you know what happens if you don't harvest corn or wheat? The ears decay and fall to the ground. Wheat cultivation required us to survive. And if you don't milk the cows for a few days, they die of udder burst (Baxter, 2002, p. 316&320).

Snowy's contact with a human outside his group in this unknown future time and place parallels the Darwinist perspective. "But its face— no, her face— was no chimp's, no ape's. It was unmistakably human" (Baxter, 2002, p. 322). After the apocalypse, it appears that the human species continued to evolve, or more precisely, to devolve.

The final chapter depicts a new Pangaea established by re-merging all continents. Every mountain has eroded, and every location has become flat. The Earth's temperature has risen, making the atmosphere less suitable for living beings. It is now necessary for plants and animals to live in a mutualistic manner to survive. From Baxter's these words: "At ten years old, Ultimate looked something like a small monkey. She was long-limbed, with a narrow torso, narrow shoulders: Even now, in these distant descendants of mankind, the basic body plan of the primates

persisted" (Baxter, 2002, p. 354). One can understand that Ultimate, a primate and distant descendent of humans, resides within a cocoon within the body of Cactus, with whom she shares a mutualistic life. Ultimate can physically connect with the tentacles inside the Cactus' cocoon at various spots on her body. Cactus takes nutrients, water, and specific minerals from the outside world from her body, which are required for Cactus's own survival. It injects chemicals into Ultimate's body, causing her to fall into a deep sleep and experience pleasant dreams. When Cactus considers there are no storms outside, the air is generally warm, and Ultimate can move outside, it awakens her by supplying other chemicals.

Meanwhile, the replicators are still making their way through the universe. They have dramatically expanded in number during the last half-billion years. They have maintained their reproduction on the celestial bodies they have visited, perfecting themselves with each generation. One of them, The Sphere, comes to Earth and lands next to Cactus and Ultimate. Baxter amusingly describes the Sphere's curiosity regarding the "creation tales" of its own kind: "In its way, the Sphere longed to know. How had this great star-spanning swarm of robots first originated? Had there been some spontaneous mechanical emergence, cogs and circuits coming together on some metallic asteroid? Or had there been a Designer, some other, who had brought the progenitors of these swarming masses into being?" (Baxter, 2002, 365). Baxter echoes humanity's existential questions about origin, purpose, and design through the character of The Sphere, extending them to mechanical living forms that have outlived their creators. This surprising reflection of human-like inquiry within a machine lends an unnerving, meditative layer to the story, leaving the reader questioning the fuzzy distinctions between biological and artificial existence.

The intense longing to understand the origins of one's species appears to transcend biological barriers, as seen by Baxter's philosophical reflections on both humans and the Sphere. The Sphere is keenly interested in its origins. It wonders if its emergence may be traced to an inadvertent, spontaneous assembly of mechanical elements or if an external designer created its forefathers.

This question echoes the age-old human effort to discover its beginnings. Humans have long battled with the mysteries of their evolution, just as the Sphere pondered the mechanisms behind its origin. From ancient creation myths to Darwin's scientific breakthroughs, humanity's desire to understand its origins is essential to the collective consciousness.

Baxter's juxtaposition of these two entities - the human and the Sphere - shows a universal, maybe sentient-being-wide, need to understand how humans came to be. Despite their widely different natures - one organic, the other mechanical - people and the Sphere have an intrinsic curiosity that drives them to understand their own existence. This resemblance emphasises the fundamental character of such inquiries, implying that any sentient entity, regardless of origin or form, has a solid need to comprehend its position in the great expanse of the cosmos.

Frank Kermode's *The Sense of an Ending: Studies in the Theory of Fiction* provides a unique perspective to analyse Baxter's book. According to Kermode (2000), humans arrange their view of time and life around the concept of beginnings, middles, and ends, emphasising apocalyptic endings.

Kermode's interpretation of the apocalyptic narrative is reflected in Baxter's fiction, as the replicators continue their relentless growth across the universe, with one, the Sphere, landing on a post-apocalyptic Earth. As with any apocalyptic story, there is the fear of an "ending", but there is also interest and wonder, like the Sphere's quest into its origins.

The Sphere's existential contemplation on its own creation story can be understood as a "beginning", its life up to this point as a "middle", and the imminent end to the human primate's existence and the final alteration of the world as a probable "end". It is the Sphere's journey, its story of self-awareness, echoing Kermode's explanation of how humans see their own existence.

Kermode contends that one's preoccupation with the apocalypse stems from a desire to make sense of their existence - to comprehend the "middle" by gazing at the "end". In this context, his words ring true: "Men, like poets, rush 'into the middest,' in medias res, when they are born; they also die in mediis rebus, and to make sense of their span they need fictive concords with origins and ends, such as give meaning to lives and to poems." (Kermode, 2000, p. 7). Similarly, the Sphere strives to comprehend its "middle", or existence, by comprehending its "beginning".

Kermode's ideology and Baxter's story meet to reveal a universal existential journey, whether for humans, replicators, or the Sphere. The voyage is a quest for understanding, and inside that quest is a narrative with beginnings, middles, and ends, as it is in an apocalyptic narrative.

As illustrated by Baxter's sphere, Kermode's work illuminates one's comprehension of apocalyptic literature and reveals something fundamental

about consciousness and the quest for self-awareness in all sentient beings. This link demonstrates how apocalyptic narratives, by exploring endings and beginnings, can provide substantial insight into the nature of all sentient beings' existence, whether biological or mechanical.

2.3. Creative Evolution in *Evolution*

Different perspectives and theories are used to study evolution and species adaptability. According to Baxter, "Variation was implicit in the genome of every species. It was as if every species, at any given moment, was contained in a field, fenced off by the habitable limits of its environment. Every viable variation would come into play, to fill up every available corner of the field" (Baxter, 2002, p.163). This theory proposes that animals always explore their environment's boundaries, using variations and mutations to fill newly available areas. In contrast, Shaw's theory of creative evolution rejects Darwinian natural selection favouring a neo-Lamarckian viewpoint.

Mills notes that Shaw held a teleological viewpoint, claiming that creatures actively adapt to their circumstances rather than just being generated by natural selection (Mills, 1973). Shaw's beliefs were influenced by Lamarck and contradicted modern microbiology, emphasising an underlying incentive in organisms to adapt rather than chance variations generating evolutionary changes. These various points of view highlight the complexities and multifaceted nature of evolutionary theory and species adaptability.

Around 32 million years before the present, in the Congo Delta, a great flood took place, ripping the trees off their roots and dragging all the living beings on the land surface into the Atlantic Ocean. It was an apocalypse for the inhabitants of the delta. Some, including the descendants of Purga, managed to cling to the branches of a mango tree, passed through the ocean and reached the Gulf of Mexico: "Expelled by an African river, riding westward currents, Roamer's raft had crossed the Atlantic" (Baxter, 2002, p. 108).

Catastrophic events force organisms to leave their comfort zones. Fins (2022) defines the comfort zone as a behavioural state in which a person performs in a situation that is anxiety-neutral, using a small number of behaviours to produce a consistent level of performance, typically without feeling at risk. It is a psychological term to define humans in modern times. However, taking one of Baxter's characters, Roamer, into account, being made to leave the fruitful lands of the River Congo Delta, it can be applied to an evolutional perspective as the

characters experience a significant change that does not come from within but by the forces of nature.

In contemporary psychology, an individual shows signs of improvement after leaving their comfort zone. The department from the comfort zone affects the individual themselves. In Baxter's novel, a whole kind of species was made to leave the lands where abundant sources of food and water were found and dragged into a completely different place, improving the chances of the species' success in survival. The same species had the opportunity to continue their lives in Africa and the Americas.

While this interpretation offers an intriguing viewpoint on the potential benefits of significant environmental changes on evolutionary outcomes, it fundamentally contradicts Bergson's (2005) concept of creative evolution. Bergson believes evolution is more than a passive reaction to environmental stresses or catastrophic events. Instead, he contended that it is an internal, biological, and creative process within the organism. He saw evolution as a continuous, creative process guided more by an *élan vital* than abrupt, catastrophic environmental alterations.

In Baxter's novel, the abrupt flood and accompanying displacement appear to result in the species' successful adaptability. This would imply that evolution is merely a reaction to external stimuli. However, Bergson might argue that this viewpoint misses life's fundamental ability for invention and adaptation. According to him, the fact that the species could adapt and thrive in a radically different environment following a terrible occurrence demonstrates the impact of external constraints and the inherent inventiveness and resilience of life itself.

As a result, while the idea of catastrophic events promoting survival improvements is intriguing, it does not connect with Bergson's concept of creative evolution, which strongly focuses on the internal and creative parts of life's evolutionary process. It implies a more complex picture of evolution that acknowledges not only the extrinsic pressures acting on life but also life's innate inventiveness and adaptability.

Baxter defines "speciation" as a rare event: "One species did not morph smoothly into another. Rather, speciation relied on a group of animals being isolated from the larger population and put under pressure to survive" (Baxter, 2002, p.163). The isolation may be physical, such as when a river cuts off a herd of elephants, or behavioural, like when one group of hominids that has adopted a particular method of scavenging is rejected by another group that has not.

Early walkers, for example, go through significant morphological and social changes due to speciation and diversity caused by environmental changes and chance isolation, putting them on a different evolutionary route than their pithecine cousins. Their survival tactics are more effective because of their enlarged brains, excellent physical adaptations, and expanded social support systems. The walkers eventually outcompete the pithecines, demonstrating that cognitive aptitude and tool-making abilities are not the most critical factors in evolutionary survival.

Sophisticated social ties and adaptations to changing environments are just as, if not more, vital. The path of evolution is a complex tapestry of chance, environmental factors, and the ability of a species to adapt and change. Bergson notes, "all that we have felt, thought and willed from our earliest infancy is there, leaning over the present which is about to join it, pressing against the portals of consciousness that would fain leave it outside." (Bergson, 2005, p. 7). This statement captures the core of evolution as a cumulative process that integrates the past and present, both in terms of biological progress and the species' inner consciousness.

This creative step might be understood as a manifestation of the *élan vital*. Importantly, Bergson's evolutionary theory does not dismiss the importance of environmental adaptation but expands on it. Bergson (2005) contended that adaptation alone could not account for life's tremendous diversity and ingenuity.

Bergson's creative evolution concept provides an alternative to the idea that evolution is primarily influenced by external events such as natural disasters or changing habitats (Ansell-Pearson & Maoilearca, 2002). While such catastrophic events undoubtedly play a role in evolutionary history, Bergson contends that they do not fully encompass the evolutionary process. His concept of *élan vital* is an active, creative force inherent in life, stressing organisms' inherent powers and potential.

Furthermore, the apocalyptic transformations in human vision and belief systems highlighted by Baxter are consistent with Bergson's concept of creative evolution. According to Bergson, such profound shifts in communal consciousness represent the intrinsic life force that drives evolution rather than reactions to external influences.

Capo's usage of tools might be seen in the light of Bergson's idea of creative evolution. Bergson contended that evolution is not simply a passive reaction to external forces such as environmental change or natural selection but is driven by

an interior creative impetus known as the *élan vital*. This power allows a species' inventive talents to emerge.

When one looks at Capo's case, they observe him begin to use hand tools. As Baxter mentions, "He wasn't conscious in the same way about other domains of his life, like food-gathering or even tool using: those were unconscious actions, as peripheral to his awareness as breathing or the working of his legs and arms when he climbed" (Baxter, 2002, p. 125). This unconscious tool use was more than a survival reaction or an adaptation to new conditions. Instead, it is a display of an original step, a new capability established within the species that encapsulates the concept of tool usage.

Capo's use of tools in this situation is an adaptation to his circumstances and a witness to the creative life force fuelling evolutionary advancement. Thus, Capo's experience demonstrates Bergson's idea that evolution is more than a reaction to external occurrences. It incorporates an active, creative aspect that emerges from within the organisms, capturing the core of Bergson's creative evolution hypothesis.

This concept is also demonstrated by the character of Mother, who not only adapts to her challenging conditions but also puts forth new ideas and capacities that propel her tribe's progress. Mother's ability to recognise patterns and causality, as well as translate this insight into practical knowledge for her tribe, such as teaching Sapling how to wield a spear-thrower, can be considered as an embodiment of Bergson's *élan vital*. This is more than just an adaptation to her environment; it is an innovative leap, developing a new capacity inside the species, displaying the creative power driving the evolutionary process.

Henri Bergson emphasises humans' adaptability and tenacity in their shift to agriculture. The concept of Bergson's *élan vital*, or the vital energy propelling life forward, is evident in this part of the book. Bergson underlines their creative potential to overcome challenges and devise inventive solutions despite the farmers' difficulties. He emphasises life's transforming force, demonstrated in, "The plants began to adapt... within just a century" (Baxter, 2002, p. 263). This adaptation shows humans' creative potential and capacity to respond to changing circumstances.

George Bernard Shaw may most likely see the agrarian revolution as a stage in human growth that requires further transformation. Baxter (2002) observes that "as with all innovations, farming had grown out of the practices that had preceded it" (p. 263). Shaw criticises the disparities among the dominant classes and

challenges the notion that the agricultural revolution alone signifies the pinnacle of human development. Highlighting Shaw's belief that progress should build upon and modify existing practices, he calls for reforms that enhance the well-being and development of all individuals. Shaw raises concerns about the social inequalities inherent in the agricultural system and advocates for a society that evolves and addresses the flaws of the current situation.

When Mother takes charge and inspires her community to prosper, Social Darwinism emerges. Her influence on her tribe exemplifies the principles of survival of the fittest, reflecting Butler's desire for a worldview in which "the pursuit of self-awareness and individual freedom should not be seen as a kind of rebellion but rather as an unavoidable development following social and natural principles" (Nielsen, 2011, p.82). Mother directs the tribe's cultural and technical development, ensuring its survival and evolution, just as Butler envisioned the setting for his novel *The Way of All Flesh*. This shared philosophical foundation highlights the coexistence of human nature's numerous necessities, as well as the fact that evolution is driven by both competition and the domination of visionary ideas and leadership.

Mother's artistic expression, the creation of new patterns and forms, and her knowledge of the interconnectedness of all occurrences might be seen as an evolution of consciousness propelled by the *élan vital*. This implies a creative and emergent evolutionary process in which one's capacity for comprehending and producing meaning actively impacts their evolutionary journey.

Eventually, Sapling's continuation of Mother's lessons, and their tremendous impact on the tribe's cultural and technical advancement, emphasises the role of this internal creative energy in driving evolutionary change. The story of the tribe illustrates the shift from one worldview to another, spurred by the creative evolution of ideas and activities.

The story of Mother and her tribe could also serve as a testament to the creative evolution theory. It demonstrates how evolution is driven not just by external stresses but also by an internal creative impulse. This creative force drives constant innovation, expansion, and the emergence of new capacities, profoundly influencing human evolution.

2.4. Will to Power in *Evolution*

Friedrich Nietzsche's philosophy serves as a lens through which to examine the effects of the agricultural revolution and the toll it takes on human existence in Baxter's book (2002). Richardson explains, "Most often, he (Nietzsche) conceives will to power metaphysically, as a universal force more basic than Darwinian selection… However, there is also a second, minority way Nietzsche intends 'will to power'. As a kind of internal revision of Darwinism itself" (Richardson, 2002, p. 538). In this context, Nietzsche's concept of the "will to power" becomes evident. As individuals dedicate themselves to the demands of farming to ensure subsistence, this subordination of personal freedom and aspirations to field labour embodies Nietzsche's idea of the WtP. Attempting to guarantee existence and satisfy necessities through agricultural work, this sacrifice symbolises the natural desire for power and control over one's environment.

Both Friedrich Nietzsche and Arthur Schopenhauer investigate essential aspects of human existence, yet from opposing perspectives. The desire to power, according to Nietzsche, emphasises control and the readiness to sacrifice personal interests for the sake of power and survival. This viewpoint is opposed to Schopenhauer's, which is referred to as "Schopenhauer's pessimism" (Fernández & Schopenhauer, 2006, p. 647). The fact that "the relentless hard work... resulted in frequent beatings and murders" (Baxter, 2002, p. 263) during the agricultural revolution exemplifies Schopenhauer's view, which stresses the inherent unhappiness of human existence. While Nietzsche highlights the human desire for power and control, Schopenhauer focuses on the suffering and futility that such endeavours frequently entail. These philosophies, when combined, offer a multidimensional assessment of the human condition, delving into the tension between ambition and the unavoidable misery that frequently characterises life's pursuits.

According to Social Darwinists, the unique raid technique of Mother's followers demonstrates the raw force of natural selection and survival of the fittest. Instead of outright slaughter, they infiltrate other groups under the guise of peace, seeking new technological advancements to strengthen their position.

This different method manifests in Nietzsche's WtP ideology. The group seeks domination and control, not merely survival. The decision to exclude specific individuals, especially those with unique technological knowledge, underlines the utilitarian value they assign to knowledge as a tool for gaining power.

What distinguishes Mother's followers is their desire to perceive others as valuable tools in their growth rather than their propensity to dehumanise others. In contrast to Schopenhauer's identification of compassion as "the desire to relieve the suffering of another" (Fox, 2022, p. 2) as the sole reason for moral conduct, they see other people as a means to an end. This viewpoint emphasises the significance of individual needs and desires as the motivating force behind their behaviour rather than compassion.

Unlike destroying other groups indiscriminately, Mother's followers find ways to harness the power of others. They exploit rather than objectify or dehumanise them, reflecting Nietzsche's concept of power and dominance as essential survival strategies.

Their heightened risk comes not from viewing others as less than human, as their early hominid ancestors did, but from a relentless pursuit of power and dominance. Their significant advancements in killing technologies indicate their continuous quest for superiority, a fundamental aspect of the Social Darwinist perspective.

The tribe's extraordinary journey also illustrates the evolutionary process outlined by Darwinism. They adapt to their environment (Darwin, 1859), learn from their mistakes, and transmit their knowledge to subsequent generations. Mother's teachings serve as a driving force in the tribe's growth, moulding their collective consciousness and propelling them forward.

The story also portrays the unending struggle for existence against adversity, where those with favourable characteristics survive and transmit their genes and wisdom. The Earth, symbolising continuity, endures from one generation to the next. Mother's clan leaves an indelible mark on human history, showcasing the power of adaptability, development, and the quest for understanding.

Her tribe stands as a testament to the intricate dance between survival, competition, and growth as the millennia unfold. They embody the perpetual spirit of evolution, where one generation yields to the next, as Baxter observes: "But where life was lost, so new life was created" (Baxter, 2002, p. 185), yet the Earth persists eternally.

To conclude, in Stephen Baxter's *Evolution*, the cyclical cycle of existence of birth, deterioration, apocalypse, and renewal stands firmly against the enormous backdrop of history, both natural and anthropogenic. As this chapter has demonstrated, the earth's cataclysms and regenerations are mirrored in the

complex stories that span epochs beginning millions of years ago and continuing into the future. The interconnection of the prologue, interlude, and epilogue, with their vast divisions of ancestors, humans, and descendants, represents the inextricable ties of the past, present, and future and how the story of life is always in change. Baxter's narrative framework reinforces this continuity by tying readers to a primary story while allowing them to traverse temporal expanses, just as life has resiliently reappeared after each global catastrophe. As a result, *Evolution* becomes more than just a story about species' survival but also a comment on the persistence of ideas, institutions, and histories, which are continuously remaking themselves in the face of death and rebirth. As we come to the end of this chapter, one is reminded that, in the vastness of time, evolution is just nature's constant monument to change and adaptation.

3. DARWINISM, EVOLUTION AND APOCALYPSE IN DAVID MITCHELL'S *CLOUD ATLAS*

To exist is to change, to change is to mature, to mature is to go on creating oneself.

Henri Bergson

Our drives are reducible to the will to power. The will to power is the ultimate fact at which we arrive.

Friedrich Nietzche

David Mitchell's *Cloud Atlas* is an example of contemporary writing that navigates human existence's chronological and spatial realms and explores the core human desire for survival, adaptability, and evolution through its rich narrative. This chapter primarily concerns how Mitchell incorporates Darwinian evolution and philosophical survival theories into his narrative, ending in a prophetic atmosphere of apocalyptic doom and potential redemption. The ideas of Darwinism and Social Darwinism and the philosophical discourses of Nietzsche, Bergson, and Shaw in relation to the novel are discussed.

In *Cloud Atlas*, the apocalypse concept is more than just a plot device; it is crucible for characters, forcing them to evolve and survive. The chapter also seeks to comprehend the multi-layered narrative of *Cloud Atlas* via the complicated lenses of various philosophical and biological theories exemplifying the persistent premise that "history admits no rules; only outcomes" (Mitchell, 2004, p. 267), emphasising the profound importance of survival and power within society.

3.1. Darwinism and Social Darwinism in *Cloud Atlas*

The principles of Darwinism and Social Darwinism are frequently employed in *Cloud Atlas*. Darwinism suggests that species change through time by natural selection, a concept summarised in the phrase "Survival of the fittest" (Darwin, 1859). This evolutionary adaptability, which is essential in understanding the multilayered context of the book, intersects with Social Darwinism, thereby justifying "Survival of the fittest" in social and economic spheres (Hawkins, 1997). These concepts resound through each story, distinguished by unique

societal constructions and power relations. Characters struggle for life and power in apocalyptic environments, highlighting this Social Darwinian principle. They clash in domination struggles across multiple timeframes. Mitchell (2004) emphasises the importance of survival and adaptability in various circumstances, supporting the Social Darwinian philosophy of competition in nature and society.

The Darwinian worldview pervades the text, with survival portrayed as the primary drive. "An Orison of Sonmi-451" reveals the Darwinian nature of Nea So Copros' actions. Sonmi-451, a service clone, struggles against her creators but is eventually manipulated by the cruel corpocracy. "…in a cycle as old as tribalism, ignorance of the Other engenders fear; fear engenders hatred; hatred engenders violence; violence engenders further violence until the only 'rights', the only law, are whatever is willed by the most powerful" (Mitchell, 2004, p. 181). This society embodies Darwinism's merciless survival of the fittest premise. At the same time, *Cloud Atlas* incorporates features of Social Darwinism by moving from Darwinism's biological foundations to socioeconomic and political situations. Mitchell emphasises this issue in his story "Sloosha's Crossin' an Ev'rythin' After". The post-apocalyptic tribal civilisation exemplifies the notion of "might makes right" (Hawkins, 1997), matching Herbert Spencer's Social Darwinism (Maynard, 2000).

Sonmi-451's transformation from a fast-food server to a revolutionary figurehead exemplifies Darwin's theory of evolution. Her exposure to information and human emotions causes an awakening, signifying her departure from her predetermined fate. This shift represents Darwin's concept of adaptation as a key to survival in a changing environment, demonstrating her natural selection in the Nea So Copros societal construct. Her evolution might be interpreted as a reflection of Darwin's idea of species' adaptation to their environments through generations.

The journey of Sonmi-451 and Yoona939 exposes the evolutionary history of fabricants from both the Darwinist and Social Darwinist perspectives. This distinct evolution is reflected in the characters' unexpected individuality and self-awareness, distinguishing them from the rest of the fabricant population. The novel's fabricants lack diversity and character. Their uniformity allows their survival in Nea So Copros' hierarchical society, where they were developed for a single purpose, similar to bees in a beehive. Yoona939's character, on the other hand, breaks up the monotony. Sonmi-451 says: "A dinery server behaving like a pureblood attracts trouble; trouble attracts blame; blame demands a scapegoat. When Seer Rhee noticed Yoona's deviations from Catechism, he bypassed

destarring and requested a corp medic to xamine her for reorientation" (Mitchell, 2004). Yoona939's assertion of individuality might be seen as a mutation, like those that drive Darwinian evolution, accelerating her change into something distinct from her fabricant colleagues.

Sonmi-451's evolution mirrors the same Darwinist evolutionary pattern. Sonmi-451 is unique for not being an outlier among manufacturers at first. "I was a well-orientated server in those days, you see, not the evildoer, the threat to civilisation, I am now... I was no better than those other clones". (Mitchell, 2004, p. 102). She could only hope and expect what she had known. However, after seeing Yoona939's termination, Sonmi-451 has a catalytic moment that sparks curiosity, self-awareness, and a quest for knowledge, distinguishing her from the other fabricants.

From a Darwinist standpoint, self-awareness, which is central to Sonmi-451 and Yoona's evolution, can be understood as a mutation caused by selection pressure in their environment. Sonmi-451 becomes aware that her existence may extend beyond the bounds of her designated job after seeing Yoona939's wrongdoing and inevitable demise.

The book's first part, "The Pacific Journal of Adam Ewing", could be examined from a Social Darwinist point of view as the story depicts natural selection by illustrating one group's dominance over another. The Maori, armed with superior weapons, decimate the Moriori, exemplifying a figurative version of "survival of the fittest" in human societies.

Autua's story incorporates certain Darwinian elements like "struggle for existence, resilience, and adaptability" (Rogers, 1972). His narrative is, above all, one of the survival stories. He starts as a stowaway on the Prophetess, a ship in the middle of the Pacific. Typically, the punishment for such conduct was death. However, when he is discovered, Autua persuades Ewing to defend him on his behalf before the captain; Autua thinks this is the only way for him to survive.

He has a strong will to survive. One can understand this from the scars on his body. Even if he gets hurt repeatedly, he endures all the mistreatment of the enslavers and eventually continues living. This might be regarded as an example of resilience. He has the physical wounds of his life as an enslaved person but refuses to let them define him. Even after being detected and facing death, he remains resolute in his desire to live. His resolve is tested again as he has to earn his place on the crew; despite discrimination and hatred, he perseveres.

Autua exemplifies Darwinian adaptation as well. He adjusts to his new surroundings on the Prophetess, learning to live and work among the crew despite their initial scepticism and scorn. This flexibility goes beyond simply understanding the sailors' jobs; it also includes adapting to their culture, customs, and language. He uses his intelligence and quick learning ability to blend with the crew, transforming a difficult situation into one where he can survive and thrive. Autua's friendship and understanding of Ewing's culture, which ultimately shapes Ewing's ideas and beliefs, demonstrate his psychological adaptability. This versatility is critical in cementing his position on the ship and ensuring his survival.

The transformation of Adam Ewing throughout the story can also be viewed through a Darwinian lens. His voyage forces him to reconsider his worldview and acknowledge the inherent worth of all human existence. His transformation from passive bystander to active abolitionist is an intellectual and moral response to his experiences and realisations.

On the other hand, Dr Goose represents a type of parasitism in which he utilises his host (Ewing) to obtain an advantage, similar to how certain species in nature abuse others for survival. His acts reveal a darker side of the survival instinct, illustrating that the need to survive can lead to cruel, exploitative behaviour in both humans and animals. This concept of parasitism is reflected in the words of Davis (2005):

These creatures have been modified in natural selection from a more complex or higher into a simpler or lower form—for example, in the adaptation of parasitism among the barnacles that Darwin had studied on the coast of Chile in his service on the Beagle (p. 136).

The comparison between Dr Goose's actions and Darwin's observations on parasitism underscores the brutal nature of the survival instinct and its manifestation in both the human and natural worlds.

The gradual evolution notion in Autua's story is paralleled in the development of Robert Frobisher's character in "Letters from Zedelghem", particularly in the creation of his "magnum opus": the "*Cloud Atlas* Sextet".

Robert Frobisher begins as a poor composer in "Letters from Zedelghem" and gradually matures into a renowned maestro through experience and determination. His main contribution, the "*Cloud Atlas* Sextet", begins as a simple notion influenced by Vyvyan Ayrs and gradually evolves into a thoroughly

developed, complicated music work. This is an example of Darwin's "gradual evolution" (Stebbins & Ayala, 1985), in which little, incremental changes accumulate over time to produce something noticeably different.

Autua goes through a similar process of gradual development. Autua is first introduced as a "Moriori", a native Chatham Islander who lives a primitive lifestyle. He gradually evolves beyond the limits of his origins due to his interactions with Adam Ewing and his exposure to the outside world. He learns about diverse cultures, adjusts to new situations, and, most importantly, gains a profound knowledge of humanity's interdependence. Just as Frobisher's composition evolves in "Letters from Zedelghem", Autua's persona in "The Pacific Journal of Adam Ewing" changes dramatically. The characters' evolution in both stories is marked by an adaptive transformation in reaction to their experiences, echoing the process of Darwinian evolution.

In its complicated, unfolding plot, "Half-Lives: The First Luisa Rey Mystery" exemplifies the Darwinian idea of "gradual evolution" as well. At its heart, the story is like a literary species, evolving and adapting to its surroundings with each plot twist and turn. Luisa Rey seeks the truth, matching Darwin's investigative mindset. She begins her investigation following an accidental encounter with Rufus Sixsmith, causing the intricate storyline to become apparent.

The plot evolves as Luisa delves deeper into the truth, becoming more complex and multifaceted, similar to the gradual evolution of species. This evolutionary concept can also be seen in societal terms: "Strauss refers to the gradual evolution, through social experience, of laws and codes in repressing violence and suffering" (Wilson, 2013, p. 359). The interaction between the plot's evolution and Strauss's social evolution adds another insight into the story, emphasising the multidimensional nature of development and change in literature and society.

Survival is a prominent theme in this novel, echoing Spencer's "survival of the fittest" hypothesis. "Herbert Spencer, who introduced the phrase 'the survival of the fittest' in 1864, argued that there is a natural course of development from simple to complex forms" (Wilson, 2013, p. 354). This concept is echoed throughout the story as Luisa challenges the corporation's deception and corruption. Only the strongest and most adaptive, those who can eliminate and tolerate the narrative's immense complexity, will live, as in natural selection.

The story's course resembles Darwinian evolution by gradually changing, revealing new plot layers or "species" of the story. This constant evolution keeps

the reader on their toes, just as environmental changes could force a species to adapt or die.

Finally, Darwinian ideas are integrated into the story's structure. The progressive, adaptive growth of the plot, combined with the overriding subject of survival, reflects the process of Darwinian evolution, making it an engaging investigation of basic scientific concepts.

"The Ghastly Ordeal of Timothy Cavendish" is based chiefly on societal constructs. However, when these constructs are examined, an investigation of Darwinian concepts might be found, mainly through the protagonist's survival, which reflects the idea of natural selection.

The plot revolves around Timothy Cavendish, a man pushed into a nursing home without his will, symbolising an alien and unfriendly environment. Cavendish's fight and subsequent escape resemble a natural selection process. Here, he must adapt, learn to endure, and finally outwit his captors to escape. This could be another example of "survival of the fittest".

Cavendish's adaptability, intellect, and drive to survive are tested in this hostile environment. His transformation from helpless victim to cunning escapee reflects the evolutionary process of a species attempting to live in a harsh environment. His ingenuity and resilience enable his life and escape, symbolising that only the fittest endure nature's tough challenges.

Cavendish's experience demonstrates the importance of genetic and behavioural adaptation in ensuring survival. He escapes his captivity by evolving new behavioural traits, including greater resilience and resourcefulness, in the same way, that a species may develop physical attributes to improve its chances of survival. The line "A Cavendish is down but never out" (Mitchell, 2004, p. 185) describes this transformational process in Cavendish's character. The comment confirms his resilience and reflects the broader concept of evolution, implying that, just as a member of the Cavendish family is never entirely defeated, a species can adapt and develop to overcome seemingly insurmountable problems.

"Sloosha's Crossin' an' Ev'rythin' After" depicts a dim post-apocalyptic world where the fundamental essence of Darwinian survival is portrayed. The gloomy atmosphere of Sloosha is illustrated by Zachry as: "Sloosha's was friendsome ground tho' marshy, no un lived in the Waipio Valley 'cept for a mil'yun birds, ... " (Mitchell, 2004, p. 126). As the story progresses, it becomes clear that the tragic events have reduced humanity to a primitive state. In this new world order,

existence is not secured by technical advances or societal conventions but by the biological principles of strength, adaptability, and resilience, echoing back to the cruel yet essential law of "survival of the fittest".

Residents of this dystopian society must deal with harsh conditions reminiscent of the early stages of human evolution. They rely solely on their physical strength, wit, and adaptability to survive in a world that is indifferent at best and deliberately hostile at worst, having been stripped of societal comforts and safeguards. This harsh reality reflects Darwinian natural selection, "…a device whereby nature destroys the weaker members, allowing the stronger to survive and reproduce, is a device for improving the species" (Wilson, 2013, p. 361), in which those who can best adapt to their environment have the best chance of survival.

Furthermore, the story's characters mirror some aspects of Darwinian evolution. Some have physical adaptations that help them survive, while others have behavioural adjustments that help them negotiate this hazardous world. For example, tribesmen in "Sloosha's Crossin' an' Ev'rythin' After" who dominate through brute force symbolise the role of predators in the natural world. In contrast, those who survive through intellect and clever alliances reflect the evolutionary benefits of cooperative behaviour.

The narrative additionally highlights the cyclical nature of life and evolution. Humanity's post-apocalyptic return to a primitive state suggests degeneration but also provides potential for future evolution and adaptability. This emphasises Darwinian evolution's continuing, constantly shifting character: species must adjust to changing circumstances to survive and thrive. The story peels away societal structures to reveal the elemental battle for existence, brilliantly illustrating Darwinian principles' enduring importance even in a profoundly altered, post-apocalyptic future.

Adam Ewing's journal depicts a world filled with social structures and injustices at the end of the 19th century. Aschcroft's (2012) analysis of the late 1800s parallels the setting of Ewing's journal. As he states, the application of Social Darwinism, the concept of "human evolution", and the survival of the fittest "race" went hand in hand with the ideas of imperialism that evolved at the end of the nineteenth century. Wong (2011) states, "a social hierarchy based on Social Darwinism developed and affirmed the superiority of the white, heterosexual, male of means". Ewing meets people from diverse cultures and societies, revealing different levels of development, wealth, and power. This is an example

of a "social" hierarchy in which one group has acquired supremacy over another due to perceived superiority. The indigenous Moriori people of the Chatham Islands are portrayed as oppressed and exploited by colonial powers. The more powerful, technologically advanced societies impose their will on the less developed Moriori, marginalising them in their own land. This is identical to Darwin's discoveries of more vigorous species overpowering weaker ones, guaranteeing their survival and reproduction.

Social Darwinism has frequently been invoked to justify social and economic inequality and exploitation (Leonard, 2009; Rudman, 2020), as shown in the Maori and European treatment of the Moriori. Morioris' pacifist character and less developed culture are exploited by more powerful tribes, who excuse their acts by claiming "superiority", a concept that corresponds with the contentious and highly criticised components of Social Darwinism.

It is essential to highlight that while Social Darwinism emphasises hierarchy and survival of the fittest, Ewing's narrative calls these principles into question. Bageac et al. (2010) comment on Social Darwinism as "… an amoral philosophy, which argues that morality has no place in a business world governed by natural laws". Ewing, who develops feelings for Autua, begins questioning the hierarchy and exploitation he encounters. In contrast to the deterministic approach of Social Darwinism, he contends that moral choices and compassion should also play a part in building civilisations.

In "Letters from Zedelghem", the connection between Robert Frobisher and Vyvyan Ayrs might be regarded as a portrayal of Social Darwinism. Vyvyan Ayrs uses the young and ambitious Robert Frobisher's imagination and musical skills to advance his career and maintain his social status. This dynamic exemplifies one of Social Darwinism's central ideas, precisely the concept of "survival of the fittest", in which the strong exploit the weak for their benefit; in this case, the socially advantaged Ayrs exploits the talented but socially disadvantaged Frobisher.

Ayrs uses his power and wealth to keep Frobisher at his estate, providing him with a letter of introduction to a renowned conductor that will help him develop in his profession. Ayrs, on the other hand, continues to exploit Frobisher's musical ability for his benefit, even accusing him of plagiarism, telling him, "You're Mendelssohn aping Mozart" (Mitchell, 2004, p. 241). This statement displays Ayrs' manipulation and captures his contempt for Frobisher's inventiveness, which he regards as a simple imitation. Ayrs is an example of the individuals in a

society who use their social position to exploit others, demeaning their abilities and contributions, all to guarantee their continuous existence and prosperity.

This story is further complicated by Frobisher's ultimate decision to abandon Ayrs, demonstrating his adaptive talents in a hazardous situation, which is another component of the Darwinian principle. His existence is no longer merely a matter of social "fitness" but also of resilience and flexibility, reflecting a more complex comprehension of Social Darwinism that goes beyond exploitation and servitude.

"Half-Lives: The First Luisa Rey Mystery" portrays Social Darwinism in the setting of industrial struggle and selfishness. According to Goodman (2014), being selfish can help you succeed. In this novel, the Seaboard Corporation is ruthless in pursuing success and domination, going to any length to eradicate threats to its power and prosperity.

The corporation seeks to assassinate Luisa Rey as she is committed to exposing the organisation's dangerous practices, thereby revealing its brutal determination to self-preservation. This storyline is incredibly reminiscent of Social Darwinism since it emphasises the ruthless struggle for existence that can occur between creatures in a community, with only the "fittest" or most brutal surviving and thriving.

Luisa Rey's struggle highlights the underlying inequity and exploitation in a Social Darwinist society. Despite her bravery and ingenuity, a far more powerful organisation continuously challenges Luisa's survival. This exemplifies an essential characteristic of Social Darwinism: the often insurmountable problems encountered by people without power in a society where the "fittest", or those with the most resources, have the upper hand (Leonard, 2009).

Luisa's endurance and flexibility in the face of these obstacles resemble the concept of evolution within the Social Darwinist framework. Despite the odds stacked against her, she manages to adapt and thrive, exemplifying Darwin's theory of species adaptation to their environment over time. On the other hand, the setting of her battle emphasises the social critique hidden in the narrative, emphasising the predatory nature of institutions functioning on Social Darwinist principles.

"The Ghastly Ordeal of Timothy Cavendish" illustrates Social Darwinism through the violent hierarchy maintained within the walls of the Aurora House dramatically. The nursing home's elderly residents are engaged in a ruthless struggle for control and survival, with the physically stronger inmates exploiting

and abusing their weaker comrades. This story thread embodies the core premise of Social Darwinism. Cavendish's plight exemplifies how the "fittest" does not always equate to physical power. His life depends on his ability to outwit his oppressors, highlighting the "mentally fittest" concept. Cavendish's creative ability and resilience represent the process of evolution, as he must adjust his strategies and tactics to the repressive environment of the Aurora House.

Furthermore, Cavendish's story is a critique of Social Darwinism. The inequity and violence of the Aurora House hierarchy serve as a cautionary story of a society based solely on Social Darwinist ideals. This emphasises the problematic character of such a system, highlighting the necessity for societal structures that protect the rights and well-being of all individuals, not just the "fittest".

Through the lens of Cavendish's suffering, the novel underscores the reality that survival does not always rely solely on physical power. In this sense, *Cloud Atlas* engages with and examines the underpinnings of Social Darwinism, shedding light on the complexities and nuances of society's survival and adaptation.

The Social Darwinist perspective provides another lens through which one can observe the evolution of fabricants. Fabricants are at the bottom of society's social structure and are exploited for financial benefit. Individuality among fabricants like Sonmi-451 and Yoona939 might be considered as a kind of resistance in such a society via their "rebellion" (Mitchell, 2004, p. 171), proving that the oppressed can change and adapt to challenge the status quo.

"An Orison of Sonmi-451" reflects a society constructed on inherent unfairness, notably between synthetic "fabricants" and naturally-born "purebloods". Sonmi-451 and the other fabricants are oppressed in this futuristic civilisation. They are intentionally created to serve the purebloods. This dynamic exemplifies that the privileged class exploits the less fortunate.

Sonmi-451's story, on the other hand, disrupts this restrictive social order. She embodies resistance to the harsh inequalities established in her culture as she expands beyond her designated function, developing intelligence and self-awareness. This is similar to the concept of "adaptation" in Darwin's (1859) theory, where survival depends on an organism's capacity to adjust to changing environments.

Despite Sonmi-451's evolution and subsequent revolt, the socioeconomic system remains substantially unchanged. Sonmi-451's reform campaign fails because the purebloods continue to exploit the fabricants. This enduring imbalance

demonstrates Social Darwinism's persistence in the face of opposition, revealing its deep roots in societal systems. Spencer's observation applies to this scenario:

> And yet, strange to say, now that this truth is recognized by most cultivated people — now that the beneficent working of the survival of the fittest has been so impressed on them that, much more than people in past times, they might be expected to hesitate before neutralizing its action — now more than ever before in the history of the world, are they doing all they can to further survival of the unfittest! (Spencer, 1981, p. 109).

The paradoxical support for the most unfit, despite an understanding of survival of the fittest, reflects Sonmi-451's society and the difficulties in reforming deeply rooted systems.

"Sloosha's Crossin' an' Ev'rythin' After" depicts Social Darwinism. The Kona tribe dominates weaker tribes, establishing a hierarchical structure based primarily on physical strength and cruelty rather than intelligence or cooperation. They enjoy being cruel to others. We can understand this from the nine-year-old Zachry's words:

> The nearest Kona was runnin' after me, others was leapin' on their horses an' laughin' with the sport. Now panickin' wings your foot but it muddies your thinkin' too, so I rabbited back to Pa. I was only a niner so I jus' followed my instinct without thinkin' thru what'd happen (Mitchell, 2004, p. 127).

This excerpt depicts a cruel and primordial society in which power and aggressiveness are valued above anything else, exemplifying "The weak are meat, the strong do eat" (Mitchell, 2004, p. 257, p. 265) mentality that commonly characterises Social Darwinism. It also evokes a sense of terror and chaos, emphasising how the survival of the fittest mentality may produce an environment in which empathy and human connection are lost, replaced by a relentless desire for power and domination.

Natural selection is brutal in this environment, driven by raw physical supremacy. The Kona acquire power through lethal force, gradually pushing weaker members to the societal periphery or murdering them. This brutal order, in which the "strong" dominate and the "weak" are either marginalised or exterminated, reflects nature's cruel efficiency. It is a disturbing reminder of how, when traditional standards of intelligence, empathy, and collaboration are eliminated, power and brutality become the determining factors of survival and control. The scenario depicts Social Darwinism, underlining the significance of preventing such a descent into barbarism.

This part also delves into the adaptation aspect of Darwinism. Zachry must adapt to these harsh conditions by adopting physical and mental methods to survive. One can understand this from Zachry's cry: "I'm shoutin' back more'n forty long years at myself, yay, at Zachry the Niner, Oy, list'n! Times are you're weak gainst the world! Times are you can't do nothin! That ain't your fault, it's this busted world's fault is all! But no matter how loud I shout, Boy Zachry, he don't hear me nor never will" (Mitchell, 2004, p. 128). He was incapable as a child, but as he grew older, he found ways to adapt to this harsh environment, both physically and mentally. His life depends on his ability to navigate the restrictive societal framework and deceive his opponents, which adds a subtle dimension to the plain concept of physical dominance.

"Sloosha's Crossin' an' Ev'rythin' After" thus provides an honest depiction of Social Darwinism, in which physical power determines societal hierarchy. The story emphasises the ruthless, survivalist mentality inherent in such a system, painting an unfavourable depiction of a civilisation that has devolved to its most primal level.

3.2. Apocalyptic Elements in *Cloud Atlas*

In numerous of its narratives, Mitchell's *Cloud Atlas* does not hold back on emphasising the apocalyptic elements, underlining the destructive tendencies of human society from a Darwinist and Social Darwinist perspective.

"The Pacific Journal of Adam Ewing" is a depressing exploration of the apocalyptic consequences that can be caused by unbridled power and exploitation. The story is set in the mid-nineteenth century and centres on Adam Ewing's experiences with New Zealand's indigenous peoples, the Maori and the Moriori. The Maori's near annihilation of the Moriori people is portrayed as an inhumane display of brutality. Mr Evans describes this brutality with a shark metaphor:

"Have you ever seen Maori warriors in a blood frenzy, Mr. Ewing?"

I said I had not.

"But you have seen sharks in a blood frenzy, have you not?"

I replied that I had.

"Near enough. Imagine a bleeding calf is thrashing in shark-infested shallows"

(Mitchell, 2004, p. 8).

From a broader point of view, this narrative accomplishes more than simply documenting a historical event. Mitchell uses a Darwinist lens to focus on humanity's tendency for violence and enslavement when left unchecked. The Maori, who are more assertive and aggressive, nearly eliminate the Moriori, showing the potentially devastating effects of the "Survival of the fittest" principle when applied uncritically. This chapter also serves as a prophetic warning about the apocalyptic consequences of unrestricted exploitation and violence. Moriori's downfall is a metaphor for any community that may suffer extermination because of the brutalities committed by a more powerful force.

Moreover, Mitchell (2004) emphasises the apocalyptic implications for the exploited party, in this case, the Moriori people. The Maori's aggressive efforts have almost eliminated the Moriori people's cultural identity, history, and even existence. This can be regarded as an apocalypse for them. Thus, the narrative implies that a singular concentration on survival and supremacy, without regard for the well-being of others, could result in apocalyptic consequences on several levels, ranging from elimination of culture to complete annihilation.

The story of a Moriori, Autua, might be used to demonstrate that the will to live persists even after an apocalyptic occurrence. Bloodshed is outlawed in Moriori culture: "Moriori's priestly caste dictated that whosoever spilt a man's blood killed his own mana" (Mitchell, 2004, p. 6). Autua survives by adjusting to new circumstances, learns a lot from his oppressors, and is aware of how cruel they can be. However, even while he tries to save Ewing, he remains loyal to Moriori tradition and does not murder Dr Henry Goose as an oppressor would. Autua's this behaviour could also be an example of how the Moriori culture succeeds to exist after an apocalypse.

Similarly, the apocalyptic themes of "An Orison of Sonmi-451" are evident in the society's blind march towards its own demise. The insatiable need for convenience and luxury of the purebloods, supported by the obedient fabricants, culminates in a highly unsustainable societal framework.

Sonmi-451's remark, "I believe that ascension merely frees what Soap represses, including the expression of an innate personality possessed by all fabricants" (Mitchell, 2004, p. 99), emphasises the hazardous similarities between the "Soap" and technology dependence in society. Just as "Soap" suppresses innate individuality, social over-reliance on technology threatens to wash away individual identity, potentially leading to a personal apocalypse. Thus, the

sentence mirrors real-world concerns about technological dependence and widening social disparities, hinting that a societal apocalypse is on the horizon.

Sonmi-451 and Yoona-939's growth foreshadows an eventual apocalypse within their society. Sonmi-451 states: "Amongst my sisters I alone understood our existence's futility and drudgery… Ah, I envied my uncritical, unthinking sisters. But most of all, I was afraid" (Mitchell, 2004, p. 106). This indicates her growing self-awareness and desire to exist beyond prescribed responsibilities - a divergence from the norm representing a destabilising crack in the fabricant community's established order.

The apocalyptic aspect of Sonmi-451's development arises when her newly found consciousness is revealed, resulting in an intensified pursuit by authorities. This reaction emphasises the disruptive and destabilising impact of her and Yoona-939's progress. Their evolution beyond their intended function and drive for autonomy represent an apocalypse of the existing order, causing widespread instability within the fabricant community.

Moreover, Sonmi-451's prophecy of a future rebellion of fabricants against their oppressors cements the story's apocalyptic course of events. An apocalypse overtakes the world of fabricants in this vision, shattering the underlying corpocratic system. This apocalypse, however, is not only destructive; it also catalyses a new beginning - a rebirth reflecting the progress and battle of the fabricants for their rights.

As a result, the story interweaves Darwinian evolution and societal apocalypse, demonstrating that these elements are not exclusive. Instead, they are intrinsically connected, with evolution potentially leading to the dissolution of the current order - an apocalypse- that enables the creation of a new societal structure. This concept is eloquently reflected in Kermode's observation:

"... there was a bad time coming, possibly a terminally bad time. All of which at least goes to show that the apocalypse can flourish on its own, quite independently of millennia. In some form or another its terrors and apprehensions can threaten us at any time. The possibility of personal disaster is, after all, never quite absent from our lives, and if anything is needed to give additional substance to our anxieties, the world, at whatever period, will surely provide it" (Kermode, 2000, p. 182).

The passage underlines that the apocalypse is a constant possibility, regardless of time or circumstance, and serves as a reminder that change, whether evolutionary or cataclysmic, is an unavoidable component of human existence.

“Sloosha’s Crossin’ an’ Ev’rythin’ After” might be regarded as the most explicit portrayal of an apocalyptic scenario among the stories in *Cloud Atlas*. This story, set in a post-apocalyptic society, illustrates a world that has witnessed the devastating collapse of a highly advanced civilisation, apparently due to humanity’s pride and self-destructive preferences.

The previously highly advanced society has fallen back into a primitive state, with the survivors confined to survivalist tribes. This parallels the Bible: “One generation passeth away and another generation cometh: but the Earth Abideth for ever.” (*English Standard Version Bible*, 2001, Ecclesiastes. 1: 4). The nature of this societal breakdown vividly exposes the apocalyptic effects of technological over-reliance and disregard for natural balance. It resembles a Darwinian dystopia in which “survival of the fittest” is no longer a metaphor but a harsh reality every human must face.

In addition, the story examines humanity’s relationship with nature, emphasising the negative consequences of ignoring this critical link. Humans have reverted to a more primitive state in this post-apocalyptic world, reflecting the cycle of evolution and reminding readers of our intrinsic relationship with nature. If we neglect this interconnectedness, as this society did, the result might be apocalyptic, resulting in societal collapse.

Mitchell uses Darwinism and apocalypse themes to create a vivid and heartbreaking narrative of a possible future in which humankind’s pride and arrogance lead to its demise. “Sloosha’s Crossin’ an’ Ev’rythin’ After” clearly warns of our species and society’s destructive capabilities, reminding us of the need to preserve a peaceful relationship with nature and each other.

Cloud Atlas includes all of the “Four Horsemen” of the apocalypse, as Kieżun notes: “…gigantomania, luxuryomania, corruption and the arrogance of power.” (Kieżun, 2018, p. 8). In this regard, *Cloud Atlas* incorporates apocalyptic aspects to critique unchecked power, greed, and dehumanisation, representing both Darwinist and Social Darwinist perspectives. Each of the stories in *Cloud Atlas* warns of potential apocalyptic results, demonstrating how the concept of “survival of the fittest” can lead to societal devastation when implemented without ethical restriction.

3.3. Creative Evolution in *Cloud Atlas*

Cloud Atlas is a complex work with interrelated stories that embody Henri Bergson's philosophical concept of "creative evolution". Bergson believed that an innate life force or *élan vital* drives the evolution of beings. In *Creative Evolution*, Bergson claimed that life contained an intrinsic creative energy that drove evolution forward and that natural selection could not adequately describe this force alone (Bergson, 2005). This theory defines evolution as a creative and forward-moving force that shapes life rather than simply a process of adaptation and survival, as Darwin's model does. The novel is a unique representation of this idea. Mitchell (2004) crafts a macrocosmic perspective of humanity through six diverse but interconnected narratives in which humans are linked through time and space, their actions rebounding through the ages. The characters, who appear in various shapes and roles across the storylines, reflect this idea of interconnected lives, implying an underlying continuity or reincarnation.

In *Cloud Atlas*, Bergson's concept of creative evolution is employed beyond the biological realm, portraying it as a constant driving force that modifies the physical traits of species and the fundamental fabric of human society and individual lives. Mitchell, like Bergson, embraces the creative, transforming possibilities inherent in life through his interconnected storylines.

Each narrative depicts a distinct society and time, highlighting altering power dynamics, social conventions, and beliefs. From Adam Ewing's historical tale in the nineteenth century to Sonmi-451's dystopian future and to the post-apocalyptic world of Zachry, the work shows how civilisations evolve, alter, and adapt, frequently spurred by the actions and decisions of individuals.

Considering "The Pacific Journal of Adam Ewing", Mitchell illustrates the evolving social dynamics of the time. As a character, Ewing embodies the period's zeitgeist but also of exploitation and enslavement, particularly of indigenous peoples. Boyd and Richerson (2009) state, "Over the last million years or so, people evolved the ability to learn from each other, creating the possibility of cumulative, cultural evolution". Ewing's gradual transformation towards a more compassionate and enlightened perspective represents the process of creative evolution on a socio-cultural level, implying that civilisations can evolve through the cumulative actions of individuals.

"An Orison of Sonmi-451" sharply contrasts Ewing's story in terms of its futuristic setting and underlying societal values. This story critiques extreme capitalist systems in which fabricants such as Sonmi-451 are oppressed and

exploited by a consumer-driven society. “For Mitchell, an ambivalent aesthetics of global cannibalism serves as a way to encode, critique, and exceed the logic of unfettered global capitalist accumulation…” Thus, Knepper (2016) supports how Sonmi-451’s story criticises the extreme capitalist system.

On the other hand, Sonmi-451’s transformation from a submitting server to a revolutionary figure causes a chain reaction, questioning the established order and sparking the potential for societal change. This story illustrates that, like Bergson’s (2005) concept of creative evolution, the drive for change and evolution can exist even in the most rigid social institutions.

Mitchell’s meticulous crafting of these unique narratives, each with its own social setting and developmental trajectory, exemplifies the creative evolution of cultures over time. Like individual transformations, societal transformations respond to internal and external influences formed by a complex mix of human acts, socio-political situations, and historical contexts. Schilperoord et al. (2008) explain this complexity as follows:

> It [Transition literature] considers a societal system capable of innovating itself, through various mechanisms that bring ‘fitter’ functionings to higher scale levels, and downscale the less fit. These mechanisms may be market-driven, but in general they are a complex mix of economic, political, social, cultural, and ecological mechanisms that cannot be collapsed into economics alone (p. 285).

As a result, *Cloud Atlas* serves as an embodiment of creative evolution, providing a broad picture of human civilisation’s ability to alter and adapt.

The recurring birthmark that emerges on the characters in *Cloud Atlas* across the narratives is an important symbol that underlines Bergson’s concept of creative evolution. This symbol might be understood as a representation of a common life force, *élan vital*, or consciousness that endures across lifetimes and bodies. This emphasises the interconnectedness among the characters and echoes the novel’s broader subject of continuity and progress.

For example, in “The Pacific Journal of Adam Ewing”, the protagonist, Adam Ewing, has a comet-shaped birthmark. This birthmark reappears on Robert Frobisher in “Letters from Zedelghem” and on Luisa Rey in “Half-Lives: The First Luisa Rey Mystery”. The recurrence of characters in future narratives reinforces the idea of a shared essence while uniting these various narratives and characters across time and place.

The recurring birthmark shared by the primary characters across the various narratives is evidence of Bergson's creative evolution. Frobisher has it on his shoulder: "birthmark in the hollow of my shoulder" (Mitchell, 2004, p. 45), Luisa has it "between her shoulder blade and collarbone" (Mitchell, 2004, p. 66), Sonmi-451 has it between her "collarbone and shoulder blade" again, Meronym and Timothy Cavendish also have the same comet-shaped birthmark on their bodies. This shared feature suggests a continual reincarnation process or a single consciousness moving through different bodies throughout time. This is consistent with Bergson's concept of *élan vital*, in which the vital force or awareness transcends physical forms and continues over time, demonstrating evolution as a creative process (Bergson, 2005).

This shared birthmark also demonstrates the ongoing process of change and evolution. Each character's life is a unique embodiment of this life force, formed by unique events and experiences while remaining part of the same evolutionary trajectory.

Furthermore, the birthmark can be viewed as a symbol of all persons' shared humanity and connectivity, supporting the idea that our actions affect not just our own lives but also the lives of others, even across generations. This notion connects strongly with the book's final sentences, which emphasise the interconnectedness of existence and the opportunity for transformation and evolution that this interconnection involves.

At last, the repeating comet-shaped birthmark is a powerful symbol that connects the different narratives of *Cloud Atlas* and emphasises Bergson's philosophy's key concepts of continuity, connectivity, and creative evolution. Societal advancement or evolution of ideas could repeatedly be observed in the book. For example, "The Pacific Journal of Adam Ewing" depicts the birth of abolitionist movements, but "An Orison of Sonmi-451", set in a futuristic dystopia, illustrates the apex of capitalist exploitation. This growth of cultures and ideas across time echoes Bergson's notion of life as an intrinsically creative, developing phenomenon (Bergson, 2005).

In "Letters from Zedelghem", Mitchell (2004) uses the "*Cloud Atlas* Sextet" as a metaphor for the novel's structure and the theme of creative evolution. This pattern represents the intersection of Darwinian evolution and Henri Bergson's concept of creative evolution, which theorises an innate, creative force driving the progression of life.

Like the stories in Mitchell's work, Frobisher's "*Cloud Atlas* Sextet" comprises different portions that flow into and influence one another, producing a more extensive, interrelated whole. It reflects Bergson's *élan vital*, a transcending life force that pervades the evolution of beings and encompasses the novel's main subject of interconnected lives and narratives.

The sextet development corresponds to the creative evolution process. Frobisher expands and refines his concepts as species adapt and evolve in response to external stimuli over time. It is a living process, not a static piece of work. As a result, it is not only the product of Frobisher's creativity but also the creative force of life itself, reflecting Bergson's idea of existence as a forward-moving, fundamentally creative phenomenon.

Furthermore, the sextet acts as a musical representation of the novel's shape, demonstrating the multi-layered, cyclical nature of the stories included in *Cloud Atlas*. The melodies within the sextet vibrate and reverberate with one another in the same way that the novel's different narratives do. This aligns with Bergson's view that life progresses in a deeply interwoven, creative manner rather than linear. Deleuze (1991) comments on Bergson's ideas: "life does not operate without directions; but there is no 'goal', because these directions do not pre-exist ready-made, and are themselves created 'along with' the act that runs through them" (p. 106). This theme resonates with the composition of the sextet, where directions are not predetermined but developed and unfolded organically, mirroring the novel's deep interconnection and underlining the non-linear, creative process that drives both the music and storylines.

Zachry's character development, from a fearful young man to a bold individual who overcomes his inner demons, also exemplifies the concept of "creative evolution". Zachry is initially haunted by terror, having been badly traumatised by the Kona tribe's murder of his father and sibling. This fear paralyses him, limiting his activities and forming his worldview.

However, Zachry gradually transforms over the story. His change is accelerated by his contact with Meronym, a woman from a technologically advanced society. She questions his ideas and encourages him to face his concerns. This transforming journey resembles the process of evolution, as Zachry adapts and transforms owing to internal, creative forces rather than external forces. He grows braver, willing to confront his concerns and question his ideas, eventually becoming more robust and wiser. Zachry himself articulates this transformation when he reflects: "This weren't Zachry the Cowardy knuck-lyin' Zachry the

Brave, nay, it was Zachry the Soosider knucklyin' Zachry the S'viver, an' I ain't got no shame to say which Zachry vic'tried". It is important to note that Zachry does not win because of external, social concepts like bravery or cowardice; he "vic'tried" because he followed his inherited, internal survival instincts.

Zachry's metamorphosis is not forced or unnatural but rather the result of a creative, adaptive response to the problems he meets. According to Bergson, his voyage exemplifies the human experience, marked by constant growth and evolution propelled by an intrinsic life force. As Pearson (2018) states: "In *Creative Evolution* Bergson contends that … Life proceeds neither via lack nor the power of the negative but through internal self-differentiation along divergent lines" (p. 30). Mitchell highlights the intrinsic human capacity for development and adaptation through Zachry's change, highlighting the novel's investigation of creative evolution.

Zachry's progress reflects the larger cycles of change and transformation within and across the novel's numerous narratives, strengthening Mitchell's portrayal of interconnection. These shifts, like the developing melodies in Frobisher's sextet, resonate throughout the story, demonstrating the creative growth concept at the centre of *Cloud Atlas*.

Another recurring motif in *Cloud Atlas* is the concept of "utopia". It resembles Bergson's concept of creative evolution. Despite the dystopian or oppressive reality of their present, various individuals throughout the novel envision the prospect of better, fairer societies, demonstrating Bergson's concept of an underlying forward-moving and creative life force.

In "The Pacific Journal of Adam Ewing", Ewing envisions a future in which humanity abandons its self-destructive inclinations. He says: "I shall pledge myself to the Abolitionist cause, because I owe my life to a self-freed slave & because I must begin somewhere" (Mitchell, 2004, p. 268). Then he learns to live in harmony and respect for any form of life. His picture of a better future parallels Bergson's idea that evolution is a creative process continually striving for greater complexity and integration.

In "An Orison of Sonmi-451", Sonmi-451 imagines a society in which fabricants like herself are not mistreated but are treated equally with purebloods. Despite her dystopian existence, Sonmi-451 fantasises about a better future, exhibiting the transformational capacity of creative evolution in changing biological forms, social structures, and cultural values.

In "Sloosha's Crossin' an' Ev'rythin' After", Zachry fantasises about a civilisation free of the predatory Kona tribe's oppression, a society where peace and collaboration triumph over violence and exploitation. His dream further incorporates Bergson's concept of creative evolution, emphasising that the *élan vital* inherently aspires for more significant, more harmonious states of existence.

Mitchell brings Bergson's concept of creative evolution to life in some of these stories, depicting it as a powerful force pushing individual and societal transformation. Each character's vision of a better world represents the forward-thinking, creative life force that underpins existence, validating Bergson's concept of evolution as a creative and progressive process. In this sense, the narrative underscores the inherent capacity for growth in life, even in severe adversity.

When considering "creative evolution", one must also consider its theoretical underpinnings drawn from Lamarck's principles. Lamarck was among the first to develop a coherent theory of evolution, emphasising organisms' flexibility and innate drive to change:

> …These truths, embodied in Lamarck's principles and laws, were important to Butler and Shaw in the formation of their theories of creative evolution because Lamarck ascribed evolutionary changes to a drive from within the creatures themselves in response to their circumstances, and not to mere natural selection operating upon chance variations. The three concepts of use and disuse, sense of need, and willed effort are what Butler and Shaw borrowed from Lamarck, and they constitute the basis of all neo-Lamarckian theories of evolution. (Mills, 1973, p. 125).

Unlike Darwin, Lamarck believed that the environment's direct effect might cause adaptive modifications within an organism, which could then be passed on to succeeding generations. This method of understanding evolution enabled a more dynamic interaction between organisms and their environments, in which the creatures were not simply passive beneficiaries of natural selection but active players in their evolutionary process. Such concepts of inner drive and reaction to circumstances fit *Cloud Atlas*'s depictions of personal and societal transformations.

This connection reveals how Shaw's beliefs parallel the creative energies inside *Cloud Atlas*. Shaw's views have significantly impacted the thought around creative evolution, providing a distinct perspective that extends beyond biological factors. "The specific influences of Butler on Shaw are numerous. Their theories of creative evolution have the same basis: a conscious, creative, immaterial force expressing itself in matter and moulding matter in the pursuit of its own purpose

is the premise taken as the starting point" (Mills, 1973, p. 126). This idea connects closely with *Cloud Atlas*'s core themes, in which the concept of a purpose-driven, immaterial force dictates the fate and progress of its protagonists.

Shaw's belief in a sentient, creative force mirrors Mitchell's characters' and cultures' underlying drive for change and evolution, implying a link between individual will and cosmic purpose. Such a philosophical approach to evolution goes beyond survival and adaptation; it inspires meaning, purpose, and a feeling of destiny. Shaw's alignment with an overarching, creative force allows for a more comprehensive exploration of human existence, interconnectedness, and the sublime character of life itself.

Cloud Atlas allows readers to see beyond the surface of physical reality by harmonising with Shaw's beliefs, providing more excellent knowledge of the unseen forces that create the biological world and the human soul, society, and culture.

Mills' interpretation of Shaw's beliefs on evolution reveals a rejection of chance in favour of purposeful adaptation. "According to the vitalist theory proposed by Shaw, organisms adapt themselves to changes in environment or disappear. ... For Shaw, the fittest survive by reason of their success under the external pressure of environment, not by reason of luck or chance" (Mills, 1973, p. 126). This concept of intentional adaptation is consistent with the character development and societal change represented in *Cloud Atlas*. For example, Autua's request, "You lawman aye? You go, you talk, I stay, I hide! Please." (Mitchell, 2004, p. 14) emphasises a purposeful, conscious decision to adapt to the given conditions. This move reveals not simply survival by chance but also a purposeful, reasoned response to the situation, emphasising Shaw's rejection of chance or luck in the process of evolution.

Furthermore, Shaw's knowledge of the life force and its evolutionary experiments adds to the picture: "... from the standpoint of creative evolution, the life force may err, and must perform innumerable experiments before it solves a problem" (Mills, 1973, p. 128). This theme of trial and error in evolution connects with the characters' intricate, multifaceted journey through numerous problems, adapting and learning along the way.

Again, Autua's story could be given as an example. He deliberately chooses Ewing. In time, Autua learns from his experiences that he can only escape from his situation with the help of somebody from the dominant side. When he is getting whipped by the "Lizard King", he sees how Ewing looks at him:

"'My name is Autua,' he said. 'You know I, you seen I, aye—you pity I.' I asked what he was talking about. 'Maori whip I—you seen.' My memory overcame the bizarreness of my situation & I recalled the Moriori being flogged by the 'Lizard King.' This heartened him. 'You good man—Mr. DArnoq tell you good man—he hid I in your cabin yesterday night—I escape—you help, Mr. Ewing.' Now a groan escaped my lips! & his hand clasped my mouth anew. 'If you no help—I in trouble dead'" (Mitchell, 2004, p. 14).

Autua is aware that he will not be able to speak to the captain. They would dump him into the sea without even listening to him. However, if a white guy advocates on his behalf, he may avoid death. Such a solution may be Autua's only option. Finding a way to solve his problem with the help of his life experiences could be an example of Mills's (1973) suggestion of experimenting before solving a problem.

Cloud Atlas appears to resonate strongly with Shaw's emphasis on the continuity of human life, emphasising the immortality of human existence and the unstoppable path of evolution: "According to Shaw's theory of creative evolution, human life is, therefore, continuous and immortal, the evolutionary process is hereditary, and death is only a habit" (Mills, 1973, p. 130). This viewpoint corresponds to the intertwined lives presented in *Cloud Atlas*, in which characters' stories stay beyond time and space, surpassing the limitations of individual existence. Mitchell (2004) connects characters from different periods with a birthmark. Adam Ewing, Robert Frobisher, Luisa Rey, Timothy Cavendish, Sonmi-451, and Meronym live in different times but have the same comet-shaped birthmark. In this regard, the work reflects Shaw's belief in life's inherent continuity and immortality, evoking a grander scheme of development in which death is only a phase rather than an end.

Shaw's focus on the significance of intellect in creative evolution is a recurring subject in *Cloud Atlas*. "In Shaw's theory of creative evolution, the intellect contemplates; and this operation of the intellect, which issues in willed action and in further creation, is the goal of evolution" (Mills, 1973, p. 131). The characters display a continual process of cerebral deliberation leading to willed actions and perpetual creation, reflecting Shaw's perception of the goal of evolution.

The characters' journeys are physical or situational and express an intellectual desire and realisation of purpose. "An Orison of Sonmi-451" (Mitchell, 2004) might exemplify this intellectual desire. This adherence to Shaw's thesis deepens the novel's investigation of human nature, change, and the ongoing need for development and evolution. It assists the reader in understanding that the novel's

depiction of interconnected lives is a profound philosophical statement on the essence of existence and the role of intellect in shaping our destiny.

Finally, Shaw's theory of longevity as an ultimate objective aligns with the novel's themes: "Longevity is the ultimate goal of the life force of Shaw's theory of creative evolution" (Mills, 1973, p. 131). The desire for a lasting, evolving existence is intertwined with the challenges and transformations of the numerous characters, both individually and collectively, representing a greater human yearning for enduring purpose and evolution.

3.4. Will to Power in *Cloud Atlas*

Several parts of *Cloud Atlas* recall Friedrich Nietzsche's concept of the "Will to Power" (WtP). According to this theory, the major driving factor in humans is not survival or reproduction, as Darwin theorised, but an innate desire to demonstrate dominance and influence over others. As Richardson (2002) states: "Most often, he (Nietzche) conceives will to power metaphysically, as a universal force more basic than Darwinian selection…" (p. 538). Mitchell examines WtP, considering our anthropocentric worldviews. Power is frequently associated with control and supremacy over others: "ability to control people and events" (Cambridge Online Dictionary, 2023) or "possession of control, authority, or influence over others" (Merriam-Webster Online Dictionary, 2023). Power may influence the actions of people and societies in the story.

The account of colonialism and inter-tribal violence in "The Pacific Journal of Adam Ewing" shows Nietzsche's concept of the WtP. According to Lemm (2009), Nietzsche's criticism of traditional morality represents a call for new ethics based on acknowledging all sentient creatures' interconnectedness. The Maori oppress and annihilate the Moriori to prove their authority. This is represented in the story of Autua, who is enslaved by the Maori, only to be murdered by his captors when he attempts to flee. In this case, the Maori's actions are motivated not by need or survival instincts but by a desire to assert authority and supremacy, echoing WtP.

Similarly, European settlers like Dr Goose and Reverend Horrox exhibit their WtP through systematic enslavement and exploitation of native people and territory. According to Berry (2015), Nietzsche's criticism of Darwin appears to be that Darwin places too much emphasis on "survival" and not enough focus on "power". To assert their authority and control, Dr Goose and Reverend Horrox use a variety of ways, ranging from deception and manipulation to outright violence. For example, Dr Goose, who appears as a helpful friend to Adam Ewing

at first, is eventually discovered to be deliberately poisoning him to steal his possessions.

Furthermore, the colonial imposition of Western beliefs and practices on the indigenous people further illustrates the WtP. Reverend Horrox, for example, strives to "civilise" the natives by forcing Christian teachings on them. Thus, in "The Pacific Journal of Adam Ewing," Mitchell (2004) offers an intense criticism of the catastrophic implications of the WtP, arguing that unchecked authority can lead to injustice, violence, and the annihilation of entire cultures and societies.

"Letters from Zedelghem" weaves a story about the WtP within the context of artistic and intellectual relationships. Vyvyan Ayrs, an ageing maestro who utilises Frobisher's genius to perpetuate his fame and influence in the music world, manipulates Robert Frobisher, a young and bright composer. This relationship is a typical example of the WtP, with Ayrs attempting to maintain his dominance and prestige by taking advantage of Frobisher's genius. The story involves intellectual and emotional manipulation. Ayrs pretends to mentor and guide Frobisher, but he subtly manipulates him, using his artistic abilities to preserve his own musical relevance. He asserts his will to remain in control by parasitically sucking the younger composer's creative lifeblood.

Furthermore, Frobisher's choice to forge Ayrs' will and take credit for the "*Cloud Atlas* Sextet" could be interpreted as a counter-exercise of the WtP. He resists Ayrs' authority and claims his rightful place in the music world, demonstrating that the WtP may develop as an attempt to protect oneself against exploitation.

Thus, "Letters from Zedelghem" depicts Nietzsche's WtP, implying that it functions in various spheres of human endeavour, including the realms of creativity and intellect, and frequently under the guise of more humanitarian impulses.

Mitchell creates a disturbing narrative of corporate cruelty in "Half-Lives: The First Luisa Rey Mystery", exhibiting a sign of WtP. The Seaboard Corporation, an energy firm with a possibly unsafe nuclear reactor, uses severe and unethical means to maintain control and domination.

The corporation's criminal acts range from conspiracies and cover-ups to assassinations. For example, when Luisa begins delving into the secrets of the dangerous reactor, she becomes a target. The corporation wants to eliminate her since she is a direct danger to their power and dominance.

In the words of Richardson (2002), Nietzsche sees WtP as an internal revision of Darwinism itself. This story illustrates Nietzsche's thesis by demonstrating how the WtP frequently exceeds ethical and moral boundaries. Seaboard Corporation's primary motivation is not only survival or corporate competition but also an insatiable desire to preserve dominance and control. It would be willing to hurt or kill anyone threatening its position, even at the expense of human life and safety.

Individual characters within the organisation also demonstrate their own particular WtP. Executives like Alberto Grimaldi manipulate and abuse others to maintain their position, demonstrating that the WtP functions at the institutional and individual levels.

"The Ghastly Ordeal of Timothy Cavendish" also exemplifies WtP. The journey of Timothy Cavendish shows the natural human desire to assert control and dominance over one's own life. According to Leiter (2017), Nietzsche's philosophy criticises traditional morality by drawing on Darwinian notions regarding the evolution of human behaviour. Cavendish is subjugated to the ruthless authority of Nurse Noakes and her colleagues at the Aurora House, who maintain a rigorous and abusive regime over the residents. Cavendish, despite his initial powerlessness, refuses to accept his situation quietly. His overwhelming desire to reclaim control of his own life and his reluctance to submit to the repressive dictatorship.

As Nietzsche explains, the WtP is about more than survival or the desire to govern others; it is also about self-determination and personal empowerment.

My idea is that every specific body strives to become master over all space and to extend its force (its will to power) and to thrust back all that resists its extension. But it continually encounters similar efforts on the part of other bodies and ends by coming to an arrangement ('union') with those of them that are sufficiently related to it: thus they then conspire together for power. And the process goes on. (Nietzsche, 2011, p. 340)

This emerges as his constant desire to depart the Aurora House in Cavendish's case. He meticulously organises his escape by attempting to become master of his own space and increasing his WtP, outwitting his oppressors and demonstrating that he is more than just an "Oldie" who can be controlled. This union with his own will, as well as his following actions, demonstrates a significant congruence with Nietzsche's concept of the WtP, showing not just a survival instinct but also a more profound, creative force guiding his freedom.

Cavendish's struggle exemplifies how the WtP can be used to promote personal freedom and resistance against injustice. His battle also demonstrates that this innate motivation does not fade with age, emphasising the pervasiveness of the WtP in human life.

The cruel hierarchy of power in "An Orison of Sonmi-451" exemplifies Nietzsche's concept of the WtP, portraying this intrinsic drive as a governing factor in society. According to Nietzsche, "Even the body within which individuals treat each other as equals ... will have to be an incarnate will to power, it will strive to grow, spread, seize, become predominant – not from any morality or immorality but because it is living and because life simply is will to power." (Warren, 1985, p. 203). This concept extends beyond the oppressors to shape the reactions of the oppressed to their situation.

Sonmi-451 develops as a symbol of this counterforce. Despite being a fabricant created to serve, she exhibits this inherent drive to power, wanting to "grow, spread, seize, and become predominant" in her life. She develops self-awareness and a longing for autonomy, not only as a moral stand but as an expression of life's intrinsic nature, which leads to her rebellion against oppressive power. As a result, her story becomes a dramatic exposition of Nietzsche's philosophy, depicting the WtP as a universal force permeating all elements of life and society.

Sonmi-451's evolution is more than just a struggle for existence. It represents a deep inner need for understanding and autonomy, closely tied to the WtP. She is dissatisfied with her current function and wishes for more than the restrictions of her programmed existence. The system inevitably crushes her resistance, no matter how strong it is. In her final moments, she quotes Seneca, saying, "As Seneca warned Nero, 'No matter how many of us you kill, you will never kill your successor.'" (Mitchell, 2004, p. 184). Even though her individual rebellion is suppressed, the core of her fight persists and cannot be eradicated.

Her account is a testament to the WtP's enduring influence. Even in the face of enormous obstacles, the desire for self-determination persists, demonstrating the unbreakable nature of this fundamental human impulse. This emphasises the significance of Nietzsche's notion of understanding human motivations and behaviours, indicating that the WtP transcends individual circumstances and remains a permanent force shaping human existence.

"Sloosha's Crossin' an' Ev'rythin' After", on the other hand, displays a primitive and raw depiction of Nietzsche's Wtp in the post-apocalyptic setting. As noted by Vanessa Lemm (2009), Nietzsche's critique of morality is not a simple rejection

of moral principles but rather a questioning of their origins, function, and implications. The ferocious Kona tribe dominates the harmless Valley men, instituting a rule of might over right. This dominance is more than just a method of survival in a harsh world; it is a clear statement of the tribe's desire to assert power and control, embodying Nietzsche's notion.

Additionally, Zachry offers a new perspective on Nietzsche's philosophy. Zachry is first depicted as an anxious figure, illustrated in his own words: "'I ain't 'fraid o' you!' I telled him, tho' tell-it-true my voice was jus' a duck fart in a hurrycane. Quakin' inside I was when Old Georgie jumped off his branch…" (Mitchell, 2004, p. 126). However, as the story progresses, the initial fear and anxiety fade. In his voyage of bravery and rebellion against the Kona tribe, he exemplifies the WtP, revealing the fundamental human urge for autonomy and opposition to oppression. His shift illustrates how the WtP may inspire change and resistance even in the most powerless persons.

To conclude, Mitchell employs the WtP in each narrative to investigate how the drive to impose dominance impacts individual actions, societal systems, and historical events, providing a sophisticated analysis of power dynamics.

Cloud Atlas gloomily depicts consumerism and corpocracy. The novel employs the term "corpocracy", a combination of the words "corporate" and "democracy", to describe a society in which democratic values are distorted to serve corporate interests. Mitchell (2004) contends that the ultimate wielders of power in the modern world are companies that dominate resources, labour, and even the concept of personhood rather than individuals or governmental institutions.

Consumerism, "the situation in which too much attention is given to buying and owning things" (Cambridge Online Dictionary, 2023), is unregulated in this dystopian setting, and corpocracy is prevalent. The story analyses a society's collapse, presenting a landscape destroyed by human greed and unrestrained ambition. It is ready to illustrate the potentially catastrophic consequences of authoritarian corpocracy and unrestrained consumerism. This apocalyptic portrayal serves as a harsh warning of our ability to destroy ourselves.

The novel does more than expose this self-destruction; it also emphasises the cyclical nature of our failures. According to Rickel (2015, p. 174), "...each narrative articulation of injustice fails to prevent its reincarnation in another context because these readers continue to imagine that the corruption about which they read is an exception". This highlights a recurring theme in *Cloud Atlas*: our

incapacity to learn from our mistakes, which leads to a cycle of exploitation and inequality. As a result, the novel critiques modern society's destructive tendencies, warning us about the dangers of unrestrained consumerism, extra-powerful corpocracy, and our failure to break away from self-destructive cycles.

After exploring David Mitchell's *Cloud Atlas*, it is evident that the novel is a brilliant tapestry that weaves both scientific and philosophical discussions into its fabric. Mitchell creates a narrative world that goes beyond the surface of a typical post-apocalyptic tale, drawing extensively on Darwinian and Social Darwinian frameworks and the philosophical speculations of Nietzsche, Bergson, and Shaw. Instead, he goes deeply into the fundamental principles of human existence: survival, adaptability, and the never-ending pursuit of power. In the story, the apocalypse itself functions as a transforming journey, driving humans to confront and overcome their limitations. The many narrative layers of *Cloud Atlas*, when examined through multiple philosophical and biological perspectives, parallel Mitchell's thesis that history is limited by results rather than rules. As readers, we are left contemplating the inevitable fact of humanity's urge to live and the extent to which individuals and societies will go to maintain power and ascendancy, emphasising Mitchell's magnum opus's timelessness and universality.

CONCLUSION

The persistent allure of the apocalyptic concept can be found in ancient literature, religious scriptures, and, especially, contemporary television and films. The apocalyptic vision signifying the downfall of the wicked and the triumph of the oppressed, followed by rebirth, has developed its connotations in religious contexts, particularly considering the turbulent events of the twentieth century. Many historians believe that the apocalyptic vision has evolved from supernatural armies descending from the skies to the destructive potential of human-made technological breakthroughs such as nuclear weapons.

In the twentieth century, we have witnessed a seismic shift in conceptual interpretations that went beyond traditional boundaries. Notably, theorists like Kermode argued that the apocalypse is a present possibility, pervasive and omnipresent, rather than a distant event impacting the masses. As a result, any narrative centred on a conclusion can be viewed from an apocalyptic perspective because every ending lays the way for a new dawn. This book digs into the conception of apocalyptic incidents, drawing on Darwinian and Social Darwinian perspectives, and contends that a single apocalyptic event may set off a chain of unpredictable repercussions.

In Stephen Baxter's *Evolution*, the meteor hit happening about 65 million years ago is portrayed as a typical apocalyptic catastrophe, signalling the end of the dinosaurs. The aftermath results in dramatic climatic and atmospheric changes with consequential ecological implications. Mammals arise and evolve in the middle of great extinctions, adapting to their new environments.

In David Mitchell's *Cloud Atlas*, societal breakdown caused by human greed represents the apocalypse. Human society regresses to a primitive form following the collapse, as described in Zachry's narrative. Both works use transformational processes, whether physiological or sociological, to represent catastrophic events. Survival in these transformational worlds involves the creation of unique characteristics. For example, in *Evolution*, the primates' transition to bipedalism represents the end of quadrupedal existence, and this evolutionary transformation has unintended effects.

However, the evolution depicted in *Cloud Atlas* switches from biological to sociopolitical and cultural. Mitchell traces the evolution of human exploitation from colonial servitude in the nineteenth century to corporate supremacy in more contemporary times. Although methodologies evolve, Mitchell

emphasises the persistent human tendency to exploit for power, often to the point of self-destruction.

Evolution and *Cloud Atlas* juxtapose the characters like Mother and Sonmi-451, respectively, emphasising the apocalyptic landscapes they create with subsequent Darwinian and Social Darwinian consequences. Mother's belief system in *Evolution* catalyses tremendous conflicts, affecting the very dynamics of human evolution. Sonmi-451's rebellion against institutional exploitation culminates in quasi-deific status in later storylines in a similar spirit. Their legacies demonstrate the powerful influence of individual choices on evolutionary trajectories.

Both narratives emphasise the consequences of apocalypses, integrating Darwinian and Social Darwinian ideas. While *Evolution* emphasises biological effects, particularly in the aftermath of societal accomplishments such as trade and agriculture, the power dynamics inherent in social systems emerge. Through these discourses, Nietzsche's notion of the will to power resonates. Advanced civilisations, propelled by technological superiority, frequently assert authority, even to their disadvantage.

The perspectives of Henri Bergson and George Bernard Shaw, who claim that an intangible life force, called "*élan vital*" by Bergson, propels evolution, contrast with the Darwinian approach, which emphasises natural selection. This understanding of evolution adds a philosophical, even spiritual, dimension, indicating a purposeful and creative evolution.

Examples from *Evolution* and *Cloud Atlas* confirm this claim. Capo's creative tool use in *Evolution* resonates with Bergson's concept of deliberate evolution. Similarly, Ewing's development towards enlightenment in *Cloud Atlas* echoes the idea of socio-cultural creative evolution, which suggests that civilisations change through cumulative individual endeavours.

This study is important because it investigates the complex relationship between apocalyptic occurrences and evolution, putting itself at the intersection of literature, science, and philosophy. The study reframes apocalyptic themes in English literature using Darwinism and Social Darwinism, highlighting their role as agents of transformation and rebirth, echoing the cyclical nature of life. This novel viewpoint provides scholars with a new lens to examine the aftermath of such events in literature, improving their understanding of characters, situations, and overarching themes.

Beyond literary studies, the insights obtained are especially relevant in today's world facing climate change and pandemics, assisting society in visualising post-apocalyptic evolutionary paths. Darwinism offers a biological perspective on prospective species adaptations, whereas Social Darwinism sheds light on potential societal transformations. Philosophically, the study emphasises the resilience of life, arguing that apocalyptic events, rather than ending stories, modify evolutionary trajectories. This interdisciplinary investigation emphasises the regenerative nature of life in the face of adversity, making connections between literature, scientific theory, and societal evolution.

This book provides a platform for a wide range of research opportunities. Exploring the connections between literature, Darwinism, and Social Darwinism might be promising. Comparing Western and non-Western apocalyptic literature, studying historical apocalyptic events alongside their literary portrayals, and investigating the psychological effects of such events on societies and individuals are all areas ripe for investigation. Modern mediums, like video games and films, can be evaluated for their perspectives on post-apocalyptic evolution.

In addition, the current environmental crises provide a once-in-a-lifetime opportunity for an ecocritical assessment of apocalyptic narratives. It is also crucial to question and critique Darwinism and Social Darwinism theories, understand their educational consequences, and delve into literature's depiction of post-evolution worlds, whether utopian or dystopian. The ethical concerns of evolutionary descriptions, particularly the controversial usage of Social Darwinism, demand additional research. Overall, the intersection of apocalyptic events with evolutionary themes in literature offers a large field for scientific investigation.

Although extensive, this book acknowledges several limitations. Despite meticulous analysis, the chosen English literary masterpieces only represent some apocalyptic narratives, potentially ignoring contrasting perspectives. Relying only on Darwinism and Social Darwinism may have resulted in the loss of insights that other theoretical frameworks could have provided. The emphasis on English literature implies Western perspectives, which may exclude non-Western perspectives. The examined literature is limited to specific historical periods, which may exclude emerging perspectives from other times. Because literature analysis is interpretative, different scholars may get various meanings from the same material.

The investigation of apocalyptic narratives and their relevance to evolution spans the fields of literature, science, and philosophy. We find literature's profound reflection of life's cyclical dance of destruction and rebirth by reframing apocalyptic events as catalysts for transformation utilising Darwinism and Social Darwinism. Beyond literary academia, this study has a strong resonance in our present day of global difficulties, aiding us in conceptualising potential evolutionary paths. This discovery offers a powerful reminder as we traverse the uncertainties of today: even in the face of an apocalypse, life's resilient character persists, adapts, and evolves.

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