The Concept of Time Travel in The Time Machine and “A Sound of Thunder”

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_____Daniel Prebeg_____
(potpis)

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1. INTRODUCTION

Time travel is an endlessly fascinating topic and one of the more popular subgenres of science fiction. In literature it encompasses various narratives that employ it for different purposes and with different results. Some writers use it to explore the future and see how the doubts and fears of the present day inform the possible futures their heroes visit. Furthermore, many authors explore the past, in an attempt to observe it and learn from it. Others, go to the past in an attempt to change it, whether it is a historical event or a moment from their personal history. Those attempts are usually unsuccessful and act as a warning that the past should not be interfered with. But science fiction authors are not the only ones who dabble with time travel. Scientists, philosophers and others often debate on the theoretical possibility of time travel, but also all the problems that arise from it, whether they are scientific, moral or logical. One of the most recognizable elements of time travel are the numerous temporal paradoxes that arise from travelling through time. Rather than them becoming a hindrance, authors have used them to their own advantage to craft intricate and elaborate narratives. Many influential authors like H. G. Wells, Isaac Asimov, Ray Bradbury and Robert A. Heinlein have written stories that have become classics and have added to the mythology of time travel. The concept of time travel has also inspired numerous films, TV series and video games with its rich possibilities and unlimited potential.

This thesis gives an overview of the development of time travel fiction, from the early days, where authors represented time travel as a fantastical and unexplained phenomenon, to the methodical and scientific representations that followed after the introduction of the time machine. Some of the most frequently occurring time travel paradoxes are also discussed. With the examples of *The Time Machine* and "A Sound of Thunder" the analysis explores how their authors approach time travel. Both works are considered highly influential. On the one hand, H. G. Wells popularized and coined the term "time machine", and gives a glimpse of the potential far-away-future. He jumps around in time in giant temporal leaps, but confines the setting to a single space. On the other hand, Bradbury's hero journeys to the Jurassic era, and unlike Wells' novella, the short story explores the consequences time travel can cause. The thesis argues that the concept of time travel, beside

its entertainment value, is a powerful tool that allows authors to give insight into the present by exploring the past, and the way even small decisions can have significant consequences, but also the future, and how the hopes and fears of today inform and shape it.

2. EVOLUTION OF TIME TRAVEL FICTION

It is difficult to precisely determine when time travel as a concept first came about. There are many literary works that play with the concept of time and narrative structure. The concept of the time machine is a little easier to pinpoint. It was H. G. Wells who coined the term "time machine" in his novella *The Time Machine*. Not only that, he was responsible for the popularization of the genre of time travel stories. Broderick states that "Wells can be seen fairly as the initiator of what we now regard as a fresh genre, or—better still—fresh narrative mode." (3). Nevertheless, there are instances of time travel stories even before that. Many of them however use, for a lack of a better word, "machine-less" time travel, in the form of dreams, hallucinations or prolonged sleep. Ancient tales of "time travel" problematize mostly man's desire for eternal life. Black highlights the most notable examples:

> If we look at ancient texts, we can find a number of references to time travel. In Hindu mythology, there is the story of King Raivata Kakudmi who travels to meet the creator Brahma. Even if this trip didn't last long, when Kakudmi returned back to Earth, 108 yugas had passed on Earth, and it is thought that each yuga represents about 4 million years. [...] Similarly, we have references in the Quran about the cave of Al-Kahf. The story refers to a group of young Christian people, who in 250 AD tried to escape persecution and retreated, under God's guidance, to a cave where God put them to sleep. They woke up 309 years later. [...] Another story comes from the Japanese legend of Urashima Taro, an individual who was said to visit the underwater palace of the Dragon God Ryujin. He stayed there for three days, but when he returned to the surface, 300 years had passed.

Memoirs of the Twentieth Century is one of the earliest examples of time travel fiction in English literature. Alkon argues that Samuel Madden's 1733 work "has been ignored partly because it is satire, not SF or any kind of serious extrapolation to a possible real future" (184), but that it "provides excellent evidence about the origins of SF" (184). The narrative is shaped as a series of diplomatic letters sent from the late 1990s. Those letters give a great insight into Europe of the future. As Alkon maintains that "Madden's epistolary narrative allows for a portrait England, France, Italy, Turkey, and Russia during the 1990s together with attention to 18th and 19th-century developments." (188). Alkon concludes that Madden "deserves

recognition as the first to toy with the rich idea of time-travel in the form of an artifact sent backwards from the future to be discovered in the present" (186).

Washington Irving's 1819 short story "Rip Van Winkle", much like the time travel myths of old, features a character who sleeps for a number of years. Here the title character, who was a villager in colonial America, drinks liquor from a mysterious Dutchman, and as a result, sleeps for 20 years missing the American Revolution, and awakening in a changed world. Similar "sleeping" stories include *Looking Backward: 2000–1887*, a novel by Edward Bellamy published in 1888 as well as *The Sleeper Awakes* by H. G. Wells published after his seminal time travel narrative *The Time Machine*. In *Looking Backward*: *2000–1887* the protagonist Julian West falls in a sort of hypnotic sleep and wakes up 113 years in the future. This utopian novel explores the advancements of Boston in the 21st century, as well as, the possible ways of improving the future. In contrast, *The Sleeper Awakes* explores the dystopian future of London in the year 2100. The protagonist takes medicine which makes him sleep for more than 200 years. Both novels explore the nature of capitalism and socialism, showing that, more often than not, time travel is used to see how economic doctrines, ideologies and political systems of today could shape the future. Charles Dickens's *A Christmas Carol* which was published in 1843 also features, what some consider time travel. Even though, in the end, all turns out to be a dream, the way the visits to various points of time are described and the way they influence the narrative are significant enough to constitute a time travel narrative. According to Orford,

> Ultimately the *Carol* is a time travel story because the character's interaction with time is central to the plot; Scrooge's change is directly linked to his journeying through time, it both facilitates the change and provides the reader with the key to understanding and sympathizing with his character. One might argue that had Dickens chosen to write the tale of Scrooge's conversion without the spirits and their trips through time, it would not have achieved its enduring popularity. (Orford 8)

In 1844 Edgar Allan Poe publishes one of his more overlooked stories "A Tale of the Ragged Mountains" which implies time travel within its story. It is centered on the relationship of a young and wealthy, but sick Augustus Bedloe who enlists the 70-year-old Dr. Templeton. The story is set in 1827. Bedloe recounts his experience of time travelling to India. The story is not clear on whether or not there is actual time travel, or if it is the result of medication, or something else entirely

By the late 19th century, the Second Industrial Revolution has started and it meant a rapid growth in scientific discovery and engineering development. Mass production was introduced and a lot of new machinery was developed. The steel industry was booming and that meant the development and spread of railways and railroad traffic. Train travel enabled people to move faster and farther for a significantly shorter time. Cheng points out the milestones of the 19th and 20th century:

> Flying across the nation or taking the newly established U.S. Highway system, travelers in the 1920s and 1930s changed time when they crossed time zones—first implemented by railroads in the late nineteenth century but formally adopted by the United States in 1918 and most other nations in the 1920s. (192)

The concept of time and people's relationship with time also changed. Suvin notes that the 19th century was crucial for time travel stories, and science fiction in general: "its central watershed [...] around 1800, when space loses its monopoly upon the location of estrangement and the alternative horizons shift from space to time" (89). Train travel and the confusions caused by un-uniform timekeeping led to the standardization of time. In this period the fascination with time started. Alkon asserts that this is also a time where a shift from "space" to "time" occurred:

> Various explanations for this shift have been offered, usually in terms of widening temporal horizons and heightened awareness of change induced by the new geology, by theories of biological evolution, and by the political and industrial revolutions of the late 18th and early 19th century. (189)

The clock started to have a growing importance in everyday life and in the late 19th century, there is an introduction of time-manipulating devices in fiction. Edward Page Mitchell's 1881 story "The Clock That Went Backward", like the title suggests uses a clock to travel through time. In it the narrator, along with his cousin, visits his great-aunt who is in possession of a clock built by their grandfather. The clock has stopped working when it was struck by lightning. Very scarce details and explanations are given about it and the mechanics of how it works are pretty unclear. Aunt Gertrude winds the clock and the clock appears to go backwards. After it stops, she dies. The cousins take the clock to their philosophy professor for him to inspect the clock. He winds the clock and they all find themselves in the Siege of Leiden, an important moment in Holland's history, about which they have heard stories from aunt Gertrude. The story presents the concept of changing and manipulating time, as well a visit to the past. After the siege they return to the present day. There are no consequences in the future and it seems

that they were supposed to influence the past. This can be regarded as one of the first instances of the closed loop paradox, which will be discussed later on. It also features some philosophical views on time which are brought up by the professor. These fresh perspectives in time travel stories, such as philosophy in this case, would only be further explored by other authors.

Enrique Gaspar was the first person to introduce a machine that is able to travel through time. He however does not name the machine. His 1887 novel *El anacronópete* (a word coined by the author, meaning "who flies against time"), features a cast iron box powered by electricity which is used for time travel:

> [A]lthough it is not the first text to posit something like time travel, seems to be the first to describe a time machine – an elaborate hermetically sealed ark whose ornate furnishings and ample passenger list are reminiscent of the *Nautilus* in Jules Verne's *Twenty Thousand Leagues under the Sea.* ("Gaspar, Enrique").

The characters travel from the 1878 World's Fair in Paris to various points in history like the 1860 Battle of Tetuan, 1492 Granada where they give advice to Queen Isabella about Christopher Columbus, 690 Ravenna, China in 220, the Vesuvius eruption in AD 79, as well as the time of Noah, around the 30th century BC. Finally, one of the characters speeds up the machine and arrives at the Day of Creation where the machine explodes. The character wakes up and it is revealed that he fell asleep during a Jules Verne play. The mentioning of Jules Verne is significant since he was, at the time, one of the most important science fiction writers. The novel predates H. G. Wells' first story featuring a time travel machine by a year. That story was the 1888 "The Chronic Argonauts" where an inventor builds a machine to travel in time. Unlike *The Time Machine*, here the protagonist travels to the past. "The Chronic Argonauts" was later used as a template for his now famous novella. In *The Time Machine* Wells coins the term "time machine", and it is widely regarded as the work which popularized time travel fiction. The protagonist who is not named, but is rather referred to as "The Time Traveler", talks about his journey to the distant future of 802,701 AD where humans evolved into two subspecies, Eloi and Morlocks. The significance of the novella lies in the usage of a vehicle-like time machine as well as the exploration of evolutionary branching based on class division. It is no coincidence that Wells' time machine comes around the time of the steam machines, trains and first automobiles. It is a dawn of a new way of transportation. The world becomes more accessible, which also means that the duration of travel shortens significantly. It remains one of the most distant futures explored in time travel fiction. The publishing and success of Wells' *The Time Machine*, along with the scientific discoveries that were being made at the turn of the century

only made the concept of time travel, and the time machine, more popular. Stableford defines the time machine simply as "a mechanical device for traveling in time", and continues to highlight Wells for his impact on science fiction stating that

> [It] was a great leap forward for SF. Visionary fantasy had previously been the favorite medium for encapsulating glimpses of the future, but its obvious limitations were compounded when the method of achieving narrative closure by having a protagonist wake up became a tired cliché. (355)

The novella was republished many times and it had a great impact on many authors who decided to explore the concept of time travel using Wells' story as an inspiration. Cheng asserts that by

> [r]eprinting *The Time Machine* in its May 1927 issue, *Amazing Stories* introduced time travel and its dimensional logic to an interwar reading audience, and throughout the 1920s and 1930s *Amazing* and its imitators, *Wonder Stories* and *Astounding Stories*, published a variety of variations on this basic theme. (182)

Scientific plausibility as the backdrop and foundation of science fiction stories is what makes them more believable and the readers more interested and fascinated. Stableford argues that it was the use of scientific language and concepts that made Wells' time machine appear believable: "A Wellsian time machine is, of course, no more rationally plausible than a Dickensian ghost or a helpful fairy, but the apologetic jargon that Wells borrowed from C. H. Hinton made it seem psychologically plausible" (356). Hinton was influential mathematician and science fiction writer whose work inspired both scientists and SF writers. His 1880 article "What is the Fourth Dimension?" being one of the clear inspirations for concepts and discussions present in Wells' narrative.

Nahin suggests that "[i]t is the availability of a theory that separates time-travel speculations from the fantasy speculations with which it is often unjustly lumped and which are in the province of quacks (e.g., ESP, astrology, and mind-over-matter, i.e., "spoon bending")" (Nahin, *Time Machine Tales* 11). Among the chief scientific discoveries of the time, but also history in general was Einstein's theory of relativity, as well as time dilation. It not only helped push the boundaries of science but it consequently pushed the genre of science fiction forward. The theory proposed that time is relative depending on the observer. May explains it in the following way: "Depending on an observer's relative motion or their position within a gravitational field, that observer would experience time passing at a different rate than that of another observer." A person within a vehicle that is able to travel near the speed of light will

experience time much more slowly than a person that is not moving. This theoretically means that time travel to the future is possible, but is very unlikely as travelling at, or near the speed of light is considered almost impossible because it would require an infinite amount of energy. However, a slightest possibility and theoretical foundation were enough to take the genre more serious and regarded as pure science fiction. Within the realm of time travel fiction, Fulmer writes about external and personal time, which become important components of time travel storytelling:

> External time is that followed by the world as a whole; personal time is that measured by the time traveler's own clock – his aging, etc. Normally the two run together: you and I age a day for each day the world ages; what is past for you or me is also past for the world, and what is future likewise. But time travel would separate the two: if you travel to the past you go to a time when the world was younger than when you departed; but your destination is future in your personal time. The time traveler would get continuously older, though he would visit earlier or later points in external time. (152)

This also introduces the paradox of aging. Time travelers have the ability to visit any point in time and when they arrive there, they would seemingly always be the same age because they have the ability to manipulate time. For them personally time would flow normally. It is when they use the time machine that the time around them changes. Nahin writes that "this astonishing conclusion from special relativity, that time travel to the future makes physical sense, literally put a lot of Victorian-era trained physicists into shock" (Nahin, *Time Machine Tales* 3). It also unlocked the door for introduction of new scientific branches into the exploration of time travel themes, as Wittenberg argues:

> The effects of Einsteinian physics on time travel fiction are not primarily physical at all, in the sense of a set of themes or topics that become fodder for authors' or characters' speculations. Rather, […] the effects are initially psychological and then predominantly narratological, in the most comprehensive sense of this latter term. (63)

Einstein's theory only gave science fiction authors more concepts and scientific theories to play with. Also encountering these scientific concepts in science fiction, and more specifically time travel narratives, added a feeling of credibility. So, it is not strange that Freud's psychoanalysis also found its way into many narratives:

> Time travel fiction is a genre of psychological implication, a scenography in which selves meet themselves, kill their progenitors, and plumb the significance of their own

> histories for their present instantiations or avatars. Time travel, in essence, becomes what Lacan thought the psychoanalytic session was, a "realization of the [subject's] history" in a present discourse, or even "the restitution of the subject's wholeness … in the guise of a restoration of the past." (Wittenberg 64)

As Wittenberg points out, time travel is not used only as an exploration of time and space, but it can also focus on how the characters process these journeys. It can be used as a tool of self-reflection, but it can also shatter someone's reality and sense of self, like in the case of Bradbury's protagonist in "A Sound of Thunder".

Gleick, however, thinks that the fascination with time travel has become almost too absurd and widespread: "I doubt that any phenomenon, real or imagined, has inspired more perplexing, convoluted, and ultimately futile philosophical analysis than time travel has" (178). Indeed, there are numerous analyses, scientific papers, speeches, lectures on time travel. The incorporation of scientific theories and discoveries into science fiction continued. The 1931 short story "Out Around Rigel" by author Robert H. Wilson, is one of the first narratives to take Einstein's relativity and incorporate it seriously into its narrative. The two protagonists of the far future, which live on the terraformed Moon, decide to travel to the star Rigel. Here a rocket is used instead of a time machine. They go on their journey and because they were travelling near the speed of light they experience time dilation, and they realize, when they return, that a thousand years has passed while they were gone. It is one of the first examples of "scientific" time travel, because of its use of theoretical knowledge.

In the following decades the understanding of science made considerable leaps. Nahin writes about how, because of leaps in technology, other science fiction themes that were very popular in their time slowly became less engaging because they started becoming reality. The best example are voyages to outer space which were one of the most engaging and popular stories before the Moon landing. As Nahin explains,

> Before the arrival of humans on the surface of the Moon in 1969, the only other "fantastic voyage" that could compare with time travel was traveling through outer space. During the seventeenth and eighteenth centuries, in fact, such voyages were the center of a genre of fiction (now called science fiction) called the "imaginary voyage" or "extraordinary voyage." Since 1969 the first such voyages have become history, of course, and time travel has replaced space travel as the modern "imaginary voyage." (Nahin, *Time Machine Tales* 1-2)

The works of time travel fiction which deal with travelling into the future frequently have an overlap with utopian and dystopian fiction. In *The Utopia Reader* (1999), Claeys and Sargent suggest that "Twentieth-century science fiction emerges as the characteristic genre expressing both the hopes and fears of our own era. The modern dystopia crystallizes the anxieties that increasingly accompanied the onward march of progress" (3). Thus, dystopian representations of the future are the result of the fear and uncertainty of new scientific discoveries and technological innovations. Furthermore, time travel addresses the human need to control their life, albeit facing their regrets in the past or to see what is yet to happen. Sorensen maintains that "[m]ajor source of interest in the time travel question is our general fascination with the exotic and the childlike frustration we sometimes feel at being confined to the present. We wish that the benefits of moving through space could be supplemented with the benefits which would accrue from movements through time" (235). That impossibility of changing the past is what is the most frustrating: "The question of the immutability of past events is of special interest to theologians because it is directly related to the question of free will versus fatalism. That is, are humans the creators of the future, or are they mere fated puppets of destiny?" (Nahin, *Time Machine Tales* 196)

Another pivotal work that pushed time travel fiction forward was the 1953 short story "A Sound of Thunder" by Ray Bradbury. This is regarded as one of the important milestones in time travel fiction for its introduction and popularization of such concepts like time tourism and the butterfly effect. What is most striking about the story is that as a result of the visit to the past, the future is irreversibly changed. Unlike some time travel stories where the heroes set out to change the past, here it is an accident. When the characters return to the present day, they become aware of the gravity of their mistake, as will be discussed later.

Despite being the primary means of time travel, the time machine is not always used. Much like at the beginning of the genre, authors experimented and continued to use all sorts of ways of journeying through time, like time slips. A time slip is "a sudden unexplained dislocation in time, usually but not invariably 'falling' into the past" (Stableford 357). An example of this is the relatively recent Stephen King's novel *11/22/63*. The 2014 novel tells a story of a divorced, down-on-his-luck English teacher Jake Epping who discovers a time portal at a diner he regularly visits. The portal takes anyone who comes near it to the same day in the 1958. After first visiting the past for brief periods, Jake decides to stay in the past for five years and try to prevent the assassination of JFK. The story explores many familiar time travel

themes, like the ability to change the past, the effects of it on the present, life in the past, paradoxes that arise and more.

The growing legacy, and the expanding tropes and rules of time travel fiction were further built upon in the form of visual storytelling. Time travel has been used in a variety of genres from comedies, dramas, thrillers, adventures, historical fiction. When time travel stories transitioned to the big screen, it was a start of a rich and memorable genre. Many time travel movies have become cult classics, the legacies of which have shaped the genre, but also film history. There are many movies that were adaptations of famous time travel fiction. One of the first examples is the 1921 silent film adaptation of Mark Twain's *A Connecticut Yankee in King Arthur's Court* (dir. Emmett J. Flynn), which had many iterations, with another notable one being the 1949 musical adaptation directed by Tay Garnett and starring Bing Crosby. In 1960 an adaptation of *The Time Machine* (dir. George Pal) received the Academy Award for Best Special Effects. In 2002 another feature length adaptation of the classic story was made starring Guy Pearce and directed by Simon Wells. There were several movies featuring a sort of time travel. A notable example is the *Planet of the Apes* series, where, because of time dilation character returns to Earth which is run by intelligent apes. However, time travel has not broken into the mainstream until the 1980s. Blockbuster movies like the *Terminator* series and the *Back to the Future* trilogy, were original stories that firmly placed time travel movies in the spotlight. It is impossible to talk about time travel and the time machine without mentioning the latter. *Back to the Future*'s iconic DeLorean has almost become a synonym for the time machine, because of its futuristic look, but also the movie's success. In 2005 *A Sound of Thunder* (dir. Peter Hyams) was also adapted for the screen, which was not well received, and in the end proved to be a commercial failure. Heinlein's short story "All You Zombies" was adapted into the 2014 movie *Predestination* (dir. Michael and Peter Spierig) and was praised by critics for its elaborate plot. Other original stories that have become classics on their own include, *Groundhog Day* (1993) (dir. Harold Ramis), *12 Monkeys* (1995) (dir. Terry Gilliam), *Donnie Darko* (2001) (dir. Richard Kelly), *Looper* (2012) (dir. Rian Johnson). Christopher Nolan's *Interstellar* (2014) is an important movie to mention because of its insistence on using real scientific calculations, theories and models in crafting the story. They were so insistent on using real physics that they consulted one of the world's leading experts on astrophysics and Einstein's general theory of relativity, Kip Thorne.

As mentioned before, the ever-expanding incorporation of science in science fiction, and thus time travel fiction as well, has inclined authors to play with theories and hypotheses

connected to time travel. One of the main curiosities, or rather concerns, about time travel, specifically time travel to the past, are time paradoxes.

3. PARADOXES OF TIME TRAVEL

Paradoxes caused by time travel have over the years become one of its most recognizable tropes. In his *Historical Dictionary of Science Fiction Literature* Stabelford describes time paradoxes as paradoxes "arising as a result of time travel into the past" (356). Earlier science fiction works, or scientific romances, from the late 19th and the early 20th century did not deal with time travel or time paradoxes in a serious way. Broderick remarks that

> [o]ne of the persistent objections raised by philosophers and scientists to the possibility of time travel to the past is toxic time loops. […] Such loops, of course, entail logical paradoxes, always a strong hint that the events described are innately un-physical—which is to say, impossibly self-defeating. Nothing of this kind was hinted in H. G. Wells's own time machine tales, but it was quickly noticed as a piquant and entertaining trope for science fiction pioneers to play with, ringing all the feasible changes and tying all the likely causal knots. (63)

During the 1940s and 1950s science fiction authors writing about time travel started to write elaborate stories taking into consideration, logic and potential paradoxes. One author in particular stands out in this regard. Robert A. Heinlein's short stories "All You Zombies" and "By His Bootstraps" are considered classics because of how time paradoxes are represented in them. Writing about why Heinlein's stories stand out, Lewis remarks that "[n]ot all science fiction writers are clear-headed, to be sure, and inconsistent time travel stories have often been written. But some writers have thought the problems through with great care, and their stories are perfectly consistent" (145). As the genre developed authors were trying to make their stories more complex. These temporal paradoxes became one of the staples of time travel fiction. Not only were they explored within the narratives, but they were also studied outside of it, through the lenses of philosophy, physics and logic:

> The fact that Time Travel into the past disrupts the pattern of causality, changing or cancelling matters of known fact, has not caused stories of this kind to be banished from the SF field; instead it has led to the growth of a subgenre of stories celebrating the peculiar aesthetics of such Paradoxes. The essential paradoxicality of time travel is often dramatized by asking: "What would happen if I went back in time and killed my own grandfather?" ("Time Paradoxes")

In his book *Paradoxes of Time Travel* Wasserman does a thorough analysis and categorization of time travel paradoxes. He uses physics and philosophy in building and explaining some of the more commonly used forms of paradoxes that are employed in time travel fiction. One of the most frequently used examples as to why time travel is not possible is the grandfather paradox. One of the earliest instances of the grandfather paradox that Wasserman detects is from the 1929 *Science Wonder Stories* issue, where Hugo Gernsback offered his readers the following challenge:

> Suppose I can travel back into time, let me say 200 years; and I visit the homestead of my great great great grandfather, and am able to take part in the life of this time. I am thus enabled to shoot him, while he is still a young man and as yet unarmed. From this it will be noted that I could have prevented my own birth; because the line of propagation would have ceased right there. Consequently, it would seem that the idea of time traveling into a past where the time traveler can freely participate in activities of a former age, becomes an absurdity. (qtd. in Wasserman 70)

Wasserman categorizes this paradox under the term self-defeating paradox, to make clear that the paradox is not strictly tied to one's grandfather but that it can be about any other ancestor and can even be applied to time travelers themselves. From that it can be deduced that altering the past or any act of self-defeat would be logically impossible. Wasserman breaks it down to the following two equations:

> (P1) If backward time travel were possible, it would be possible to change the past.
>
> (P2) It is impossible to change the past.
>
> (C) Backward time travel is impossible.
>
> […]
>
> (P1) If backward time travel were possible, it would be possible to perform a
>
> self-defeating act.
>
> (P2) It is impossible to perform a self-defeating act.
>
> (C) Backward time travel is impossible. (Wasserman 76, 82)

These two equations boil down to the impossibility of time travel to the past. Changing the past would disrupt the chain of events that enabled the person to travel to the past in the first place.

Furthermore, travelling to the past would enable someone to perform a self-defeating act, i.e., killing their younger self or their ancestors, which would in turn erase them from existence before they traveled in time in the first place. Since that is not possible, it means that time travel is impossible as well.

Another category of temporal paradoxes explored in time travel narratives is the causal loop paradox and its variations. Wasserman exemplifies the paradox with a short story:

> Consider, for example, Samuel Mines' story, "Find the Sculptor." In that story, we are told of a scientist who travels five hundred years into the future and, upon arrival, finds a statue that commemorates his journey. The traveler takes the statue back with him to the past, where he tragically dies upon arrival. As a memorial, the statue is erected in his honor, right where he found it in the future. (148)

Wasserman goes on to clarify that for the time traveler the loop does not continue further as he dies upon the arrival to the past. However, when viewed from the perspective of the statue the loop seems to be never-ending. The statue is found in the future taken back through time where it is erected in honor of the scientist who had died upon his return. The statute stands there for 500 years, until the scientist arrives in the future and takes it back starting the loop all over again. Much like in *The Time Machine*, the space in this example is static. In analyzing the story Wasserman states:

> Of course, this way of putting things is a bit misleading, since it incorrectly suggests that there is a starting point to the story. But the important point is that there is no end to the story. From the statue's perspective, there will always be a next event in the series. In this sense, the loop will "go on forever." (149)

Imbedded within this story is an example of the Ex-Nihilo paradox, which describes objects that have no apparent origin. In this case the statute is erected because it was brought back from the future, and thus exists in the future, where the scientist finds it, because it was brought back and erected following his death. In writing about these objects, that seem to come out of nowhere and are stuck in loops Wasserman asserts that they "raise a number of difficult questions. The most obvious question is this: *Where do these objects come from?*" (158). The fact that there is no logical answer to this question, reinforces their mystery and explains their employment in time travel fiction.

Wassermann claims that "one of the most striking features of causal loops is that they seem to allow for self-causation" (154). Another name for the causal loop paradox is the bootstrap paradox which got its name from the 1941 novella *By His Bootstraps* by Robert A. Heinlein, which was widely praised for its representation of paradoxes. Self-causation is heavily featured in the story. In his book, Gleick maintains that "it was the most intricate, complex, carefully plotted exercise in time travel to date" (79). It is one of the first narratives to feature and explore paradoxes as one of the main plot points. In the story a student named Bob is confronted by various individuals who appear from a portal. It later turns out that all of them are actually Bob himself but from various points from the future. About the difficulty of writing but also understanding such an interwoven story Gleick states that: "It's all well and good to talk about Bob Number One and Bob Number Two and so on, but the diligent narrator finds language ill equipped to keep everyone sorted. […] Suddenly English doesn't have enough pronouns" (82). The protagonist, Bob Number One, eventually experiences all of the events from the novella but from various perspectives of the men that first visited him. In the end it turns out that he is the one that set the motions for the entire narrative by visiting himself in the first place, which constitutes another variation of the causal loop paradox, called the predestination paradox, which is also commonly used in time travel stories. The predestination paradox is not an entirely new invention, it has a history outside time travel. As Gleick states, "In a way, of course, the predestination paradox predates time travel by several millennia. Laius, hoping to defy the prophecy of his own murder, leaves baby Oedipus in the wilderness to die. Tragically, his plan backfires. The idea of the self-fulfilling prophecy is ancient…" (Gleick 186). Heinlein himself would write another paradox filled story which would bring him even more praise than his previous work. The 1958 short story "All You Zombies" features an even more complex narrative. In it the main character turns out to be his own father, mother and various more characters the protagonist meets along the way. The main theme of the story is the inevitability of the past. The story also heavily deals with the predestination paradox. The introduction of paradoxes did not have a negative effect for science fiction authors writing about time travel. On the contrary, it could be argued that it enabled them to get more creative in their storytelling. Paradoxes have since become one of the staples of time travel, and they can be seen as an advantage rather than a hindrance. One of the greatest science fiction writers ever, Issac Asimov, saw the paradoxes as proof that time travel to the past is not possible: "To my way of thinking it is precisely because time travel involves such fascinating paradoxes that we can conclude, even in the absence of other evidence, that time travel is impossible" (qtd. in Nahin, *Time Machine Tales* 12)

Having in mind the rich history of time travel fiction and its connection to science, as well as the paradoxes of time travel, it is time to shift the focus to the two landmark works that helped time travel narratives gain prominence and credibility. Both of these works were highly innovative for their time and they remain at the forefront of the science fiction narratives reimagining time travel.

4. *THE TIME MACHINE* – STATIC SPACE AND INCONSEQUENTIAL TIME TRAVEL

After Wells published his seminal novella *The Time Machine*, the titular machine became one of the most recognizable motifs in science fiction. The story is set in Victorian England, and is written as an embedded narrative, where the narrator, alongside with other unnamed guests, listens to the story of the protagonist who is simply dubbed The Time Traveller. He starts up a debate about the fourth dimension – time. He shows his guests a model of a machine that can take a person through time. The Time Traveller recounts his journey to his guests. When he first tested the machine, he realized it had taken him several hours in the future. After that he keeps going. The environment around him keeps changing as the years rush by. He eventually ends up in the year AD 802,701. There he first encounters the Eloi, a childlike species who lead a carefree and joyous life on the surface. The Traveller makes a hypothesis that they live in a kind of pastoral communism. However, after he spends some time there, he soon becomes aware of the Morlocks, who are represented as a troglodyte species that live underground, and that are the adversaries to the peaceful and passive Eloi. Over time he becomes aware of the power dynamics of this distant future. He realizes that Morlocks are not subjugated to the Eloi, but that they are in fact eating them. Even though they are living underground they are, it seems, fully in control and have become cannibalistic predators.

The Time Traveller faces various difficulties in the time he spends in the future. He takes a liking to Weena with whom he spends his time. The Morlocks are a constant threat and they even steal the time machine from the Traveller. Weena dies in confrontation with the Morlocks, and after that the Time Traveller is lured into an underground-like structure where they hid the time machine. He manages to enter the machine and use it to escape the Morlocks. He ventures further in the future about 30 million years where he sees the gradual decay of Earth. He ventures deep into the future, effectively witnessing the end of the world. After that he travels back in time to his house in Richmond, only a few hours after he departed. He tells his story to an amazed audience, and offers flowers that he got from Weena, as evidence of his adventures. The next day the Time Traveller prepares for another journey, but as the narrator reveals in the end, that three years later, he has still not returned from his adventure.

What makes Wells' story a milestone in time travel fiction, apart from the popularization and coinage of the term "time machine", is the fact that his protagonist purposefully constructs the time machine and his invention is the result of research and scientific discovery. Tattersdil remarks that

> [p]revious visions of the future had relied on dreams, unexplained cryostasis, or mystical teleportation in order to move people, typically somewhat to their surprise, between time periods. One of *The Time Machine*'s innovations, then, was that it bestowed temporal agency on its voyaging protagonist, a character who is never referred to as anything other than "The Time Traveller." (528)

Tattersdil further accentuates the fact that the novella is the first to represent time travel as a result of planning, rather than an accident: "Wells's was the first narrative wherein time travel is the result of a deliberate process of research and experiment created from a hypothetically reasoned theory about the world" (532). The Time Traveller is not presented as a "mad scientist" type, popularized in novels such as Mary Shelley's *Frankenstein* or even Wells' own *The Island of Doctor Moreau*. On the contrary, he is developed as a trustworthy and competent scientist, and this is further emphasized in the weekly gatherings of his peers where they have various intellectual discussions. The Time Traveller first journeys a couple of hours in the future, but then keeps going. He is able to see his house disappear and over time, the city around him losses all its features, until eventually he arrives to AD 802,701. It is significant that the Traveller experiences the rapid change around him. His vessel stays in place and he is able to gaze at the change that happens through the millennia. The space remains static, but time moves rapidly. Ruddick states that

> it should be remembered that one of the less obvious but striking elements of *The Time Machine* is its strict unity of place. That is to say, the area around the White Sphinx is the same location as the beach where the last creature is hopping about, and both are in the same location as the comfortable Richmond of February 1894, for the time machine has the (frankly miraculous) ability to travel in time without moving in space. This uncanny unity of place greatly strengthens the complex temporal theme and adds to the horror of (and the dinner-guests' resistance to) the Time Traveller's narrative. (344)

The Time Traveller naturally tries to draw parallels between the Eloi and the Morlocks and the class divisions that he encounters in his everyday life. As Cheng points out:

> Throughout his various adventures in time, Wells's original Time Traveller was explicitly retrospective in his social commentary. His encounters with the Eloi and the Morlocks inspired him to hypothesize and then revise his opinions about the implications of late nineteenth-century social concerns, specifically socialism, communism, and the division of labor and wealth. His conclusion ultimately, however, neither argued nor assessed their relative merits. (197)

Wells uses his narrative as a vehicle for various scientific theories. His treatment and depiction of the degenerative state of the Eloi and Morlocks acts like a homage to the works of Darwin, as well as T. H. Huxley. This reliance on science and scientifical thinking is further supported by the Traveller himself, but also the guests that frequent his dinner parties. It is interesting that Wells chooses such a distant point in the future, and one could assume that there should not be any recognizable and relatable elements for the contemporary reader to latch on. Even though he uses the Eloi and Morlocks to make parallels between the class divisions of his own Victorian England society, it could also be argued that such a distant and almost atemporal time could be used to highlight many universal problems and issues related to mankind. This atemporality is further established by the fact that the Eloi do not have a way of measuring time, but rely on nature, which is also pointed out by Tattersdil:

> The Eloi's life patterns are governed not by calendars and clocks but by the moon, the waning and waxing of which increases and decreases the likelihood of a Morlock attack. Periodicity has regressed to natural rhythms, and the Time Traveller turns to these for reassurance when he finds himself feeling isolated in the blank time of this uncomfortable future. (531)

Even though the Eloi and Morlocks invite the reader to make an allegorical interpretation and to compare the two races to the Victorian world, the parallels are never clearcut and straightforward. It seems that Wells aimed for a more universal reading of the text, rather than it being dependent on the Victorian society. Parrinder states that "Wells […] was able from the start of his career to profit from the translations of his works and to exert control over them" (3) and that because of that "[t]he fame of Wells's early science fiction spread very quickly to other countries" (6). Gomel also argues that the straightforward allegory of the Victorian England is destabilized by Wells himself:

> An allegory presupposes a stable system of correspondences that enables a consistent decoding of the text. But in *The Time Machine* the allegorical correspondence is

> destabilized twice: by the enormous temporal distance between the late nineteenth century and the world of AD 802,701; and by the multiple possibilities of their connection. (342)

The Time Machine can also be read as a critique of the concept of utopia. It was written 10 years before Wells' *A Modern Utopia*. When his hero first arrives in the year 802,701 AD it appears to be an idyllic world, however the more time he spends there it becomes apparent that things are not as they first appeared:

> *The Time Machine* is frequently read as an evolutionary fable, a nightmare of the possibility of human degeneration. One of the most disturbing things about 802,701 AD, the year in which the Time Traveller finds himself, is that there are no books; everything learned and written by civilized society has proved transitory. (Tattersdil 530)

Cheng recognizes the social critic that Wells tries to convey through his portrayal of the Eloi as he claims that "technological progress had so perfected the comforts of people's lives that they had forgotten the significance of work and the struggle to live" (197).

The narrative also raises questions of free will and determinism. Even though he travels to the future and not the past, it seems that time is a straight and unchanging line, and if so, then the future also is already determined. Gomel writes that determinism "implies that there is only one "true" narrative of history, and thus the seeming open-endedness of the future is an illusion. Since the possibility of choice between several future alternatives is effectively foreclosed, narrative agency falls apart" (335). Even though the Traveller has a time machine, there is never a feeling that he could change anything. Certainly, his actions in the future have no repercussions in his present, but that may be disrupted by the fact that he brings flowers from the future, which act as a proof that he indeed made the journey. There is no mention or hint of time paradoxes even though he certainly has influenced the future in some way. However, in the grand scheme of things, which Wells is concerned about, his journey is just a footnote in the inevitable end of the world. In the end of the novella as he departs for one more journey it is not certain where, or rather when, he will go. Cheng remarks:

> His perspective on progress and humanity, albeit long-term, was pessimistic. If time formed a line that could be traveled, human history and progress followed an arc reaching a height from which it must inevitably fall. Human history was not the full extent of natural history, however. The Time Traveller continued forward into the future to explore the remaining history of a posthuman world. (Cheng 197)

Wells extensively plays with time and the passage of time. Ruddick highlights three time-scales depicted in the narrative: "the historical, the evolutionary (or geological), and the astronomical." (339). He states that "[t]hese three time-scales correspond to the tripartite temporal structure of the work: A.D. 1894-97 (the external narrative); A.D. 802,701 (the world of the Eloi and Morlocks); and more than thirty million years thereafter ("The Further Vision")" (Ruddick 339). The dinner guests, like the Psychologist, the Medical Man, the Journalist, act like the representatives of their respective professions. However, despite them being intellectuals, the concept of the fourth dimension and time travel proved to be too much for some of them, as Ruddick points out: "Indeed, the dinner-guests imagine that historical time is the only kind of time in the universe, or at least the only one that affects their lives; that is why the more unimaginative of them dismiss the Time Traveller's tale of the future as incredible" (340). After Wells leaves the frame narrative and focuses on the journey to the future and the land of the Eloi and Morlocks, "historical time rapidly dissolves […] and an underlying time scale, evolutionary (or geological) time, supersedes it" (Ruddick 342). Historical time here is disrupted by the fact that there is no way of timekeeping. There are no calendars or any form of writing. It appears that "civilization" has regressed to the point where time does not play a central role.

As The Traveller continues his journey beyond the world of the Eloi and the Morlcoks, he journeys to a time where the Earth stops rotating on its axis: "The alterations of day and night grew slower and slower, and so did the passage of the sun across the sky, until they seemed to stretch through centuries. At last, a steady twilight brooded over the earth" (Wells 65). It is interesting that Wells decides to show the reader the end of the world from this perspective. Ruddick remarks that

> [i]n "The Further Vision," evolutionary time has itself been superseded by yet another time-scale, that of astronomical time […] The section set in the world thirty million years in the future is short, because once the effects upon the earth of astronomical change have been described […], there is nothing more to say: the plot, that characteristically human superimposition of a temporal structure on randomness, is over. Wells offers a vision of global extinction, taking us to a point beyond which human narrative cannot go. (344)

These segments where The Time Traveller is in his machine and he goes through time, only add to the overwhelming feeling that he only acts as the observer of the future and not an active factor that can influence things. There is a hint of fatalism, as if it is implied that no matter what

happens and how the future unfolds it ultimately does not matter as the world will end regardless. This leaves the narrative, or rather the timeline feeling straightforward and unwavering with no potential of change, firmly rooted in determinism.

5. "A SOUND OF THUNDER" – THE BUTTERFLY EFFECT AND THE CONSEQUENCES OF TIME TRAVEL

The impact that Ray Bradbury's story had on the development of time travel narratives, but also science fiction in general, cannot be overstated. Bradbury was influential in the 1940s and 1950s with his work being published in many SF magazines. His reputation helped these magazines to establish themselves but also gain prominence. His lasting legacy and continued importance is only cemented by the fact that his short story "A Sound of Thunder" is "the most reprinted sf story from the 1950s" (Ashley 3). With "A Sound of Thunder" Bradbury introduces the concept of the butterfly effect, which will have a significant impact on the way time travel stories approach their narratives. Cheng asserts that

> Bradbury's story signaled a new mode for late twentieth-century time-travel stories that continued into the twenty-first century. Their subjects remained time and history, and their protagonists sometimes still traveled through time. However, if they explored the extent of time's dimension, it was not to follow a single historical line but to trace several alternative timelines and to consider not their possibilities but their consequences. This new mode of imagining time travel expressed the concerns of its historical times. (Cheng 203)

The story of "A Sound of Thunder" takes place in 2055, where time travel has been around for some time, and is being used for commercial purposes. The protagonist, Eckels, decides to visit the past through a company called Time Safari which allows rich tourists to go back in time and hunt extinct species. He travels with a group to the past to kill a Tyrannosaurus Rex. There are strict rules on how to behave in the past and the tourist must always stay within a designated path. After a panic ensues the protagonist steps off the path, and there is a lot of commotion. The team is able to return to the ship and they travel back to the present only to realize that there are subtle but very noticeable changes in the present. After which Eckels discovers that he has stepped on a butterfly when he went of the path.

"A Sound of Thunder" is relatively concise but it brings forth what will become one of the important staples of time travel fiction, the causality of interfering with the past. The butterfly effect has since become one of the most important factors of time travel fiction as well as chaos theory. "A Sound of Thunder" has only retroactively been used as an example of the butterfly effect. In chaos theory, it refers to the fact that even a small change like a flap of a

butterfly's wings can cause a tornado on the other side of the Earth. It is significant that Bradbury's concept of the butterfly effect predates chaos theory for nearly a decade. Peter Dizikes form MTI describes the phenomenon as "small changes [that] can have large consequences." The name came "after Lorenz suggested that the flap of a butterfly's wings might ultimately cause a tornado". Exploring the connection between "A Sound of Thunder" and the butterfly effect Hoffman states that:

> Dr. Hilborn tracked down how, where, and when the term the butterfly effect was conceived in the 1970s. First, Dr. Lorenz hadn't heard of "A Sound of Thunder" before Dr. Hilborn informed him of the story. In fact, Dr. Lorenz had used the movement of a seagull's wings to effect change as his metaphor. (241)

Not only that, Hoffman argues that from today's perspective the concept seems commonplace; however when it first appeared it was a revolutionary way of thinking. Also, since the short story predates Dr. Lorenz's theory, it could certainly be argued that the concept was solely Bradbury's idea:

> It's a notion that has entered into our lexicon, but it was a fresh concept and a stunning hypothesis to suggest such a small change could be so meaningful. It appears that Dr. Lorenz was not consciously affected by the story, but due to the timing of "A Sound of Thunder," we can be certain that Ray Bradbury's theory of cause and effect and what it could mean to our world was his and his alone. (Hoffman 242)

Later this concept received widespread application in various fields, and consequently it also was applied in time travel fiction, as any minor change in the past can have severe ramifications in the future. The narrative also reinforces the idea that in our everyday life every action has a consequence, which may seem small at first but could have significant effects later on. Time travel here is used to show this cause and effect over a period of thousands of years, and what time travel enables here is to see the results almost simultaneously when Eckels returns to the present day. Hoffman asserts that

> "A Sound of Thunder" makes it clear that each of our acts creates a consequence, and when those acts are destructive to the species with whom we share the planet, the results can be dire. The guides at Time Safari, Inc., are well aware of the dangers small changes in the past can make to the future. (240)

The story is set in a future where time travel has been invented, but also commercialized and commodified. The company offers time travel safari to the Jurassic era, where in controlled conditions, people can go and hunt dinosaurs. Just like *The Time Machine* was not the first to feature a machine for travel, "A Sound of Thunder" was not the first to use the concept of time tourism, but it was the one to popularize it. Nahin writes about the appeal of time tourism:

> The tourist trade is a booming business in science fiction, with dinosaur hunting at the top of the list. There are many such tales, including the cerebral stories in L. Sprague de Camp's short-story collection *Rivers of Time*, starting with the classic "A Gun for Dinosaur." […] Historical tours to the great events of the past are also an entertaining use of time travel. (8)

Tourism enters science fiction in the first half of the 20th century, just as the tourist industry was on the rise thanks to new modes of transportation. Combining travelling and time travelling seemed like a logical step for SF writers. Cheng maintains that

> [w]hat made time travel compelling was where—or more properly when— the time travelers went. While automobiles, airplanes, and other new forms of transportation had entered the public imagination at the turn of the century, tourism and travel industries based on them developed in the interwar period. (192)

Cheng remarks that all time travel stories are in a way connected to this tourist aspect. He argues that all time travel is basically a form of tourism within the realm of science fiction: "Time travel in this sense constituted a form of tourism within science fiction. Time machines offered, literally, temporal mobility and allowed readers to explore other times, particularly to consider social differences" (192). The protagonist of the story Eckels embarks on one of those trips. By going back people are needlessly endangering the present. This is an example of the commodification of the past, and its use for time travel tourism. The guides that take the tourists through the past are all well prepared and careful. They are aware that they should not be there and they try to convey that to the people that decide to visit the past. That is why they have strict routes where people should walk as well as a prepared scenario in which a specific dinosaur is shot because they know that it will soon die regardless of their actions. This ensures that they are not interfering, but are only expediting an already written fate. As for the title Cheng writes:

> While the story's titular "sound of thunder" was the noise the Tyrannosaur made living and dying, it was also the sound at the story's end, when Travis readied and raised his

> weapon, presumably to make good his promise to kill Eckels should his ineptitude change past and present. As such it also expressed metaphorically the force of history, of past events' cascading effect rushing to meet the present like the sound of thunder rushes to fill the air to signal a lightning strike. (203)

As Cheng points out, "A Sound of Thunder" was influential because of its representation of time travel as a delicate and ultimately dangerous activity which can have grave results. By altering the conditions, the way they were not supposed to, the "tourists" unintentionally trigger a sort of split in the timeline, which leads to an entirely new present. The way the story presents the change at first seems insignificant but gradually becomes more and more eerie: "The room was there as they had left it. But not the same as they had left it. The same man sat behind the same desk. But the same man did not quite sit behind the same desk" (Bradbury 158). Not only that everything about "this" present felt different: "Eckels stood smelling of the air, and there was a thing to the air, a chemical taint so subtle, so slight, that only a faint cry of his subliminal senses warned him it was there. The colors, white, gray, blue, orange, in the wall, in the furniture, in the sky beyond the window, were... were..." (Bradbury 159). Eckels slowly starts to realize that the changes must be all encompassing, and not only confined to that room: "Beyond this room, beyond this wall, beyond this man who was not quite the same man seated at this desk that was not quite the same desk... lay an entire world of streets and people. What sort of world it was now, there was no telling" (Bradbury 159). The most telling and obvious change was the sign that now was still partially understandable but significantly different than before they left:

> TYME SEFARI INC.
>
> SEFARIS TU ANY YEER EN THE PAST.
>
> YU NAIM THE ANIMALL.
>
> WEE TAEK YOU THAIR.
>
> YU SHOOT ITT. (Bradbury 159)

Here unlike in Wells, we realize that the timeline is not fixed and that every action has its consequences. As Wolfe concludes:

> The moral of many time travel tales, of course, is that history can't be repaired by visiting the past; it can only be damaged; witness Bradbury's famous proto-chaos-theory butterfly in "A Sound of Thunder" (1954), which gets squashed by a time traveler from the future to disastrous effect. (11)

Unlike *The Time Machine*, “A Sound of Thunder” feels more open-ended, the future is malleable to change. The timeline feels more fragile, and that feeling is cemented at the end of the story as the characters become aware of the consequences their actions in the past had on the present. The moment when Eckels realizes what caused all of this is especially haunting. Bradbury gives a final haunting image of Eckels as he discovers the butterfly that he squashed with his boot:

> It fell to the floor, an exquisite thing, a small thing that could upset balances and knock down a line of small dominoes and then big dominoes and then gigantic dominoes, all down the years across Time. […] Killing one butterfly couldn't be that important! Could it? (160)

6. CONCLUSION

Authors have over the years used time travel to tell a wide array of interesting and thought-provoking stories. When exploring the future, the intention is often to shed light and comment on the tendencies of the present that can lead to various future outcomes. Visiting the past is also something that is endlessly fascinating, whether it is revisiting one's own personal history or whether it is witnessing and even preventing historical events. However, time traveling raises many questions, which are incorporated and explored through time travel paradoxes. These paradoxes provide a great exercise for debate and logical and philosophical discussion. Also, when they are done right and woven carefully, they have great entertainment value.

Authors like H. G. Wells and Ray Bradbury are highly important figures within science fiction, and especially in the genre of time travel fiction. They used and popularized concepts which would become recognizable tropes of the genre. In his genre-defining novella, Wells incorporates several scientific theories from scientists like C. H. Hinton, Darwin, Huxley and others. His narrative acts like a cautionary tale of the potential degeneration, or rather devolution of humankind. Furthermore, he deconstructs the concept of time, removing it from the historical framework. This allows him to take his readers to the far, unimaginable future. By keeping the space static, he is able to juxtapose these seemingly incomparable points in time. In the end, the Traveller's, as well as the reader's perception of time is bound to change, or rather evolve.

Bradbury's short story also signifies the turning point for time travel stories. The introduction of the butterfly effect and the depiction of time travelling tourists were among the more important milestones of time travel fiction. Also, his focus on the consequences of time travel opened the door for other authors to explore and expand upon. The haunting return of his protagonist to the changed present remains memorable, and stands as a warning of the fragility of time, and the dangers that time travel potentially could cause.

What is most fascinating about science fiction, and therefore time travel stories as well, are the instances when the stories prove to be visionary or rather eerily prophetic. Today, with the internet, time travel stories are more accessible than ever before. Not only that, new stories are being written constantly, and are present in various media formats from literature, films,

TV, video games, etc. It is safe to say that the genre of time travel fiction has a rich history and even brighter future.

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ABSTRACT

The thesis discusses the phenomenon of time travel and its usage in narratives. It covers the evolution of time travel stories, from the unexplained and coincidental time slips to the introduction of the time machine, which became one of the more recognizable tropes of science fiction in general. The ensuing discussion includes the influence that scientifical ideas and concepts had on SF authors and their work, as well as the inevitable paradoxes that arise from time travelling to the past. Through the examples of two classics of time travel fiction, H. G. Wells' *The Time Machine* and Ray Bradbury's "A Sound of Thunder", concepts like determinism, the butterfly effect and time tourism are introduced and analyzed.

Keywords: Time travel, time slip, paradoxes, *The Time Machine*, "A Sound of Thunder", the butterfly effect