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Time Travel as an Element of Literature

Klenya M. Morales Miranda

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TIME TRAVEL AS AN ELEMENT OF LITERATURE

Klenya M. Morales Miranda

An Abstract Presented to the Faculty of the Graduate School of Lindenwood
University in Partial Fulfillment of the Requirements for the
Degree of Master of Arts

2002

ABSTRACT

The purpose of this culminating project is to compile information about the evolution and development of the idea of time travel in western literature.

This endeavor offers a historical approach tracing the evolution of the idea of time travel in literature, its consideration in science, and the interaction between these two fields to create a new theme of art.

Through the analysis of different works about time travel, we will identify plot, themes, symbols and other elements that are common to this sort of literature. From these elements we will be in the position to infer the meaning that each writer desires to convey to us, and demonstrate what makes time travel literature a unique expression of contemporary art, one in which the boundaries between fantasy and reality become blurred by the achievements of the human mind.

Time travel can be viewed in literature as a search for redemption in the most obvious way that our human mind can envision: turn back time and have a second chance. The time traveler goes to a place in the past to change some event in the future or goes to the future to avoid some consequence of present conduct.

Time travel has given rise to a hero in literature whose scenario is a time that he does not correspond to: the time traveler. The reasons for the

appearance of this figure at a certain point in human history due to surrounding cultural and intellectual trends is an issue widely discussed in critical literature and elaborated in this document. It is difficult to develop and prove a hypothesis about the origin of the idea based only in literature, since there is no possible way to find out who was the first person who dreamed or thought about traveling through time; but according to all the sources consulted and the literature reviewed, time travel literature can be explained as a logical consequence of the state of western civilization beginning at the end of the nineteenth century and extending to the present day.

The project also seeks to establish the importance of the unrestrained thinking that fantasy and science fiction offer to the fields of science, by projecting scenarios that conventional logic cannot offer.

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COMMITTEE IN CHARGE OF CANDIDACY:

Professor Michael Castro, Chairperson and Advisor

Associate Professor Charlene Engleking

Adjunct Professor Harry Jackson

Dedication

To Mom and Dad
To Yenina and Thalia
To Mady and Humberto
To Uncle Ed
To Craig, Elizabeth and Donna
To all my friends

Acknowledgements

Thanks to God for all the blessings I keep receiving every day.

I would like to thank my advisor, Dr. Michael Castro, for his constant enthusiasm, guidance and patience. I am extremely grateful for his intensive proofreading of this project. I would also like to thank all my professors who encouraged me to challenge the language barrier and learn that words can make dreams come true.

Finally, I would like to thank my family and friends who were a constant source of encouragement and inspiration.

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Chapter 1

INTRODUCTION

The primary purpose of this culminating project is to compile information about the evolution and development of the idea of time travel in western literature. This addresses to the fact that little has been written that treats the subject comprehensively.

We will explore the historical antecedents of the idea of time travel, its formal appearance at the end of the nineteenth-century and its evolution to the present.

A secondary purpose of this research is to explore the possible explanations of the human desire to travel through time and the moral considerations that it implies.

The project seeks to establish the importance of the unrestrained thinking that fantasy and science fiction offer to the fields of science, by projecting scenarios that conventional logic cannot offer.

By means of the analysis of different works about time travel, we will identify some elements that are common to this kind of literature. From these elements we will be in the position to infer the hidden symbols that each writer desires to convey, making time travel literature a fine expression of art, one in which the boundaries between fantasy and reality become blurred by the achievements of the human mind.

The feasibility of time travel is not an issue of this research. Its main intention is to gather information about time travel literature and explore its elements, motivations and evolution.

Human Perception of Time

Every human being has a mental perception of time. At a psychological level, our conscious experience of time seems to be limited. We consider that the events around us, are happening, they not only exist; thus these events happen with an ordered continuity. One moment follows another; this is what conveys the difference between past, present and future. The frontier between past and future is the present. The future is constantly becoming present and immediately turning into past. The present is the moment in which we can interact with the world.

We perceive time with the senses. Therefore our perception of time could be distorted if we are deprived of the impressions from the senses. If one is isolated, one loses the sense of time. The use of alcohol or drugs such as LSD (Lysergic Acid Diethylamide) can also change our perception of time. Meditation can provoke altered states of time perception too.

Due to the human perception of time, the single idea of time travel is “impossible” at a first glance. It belongs to the field of the inconceivable. But one hundred years ago things like, airplanes, faster than sound travel, space travel to the moon and back, antibiotics, Internet or cell phones were impossibilities too, science fiction of that day. Today they are part of our daily lives. Who knows what is possible or impossible anymore?

To dream about time travel offers our imaginations a world of possibilities. People who have been ahead of their time have sometimes been accused of being travelers from a different time. Some say that humans from the future, in which time travel has been achieved, come back in time to visit us and are responsible for the UFO phenomena. Will our race some day have such freedom of traveling in the fourth dimension?

Men have always been amazed by time and wondering if there is a way to control it. "*What if?*" is one of the most recurrent questions in our minds. "If I could turn back time", "If only..." "Please God make it didn't happen", "I wish I had a second chance", "I don't want today to go away", "If I was 18 again". We want to avoid mistakes, to make things over. So many regrets, so many things we would have done different. We want to be young again knowing what we know now. We want shortcuts; we want "one more try". We long for different realities than those that we have constructed during the normal course of our lives. From these natural desires, as an escape to our reality, arises the wish of traveling in time: "One reason that time travel is so fascinating is that we have such a great desire to do it" (Gött xi).

Cultures and Their Concept of Time

Just until recently, people told time in terms of space and movement. Then practical clocks began time measure. The western calendar took several centuries to be unified and the world still does not have one single parameter of time because time means different things to different groups of people.

Today, poets, philosophers and scientists define time as the measure of change. "Time...can be chopped up into three parts: past, present and future. The present now is supposed to be the fleeting moment of true reality, with the past banished to history and the future still hazy and unformed" (Davies 13). It can be said that the notion of time was born as an invention of humans to measure the last of things and to locate events that occur to them and around them. We need to know when the events are taking place, so we do not miss them, so we can find them and know when to expect them again if it is the case.

The cultural view of time extends from biological rhythms to historical ones. In ancient times, cultures associated time with natural cycles; change, seasons, movement of stars, solar or lunar cycles or the length of life. In our bodies, corresponding with the cycles of light and darkness is the circadian rhythm, which is linked with physiological processes. As a species, we are adapted to the length of the solar day and the four seasons.

From far-northwest Greenland to Patagonia, people hail the new moon for different reasons. Eskimos spread a feast, their sorcerers perform, and they extinguish lamps and exchange women. African Bushmen chant prayers. Of all the coincidences of personal biological times with those of the cosmos, the parallel between the 29.5 day lunar cycle with the average menstrual cycle of women is one of the more intriguing. This "lunar connection" with fertility has been a nearly universal theme of folklore and ritual. This is one of the reasons why goddess religions flourished (Boorstein n.p.).

Indo-European tribes of ancient times had a cyclic view of history, believing that history goes in circles—which is an extended idea in our day, as we shall see (Europe 3 n.p.) Thus, for them there was no beginning and no end to history. There are just different civilizations that rise and fall in an eternal circle. This explains the cycle of rebirth as a cornerstone of their beliefs.

The Semites had a linear view of history, which is still the basis of Jewish and Christian traditions. They saw history as an ongoing line, which begins with God creating the world in the Genesis, and that will end with the Judgment Day with the Apocalypse (Europe 3 n.p.).

There are numerous distinctive elements regarding the nature of time in the indigenous narratives of Mesoamerica (Regions in Mexico and Central America where great Indian civilizations developed); one of those is the Mesoamerican concept of time. It was also cyclical and seems to have been based on the rhythms of nature and the creation and destruction of successive worlds in a struggle between the gods or between the gods and man; this is typical of the creation myths of peoples like the Mayas and Aztecs (Christensen n.p.).

Most of their indigenous stories place a strong emphasis on chronology, but this is not the continuous, progressive time of the European tradition. Rather, time was composed of several interlaced cycles. “The Pre-Columbian myths occur in an ‘other’ time, in a ‘non-time,’ in a ‘reality apart,’ which symbols represent, and rites re-actualize permanently. Origins become contemporary, and the primordial situation is embodied, so that life is re-generated”(Christensen n.p.).

This demonstrates that the concepts of time are inherent to the different cultures of the world. Still today, the native Australians have a concept of Great Time in which things do not happen in chronological order, as they do commonly in time. In their concept, all things happen at once; and according to Priestley, this concept may be older than the idea of travel to the future itself (Priestley 138).

Philosophy and Time

Time used to be strictly a philosophical problem and as such, it has played a major role in the history of philosophy. Many answers had been offered to respond the question "what is time?"

The most antique philosophies had analyzed the problem of time and depending on their perception and experience, they have shaped the bases of the human behavior that they propose to their followers around the world.

The Indian concept of time is very different from what the Western mind regards as intuitively obvious. In Indian thought, time, like other phenomena, is conceived statically rather than dynamically. It is recognized that the things of this world are always moving and changing. But the substance of things is seen as basically unchanging, its underlying reality unaffected by the ceaseless flux. The Indians do not concede that we never step into the same river twice; they focus not to the flow of water but in the river itself, the unchanging universal. Indian thought places a high value on universality, and the connection between this, and the static conception of phenomena is not random. "The one remains, the many change and flee" (Nakamura, *India* n.p.).

This conception of time as an unchangeable fact is still dominant and perceivable in Indian thought and language. Indian philosophers in general replace the concept of Becoming by three aspects of temporal existence: Appearance, Extinction, and Continuance. All three states are clearly conceived as static. In the classical Indian languages, there are no words that correspond to the concept "to become." The verb formed from the root *bhu* can be translated as both "to become" and "to exist." These two aspects of perceived reality, conceived as antithetical by the Western mind, are not even distinguished. "To become" is merely an aspect of "to exist." In Indian thought, to become is to be born. To express the idea of change at all, Indians had to make shift with the words *anyatha bhavati* or *anyathabhava*- "being otherwise." Becoming is expressed in terms of being, dynamic is seen as a phase of static (Ess n.p.).

Buddhism visualizes this time and this moment, as the only reality, everything else—past and future—doesn't have a real existence. Therefore, the only place where the behavior can be appropriate is here and now. Whenever we are acting in the present we are part of the totality or Dharma. If we want to know how time works we should accept that we live in a succession of moments and every moment is complete in itself, but we think in the existence here and now as linked to the past and directed to the future, because it is the only way to think about it. Every moment is free and independent from the future and from the past. There is a well-known section in Nagarjuna's (2nd century B.C.) *Mulamadhyamakakarika* that analyzes time and leads to the modern interpretation, "When asked, 'is a before-extreme evident?' the great Muni said,

'it is not.' Samsara has no beginning, no end; it has no before, no after...If time depended on things, where would time which is a non-thing exist? If there were no things at all, where would a view of time exist?" (Nagarjuna n.p.) Time is a consequence of the existence of the universe.

These verses had been interpreted by Jay Garfield Ph.D., "Time is thus merely a dependent set of relations, and not an entity in its own right, and certainly not the inherently existent vessel of existence it might appear to be" (Garfield 257). From here one of the most important notions of Buddhism that all the simultaneous events that take place for an observer at one time define the present moment. So the present is relative to our frame of reference: "Since time intervals depend directly upon the relationship between the object and the observer, they are essentially relational. We cannot consider time independent of a particular reference frame. In Middle Way language, it lacks independent existence" (Mansfield n.p.).

Japanese Buddhism emphasizes the transience of the phenomenal world. The Japanese disposition is to lay a greater emphasis upon sensible, concrete events, intuitively apprehended, than upon universal events. This way of thinking, far from positing a changeless Absolute, regards the phenomenal world itself as the Absolute and explicitly rejects the recognition of any ultimate reality beyond or above it. The post-Meiji philosophers (1868-1930s) support the thesis that the "the phenomenal is actually the real" has influenced deeply the Japanese tradition (Nakamura, *Japan* n.p.).

The Zen master Dogen Zenji (1200-1253) stresses the primacy of the phenomenal world: "We ought to love and respect this life and this body, since it is through this life and this body that we have the opportunity to practice the Law and make known the power of the Buddha. Accordingly, righteous practice for one day is the Seed of Buddhahood, of the righteous action of All the Buddhas"(Nakamura, Japan n.p.).

Was in the midst of the polytheistic Greek culture where some of the influential minds of all time offered us their visions of time. Although each of the pre-Socratics (Socrates lived circa 469-399 BC) had his own theories about cosmology, those who distinguished themselves by their contributions to the Greeks' ability to understand and measure time were Thales of Miletus (624ca-546 BC), Anaximander of Miletus (610ca. 546 BC), the followers of Pythagoras (fl. 530 BC), and Anaxagoras of Clazomenae (500-428 BC)

Their philosophies of time tend to be cyclical, and it is consistent with the notion that time and cosmological phenomena can be observed as operating in cycles. Anaximander's philosophy gave time a quantifiable, hence measurable dynamic. His notions of astronomy, most notably the roundness of the globe, enabled him to attempt such calculation. Herodotus of Halicarnassus (484ca.-432ca. BC) indicated in his writings that the Greek and Egyptian societies had a strong sense of the relationship between earthly time and the heavens. Plato of Athens (428-348 BC), said time is the circular motion of the heavens. In Plato's *Timeus*, he acknowledges "the sun and moon and five other stars, which bear the appellation of 'planets,' came into existence for the determining and preserving of

the numbers of Time.” (Plato n.p.) According to Plato, “A month, has passed when the moon, having completed her own orbit, overtakes the sun. And a year, when the sun has completed its own orbit” (Plato n.p.). Aristotle of Stagira (384-322 BC) said that time is not motion but the measure of motion: “number of movement in respect of the before and after, and is continuous... In respect of size, there is no minimum; for every line is divided ad infinitum. Hence it is so with time” (Aristotle, *Physics* n.p.). For him time is like a circle, an infinite structure that has no beginning or end and so is endless in both directions.

The roots of Islam and Christianity were based in the Semitic linear view of history, in which they saw the human experience as an ongoing line which begins with God creating the world and that will end with the Judgment Day. For this reason they rejected the Greeks circularity: “Whatever be its objectivity, time possesses three inalienable properties: First, it is irreversible; the linking of its parts, or the order of their succession, cannot be changed; past time does not come back” (*Catholic Encyclopedia* n. p.). This view of time is also the base of the free will, without which the very bases of Christianity would shake.

The Catholic Church, as an important contributor and sometimes a censor of human knowledge, pronounced itself about time, using points of view like St. Augustine’s (354-430) in his *Confessions*, “What then is time? If no one asks me, I know; if I want to explain it to a questioner, I don’t know” and Thomas Aquinas (1225-1274) “time itself was made by God”(*Catholic Encyclopedia*, n.p.).

The Baroque philosophers added more to the discussion about time. Gassendi (1592-1655) and the ancient Greek Materialists, regard time as a being

sui generis, independent of all created things, and capable of surviving the destruction of them all. John Locke (1632-1704) considers time as a part of infinite duration, expressed by periodic measures such as the revolution of the Earth around the sun. Some philosophers represented time as something that has complete reality outside our minds. For Leibniz (1646-1716) time is the order of successions or a relation between things that follow one another; but if these things are real, the mind perceives them under the form of instants between which it establishes a relation that is purely mental. For him, time cannot exist independent from the events it measures, locating them before or after each other. (*Encyclopedia of Philosophy* n.p.).

Between these two extreme classes of opinions, lies the system proposed by the majority of the Scholastics, ancient and modern. For them the concept of time is partly subjective, partly objective. It becomes concrete in continuous, notably in local, movement; but movement becomes time only with the intervention of our intelligence. In the seventeenth century, Isaac Barrow (1630-1677) rejected Aristotle's linkage between time and change, or between instants and events. He said that time is something which exists independently of motion and which existed even before God's creation. Isaac Newton (1643-1727) who was his student argued that time and space are an infinitely large container for all events, and the container exists regardless the existence of events. He considered that space and time are not material substances, but are like substances. (*Encyclopedia of Philosophy* n.p.).

Immanuel Kant (1724-1804) views time as a form that the mind projects upon the external things-in-themselves. The perception of time and space is innate to the human beings, not something learned. For Kant time and space belong to the human condition. "Time and space are first and foremost modes of perception and not attributes of the physical world" (Gaardner 326). Through these modes of intuition, we apprehend internal and external phenomena as simultaneous or successive, anterior or posterior, to one another, submitting them to necessary, and universal time-judgments. He viewed time with the structure of the infinite mathematical line. According to Kant we have no direct perception of time, we just have the ability to experience things and events in time.

For Newton time was absolute and he identified it with the eternity of God, he saw time as straight line, a result of God's existence. Newton believed there was just one time and it was exactly the same time in every part of the universe and for everybody. In Albert Einstein's (1879-1955) new view of the world, two hundred years later, Newton's notions of time's absolute nature were challenged. There is not absolute now. Time is relative.

Philosophers keep on discussing today about the fact of the present existing objectively or being simply a psychological invention. Hans Reichenbach (1891-1953) and Gerald J. Whitrow defended a real present. Reichenbach asserts that the reality of space and time is an unquestionable result of the epistemological analysis of the theory of relativity (*Encyclopedia of Philosophy n.p.*). The reality of space and time does not imply the concept of an absolute space and time. Space and time are relational concepts and we can study

their properties because of the existence of physical objects. Reichenbach also emphasizes the causal theory of space and time: causality is the basis of both philosophical and physical theory of space and time. Between those who oppose this position, are Alfred J. Ayer and Adolf Grunbaum.

Time and Science

Today the relativity of time is a widely accepted theory and the physicists have almost taken away the problem of time from the hands of philosophy or at least they have become a little more philosophic themselves. Kurt Godel, Kip Thorne, and Stephen Hawking have explored the possibility of time travel to the past. Physicists who are investigating time travel are not currently building time machines indeed, but they are exploring if it is possible in principle to build one, under the laws of physics (Gött xii). Moreover, amazingly, some interpretations of the weirdness of the quantum world now are suggesting that time travel is possible, at least in theory.

J. Richard Gött III has suggested that the entire cosmos may be a huge time machine, by means of which the universe would be able to create itself. The universe could loop back in time and bring itself into existence in a Big Bang without the need of a mysterious origin from nothing. In that way, the universe, in a sense, will always have existed, even though time itself remains finite in the past. So, isn't this conclusion by one of the most notable scientists of our time, who is supposed to understand the universe better than the rest of the human beings, very consistent with the view that the Indo-European cultures have been portraying the world since long time ago?

In 1983, Physics Nobel Prize Winner, D. T. Lee proposed the existence of an indivisible measure of time. Some propose the existence of a discreet amount of time that will be like an atom of time, the cronon: 10^{-23} seconds. Some scientists like Lee Smolin and Stuart Kauffman, are talking about a new way to view the universe without time. They say that time is not a fundamental aspect of the world. In the quantum level, where everything is uncertain, time does not have a meaning. Since time is not absolute—therefore there is no such thing as uniform time—the physics processes cannot depend on time, because one will never know which one to choose. Stephen Hawking (1942) says that the laws of science do not distinguish between the forward and backward directions of time:

The increase of disorder or entropy with time is one example of what is called an arrow of time, something that distinguishes the past from the future, giving a direction to time. There are at least three different arrows of time. First, there is the thermodynamic arrow of time, the direction of time in which disorder or entropy increases. Then there is the psychological arrow of time. This is the direction in which we feel time passes, the direction in which we remember the past but not the future. Finally, there is the cosmological arrow of time. This is the direction of time in which the universe is expanding rather than contracting. (Hawking *Brief History* 149)

And the reason that, to our perception, all these arrows point in the same direction is because that is the only way in which the existence of intelligent beings can be possible. This is what Hawking calls the weak anthropic principle “We see the universe the way it is because if it were different we would not be here to observe it” (Hawking *Brief History* 199).

A technical way to define time is as the measure of movement according to an order of anteriority and posteriority (*numerous motus secundum prius et posterius*). Time implies continuity.

Literature and Time Travel

Who hasn't gone to sleep on Christmas Eve with the desire of make the time go fast so one is able to open the gifts the next morning? Sleep is the only quickly way to go forward in time, so far. Therefore, it was pretty much the first modality to express the desire to perform time travel present in literature. One just has to close one's eyes, and the next morning the new day will bring new things. The Greeks had this problem in mind. Aristotle referred in the year 350 B. C to the problem of sleep, dreams, and the future:

Further, in addition to these questions, we must also inquire what the dream is, and from what cause sleepers sometimes dream, and sometimes do not; or whether the truth is that sleepers always dream but do not always remember (their dream); and if this occurs, what its explanation is. Again, whether it is possible or not to foresee the future (in dreams), and if it be possible, in what manner (Aristotle n. p.)

We can find many cases from various countries' mythological literature telling amazing stories about long sleep as an attempt to participate in the distant future. One can find Native American, German, British, Slav, Indian, Jewish, Chinese, or Arabian versions of stories about men and women that go to

sleep and awake in the future, or will do it sometime. In the Koran, the story of the Cave is a perfect example of the portraying of this idea. Seven persecuted men entombed in A.D. 250, slept 187 years to find their faith triumphant in the Empire:

Or, do you think that the Fellows of the Cave and the Inscription were of Our wonderful signs? When the youths sought refuge in the cave, they said: Our Lord! grant us mercy from Thee, and provide for us a right course in our affair. So we prevented them from hearing in the cave for a number of years ...And thou wouldst have deemed them awake, though they were sleeping; and we turned them to the right and to the left. (*Koran Sura XVIII n. p.*)

The idea of the time sleepers has had a long history and further developments in Islam as well as in medieval Christendom. Frederick Karageorge, Barbarossa and Washington Irving's (1783-1859) Rip Van Winkle are well-known later examples.

The Seven Sleepers of Ephesus is another of many examples in western literature of the legend about men who fall asleep and years after wake up to find the world changed. It is told in Greek by Symeon Metaphrastes in his *Lives of the Saints*. The emperor Decius tried seven noble Christian young men and then gave them a short time for consideration to pagan conversion until he came back again to Ephesus. They gave their property to the poor, took a few coins only with them and went into a cave on Mount Anchilos to pray and prepare for death. Decius came back after a journey and inquired the men. They heard of Decius's return and then, as they said their last prayer in the cave before giving themselves up, fell asleep. The emperor told his soldiers to find them, and when found asleep in

the cave he ordered it to be closed up and sealed; thus, they were buried alive.

Years passed, the empire became Christian, and Theodosius reined. A rich landowner named Adolios had the Sleepers' cave opened, to use it as a cattle-stall.

Then they awakened, thinking they have slept only one night.

Bud Foote discusses many more sleep- in- time related tales and legends as in the ballad of Thomas Rymer, in which the hero spends three days with the queen of Elfland, but back on his time, he finds that three years has passed. Ogier le Danois stayed twenty years with Morgan le Fay, only to find that two hundred years had passed. The British King Herla lived three hundred years with the King of the Dwarves, and thought only three days had gone by. He also recounts the beautiful legend about a monk who, entranced with the song of a bird, let three hundred years go by in three hours.

In a Moslem story, a mare carries Mohammed into heaven. This event presumably occurred in a contraction of time. After a long visit, the prophet returns to Earth just in time to catch a jar of water the horse had kicked over before starting its ascent so the water in it was not spilled and the seat he was in was still warm.

It is said that Shihabuddin Suhrawardi (1153/5-1191) invited the Sultan of Egypt to dip his head into a bowl of water. Having done so, the Sultan found himself transported, all of a sudden, to a far-away land and time. He lived there for years, got married, had children; and then one day he jumped into the sea to take a swim-and surfaced to find himself in his original palace in Cairo, to the accompaniment of Suhrawardi. In Dante Alighieri's (1265-1321) classic work,

The Divine Comedy (1321) the action takes place in a paratime, his description of the Beyond, in the eternity of Inferno, Purgatorio and Paradiso:

Even Dante, knowing full well that in one sense the souls of the blessed are all in the timeless presence of God outside the Chinese-box system of the Ptolemaic universe, nevertheless for the purposes of his narrative has to encounter them in the various spheres and allow them to move, and talk, and react, as if they were still in space and time. (Foote 19)

France had a key role in the rising of futuristic literature. In Perrault's (1628-1703) *La Belle au Bois Dormant* (1697) (*Sleeping Beauty of the Woods*) we find an evolution of the tale of a girl that sleeps for a hundred years waiting for the Blue Prince. "The princess will pierce her hand with a spindle, but instead of dying she will only fall into a deep sleep that will last one hundred years, at the end of which the son of a king will come to awaken her." (Perrault n.p.) When she wakes up the reality that surrounds her is totally different that the world that she knew when she fall asleep by a magical enchantment.

At that time the ideological trends of the Renaissance grounded the creation of a series of utopias taking place in the future, another antecedent of time travel. In Johann Valentin Andreae's (1586-1654), *Christianopolis* (1619) the hero finds an island on which exists the ideal Christian community. Sir Francis Bacon (1561-1626) wrote *New Atlantis* in 1627 depicting a civilization that has developed a prosperous state. Tommaso Campanella's (1568-1639) *The City of the Sun* (1623) describes a city in Asia ruled by a metaphysician, with the assistance of magistrates for Power, Wisdom and Love. In his *Gulliver's Travels*

(1726) Jonathan Swift (1667-1745) used the various wonderful travels of his hero to criticize a society that he considered absurd. He even dared to prefer the companion of a horse community than to pertain to the *yahoo*'s society that disgusted him deeply. Swift used satire to dissect the individual and the values of his world taking it to a great level by means of fantasy.

In 1659 Jacques Guttin wrote the first pamphlet of fiction set in future time: *Epigone, histoire du siecle futur (Epigone, a story of the future Century)*. Another French, Louis-Sebastien Mercier (1740-1814) published in 1771 the novel *L'An 2440 (The Year 2440)*, which was the first significant futuristic book. In this novel the hero travels to the future by means of dream vision. Here for the first time a bright future was depicted in known territory instead of magical or imaginary places, as Thomas More's (1478-1535) *Utopia* (1515). But in this novel the achievements of the future consisted of political conquests more than scientific endeavors.

In 1763 Samuel Madden (1687-1765) published *The Reign of George VI, 1900-1925*. This was not a work of science fiction because it didn't prophesize or explained any future technology. It summarized European history from 1763 to 1925 in the author's politic view of the future history.

The historical romance of the future, in general terms, was not found before the nineteenth century. In 1802, futuristic fiction took another giant step through the writing of Nicolas-Edme Restif de la Bretonne (1734-1806) the first fiction writer to use a very far future scenario. In his book *Les Posthumes (The posthumous)*, he portrayed many million years of future history sketching

biological evolution and geological changes. Its achievement consisted in a structure that used a fact of the recent past—the French Revolution—from the frame of reference of the future.

Jean-Baptiste Cousin de Grainville's *Le dernier homme (The Last Man, or Omegarus and Syderia, A Romance in Futurity* 1805) was the first of the “last men” that were to populate science fiction from then on. It parallels Well's Time Traveller (1895) who would assist, by means of the Time Machine the last days of the planet. Cousin de Grainville's novel was presented combining the resources of epic, biblical mythology, apocalyptic views and novelistic features.

Technology was not an issue in this French creation.

The technological domination of the future is portrayed for the first time by Emile Souvestre's (1806-1854), *Le Monde tel qu'il sera (The world as it will be, 1846)*. “Souvestre's tour of our planet in the year 3000 inaugurates futuristic dystopias” (Alkon 63). Another Frenchman wrote the first book about an alternative history in 1836. Louis Geoffroy's (1725-1810) *Napoleon et la conquête du monde—1812 à 1832—histoire de la monarchie universelle* (1836) (*Napoleon and the conquest of the world—1812 to 1832—history of the universal monarchy*) This is the first novel about a historical *What if* big question, where the famous conqueror wins the Russian campaign, invades England and establishes a French monarchy in Europe. “Geoffroy's impossible alternative history that cannot occur in reality...a past that never was” (Alkon 64).

Albert Robida (1848-1926), French writer and great illustrator, published satiric novels parodying the future, from which we should highlight his 1883's

novel, *Le Vingtième siècle (The XX Century)*. In these stories, he depicted an absurd world overwhelmed by the future inconsistency of the society. He satirized the world created by technology.

Felix Bodin wrote *Le roman de l'avenir (The novel of the future)* in 1834, stating that the only possibility for the wonders of science to take place was in a future world.

The first precedent of time travel story was in *Dublin University Magazine* "An Anachronism, or Missing One's Coach" (1838) by an anonymous writer. In 1843 Charles Dickens (1812-1870) published his famous *Christmas Carol* in which Scrooge has the opportunity to visit his Christmas past, and the Christmas to come guided by ghosts "I am the Ghost of Christmas Past... Rise! and walk with me!" (Dickens n. p.) In this story Scrooge never attempts to change his past, even when he showed regrets about what he did, but he embraced the possibility to change his future.

In America, Edgar Allan Poe's (1809 - 1849) technophobia was a committed element of his tales of horror and fantasy: the machines were not going to save humanity. They will eventually destroy it. World catastrophes were recurrent ideas in his work. Despite of this resilient position toward the future we can find antecedents of time travel in one of his works, *Tale of the Ragged Mountains*. In this short story located in 1827, Mr. Augustus Bedloe, under Mesmer's "medical" treatments that Dr. Templeton performs to cure him, experienced an strange trip to the past in 1780 in Calcutta, during the colonial administration of Warren Hastings: "I struggled, I gasped, I died" (Edgar Allan

Poe *Tale*, n.p.) he reported and actually died in the body of a friend of Dr. Templeton, Mr. Oldeb— Bedloe backwards. Here the time traveler does not change the past. The paths that conducted him to India were immutable and Bedloe didn't even dream about doing something to change it. These primitive works about the issue of traveling to the past in time do not explore any notions of changing it.

By the end of the nineteenth century, the evolution theory and social philosophy of Darwin and Marx respectively started to influence strongly all the genres in literature and would eventually affect the development of time travel literature by giving new structure to futuristic novels.

In 1871 George Tomkyns Chesney (1830-1895) published *The Battle of Dorking*, a story about the hypothetical conquest of England in 1875 by the Germans, written with the intention to make the English people face the possibility of such event. Stories about historical speculation aroused by socialistic ideologies can also be found in Robert Grant's (1852-1940) *The King's Men* (1884) and Edmund Boisgilbert—Ignatius Donnelly—(1831-1901) *Caesar's Column* (1890). "The tale of imaginary wars, combined with ideas of the coming Machine Age and with revolutionary and utopian materials yields finally such romances as George Griffith's (1857 - 1906) *The Angel of Revolution* (1893) and its sequel *Olga Romanoff* (1894)"(Bailey 74).

Richard Jefferies (1848-1887) published his futuristic tale *After London* (1885) portraying vividly the flora and fauna of the future. After that John Ames (1845-1918) published *Last American* (1889). This short novel takes place

about a thousand years from now. It is the journal of an archaeological expedition from Persia (now called Iran) to this strange, almost mythical, land called Mehrika. All of its inhabitants died suddenly in the last half of the twentieth Century through some sort of undefined but severe climate change.

Austin Bierbower's *From Monkey to Man* (1894), a story settled in the future after our civilization has fallen, also borrowed material from the decay of capitalism and the evolution theories.

Many believe Wells' book to be the first story about a time machine, but In September 18, 1881, seven years before, Edward Page Mitchell, an editor of the *New York Sun*, published *The Clock That Went Backward*.

In 1884 we find in Mark Twain's Notebooks, some notes about a dream of being a knight errand in armor in the middle ages. The seed of the first active travel through different epochs was about to germinate.

In 1888, Edward Bellamy's (1850- 1897) *Looking Backward: 2000-1887* was published, in the story Mr. Julian West gives us a sketch of the Boston in the year 2000, an optimistic view of the future of America, where capitalism had ruled out all the afflictions from the model society.

The morning newspaper lay by the plate. I took it up, and my eye fell on the date, May 31, 1887. I had known, of course, from the moment I opened my eyes that my long and detailed experience in another Century had been a dream, and yet it was startling to have it so conclusively demonstrated that the world was but a few hours older than when I had lain down to sleep. (Bellamy, n.p.)

After all this literary genealogy, Mark Twain (1835-1910) published *A Connecticut Yankee in King Arthur's Court* (1889). This was the first story of travel to and from the past, widely acknowledged.

Nevertheless, until H.G. Wells (1866-1946) arrived with *The Time Machine* (1895), the only explanations offered to the reader to justify the presence of a hero in a different time were either induced sleep or futuristic tales without a scientific explanation. Wells based the functioning of his machine on the speculation about time as a fourth dimension, trying to make the existence of his machine plausible enough for the reader. Wells also wrote other romances of the future as *A Story of the Days to come* (1897) and *When the Sleeper Awakes* (1899).

Other futuristic tales of the time that prepared the field for time travel, were Simon Newcomb's (1835-1909) *His Wisdom The Defender* (1900), Matthew Phipps Shiel's (1865-1947) *The Lord of the Sea* (1900) and *The Purple Cloud* (1901), Erskine Childer's (1870-1922) *The Riddle of the Sands* (1903), Rudyard Kipling's (1901-1967) *With the Night Mail* (1905) and its sequel *As Easy at A. B. C.* (1912). Yevgeny Zamyatin's (1884-1937) *We* (1924), introduces us to a futuristical atmosphere without any justification, he didn't think that his readers would need an apology for such scenario. Aldous Huxley (1894-1963) published in 1932 his masterwork, *Brave New World*. The book presented a dark vision of a future where individual emotion, creativity and impulse have been completely subordinated to the tyrannical state.

Gardner Hunting's (1872-1958) introduced a story, related to time travel, locating us just in the position to look at the past without interfering in it, by means of the use of a new device. *The Vicarion* (1926). Radley Brainard perfects the vicarion; it reproduces scenes from any point in the past, present or future. A single event can be recorded and reproduced as a film. When the vicarion is made public, it creates first a sensation and then chaos among the mass. Governments try to prohibit it, for it reveals scandalous events in the private lives of public figures. By means of the use of the new machine secrets are revealed and the world becomes demoralized, unable to concentrate on the present because of its fascination with the past. The vicarion has to go; the raw realities of life in its private moments are more than the nerves of mankind can stand. (Bailey 160) *The Vicarion* was an attempt to teach how to enhance and change our existence through a correct understanding of the unchanging spiritual laws.

In *Last and First Men* (1930), the English writer Olaf Stapledon (1886-1950) tells the story of the human race. Stapledon undertakes a huge task in telling the future history of mankind from the twentieth century and far into the distant future when mankind reaches out seeking new planets. By then, mankind has evolved into a being only remotely similar to what we are today. At several occasions in history, humanity is almost destroyed, but manages to rebuild society and continue to evolve.

Since the appearance of *The Time Machine* (1895) the science fiction of the twentieth century is crowded with time travel novels and short stories. John

Campbell's (1910-1971) *Night* (1935) features a time traveler who travels 120 billion years to discover that the Earth is dead, very much like Wells's sad ending.

During the twentieth century, time travel stories found a way in talented science fiction writers such as Ray Cummings (1887-1957) (*The man who mastered Time*, 1924), Robert A. Heinlein (1907-1988) (*Stranger in a Strange Land*, 1961, *The Door Into Summer* 1956, *Elsewhere*, 1953, *By His Bootstraps* 1941, *The Number of the Beast* 1980), and Sprague Lyon De Camp (1907 -2000) (*Lest Darkness Fall* 1941, *Aristotle and the Gun* , 1958 and *The Wheels of If* 1949).

Closer to science fiction than to fantasy, Fritz Leiber (1910-1992) wrote the play *The Big Time*. Alfred Bester (1913-1987) published *The Men Who Murdered Mohammed* (1958), a satire in which the protagonist is travels to the past to perform "cronomicides". Dean R. Koontz (1945) describes in *Lightning* (1988) the consequences from the invention of a time machine invented by the Nazis during the II World War. Joe Haldeman (1943-) uses the wormholes theory, portraying marines from the future traveling in a time tunnel in *The Forever War* (1975).

Ray Bradbury was another pilgrim of the genre with several works such as *A Sound of Thunder*(1956), *Forever the Earth* (1952), *The Kilimanjaro Device*(1962) in which a time traveler steps on a prehistoric butterfly and the future changes into one where totalitarianism rules the United States. The list goes long from here on in the fields of science fiction and fantasy. It includes: Barrington J. Bayley (1937) *The Fall of Chronopolis* (1974), Ralph Milne

Farley's (1887-1963) *The Man Who Could Turn Back the Clock* (1950), *The Man Who Lived Backwards* (1950), *The Man Who Met Himself* (1950), *The Time Traveller* (1931) and *Rescue Into the Past* (1940) Alison Uttley's *Traveler in Time* (1939), Poul Anderson's (1926-2001) *There will be a Time* (1972), *The man who came Early*, *The Time Patrol* (1991), *The Guardians of Time* (1981). David Gerrold's (1944) *The Man Who Folded Himself* (1980). Diana Gabaldon's (1952) *Outlander* (1990), *Dragonfly in Amber* (1991), *Voyager* (1993) and *The Drums of Autumn* (1996).

The list of novels and shorts stories about travel in time is too long to present here. "In the short hundred years since the appearance of the *Yankee*, SF writers have worked travel to the past over so thoroughly that it is difficult to find a new idea to play with" (Foote 122).

Some works have created great controversy and high level of speculation like *The Philadelphia Experiment: Project Invisibility*, written in 1979 by William L. Moore and Charles Berlitz.

Like their North American counterparts, Latin American fiction writers have handled time in fantastic ways, but mainly with the homegrown technique of magical realism. We cannot classify the great Latin American writers as time traveler writers, because they are not. The ideology of the Latin writers and the timelines of their national histories provoked a totally different approach than that which influenced the North American and European fiction. Their motifs and goals, their historical frame is completely different and it will require a different kind of analysis. This research will only mention some characteristics of the main

trends in time related themes as a context to the parallel development in literature of the human desire to travel in the so-called fourth dimension.

The German critic Franz Roh used the term magical realism (*realismo mágico*) in 1925 to characterize a group of Post-Expressionist painters. In the late 1940s the term was applied to literature by Cuban novelist Alejo Carpentier (1904-1980) the Cuban writer of *The Kingdom of This World* (1949), who used the concept “lo real maravilloso” (marvelous reality). Carpentier recognized the tendency of Latin-American writers to combine fantasy elements and mythology with otherwise realistic fiction. The term Magic Realism survived to define this narrative tendency in Latin America during 1949 to 1970.

What interests us about this trend is the way in which it has handled the notions of time. Angel Flores explains that in magic realism, time flows without the restriction of “time”. Time flows but not as the humans normally perceive it.

We can identify the Australian notion of Great Time in Jorge Luis Borges’s (1899-1986) short story *The Aleph* (1949). We can also find the subject of the circular universes in most of Jorge Luis Borges’ works (*The Circular Ruins, A History of Eternity, Averroes Search, The Garden of the Forking Paths*). Most of Borges’s tales embrace universal themes —time, space, eternity, infinity— the often recurring circular labyrinth can be seen as a metaphor of life or a riddle whose main theme is time. The examples of this special view of the universe in Borges’ literature would keep us busy for quite a while. Here are some examples illustrating his fine style and his approaches to time themes.

...I had questioned myself about the ways in which a book can be infinite. I could think of nothing other than a cyclic volume, a circular one. A book whose last page was identical with the first, a book which had the possibility of continuing indefinitely. I remember too that night which is at the middle of the thousand and One Nights when Scherezade (through a magical oversight of the copyist) begins to relate word for word the story of the Thousand and One Nights, establishing the risk of coming once again to the night when she must repeat it, and thus on to infinity. (Borges *The Garden of 174*)

His perspective of time is that of an infinite circle "Time is the substance from which I am made. Time is a river that carries me along, but I am the river; it is a tiger that devours me, but I am the tiger; it is a fire that consumes me, but I am the fire. The world, unfortunately, is real; I, unfortunately, am Borges" (*Obras Completas* 156).

When the end draws near, there no longer remain any remembered images; only words remain. It is not strange that time should have confused the words that once represented me with those that were symbols of the fate of he who accompanied me for so many centuries. I have been Homer; shortly, I shall be No One, like Ulysses; shortly, I shall be all men; I shall be dead. (*Obras Completas* 25)

Borges's fictional universe was born from his vast esoteric readings in literature, philosophy, and theology. He sees man's search for meaning in an infinite universe as a fruitless effort. In the universe of energy, mass, and speed of light, Borges considers the central riddle time, not space (Pegasos, n.p.).

Indubitably, Borges would find an enthusiastic reader and admirer in the scientist, David Deustch, who supports the idea that "when the time traveler

interferes with history, the universe forks into two or more branches”; therefore, the many universes interpretation of quantum mechanics naturally resolves the time travel paradoxes. (Davies 110)

Borges believed in an infinite series of times, in a constantly growing possibility of parallel times that forked embracing all possibilities of time. “Time forks perpetually toward innumerable futures” (Borges, *The Garden of* 176).

I lingered, naturally, on the sentence: I leave to the various futures (not to all) my garden of the forking paths. Almost instantly, I understood: 'The garden of forking paths' was the chaotic novel; the phrase 'the various futures (not to all)' suggested to me the forking in time, not in space. A broad rereading of the work confirmed the theory. In all fictional works, each time a man is confronted with several alternatives, he chooses one and eliminates the others; in the fiction of Ts'ui Pên, he chooses—simultaneous-ly—all of them. He *creates*, in this way, diverse futures, diverse time which themselves also proliferate and fork. (*The Garden of* 175)

Gabriel García Márquez (1928) is a central figure in the magical realism literary movement. He uses the technique of magical realism in his novels and short stories. Marquez uses magical realism so the line dividing reality and fantasy gets blurred. The distinction between the two erases. From Alejo Carpentier (1904-1980), García Márquez learned to work with concurrent historical epochs and, gradually the stylistic influences of William Faulkner (1897-1962) gave way to his more objective manner of depiction, partly derived from his experiences in journalism. (Pegasos n.p.)

García Márquez's most outstanding creation is doubtlessly *One Hundred Years of Solitude* (1967). This epic novel presents time as the dorsal spine of the plot and it works linearly and circularly. We follow the of Macondo, an imaginary place, from its foundation, through various stages up to a flourishing modern town, to its decline and eventual and irrevocable annihilation. All these events take place in the story while giving us the perception of a logical flow of the sense of time. The successive generations of the Buendía family also give us the sense of linear time motion.

Despite this underscored trend of linear time, that makes sense of the title of the novel, we also perceive the circular motion that the author conveys. The descendant's behavior is historically consistent with that of their parents. The family is doomed to make the same mistakes over and over again, which they do with a strong sense of fate and inescapable destiny. As readers, we can clearly distinguish many patterns and repetitions that make us wonder if we are rereading the chapters.

Direct time travel novels can be found in the bibliography of the Mexican writer Laura Esquivel who wrote *The Law of Love* (1996) a novel about reincarnation and karma interlinked with the history of Mexico and time travel. J.J. Benítez has written a series of best sellers about time travel beginning with *Trojan Horse* (1984).

Chapter 2

REVIEW OF LITERATURE

The most important sources in this research was Bud Foote's, *The Connecticut Yankee in the Twentieth Century: Travel to the Past in Science Fiction* printed more than ten years ago, in 1991. Paul Alkon and Brooks Landon developed the series of two volumes: *Science Fiction Before 1900: Imagination Discovers Technology* and *Science Fiction After 1900: From The Steam Man To The Stars*, both of which provide a lot of historical and critical information about science fiction in general. Nevertheless, it was necessary to selectively draw from these works to select the information related exclusively with time travel.

J.O Bailey's *Pilgrims Through Space and Time: Trends and Patterns in Scientific and Utopian fiction* (1972) was another useful book, but it is not the most current information. This is a descriptive and analytical book, which handles a lot of bibliography that otherwise would be unavailable. This data had to be selected to fit the purposes of this research.

The importance of Bailey, Alkon, Landon and Foote as contributors to the field of investigation resides in their interest to provide an adequate frame of reference and the gathering of historical information with sense and purpose. They envisioned time travel literature as a source of suggestion for the human mind, to stimulate the consideration of new facts and their implications.

It wasn't possible to find a source that gathered information about the evolution of the idea of time in human culture with a proper anthropological point of view. The Internet resources were very useful in this regard with essays such Nakamura's, Garfield's and Ess' who have gone deeper into the different concepts of time developed by ancient philosophies. At this point, the Internet resources were useful, since there are not many texts where one can find together the desired information in this matter. There is a lot of time travel information gathered, but just related to the application of its principles to physics and in this respect we can find a lot of fine and current books written by the physicists themselves, as it is the case of Richard Gött's *Time Travel in Einstein's Universe* and Stephen Hawking's *A Brief History of Time*.

Time travel literature evolves with humanity in a two-way relationship. Every new book about the Universal Laws of Physics uses time travel examples as tools for understanding. The trend is to ground the plots in established scientific fact or theory and to let science somehow follow with newborn kid's eyes the possibilities of fiction.

Another helpful source was the lecture of Jostein Gaardner's *Sophie's World*, which provided the ideological frame of the Chapter 1. This book simplified some complicated philosophical explanations. This is a highly recommended work for those who search for a higher understanding of applied philosophy. Writings from the *Koran*, Aristotle and Plato were used to document the fact that time has always been an obsession for men.

To identify the elements of time travel literature we chose significant works from many areas of the twentieth century since the appearance of Mark Twain's first time travel novel, in 1889. These novels are representative works by significant writers in the realms of fantasy and science fiction. The novels were the most valuable resources material to identify and compare common elements that typify this kind of literature.

A Connecticut Yankee in King Arthur's Court (1889)

Mark Twain initiated the theme of time travel into the past. The Yankee, Hank Morgan, was a superintendent of the Colt arms-factory in Hartford, Connecticut, who finds himself unexplainably transported to Camelot, which he unsuccessfully tried to industrialize and democratize.

"You know about transmigration of souls; do you know about transposition of epochs —and bodies?"... At last I met my match, and I got my dose. It was during a misunderstanding conducted with crowbars with a fellow we used to call Hercules. He laid me out with a crusher alongside the head that made everything crack, and seemed to spring every joint in my skull and made it overlap its neighbor. Then the world went out in darkness, and I didn't feel anything more, and didn't know anything at all — at least for a while. When I came to again, I was sitting under an oak tree, on the grass, with a whole beautiful and broad country landscape all to myself — nearly. Not entirely; for there was a fellow on a horse, looking down at me— a fellow fresh out of a picture-book. He was in old-time iron armor from head to heel, with a helmet on his head the shape of a nail-keg with slits in it; and he had a shield, and a sword, and a prodigious spear; and his horse had armor on, too, and a steel horn projecting from his forehead, and gorgeous red and green silk trappings that hung down all around him like a bedquilt, nearly to the ground. (Twain n.p.)

In this story, the *Yankee* actively used his knowledge from the future to survive in a hostile environment that he found unpleasant and uncomfortable, lacking of all the advantages of the nineteenth century, as he knew it. After all sorts of adventures—including a marriage and a son of his own flesh—he returned to the nineteenth century told his story to “M. T.”

But even as Twain’s was the first notion of travel in time and he placed Morgan’s journey in June A. D. 528, it is obvious that his Yankee doesn’t travel to the real past of the humankind. He traveled from the writer’s present to a mythological realm in which we could not get to even if we had a full-functioning time machine. King Arthur’s story is placed in a past that never was.

The *Yankee* had desirable the know-how in a strange land, where he was alone, like Dafoc’s *Robinson Crusoe*. He tried to industrialize and democratize the Arthurian universe with his knowledge. He introduced electricity, fights with revolvers, tried to abolish slavery, and founds schools, colleges and academies. He even included in his new reality his American currency and stock exchange.

Morgan married Demosiselle Alisande la Carteloise, who he renamed Sandy. He even made an incognito journey with King Arthur around Britain that nearly ends in disaster when they were imprisoned and enslaved, mistreated, condemned and almost killed if it wasn’t because of Sir Lancelot’s opportune intervention. After all these adventures, Hank Morgan returns to his present having failed in his attempt to create a perfect society before its time.

Differing from other novels about travel in time, Twain’s doesn’t show us a unified moral at the end of the story. We don’t know what to think:

Technological development seems both desirable on one hand, but threatening on the other. The past is superior and inferior to the present. We do not find a defined line of thought regarding technophilia or technophobia. His double mindedness is perceivable in the encountered feelings of Hank Morgan while he lives in the Arthurian universe.

The Time Machine (1895)

Herbert George Wells (1866-1846) revolutionized science fiction by introducing for the first time, the notion of time travel as the product of a special device, a time machine.

The time machine doesn't travel in space, just in time. As a result we see the Time Traveler beholding the events from his laboratory as he travels forward. The mechanism is more or less like this: the Time Traveler throws a lever and in the same way we fast forward a videotape, the succession of facts is accelerated so he can perceive it rapidly with his senses. When he gets to the desired time—the year 802,701—he hits the stop button. He also travels back by fast rewinding.

Wells made great use of scientific approaches to give credibility to his fantastic voyage: He used apocalyptical views of the end of the world: "I saw the black central shadow of the eclipse sweeping towards me...All else was rayless obscurity... the cold, that smote to my marrow, and the pain I felt in breathing, overcame me" (Wells 131-132), the theory of the evolution of species: "The too-perfect security of the Upper-worlders had led them to a slow movement of degeneration, to a general dwindling in size, strength and intelligence" (77). Wells also described geological changes of the surface of Earth: "The whole surface of

the Earth changed "melting and flowing under my eyes" (30); rotation movement of Earth over its axis. He uses descriptions of the planet and applies other scientific knowledge to convince us of the reality of the journey of the Time Traveler.

The twinkling succession of darkness and light was excessively painful to the eye. Then in the intermittent darkneses, I saw the moon spinning swiftly through her quarters from new to full, and had a faint glimpse of the circling stars. Presently, as I went on still gaining velocity, the palpitation of night and day merged into one continuous greyness...(30)

Wells used this kind of explanation in a wonderful way and he at a certain point prophesized Einstein's relativity theory when, in the words of the Time Traveller, he depicted time as the fourth dimension:

'Can a cube that does not last for any time at all, have real existence?'

Filby became pensive. 'Clearly,' the Time Traveller proceeded, 'any real body must have extension in four directions: it must have Length, Breadth, Thickness, and Duration... There are really four dimensions, three which we call the three planes of Space, and a fourth, Time. There is, however, a tendency to draw an unreal distinction between the former three dimensions and the latter, because it happens that our consciousness moves intermittently in one direction along the latter from the beginning to the end of our lives.' (6-7)

'Scientific people' proceeded the time Traveller... 'know very well that Time is only a kind of Space... He [a civilized man] can go up against gravitation in a balloon, and why should he not hope that ultimately he may be able to stop or accelerate his drift along the Time-Dimension, or even turn about and travel the other way.' (8-10)

Obviously this idea assumes in a way, like the native Australians idea of the Great Time, that everything is happening at once. Past and the future are happening now somewhere. This suggests that not only the present is real. This line of logical thinking leaves the reader breathless, just by the slightest possibility of it being real, just because it makes sense in a way. Here we see a direct influence of science fiction over the revolutionary theory that Einstein was about to formulate “Einstein would use the idea in his 1905 theory of special relativity, which describes how time is measured differently by stationary and moving observers” (Gött 8). Today physicists do think of all time as equally existent since “there can be no absolute meaning assigned to *the same moment* at two different places...just as the future is surely out here, so is the past...” (Davies 30).

At a certain point the Time Traveler finds a utopian society, produced by the evolution of humankind in two different branches. The *Eloi* are the descendants of those who used to rule the world. The *Morlocks* descent from the working classes and live in the underworld. Wells brings to life the metaphor of rich people devouring the poor, so in *The Time Machine* Wells dramatizes the alarming corollary that in return poor people will eventually rise up and devour the rich (Alkon 44).

The Time Traveler found evidences of his present in that far future, a discovery establishes the patterns for what has become a high moment in much time travel literature: the nostalgia of a hero that finds the ruins of the society that he knew and that shaped him. Even more pessimistic he traveled farther in the

future to assist in the death of our planet where life is not possible anymore. At this point Wells used a dramatic description of motionless sun, stagnant oceans and big crustaceans populating the Earth. “*The Time Machine* draws upon the sciences of biology, geology, and astronomy; from them it brings a cosmic perspective to scientific fiction; and it deals with areas of the imagination that properly belong to no other kind of fiction.” (Bailey 81)

The End of Eternity (1955) (Isaac Asimov)

This is an independent story from Asimov, because it doesn't have a direct link with his *Foundation/Empire* saga, but at the same time, fits perfectly into it as a prelude.

The End of Eternity is a particularly important milestone in Asimov's work. Cleverly constructed, it even includes awkwardly for his style—a love story that develops itself conveniently during the book.

“Eternity” is an organization of men exclusively, who are recruited in the normal Time to live in the hyperspace, a place out of time and whose mission is to travel forward and backwards in time, implementing in every Century what is needed in order to make the life on Earth as pleasant and comfortable as possible. They are organized in strata of importance or castes system, identified with uniforms, titles and badges. We can find Cubs, Instructors, Communications, Technicians, Observers, Programmers, Computers, Inspectors, Life-Plotters, Statisticians, and Sociologists.

The method of time travel is not so detailed in this novel as it is in *Trojan Horse*, for example. We only locate ourselves in two places: the normal Time and

the Hyperspace. Eternity is in Hyperspace and cannot be affected by Reality Changes. Normal Time is changed frequently by the Eternals. Here is a fragment of one of Andrew Harlan's shift into Reality:

The kettle he left, of course, was not the same as the one he had boarded, in the sense that it was not composed of the same atoms. He did not worry about that any more than any Eternal would. To concern oneself with the *mystique* of Time-travel, rather than with the simple fact of it, was the mark of the Cub and newcomer to Eternity. (Asimov 8)

The reader gets to know, anyway, that the sun somehow is the source of power of the existence of the Eternity; therefore, it has something to do with it running out of fuel at the end of time. Harlan tells to Cooper while traveling through the Hyperspace "at the moment, you and I aren't matter, in spite of the appearances" (35).

Eternity exists parallel to human history since the 27th Century when time travel was invented. Before that, History is unchangeable; the eternals don't mess with it because it may endanger the very existence of the Eternity.

In principle, they have an admirable mission. They attempt to provide the greatest good to the greatest number of human beings in a very odd form of utilitarianism philosophy applied to the society. The mission of the Eternity is to follow and control human history between 27th to the 70,000th Century, trying to maintain a stable society, with reasonable prosperity.

Humans in regular Time know about the existence of the Eternity but they think that their main purpose is the trade between centuries: “The 482nd was anxious to export more cellulose-base textiles to Centuries which where deforested, such as the 1174th, but weren’t unwilling to accept smoked fish in return.” (24).

The Eternals eliminate worrisome realities: dangerous technology, drug abuse, diseases and excessive curiosity about the real nature of Eternity. The consequences of this sort of a time patrol are resumed in the existence of a boring civilization, with no static history or excitement of any kind: “The 2481st is the only Century to develop electro-gravity space-travel. No propellants, no nucleonics. It’s an aesthetically pleasing device. It’s a pity we must Change away from it. A pity!” (16)

Andrew Harlan is an expert at determining and executing the Minimum Necessary Change (M.N.C.) in a timeline to attain a desired Change in history: “I suggest that the M.N.C. can be reduced to the mere displacement of a container from one shelf to another.” (13) But when Reality Changes, everybody changes with it, and all the centuries were affected continuously by the Changes of Reality, even though for everybody living in normal Time it seems like the only possible reality. The humans just remember the last version of history, after the Change has been executed. “They would be in another Reality, with all the memories that belonged with it, unable to tell, dream or fancy that they had ever been anything else” (30).

The Eternals renounced to their ordinary and manipulated lives in normal Time to join Eternity. "Eternity was too finely balanced an arrangement to endure modifications" (32). They had prohibitions with regard to their powers. They shouldn't get married or have children in normal Time. They shouldn't use Eternity for personal purposes. With Andrew Harlan's character, Asimov depicts, as many others have done before and after, the ideal time traveler's profile. In the words of Instructor Yarrow: "Above all, a Technician must be dispassionate. The Reality Change he initiates may affect the lives of as many as fifty billions people. A million or more of these may be so drastically affected as to be considered new individuals. Under these conditions, an emotional make-up is a distinct handicap" (8).

This special condition of executing the Change gives the Technicians special powers, but also extraordinary responsibilities: "Most of all, he had developed the feeling of the power of being a Technician. He held the fate of millions in his fingertips, and if one must walk lonely because of it, one could also walk proudly" (38).

There is a strong moral judgment in this novel that is expressed toward the Technicians, who are responsible to perform the M.N.C. "*You*, not we, have destroyed this beautiful thing" (16). Inside Eternity, however, there is a tacit rejection from the other castes of Eternals toward the Technicians "Even Voy kept his distance, and when, accidentally, Harlan's hand brushed Voy's sleeve, Voy shrank away with a visible start" (10).

Andrew Harlan, a Technician himself, questioned about “a world in which life was life and death, death; where a man made his decisions irrevocably; where evil could not be prevented or good promoted, and the Battle of Waterloo, having been lost, was really lost for good” (20). The convenience of intervention in the past is questioned repeatedly during the novel, putting the reader face to face with the consequences of such an interference: “A great work of literature, a monument of Man’s intellect and feeling, was never written in the new Reality, but several copies of the same work were preserved in the Eternity’s libraries, were they not?” (34).

Harlan was recruited from a conservative Century when he was 15, after inhabiting the normal Time. He said goodbye to his family to never see them again. He entered the Eternity as a Cub. His original 95th Century is very conservative about the use of atomic energy. Harlan has a great interest in Primitive History (Immobile history that has taken place until the 27th Century) “There was a volume by a man called H.G. Wells, another by a man named W. Shakespeare, some tattered stories...” (20).

The Computer Laban Twissell interviews with Harlan to make him participate in a special mission that is needed for the very existence of Eternity. Harlan is supposed to train a young Eternal Cub—Brinsley Sheridan Cooper about as much Primitive History as possible. Cooper was born in the 78th Century and has entered to the Eternity in awkward conditions, at the age of 23, being married and having studied Mathematics and Temporal Engineering.

As the story goes on, we will shockingly realize that B. S. Cooper is Victor Mallansohn himself, the inventor of the Temporal Field. His mission is to travel into the past to introduce the knowledge that will make time travel possible. "He not only invented the Temporal Field, but he described the basic relationships that made Eternity possible and predicted almost every aspect of it except the Reality Change." (37). This advanced knowledge fits with that of a jinn as Gött named matter or information that appear into the time travel stories with unapparent or unexplainable sources, defying the Laws of Thermodynamics.

Harlan's view of our History, portrayed here as *Primitive History* is romantic and touching making the reader realize the wonders of a steady past: "It's like watching history standing still, frozen! It can be studied in detail, whereas the Centuries of the Eternity are always changing" (23).

Harlan meets Noÿs Lambent, a woman supposedly born in a sexually loose Century during one mission. The romantically inexperienced Harlan falls in love with her and starts to violate the rules of the Eternity in order to keep her away of the consequences of Change. At the climax of the story Harlan is ready to risk the very existence of Eternity to keep his woman.

Noÿs is really a woman from the Hidden Centuries, which is a moment in the normal Time so far in the future that the Eternals can't penetrate because the men and women of the Hidden Century had managed to learn about the real purposes of the Eternity and have avoided the eternalists to get there. Between the time elapsed from 70,000th to the 150,000th Centuries the human race mysteriously disappeared, and that is all the Eternals know. After that, the Section

of Eternity continues until the sun turns into a nova and so on forever--that's why it is called Eternity.

Noÿs Lambent is an anti-Eve kind of character, who gives a female touch to the story, implying that in a most advanced culture men and women were to occupy the same level of importance. Given the time when the novel was published, it can be considered as tiny step advancing the female role in science fiction. Noÿs redeems the female gender by directing and performing the necessary Change that will ensure the evolution of humankind without the interference of Eternity. Using her feminine attributes and by means of suggestion she involves Andrew in her plan. He discovers her and tries to destroy it. However, her closing argument to convince Andrew to stay with her in the Primitive Times is one of the most touching and beautiful moments of the book. She totally convinces him:

Man would have reached the stars more than a hundred thousand Centuries before he did in this current Reality. The stars would then have been untenanted and mankind would have established itself throughout the Galaxy ...Each world would have its own stretch happiness after ways of its own in an environment of its own. There are many happinesses many goods, infinite variety...That is the Basic State of mankind. (187)

Harlan chooses to effect a change in the past that will prevent the very existence of the organization. This will cause a reversion to the original state of history with no interventions. Humankind would have chosen infinity above eternity, adventure instead of security and the conquest of the universe.

Isaac Asimov's prose is not as fine as other science fiction writers, but his innovation and capacity to develop simple ideas involving important moral considerations with his enthralling story make of this one of the most inspiring time travel tales.

The story offers us inconsistencies, such as where does Mallansohn's knowledge originate from and how do the Eternals preserve their existence if the Reality Changes wipe them from existence in their centuries of origin. "More than once it occurred to him that his own presence in the Century, as a man not of that time, could fork its history" (21). Nevertheless, Asimov also offers a clever solution to the problem of existence of the main characters. Noÿs Lambent and Andrew Harlan, in a time that after the Change would not allow their existence. He covers them under the protection of a physiotime field: "Cooper will disappear along with his advertisement; Eternity will go and the Reality of my Century, but we will remain to have children and grandchildren, and mankind will remain to reach the stars" (191). Asimov's plot leads him to discover inconsistencies inherent in the existence of time travel, even in time travel literature.

Harlan also faces the most terrifying moment of the novel, when for an instant he meets himself, while violating the rules of Eternity and traveling back and forth in time without the needed control:

Harlan never witnessed the completion of that turn. The others profile had not yet come into view when Harlan holding back a sudden gust of terror with the last fragment of moral strength, slung himself back out the door. Its mechanism, not Harlan, closed it soundlessly...He had not truly recognized the

other man in Noys's house by his appearance, yet he knew his identity with a dreadful certainty.

The first time Harlan had heard a noise in the house he, Harlan had been laughing and the sound that interrupted his laugh was of something weighty dropping in the next room. The second time someone had laughed in the next room and he, Harlan had dropped a knapsack of book-films. The first time, Harlan, had turned and caught sight of a door closing. The second time he, Harlan, closed the door as a stranger turned.

He had met himself! (102)

This novel is representative of Asimov's compositions and presents the most exciting and thought-provoking elements of time travel. We can find in *The End of Eternity* Asimov's philosophy of time, time is just another measure for change, a measure of human decay.

In Eternity there was no Time as one ordinarily thought of Time in the universe outside, but men's bodies grew older and that was the unavoidable measure of Time even in the absence of meaningful physical phenomena. Physiologically time passed, and in a physioyear within Eternity a man grew as much older as he would have in an ordinary year in Time. (40)

Asimov's ideal vision, as presented in this book and elaborated in his *Foundation/Empire* books, is of a human-dominated universe. The existence of an organization such as the Eternity denies the human race the right and the freedom to make its own mistakes and learn from them. And in the end, he asks whether stability and general happiness is the most worthwhile goal.

Time and Again (1971) Jack Finney

Finney's capacity for description and detailed study of the New York of the late nineteenth century are his best weapons in the achievement of this story

that takes places in New York City of 1970 and 1882. Bud Foote considers it "The best-achieved novel of our Century about nostalgic travel to the past" (Foote 53).

In *Time and Again*, Finney uses a narrator speaking in first person as the protagonist of his novel. Simon Morley is selected and recruited by the United States Government, which sends him back to the past in a secret mission that seems to be experimental in principle. The story begins when a stranger visits him at his office offering him the opportunity of the lifetime. Si will be scheduled to travel to the past by means of a mixture of hypnosis, autosuggestion and focus on a place that fixes his mind in the exact point in time that he wants to visit. This technique is not very convincing or remarkable because a lot of questions still bother us after the reading, but this doesn't seriously undercut the fact of the excellent portrait of a past epoch and the physical shock to be experienced by the time traveler. He is supposed to awake in the Dakota Apartments in Manhattan in 1894; but due to a personal interest he insists, however, on visit the New York of 1882 because he wants to watch the mailing of a blue envelope, a mysterious and enigmatic letter which is said, in a note added later, to have caused "the destruction by Fire of the entire World" (Finney 68). Si Morley wanted to find out what really happened.

As most of the time travelers he is an ordinary character and fits perfectly most of the basic desired profile. In this case, Si Morley has been studied in detail to perform the mission. He is a twenty-eight year old man, disappointed with his achievements in life. He's got nothing to lose by joining the proposed

adventure—" He 's got to have the ability to see things as they are and at the same time as they have been; you were divorced two years ago your parents are dead; you have no brothers or sist"(5-8)

Si is tested in many ways to confirm his viability to be part of the project and he is especially trained to fit in the 1880's:

During most of one week Martin lectured from file-card notes. What was the population of the United States? In the West, buffalo still roamed the open prairie...Europe was full of kings, queens, emperors, czars and czarinas then, and they weren't figurheads, they *ruled*... ' It's a hell of a different world, Si but it isn't alien to this, and I think you could be at home in it'. (Finney 80)

The philosophy of interference with past times of this story is depicted in the words of Dr. Dazinger when Si first tells him about his intention to integrate a personal interest to his mission:

"But what good would it do you, Si? What would you learn? Because surely you've understood that there cannot be the least intervention of any kind in events of the past. To alter the past would be to alter the future which derives from it. The consequences of that are unimaginable, and it is an utterly unacceptable risk" (70).

The scientific base of this modality of time travel is based on Einstein's principles but the connection between the hypnosis and the travel back in time is simply theoretical, it is not a big achievement in terms of science and make-the-reader-believe approach as we will see in other novels. As we can observe

Einstein is frequently quoted or paraphrased in time travel literature, and *Time and Again* is not an exception as he is the one who revolutionized the modern concept:

Presently he [Einstein] said that our ideas about time are largely mistaken. And I don't doubt for an instant that he was right once more. Because one of his final contributions not too long before he died was to prove that all his theories are unified. They're not separate but interconnected, each depending upon and confirming the others; they largely explain how the universe works, and it doesn't work as we thought...He meant that we're mistaken in our conception of what the past, present and future really are. We think the past is gone, the future hasn't yet happened, and that only present exists. Because the present is all we can see...He also meant precisely what he said about time: that the past, back there around the curves and bends *really exists*. (47-48)

The temptation to refer to Einstein's wisdom in this kind of explanations is mandatory for the credibility of the plot, and obviously to convince the hero to embrace the mission with enthusiasm and blind trust "If Albert Einstein is right once again, as he is, then hard as it may be to comprehend, the summer of 1894 *still exists*" (59).

He travels back in time with a strange combination of self-hypnosis and location phenomena and confronts a man, Jacob "Jake" Pickering, whose physical power, age, skills and wealthy are potentially superior to his own. This man rivals him for the hand of a Julia Charbonneau.

Si Morley is a nostalgic hero. Finney doesn't hide Si's longing for a time long passed, depicting the world as a better place once, one in which he would rather live:

"...the world was still a wonderfully variegated place: that soldiers in Greece were probably still wearing pointed shoes, long white stockings, and little ballet skirts; Turks were in fezzes, their women veiled; plenty of Eskimos hadn't yet seen their first white man or caught his diseases' and Zulus were still happy cannibals in an unbulldozed unpaved, unpolluted world. (210)

His preference for the old New York City is perceivable during the novel with his comparisons about the similarities and differences between the people of the past and the present; the reader's present in 1970.

I'm certain that it wasn't a matter of clothes, of makeup or its absence, or of hair styles. *Today's faces are different*; they are much more alike and much less alive. On the streets of the eighties I saw human misery, as you see it today; and depravity, homelessness, and greed; and in the faces of small boys on the streets I saw the premature hardness you see now in the faces of boys from Harlem. But there was also an *excitement* in the streets of New York in 1882 that is gone...Their faces were animated, they were glad to be just where they are, alive in that moment and place. And above all, they carried with them a sense of purpose...They weren't *bored*, for God's sake! (220-221)

After his second attempt Si Morley returns to the past knowing that he might be capable to affect the future. The people from the project have detected some changes between the past as the time traveler remembers it and what has actually happened after the incursion in the past: "He named a friend he went to college with... There is not record of him at Knox. He doesn't exist...Except in Ted's memory" (225). The project realized that they could erase someone from existence, but despite of that possibility they keep doing it, even when Dr.

Dazinger, the inventor of the project, opposed to its further performance. As Rube said,

...you don't turn back. Not ever. You don't spend billions repairing to send a man to the moon, and then decide not to. Or invent the airplane, look it over, and decide to uninvent it because someday someone might use it to drop a bomb. You just don't *stop* something as enormous as this; the human race never has Risk? Yes maybe. Yes *certainly* (231).

Due to this Si also confronts in a stronger way the internal struggle that Foote described, when speaking about the moral judgments that the fact of having godlike knowledge of the future and the skill to correct the normal course of the things brings along: "Observe, don't interfere: It was a rule easy to formulate and of obvious necessity at the project... where the people of this time were only ghosts long vanished from reality...But where I was now, they were alive" (258). Si realizes one of the internal decisions that he has in his hands. He has the power to decide over Julia's life or at least open her eyes about the man—Jake—that she is engaged. He decides, however, to interfere and perform a dramatic change in the girl's life. But as we can see afterwards in the action, Si's efforts don't affect directly the past, since Julia on her own decides not to marry Jake.

But even after his intervention in the past, Si has second thoughts about what he has done, because he witnesses the starting of a great fire in the World Building "What ate me now was this: that by our hidden presence at that old event Julia and I might have changed its course" (322). He has already changed the past by making her know something that otherwise she would have never known and

he has instant regrets about his behavior. The powers of the time traveler are a heavy burden for a man; the fact of knowing that one can be the cause of major changes in the course of history can be unbearable for the individual.

As we can see Si Morley seems almost obsessed with the people's attitude towards life, he longs to perceive that feeling of interest in his present times, "And with that I suddenly wanted to go with these people, wanted nothing else more" (241).

While escaping from the police after being framed with liability about the fire in the World Building, the only way out that Julia and Si find, is to induce themselves into hypnosis. They locate themselves inside the arm of the Statue of Liberty, that happens to be in exhibition in the middle of New York City still, and both of them are transported briefly to Si's present in a great scene of amazement on the side of Julia and one of Finney's best achieved moments in the novel.

After agitated discussions about the project and the insane proposal of a plan to change the normal course of history by provoking the purchase of the island of Cuba to avoid the current persistence conflict with Castro's communist government. At this point in history, when "regime change" is commonly talked about by American officials, it is remarkable to quote Si's reaction to a plan that he considered unviable:

Whatever the truth there, I just don't think *anyone* has the godlike wisdom to actually rearrange the present by altering the past. It's going to far!...Science learns how to split the atom, and they immediately *know* that the best thing to do with that new knowledge is blow up Hiroshima!' ...Once again you *know* that the

best thing to do with his discovery is eliminate Castro Cuba. Well *how* do you know? Who's given this new title breed of men who've polluted the entire environment and who may actually wipe out the human race- who gave them the poser of God to control the lives and futures of the rest of us? (403-404)

Si rejects the proposed idea, but after his first reaction he manages to take action to preserve the past. Si Morley decides to stay in the past making the directors of the project believe that he is willing to execute the proposed order. "You've got to stop them! Promise it Si! Say you'll stop them!" and of course I said yes, I certainly would listening to my own voice, hoping it sounded as though I really mean it" (409).

Caballo de Troya (Trojan Horse 1984) (J. J. Benítez)

In the words of the author: "To advance the plot and the nature of *Trojan Horse* would mean shattering the disconcerting mystery which is hidden in its pages". This is an example of a moment in literature, when the author's imagination has gone a little bit too far, stretching the limit beyond the point with which is possible to find people that believe in every word of the novel as if it were pure science. The quotes used in this part of the research are a free translation from the original Spanish text.

In some way we can detect the same scheme used by Twain in his *Connecticut Yankee*. *Trojan Horse* begins as a personal report of the writer, in which he tells us how he was contacted by a mysterious old man, a retired major from the US Air Force, who after a myriad of tests, hidden clues and hidden manoeuvres provides him, with confidential documentation to be revealed in the

proper way to the world. The mysterious material consists of the major's own diary that contains in itself the details of a secret project that in 1973 the US Air Force carried out in Israel. This was the "Operation Trojan Horse", part of the Swivel Project after several years of preparations and an endless number of incidents. As Benítez meets him, the major is suffering from a terminal disease caused by the project.

With this frame in place the author is empowered, to make public the most amazing adventure, starting with explanations about the project that make the book almost impossible to put down. After these preparatory chapters that mainly explain how Benítez obtained the manuscript in a subplot full of intrigue, he seems to limit himself to publishing material directly from the major's perspective.

The mission implied serious regulations. For no reason nor even that of the assurance of the explorer's own existence the participants could alter, change or influence in the men, social groups or circumstances that were the objective of their observations. This was an exigency of the operation. A total religious objectivity was needed. "As it is easy to understand, such a powerful means as the manipulation of the time axes from the swivels could be highly dangerous in the hands of unscrupulous individuals or those with a fanatic and partial vision of history" (Benítez 94-95).

There are more moral considerations about such a sensitive mission that played a major role in the selection of the voyagers:

I didn't want to excessively go deeper in to biblical texts in which the passion, death and resurrection of The Savior is narrated. For obvious reason, I'd rather face the facts without preconceived ideas and with an open spirit. If my obligation was to observe and transmit the truth of what happened during those days, the more advisable behavior was to preserve that clean attitude free from prejudices. (96)

In the realm of the experience of time travel the major says that the transportation to past times did not affect the memories or the psyche of the crew and that they were conscious at all time of their own epoch and identity. Their mission was merely to observe and analyze the facts of the selected times.

The major received "febrile" and intensive training in matters of antique history, traditions and Greek, mishnic Hebrew and the very language of Christ: occidental Aramaic, that is still used in only three places of the planet, one of which the Ma'lula village—the major stayed for a long time to empower him for the mission ahead.

The project was divided in two phases:

A first one [phase], in which the module will suffer the already known process of mass inversion, forcing the axes of time of the swivels until the day, month and year previously fixed. In this first step, as logical, my partner and I would stay aboard until the 'incoming' of the designed date and the definitive settling in the contact point.

The second—and doubtlessly the riskier and more attractive—obliged the abandon of the 'cradle' on the side of one of the explorers, who should mix with the Jewish people from those times, becoming an exceptional witness of the last days in the life of Jesus the Galilee. That was my 'job'. (95)

The major gives us detailed references of the complicated method of inversion of matter that makes possible the travel to the past. He says that our cosmos presents endless unknown dimensions, three of which are perceived by our senses and a fourth one—time—comes to our senses like a flow (83).

According to the major, time can be assimilated to a series of swivels, which axes are oriented octagonally with respect to the vector radius that imply distances.

...by means of a kind of technology that I can't even insinuate, those hypothetical axes from the elemental entities were inverted in position. The result filled all the scientists with fright and happiness at the same time: the tiny prototype on which they had performed the experiment had disappeared from the investigators sight. Nevertheless, the instruments kept on detecting its presence... (85)

From then on, all efforts were concentrated on the perfection of the process of swivel's inversion. When I joined the project, the general explained to me that, with a little luck, in some more years we will be in the conditions to perform the most sensational explorations... in time and space. (85)

The major provides details from the advanced technology used to perform the operation, explanations so convincing that its existence is almost unquestionable. Optical systems of gas lenses, that controlled by a computer allow adequate the vision in adverse atmospherical conditions; acoustic miniaturized capsules to keep the crew in touch at all times; concentrated food and nutritive serums that provide the time traveler with the required alimentation without the risk of consuming ancient food for which his organism might not be prepared; the "serpent skin", an artificial millimetrical epidermis that protected the

time travelers against mechanical or bacteriological aggressions and also protected the past times from getting in touch with new pathogenic organisms from their future..

The story enjoys excellent narrative properties that provide emotions and an incredible idea of plausibility: “At 23 hours and 3 minutes, the central computer activated electronically the system of axial inversion of the subatomic particles from the totality of the ‘cradle’, as that of tyke limit layer of the exterior membrane, pushing the time axes of the swivels to the angles equivalent to the desired back step: 709 137 days. In other words, to March 30, 30” (113).

The major—Jason—is the active time traveler that sees action in the times of Jesus, while his partner, Eliseo, stays in “the cradle” to control the instruments and monitor all the gathered information. He also provides Jason, by means of the most unimaginable equipment, background information about the time that he requires. This includes data about the animals he will run into, the plants, the costumes and traditions of the people. Even historical details that his access to will impress Pontius Pilate along with important locations and information that will help Jason and Eliseo to complete the psychological profile of the men that decided the fate of the “Son of God”.

The name of the major is never revealed during the story, but when he arrives in Jerusalem he presents himself as Jason, a Greek merchant who seeks the teachings of Jesus of Nazareth. This book takes place from Thursday, March 30, to the morning of the first Easter Sunday, April 9th of the year 30 A. D.

Jason infiltrates himself in to the close and intimate circle of people that accompanies Jesus through his last days in Jerusalem before the crucifixion and the narrative skills of the author in depicting these scenes are simply enthralling.

In this way the major depicts his first contact with Jesus:

I will never forget that look, the Galilee's eyes—slightly, slightly almond shaped and of a lively honey-like color, had a singular virtue: they seemed to concentrate all the power of cosmos... He raised his arms and putting his long and hairy hands over my shoulders, he smiled and at the time he winkled at me with one eye 'Be welcomed' (169).

The major documents the physical dimensions of the Galilee, calling him "the Giant" due to his impressive looks, and he also gives details of personal conversations with "the Master". Experiences such as the Sermon of the Mount, the Last Supper, and the whole Passion of Christ are depicted with breathtaking detail in the major's journal

— ...You are here to give testimony and you should not dismay.
 —Then you know who I am...
 —It will pass a lot of time until those and the generations to come understand who I am and why I was sent by my Father... You are, despite coming from where you come from, closer than they are to the Truth...
 It was irritating. So long waiting for that opportunity and now, hand in hand with Him, I didn't know what to say or ask. (180)

It is necessary to go to the totality of the *Trojan Horse* saga to make all the considerations it deserves, because the book is much more than just a story about

time travel. Time travel here is an excuse that allows the author to expose theories based in years of research.

Jason is tormented in the inside because he doesn't understand how such a category of a man was condemned and tormented the way Jesus was. In the beginning of the story he presents himself as "skeptical in religious matters... I wasn't a militant in a church or religious movement of any kind, being noticeable for my agnostic character" (93). But as the events develop themselves, Jason—the major—experiences a "conversion" that will mark his entire life and the way he sees the world. This dramatic change is one of the central themes in the book.

A theory of the historical inertia—understanding it as the impossibility that a single person can change the course of history—is needed, to "buy" the curious intervention of Jason in the last days of the mortal life of Jesus. His presence so close to Jesus made it almost impossible for it not to have been a reference to Jason in the Gospel! The plot of *Trojan Horse*, implies that the presence of a single person is not enough to change the normal flow of the human history. So it is tacitly agreeing with the self-consistence principle, but the book doesn't mention this issue.

Trojan Horse is an amazing creation by one of the most controversial Hispanic authors of the last decades. The popularity and high level of intellectual reach with which it is invested make it a must-read piece, praised for its capacity to arise spiritual curiosity of young readers about religious and historical issues that a world of increasing materialism sometimes is unable to encourage.

Timeline (1999) (Michael Crichton)

Timeline is a skillfully developed story, which I choose to discuss because of its novelty, the strength of its descriptions—that needed a broad historical research—and its awesome innovation in the concept of time travel, which integrates the advances of Physics in matters of quantum foam, quantum mechanics and parallel universes. Therefore it will be necessary at this point to quote some parts of the texts, to fully appreciate Crichton’s achievements in this masterpiece of time travel literature.

The plot grabs the reader from its first moment. A group of four students—Andre Marek, Chris Hughes, Katy and David Sternis required by ITC/CTC Technology to go back in time and rescue their professor: “Professor Johnston is in the fourteenth Century. We want you to go back there, to get him out”(Crichton 131). One of the most astonishing moments is that in which the students run into a signal that the professor is sending them from the past:

The parchment was identical in size to the others in the stack, but two words, scrawled in plain English: HELP ME 4/7/1357
‘In case you ‘re wondering’ she said, that’s the Professor’s handwriting...we seem to have a message from professor Johnston that is six hundred years (106-116)

“You mean time travel,” Marek said.

“No,” Gordon said. “I don’t mean time travel at all. Time travel is impossible. Everyone knows that.” (123)

“The very concept of time travel makes no sense, since time doesn’t flow. The fact that we think time passes is just an accident of our nervous systems—of the way things look to us. In reality, time doesn’t pass; we pass. Time itself is invariant. It just is. Therefore, past and future aren’t separate locations the way New York and Paris are separate locations. And since the past isn’t a location, you can’t travel to it...What we have developed is a form

of space travel. To be precise, we use quantum technology to manipulate an orthogonal multiverse coordinate change. (123-124)

From here the author gives us a lecture about quantum mechanics that includes drawings and examples of the behavior of waves and particles—he uses the famous experiment of the screens, the lids and the light source that has been used for years to explain quantum behavior. Crichton explains Hugh Everett’s hypothesis of the existence of “an infinite number of universes” (126), to take the students to understand the possibility of the causes that keep Professor Johnston trapped in the past: “What he is saying is that single-photon interference proves that reality is much greater than just what we see in our universe. The interference is happening, but we can’t see any cause for it in our universe. Therefore, the interfering photons must be in other universes. And that proves that the other universes exist” (130).

The scientific resources of Crichton’s story are fascinating. From here he introduces the reader to the realm of possibilities when Gordon states: “We make wormhole connections in quantum foam.” (131).

Crichton shows us step by step, what quantum foam is:

“...a way of saying that at very small dimensions, space-time has ripples and bubbles. But the foam is smaller than an individual atomic particle. There may or may not be wormholes in that foam.”

“There are” Gordon said.

“But how could you use them for travel? You can’t put a person through a hole that small. You can’t put *anything* through it.”

“Correct,” Gordon said. “You can’t put a piece of paper through a telephone line. But you can send a fax.”
Stern frowned. “That is entirely different.”
“Why?” Gordon said, “You can transmit anything, as long as you have a way to compress and encode it. Isn’t that so?” (136)

In this moment Crichton has his reader hooked, as taken with the idea as Professor Johnston is transported to the past. After this moment Gordon will explain the student how their technology allows them to compress and decompress the information that comprises a person and transmit it to another universe by means of the use of a quantum computer—conveniently suggested by Richard Feynman twenty years ago, using the thirty two states of an electron instead of the two electron states that normal computers use today.

So there. By means of great names, excellent manipulation of science, credible sources and a great imagination, *Timeline* becomes so real and so feasible that at the end of the book, the author considers to provide a cautionary explanation for his readers. The scientific details of the procedure for time travel in *Timeline* were simply too breathtaking to leave us wondering.

A word about time travel. While it is true that quantum teleportation has been demonstrated in laboratories around the world, the practical application of such phenomena lies in the future. The ideas presented in this book were stimulated by the speculations of David Deutsch, Kip Thorne, Paul Nahin and Charles Bennet, among others. What appears here may amuse them, but they would not take it seriously. This is a novel: time travel rests firmly in the realm of fantasy. (490)

In time travel literature, often some of what is presented as facts cannot stand close analysis. In this case, we understand that the characters are traveling to a parallel universe; therefore, the almost immediate change of the facts in the present times in our own universe are no longer necessarily valid and the author can apply more speculative projections. There are moments of inconsistency in the novel in which changes in the parallel universe affect automatically the current timeline: The presence of a lens, a totally strange to the archaeological excavation; the note from the professor that suddenly appears in his students present or the burial site of Marek, one of the four students that decides to stay in the Middle Ages, are serious inconsistencies in the plot. The author used the theory of parallel universes; therefore, the original timeline should have remained untouched.

Regarding this matter, Kip Thorne bets on the simpler, non-parallel universe resolution (Thorne BBC Horizon n.p.). But this solution doesn't offer a convincing ending for us, because the altered timeline does not disappear; therefore, the main reasons of the travel are not accomplished. In some universe the reality as we wanted to change it, will remain as it was before the interference.

In *Timeline* we find old English, medieval architecture, fashion, traditions and tournaments. *Timeline* offers us another case of an almost endemic nostalgia for the Middle Ages. The story has a great deal of research about the epoch that is totally needed for our understanding of the plot and for the creation of the plausibility aura that surrounds the novel. The investigative work of the author is

remarkable and is a successful way to create an interest of the reader in a stage of western history.

Through this brief and modest review it is possible to view a big picture of the evolution of time travel literature, which is intimately linked to the scientific advances of the time. That is why in a little more than a century, the time travel stories have been affected by the vertiginous speed of our civilization, using every available device to make the plots more believable for the readers.

Chapter 3

SELECTIVE REVIEW AND EVALUATION OF RESEARCH

From the various sources discussed in Chapter 2, the work of Irving "Bud" Foote *The Connecticut Yankee in the Twentieth Century: Travel to the Past in Science Fiction* stands for more in depth discussion because it offers the most complete information about the kind of issues that occupy this research. Foote persuasively exposes his thesis that Twain deserves much more recognition than he has yet received in the realm of science fiction. Foote asserts that *A Connecticut Yankee in King's Arthur Court* should be acknowledged at the same level of Mary Shelley's *Frankenstein* and H.G. Wells' *The Time Machine*, and presents thoughtful hypotheses that were totally enlightening for this study of the literature of time travel.

His work dissects the details of Mark Twain's *A Connecticut Yankee in King Arthur's Court*. In his preface the author writes that his book includes those things that he found useful about fiction in English dealing with travel to the past. His interest is focused more on the ideas than in bibliography or textual criticism.

Foote's point of view is that Twain's single book inaugurated a genre, as did More's *Utopia* and Defoe's *Robinson Crusoe* in their respective times. According to him, in an opinion shared by this author, *A Connecticut Yankee in King Arthur's Court* is the progenitor of the time-travel story. It provided a new archetype to world literature.

The literary precedents of *A Connecticut Yankee in King's Arthur Court* deal mostly with one-way "travel" to the future by means of a long sleep, as in Washington Irving's story *Rip Van Winkle*. During that time, the only device available to the writer to project a character into the future was to preserve his heroes in such a hibernation.

After *A Connecticut Yankee in King Arthur's Court*, time-travel stories devoted a lot of attention to the consequences of changing as well as observing the past.

Foote's language is very accessible, addressed to a varied audience and the theme is structured in an easy way. His exposition reveals a good understanding of the subject and great expertise handling wide bibliography that assists him whenever it's needed.

Some of Foote's notes led this research to different considerations, like his reasoning as to why authors did not embrace the fiction of time travel until Twain in the late nineteenth century:

In Christian tradition, undoing the past would seem to violate the very ground of the rules of creation. The whole notion of Christian forgiveness of sin is based on the notion that, while an evil cannot be undone, and perhaps cannot even be forgotten, it can nevertheless be forgiven, which is to say that the doctrine of repentance and forgiveness comes as a softening and humanizing of the unalterable physical principle that one cannot unspill the milk. Even Jesus, though He was able to raise the dead, apparently could not spare Lazarus the agony of having died; nor does the idea appear to have occurred to Him. While God could, without violating His own ground rules, create unicorns or centaurs, cause someone to sleep for a hundred years, or even temporarily and locally reverse entropy by raising someone from the dead,

changing the past would seem to shake the very fabric of His universe. (Footc 7)

The author presents his findings in a very systematic orderly list of conclusions approaches that is helpful in the midst of so much unorganized information, which was a major problem during the research. His considerations were totally along the project. From his text we enriched our historical review about time travel stories and his line of thinking provided the big picture to the outlining of our purposes. This organized quality data was not available anywhere else with such a narrow focus.

The book deals exclusively with travel to the past, but it offers a lot of different angles to the analysis of the hidden symbolism of time travel related works, even though we can't share some conclusions, like the following, in which we can perceive his total support to some sort of a forced Freudian thesis to explain the writer's symbols:

It was Brian Aldiss' *Cryptozoic!* which in 1967 theorized that incest was the motive for travel to the past; it was Heinlein's *Time Enough for Love* which, in 1973, made return to the past and intercourse with the hero's mother the source of renewed youth and life. It was Poul Anderson's *Dancer from Atlantis*, however, which in 1972 most completely and sanely made clear the links between travel to the past and psychoanalysis, which is, after all, a confronting of the patient's own past and a demythologizing of that past. (125)

Time travel can be viewed in literature as a search for redemption in the most obvious way that our human mind can envision: turn back time and have a

second chance. The time traveler goes to a place in the past to change some event in the future or goes to the future to avoid some consequence of present conduct: "The figure of the time traveler appeals to the artist as a distorted reflection of himself, desperately needing the experience of the Others as material, just as desperately needing to distance himself psychologically from that same Other" (172).

Foote poses clever and hard questions: "Why did the idea of travel to the past, and the attempt to change the past with hindsight and technology, first appear in America? Why in 1889? Why in the work of Mark Twain?" (171). His answers to these include the American equation of geography with time and thus of spatial with temporal travel (with Eastern states and Europe as past and the Western frontier as future). This thesis is one of the best developed of the book, concluding that "Mark Twain was ideally situated, midway in two past-future geographic continua, to give utterance to such a concept" (171).

Another of Foote's conclusions used in this project are that "America is to Europe as child is to parent, and as the present is to the past: both these relationships were in a condition of peculiar strain at the end of the nineteenth century, and therefore both attraction and repulsion are at a high level" (Foote 172) and that "the hero of [American] fiction is nearly always a freedom-seeker; and in Twain's day, the places on this earth where one might escape to freedom were becoming fewer and fewer" (172).

Some others of his conclusions about the incestuous themes supposedly satirized in Twain's work and the steamship as a symbol of imperialism appeared for us too forced and not as convincingly based as the above mentioned.

Foote organized his book into eight chapters. The first two try to delimit his objective. The next five chapters are headed "Children of the Yankee," outlining his view that *A Connecticut Yankee in King's Arthur Court*, Hank Morgan, is the father of time travelers. Each chapter is named after a different category of tales: the Nostalgics; the Innocents Abroad; Cecil Rhodes and Company; Dear Old Dad and His Girl; and These Curious Strangers. By this means the author provides an analysis of many time travel stories to show how they elaborate upon issues implicit or explicit in the genre's archetypal work, *A Connecticut Yankee in King Arthur's Court*. Some key themes established in Foote's discussion include:

nostalgia for a past rightly or wrongly viewed as better than an unsatisfactory present or threatening future; Americans from the new world as tourists revisiting the old world to search for their cultural past; imperialist exploitation of natives in technologically primitive areas that are regarded as part of the past rather than the present and accordingly fair game for looting; the psychology of curiosity about the past and of fantasies about revisiting our earlier selves, especially for a replay of childhood with the advantage of adult hindsight; and the time traveler as alienated stranger through whose eyes readers can view themselves and their civilization from an estranged perspective. Foote's five core chapters are a nice exercise in comparative literature at its best. They show how well *A Connecticut Yankee* serves as a paradigm for understanding later varieties of time-travel stories. They show too how comparison of such stories with Twain's text allows exact analysis of its structure and significance. (Alkon *Remaking the Past*, n.p.)

The last two chapters of the book offer Foote's conclusions and explanations. For the effects of this research the primary value of Foote as a source is the author's deep knowledge on the subject of time travel and its literature, his great bibliographical resources, plus his understanding of the links between science fiction and history.

Bud Foote's *The Connecticut Yankee in the Twentieth Century: Travel to the Past in Science Fiction* is an essential source for any research about time travel even though it only provides information about writings in English, and exclusively about travel to the past.

Chapter 4

RESULTS

Time travel tales are meant to take the reader out of reality as an escape, but they also can project social themes along with the hidden thoughts and human desires that the author, consciously or unconsciously, want to communicate. As reflections of the times and as a way to express feelings, objections, problems, philosophy, world and society, time travel story telling constitutes a form of art and a separate genre in the field of literature

I consider time travel literature whether fantasy or science fiction as forms of art. "What is art about? It is to enrich our perception of the present. And science fiction does that in a very strange and interesting way...Art unscrews the inscrutable, reconciles the irreconcilable. It's about contradiction; it's about mixed feelings. Science fiction deals with our mixed feelings about the high rate of change that has occurred for the last 200 years" (Foote qtd. in Dunn n.p.). This chapter will identify the most prominent methods of time travel described key scientific ideas that support this literature. It will also identify paradoxes of time travel that can complicate the stories. The discussions will include references to films that have been instrumental in extending the reach of literature into popular culture.

Literature has always played an important role in the history of Humankind. It has been a reflection of the human behavior and the given

historical moment lived by the writer in his own flesh. But in the case of fantasy and science fiction it has also been a powerful stimulus to the minds and imaginations of men and women around the world. The difference between science fiction and fantasy is that, in fantasy, many questions can remain unanswered but in science fiction, the reader will require some explanations that allow us to suspend our disbelief. Pierre-Jules Hetzel announced that Jules Verne's first works goals were to "outline the geographical, geological, physical, and astronomical knowledge amassed by modern science and to recount, in an entertaining and picturesque format that is his own, the history of the universe" (Hetzel qtd. in Alkon 66).

The interaction between fiction writers and prominent figures of the science is well documented in the history of science fiction and fantasy literature. "Valuable new perspectives can be achieved by recourse to science even if it is incredible science" (Alkon 6). "The 'thought experiment' is a time-honored part of the scientific process. It works by the scientist dreaming up a scenario, which may appear at the time to be fantastical, in order to push current theories to their outer limits. The purpose in so doing is to expose any logical flaws or inconsistencies in the theory" (Davies 124).

In the early 80's the astronomer Carl Sagan (1934-1996) decided to write a science fiction novel, *Contact*. The novel was not about time travel. It was about making contact with aliens following the instructions from a radio message received from a super-advanced alien civilization that contained in itself [the

radio message] the design of a machine able to create a wormhole in space between Earth and the star Vega.

Dr. Eleanor "Ellie" Arroway uses this device to travel and meet the aliens. Therefore, Sagan needed a realistic path to facilitate this communication between the two races. He needed to make, at least in words, interstellar travel possible. This is the reason why he asked his friend Kip Thorne, Professor at Cal Tech, for advice about that matter. "Professor Thorne took the trouble to consider the galactic transportation system described herein, generating fifty lines of equations in the relevant gravitational physics" (Sagan 431).

The novel's point where we can perceive some sort of time theme is after the five travelers return from the center of the galaxy following a fantastic experience with the Vegans:

Ellie wondered how much time had passed. She glanced at her watch. It had a been a day at least, which would bring them well into the year 2000...The clocks read 15:20. Activation had occurred close to three o'clock the previous afternoon. So they had been gone just a little over twenty-four... 'What day it is?' she asked... 'It's today, Friday December 31, 1999...The whole thing took maybe twenty minutes.' (374-375)

What for the travelers seemed a whole day, for the observers of the machine seemed like 20 minutes.

Here Sagan used the wormhole idea as a fictional device to justify the coverage of such great distances without the use of faster-than-light-travel.

"Wormholes. In the revealing jargon of theoretical physics, the universe was their

apple and someone had tunneled through, riddling the interior with passageways that crisscrossed the core" (426). This had to be a benign wormhole "that stayed open long enough to allow Jodie Foster to get through, and did not rip her apart with gravitational forces or incinerate her with surfaces of infinite energy" (Davies 60). Therefore the author used the notions of exotic and antigravitating matter, after consultations with Kip Thorne. Thorne offered Sagan the possibility of using a wormhole as the short cut that his heroine needed to make contact with aliens. "If you have a wormhole so you can do this very rapid travel, then you can turn them into time machines for going backward in time" (Thorne BBC Horizon, n.p.).

Science fiction also has a social role of preventing future shock by allowing easier psychological accommodation to corresponding realities when they materialize (Alkon 59). In the specific case of the time machine, it serves as means of conveying us imaginatively to otherwise unattainable situations that are connected in one way or another with real science, rooted in Einstein's work and those who built on it, not to pseudophysics. It also allows a return voyage to provide readers with memories of a future that may shape present attitudes or of a past that will better explain the present consequences (Alkon 50-55).

Time travel also allows us to focus modern social situations in a playful and critical way. Most people seem to discuss time in spatial terms. Americans do it geographically so the past is in the East and the Future is to the West, everybody comes from somewhere else (Foote 171). And as coming from a different place means stages of amazement rejection and assimilation, the time

traveler experiences by the same stages allowing authors to portray symbolically contemporary or historical truths. There is a confrontation of ages. Present vs. past. Present vs. Future. Making a parallelism with the history of the humankind, the time travelers to the past are in some way conquistadores of the New World, white men who changed and keep changing violently the course of history in lands where people are not prepared for such cultural shock. When powerful and advanced minds impose their technology and their advantages over weaker nations, usually neither is ready for the collision of ideas and ways of life that results.

In books like *Trojan Horse*, however, changing events is not the concern. Despite its conflict with the deepest beliefs of the Catholic Church, the author's detailed work about the preparation for the mission includes strict measures to assure that the time travelers were not to interfere with such a sensitive episode of the history of humanity. This book is an example in which time travel literature can be a way to attract the interest of the new generations about vital aspects of our human development such as philosophy, history and faith.

Obviously the idea of time travel presents hurdles. "A physicist working on the possibility of travel into the past has to be careful not to be labeled as a crank, or accused of wasting public money on science fiction fantasy" (Hawking BBC Horizon n.p.).

Time travel, faster-than-light spaceships, antigravity devices, and similar impossibilities have become established science fiction conventions (Alkon 5,6)

After the reading the seven chosen novels and the related research here are some basic elements of time travel literature.

The first element involves the time traveler. Based on Bud Foote's notes, we can identify certain typical features that are common to most of the time travelers:

1. Most of the times he is a male between 25 and 45 years old: "old enough to have grown bored with the present and disillusioned with his prospects" (Foote 54).
2. He is lonely—maybe unmarried, divorced, heartbroken, widowed or abandoned. He has no children to chain him to his present. He is an only child, and an orphan with no close friends. This is a characteristic of the members of Eternity in Asimov's *End of Eternity*.
3. The time traveler hasn't found a chance to be happy in the present.
4. He is threatened by the future—Marty Mc Fly's situation in *Back to the Future*.

Not all time travelers fit perfectly these characteristics, but the convergence of some of them at the same time, will make the story flow easily and make more sense for the reader. Some can be simply observers or be protected by some sort of shield that avoids their interference with the past or the future.

The time traveler has to be properly prepared and conditioned otherwise; the travel will be too confusing for the brain. Time travel has to be an extremely disorienting experience. Many authors explore this likelihood by describing how when someone travels through time, his or her personal codes of behavior will clash with the human or divine laws and traditions, which he or she runs into in the new time.

Our main character in time travel has several kinds of motivations. They can include living in a better time, the curiosity to see what will happen in the future, or to stay alive longer. He also might be needed in the future. Sometimes the future can be portrayed as worse than the present. This pessimistic vision has been expressed in such big screen productions as *Mad Max*, *Water World* and *Terminator*, which depict the darkest future that doesn't seem very attractive for the traveler.

The time traveler, because he is living out of the constraints of time, seems to think about himself as a God, and acts as one. He is invested with one of God's attributes: foreknowledge. This gives him moral responsibilities that only a god would have. Travel to the past or the future would result in a godlike status because the time traveler has advantages over those who live in the epochs he visits. The situation of our time traveler is that of a person alone in a new environment. Like God, it has no peers. It is not easy, however, to make moral judgments on the behavior of the time traveler. Just as God is often depicted as operating with a morality beyond human understanding. What under normal conditions would be unthinkable acts could be regarded differently for those who

can travel to different moments of history, because they will possess a different kind of knowledge about the things that happened and the things to come, just as God would.

Nevertheless, many time travel tales raise moral considerations relating to the powers derived from the knowledge of the future. If one can avoid a great damage with one's actions, like slaughters, or diseases, or wars, would one take that responsibility? What is morally correct, to let history flow or to try to change it for the better?

Not every time traveler can come back from the past or from the future and not every time traveler desires to be transported to a different epoch. Some just get there accidentally, with no hope to come back. Some come back indeed, some others stay stuck in the past and will never come back. Some others like Si Morley in Finney's *Time and Again*, Jason in J. J. Benítez's *Trojan Horse* go back in time willingly and with a lot of preparation. Crichton's characters in *Timeline* have been prepared for the voyage in an indirect way because of their background as anthropologists but haven't had enough time to make decisions.

The character of the time traveler can be used to develop the author's psychological motifs or symbolism to express a determined message. The time traveler sometimes will confront simple Oedipal circumstances like Marty Mc Fly in *Back to the Future* or some more complex like Heinlein's novel *All you Zombies* or with the character of Lazarus Long in *Time Enough for Love*.

We can also find a resemblance between the time traveler and other fantastic heroes. In Daniel Defoe's *Robinson Crusoe* the protagonist is in an

absolute solitude and he deals with isolation in an adverse and primitive environment. Like Crusoe's Friday, Well's time traveler finds a native girl (Weena) and saves her life. And "Crusoe is, in truth, an ancestor of Hank Morgan, as Morgan himself perceives; indeed, all tales of temporal stranding are robinsonades" (Foote 93). In such stories, "a character is transferred to or marooned in a wholly alien environment, and the story arises from his efforts to deal with the situation" (Bernard Bergonzi qtd. by Alkon 23). Hank Morgan is the classic prototype of the American Entrepreneur seeking for freedom in a time that is not his making use of his temporal advantages. This hero has to take advantage of his technological advancement. He goes from a mass society where he is just another person, to a time and place where he has knowledge that the native people lack.

Another common element of time travel literature, as it is to any epic adventure, is the imprisonment of the main character in the hands of the people from that time. We can appreciate this plot element's inclusion in an ample amount of time travel stories, because a dramatic peak is needed and conflicts between beings representing different times and cultures are inevitable. The time traveler's foreign ideas and his alien sense of morality sometimes clash with the new scene.

An important issue in time travel stories is that of the effects that the traveler can cause in the past. To handle this concept it is necessary to be familiar with the "Butterfly Effect", ascribed to Edward Lorenz, which is the sensitive

dependence of a system on initial conditions: one flap of a seagull's wings would be enough to alter the course of the weather forever.

If we stick to this line of thought, we will conclude that the single presence of an alien element, let's say, the time traveler, for at least a single moment in the past would be enough to change the conditions that influence and shape the present. Will the time traveler's presence in a strange time cause major changes (Chaos Theory) or will the presence of a single human being not be enough to alter the behavior of history (Historical Inertia)? Most of the literature proposes that the smallest change in the past will have a myriad of repercussions in the normal course of history, as we know it. However, we must also consider whether would time travel will let us change the past? According to the last release of the film version of *The Time Machine*, directed by H. G. Wells's great-grandson Simon Wells, no matter how many times we try to change the past, the results will be the same. Sometimes in literature the time traveler can change the past and generate a new time line, a sort of parallel universe, that will eventually complete the past as it was written (self consistency) or to create a different future from that he knew, so the present to which he returns is affected in different degrees of importance, depending on the will of the writer. Is in this latter example that the time traveler can encounter a time paradox, killing his ancestors or becoming one of his own ancestors.

Other speculations in literature suggest that, sending someone far enough into the past might not affect the present, so the story can also take place with no

major changes for the present. This all depends in the personal approach of the author.

The Time Traveler does not always have to fix the timeline that he messed up, like Marty Mc Fly had to do it in *Back to the Future*, as long as someone else repairs it. Maybe the things will go back to their own track just because that is the way that they have to be.

Such questions and paradoxes are unavoidable elements of time travel literature. In most time travel novels, the clever structure of the plot tends to shake under close scientific or logical examination. This is an endemic fault of most of time travel stories. Nevertheless, it has to be excusable, because otherwise the whole fantasy of time travel will be impossible, even in fiction. Such a problem, if it is one, is covered by the "willful suspension of disbelief" that is required of much of our great literature.

Paradoxes

"Paradoxes... arise because the past is causally linked to the present. You cannot change the past without changing the present...Because of the behavior of many physical systems is very sensitive to small changes, even modest tinkering with the past could lead to wholesale changes in the present" (Davies 95). But for Davies causal loops are not intrinsically paradoxical so long as they are consistent.

The most famous paradox caused by travel in time is that of the Grandfather. It raises the question of What if, on a trip to the past, I kill my grandfather before my father was begotten? Then I would never have been born

and I wouldn't have traveled to the past to kill my grandfather. This paradox is portrayed in Robert Zemeckis's 1985's blockbuster film *Back to the Future*, when Marty Mc Fly (Michael J. Fox) goes back in time and his own mother falls in love with him, and as his parents first kiss is avoided, Marty begins to fade from the universe. This doesn't resolve the existence of a paradox, but incorporates it effectively. It is not the only option based on science and logic however.

"Physically possible solutions to such time-travel paradoxes exist" (Gött 13).

Here Gött is referring concretely to the parallel universe theory, based on the quantum mechanics and the Self Consistency Principle.

a time traveler may go back in time and kill his grandmother when she was a young girl. That will cause the universe to branch onto a different track that contains a time traveler and a dead grandmother. The universe in which the grandmother lived and gave birth to the mother who in turn gave birth to the time traveler—the universe we remember seeing— still exists. For it is from that universe (that track) that the time traveler came. The time traveler just moves to a different universe, where he will participate in a changed history. (Gött 45)

Professor David Deutsch of Oxford University, and a great enthusiast for the possibilities of time travel, claims to have hard evidence for parallel universes based on quantum mechanics. "there are nearby universes that differ from this one only in the position of one photon or one electron... when one travels back in time one does not in generally reach the same universe that one starts from. One reaches the past of a different universe" (Deutsch BBC Horizon n.p.).

Travel to paratime refers to a fantastic voyage to alternative realities or parallel universes that are just possible once the past has been changed. It has been used in fantasy writing such as Tolkien's *Lord of the Rings*, Twain's *A Connecticut Yankee in King's Arthur Court* or Asimov's *Fair Exchange?*

The other solution to the Grandfather Paradox is that of Self Consistency: time travelers don't change the past because they were always part of it. So what happened, as we know it, happened not despite, but *because* the time traveler was there. "What has happened has happened. It cannot be changed, it cannot be repeated twice in different ways" (Novikov BBC Horizon n.p.). There is just one possible history. Professor Igor Novikov, from Copenhagen University introduced a principle that supports this resolution of the paradoxes. According to his principle, nature will only allow those behaviors that are absolutely self-consistent (BBC-Horizon, n.p.) Therefore, any attempt to change history by a time traveler is in vain. The movie *Bill and Ted's Excellent Adventure* manages this theory successfully with the result of no time paradoxes at all. Even when this is not a well performed movie we get the general idea of the two teens traveling and meeting Napoleon, Socrates, Billy the Kid, Beethoven and Joan of Arc between others. They live through a circular loop of time and everything goes for the best with total consistence.

Another time paradox is that of finding the younger or the older self in another time as we can see in Heinlein's *By His Bootstraps (1941)*, when the narrator's present and future selves interact with each other to produce the events. The difference of ages between the older and younger self can be great or small

depending on the imagination of the writer, and has proved to offer excellent resources for entertaining through provocative scenarios in talented hands.

“Jinn”

As a product of such paradoxes, we find in different stories another curious literary phenomenon. This is the existence of things that appear out of the blue because we cannot find their origin either in the future time from where the traveler comes from, or in the past from which the traveler takes the element. This element could be an object, a particle, or knowledge. J. Richard Gott calls this strange element without a logical origin in the story, a jinn (from the Arabic word for genie, something that appears magically). For instance, somebody builds a time machine in the year 2020 and decides to go forward to 2025. Once there, he finds information that he brings back to 2020 —just before the construction of the time machine—and makes possible the further development of his travel in time. But where did this information come from? “There is no contradiction: The story involves a self-consistent causal loop so strictly speaking, it is not a paradox but simply a very weird state of affairs” (Davies 103).

To understand this idea of the jinn, we will have to be familiar with the two first Laws of Thermodynamics (the study of energy).

1. It’s also known as the Law of Conservation of Energy. According to it, energy can be changed from one form to another, but it cannot be created or destroyed.
2. It is also known as Time’s Arrow. In all energy exchanges, if no energy enters or leaves the system, the potential energy of the state will always be less than

that of the initial state. This is also commonly referred to as entropy or the level of disorder inside a system. Energy spontaneously tends to flow only from being concentrated in one place to becoming diffused and spread out. Our psychological sense of time is based on the second law. It summarizes what we have seen, what we have experienced and, what we think will happen.

Therefore, as far as we can understand, this “jinn” element constitutes a violation of the First and Second Law of Thermodynamics because in the logical word the matter is not constructed or destroyed, simply transformed. However, this impossibility is not an obstacle for writers, for it to be almost indispensable for some creations in the realm of time travel literature. We can find the jinn as the key link in stories like *By His Bootstraps*—an old notebook that the older self gives to the younger self—or the movie *Somewhere in Time*—a watch that an old woman gives to the protagonist in 1980 and that he himself will give back to the old lady’s younger self in 1919. In this regard, Davies notes: “From the physicist’s point of view, duplicating entities is very disturbing, for it violates all sorts of so-called conservation laws” (102).

The theory of the alternative universes may resolve this paradox too, if we think that in some universe, the jinn has been originated in an ordinary way and when the time traveler transports matter or information to the past, he achieves another level of reality, which would allow the existence of the jinn without its being transformed.

Ways to Travel in Time

Fiction writers are always inventing new ways to travel in time, ever since Wells' initiative in 1895. Light has a finite velocity, even when it is the fastest thing known by us—until now at least. The light of the stars that we see in the night is the light that traveled from the star as it was in past epochs. The farther we look with our advanced telescopes; we simultaneously look a little bit farther back in time. "The only way we can look in space out into space, then is to look back in time. We can never know what the universe is like now. We only know what it was like then. When we look up at a star that is thousands of light-years away, we are really traveling thousands of years back in the history of space" (Gaarder 505).

This might sound anomalous, but it is more widely true than we expect. As Gött suggests us: "Stand 5 feet in front of a mirror. The image you see of yourself is not of you now but of you 10 nanoseconds ago. Traveling at 1 foot per nanosecond, light takes 5 nanoseconds to go from your body to the mirror, and another 5 nanoseconds to return" (Gött 77).

Einstein admitted that he had worried about backward time travel ever since he first formulated the General Theory of Relativity.

Although some deny its possibility: "Travel to the past seems to me to be subversive of all fiction, all morality, and all human significance" (Foote 2), Today, at least in theory it seems quite convincing that a wormhole could be turned into a time machine: "There are several different ways to turn a wormhole into a time machine if you are a clever and infinitely advanced civilization" (Thorne BBC Horizon n.p.).

All kinds of mythology and fantasies have been employed by authors and writers to come back and forth in time through the history of humankind. Most time travel stories—whether the fact that they are developed by a fantasy author or by a science fiction writer—have some kind of mechanism to throw a modern human backward or forward in time. A dream, drugs, hypnotism, gods, gases, magic, a machine or any other writer's device of hand will be useful to attain the desired effect. The range of such devices is described below:

Suspended animation: In Edgar Allan Poe's *Some Words with a Mummy* a resurrected mummy warns Poe's narrator that the present—nineteenth century—was not better at all than her own time. After hearing the mummy's report, Poe's narrator, who is totally disappointed in his time, resolves to imitate Allamistakeo by getting "embalmed for a couple of hundred years."

Travel to the past into one's own body: This is a very frequent device, especially in television shows, like in this last season's episodes of the sitcom *Felicity*, created by J.J. Abrams and Matt Reeve. Here the time traveler finds himself unexplainably inside his younger self in a previous time. This idea, which can also be found in *A Connecticut Yankee in King Arthur's Court*, uses a fantastical explanation to make Hank Morgan travel in time to Camelot's mythological reality. His soul awakes inside its own body but in a different time.

Use of a videotape from the past or the future: In *Sophie's World*, the mysterious Alberto Knox uses a videotape to show the young girl how life was in the ancient Athens, and the girl sees classical Athens change from ruins to the actual city-state in Plato's time.

Mutations: In Poul Anderson's *There will be a Time*, the hero, Havig presents a mutation, linked also to his sterility that allows him to travel through time.

Time Machines: In H.G. Well's *The Time Machine*, the Time Traveller uses a machine to travel in time but the novel doesn't explain any scientific basis that support s the feasibility of the voyage.

Hypnosis or autosuggestion: In the movie *Somewhere in Time*, Christopher Reeve goes back in time by means of hypnosis or autosuggestion. This is also the case in Finney's novel *Time and Again*.

Earth Spin: *Superman II* (Richard Donner, 1978) In one of the more fanciful approaches to time travel, the hero (Christopher Reeves) sees how Lois Lane dies in his arms. In the midst of despair he hears a higher voice and decides to make the Earth spin backwards at a faster-than light velocity—a feat that doesn't constitute a problem due to his super powers—so all the events of the last minutes are reversed, and he can get on time to rescue his beloved.

Wormholes (Carl Sagan's *Contact*): These are short cuts between two places in the universe. From the bending of light during eclipses, there is experimental evidence that space-time can be warped. The wormhole connects to sections of this warped space-time. But to serve as a time machine, a wormhole has to be traversable: this means that the time traveler has to be able to pass through it and emerge in the other side without harm. Wormholes aren't holes through anything; they are actually made of space, understanding space as a substance itself.

Teleportation to parallel universes: In the October 23 issue of the *Journal Science*, Caltech physics professor H. Jeff Kimble and his colleagues write of

their success in transporting a quantum state of light from one side of an optical bench to the other without it traversing any physical medium in between. (Cal Tech Press Release n.p.) This is a former fact of science fiction that has become a reality in the laboratories and that was masterfully used by Michael Crichton in his book *Timeline*.

Tachyon-based Faster-than-light travel. (*Timescape*, Gregory Benford) This is based in the principle of symmetry. Due to the existence of particles called tardyons (that travel slower than light), and lumions (that travel to the speed of light, there should exist also antiparticles of the tardyons called tachyons, that are obliged to travel always at superluminal speed. "If tachyons exist, and can be manipulated, they could be used to send a signal into the past." (Davies 98) But most physicists are extremely skeptical about them.

Other scientific ideas that can be exploited by writers, and probably already are, include the following:

Gravitational time dilation: In Einstein's universe, gravity slows time, therefore time runs slower in space. He gave the world this argument in 1915 when he presented his General Theory of Relativity. In 1959 an experiment was performed at Harvard University to measure the time up at a tower 22.5 meters high by using an accurate nuclear process. The experiment confirmed Einstein's hypothesis.

Faster-than-light drives: Until now, and according to Einstein, a total impossibility, nothing can travel faster than light, and there where light cannot reach, nothing else can: "According to the theory of relativity, if light cannot get

from one region to another [of the universe] no other information can” (Hawking *Brief History* 125) But ultrahigh speed is not a problem in principle. Professor Raymond Chiao, from the University of California, says he and his team have measured that a single photon can travel across a tunnel barrier at 1.7 times the speed of light. He agrees that quantum mechanical tunneling allows occasional random photons to break the light speed limit. There are objects—subatomic particles—that travel very close to the speed of light. The particle accelerator known as the Large Electron Positron (LEP) collider at the Centre Européene pour la Recherche Nucléaire (CERN) laboratory could propel electrons to 99.999999999 percent of the speed of light.

And the German scientist Guenter Nimtz claims to have successfully sent information faster than light. “Some colleagues are claiming that you cannot send information and then we started to transmit Mozart 40 and his is for instance the original tape. That’s what we sent at a speed of 4.7 times the velocity of light and a distance of about 14 centimeters” (Nimtz BBC Horizon n.p.). As we can see the last word in faster-than-light travel has not been said yet. Hawking writes, “if you can travel faster than light, the theory of relativity implies that you can also travel back in time” (*Brief History* 162)

Black hole singularities: These dense, dark bodies in space that suck in everything around them have been a device for time travel. According to the physicists, it is impossible for something to get into it and get out of it unharmed, plus a black hole is a one-way journey to nowhere, a fast track to the end of time (Davies 40).

Spinning black holes: If a time traveler were able to fall into one of these, then all the creatures from the singularity would follow him. A singularity occurs when the quantities in a theory "blow up" or become infinite and therefore its existence is a sign that the theory doesn't work. (Savani n.p.)

Cosmic Strings: Gött has made a whole different proposal to travel in time. These hypothetically created cosmic strings would be made of exotic matter that become so because of pressure.

Time Travel in the Silver Screen

As in literature, the theme of time travel has found an excellent ground in the field of movie making. Today many films keep on reflecting our eagerness to manipulate time. Here we have discussed some time travel related flicks that have created unforgettable cinematic moments.

The Planet of the Apes (1968)

Directed by Franklin J. Schaffner based on the original literary source of the book by Pierre Boulle. In the year 3978 A.D. a spaceship with a crew of 4 crashes on a distant planet. One of the crewmembers had died in space and the other 3 head out to explore the planet. They soon learn that the planet is much like their own. They then find that intelligent apes inhabit the planet. One of the men is shot and killed and the others are taken to the apes' city. There, one undergoes brain surgery and is put into a state of living death. The other (Charlton Heston) befriends some of the apes but is feared by most. After being put through ape trial he escapes with a female human native to the planet. After helping his ape friends escape a religious heresy trial he escapes into the wilderness with a female

human. There he learns the planet might not be so distant after all. He has crashed on the Earth of the future. The human civilization is history.

Somewhere in Time (1980)

Directed by Jeannot Szwarc, this movie is based on Richard Matheson's book *Bid Time Return* (1975). Richard Collier (Christopher Reeve) is a playwright who after one of the presentations of his play receives a gold watch from the hands of a mysterious old lady who tells him "return to me". Eight years later, Collier finds a picture in a hotel that grabs his attention. After some investigation he finds that the beautiful woman in the picture is the same old lady that visited him 8 years ago. Eagerly he searches for a way to travel into the past and after consulting his philosophy professor G. Finney he finds that there is a possibility for him to do so by locating himself in an environment totally deprived of the memories of the present. He longs to return to a time that doesn't belong to him.

The mental time travel that transports him back resembles highly to Si Morley's time travel method in *Time and Again*. After some unsuccessful attempts Collier reaches the experience and finally meets Elise McKenna (Jane Seymour). After a short romance, he finds a cent from 1978 in the pocket of his suit and that sends him back to his present in 1980. He never reaches the trance again and dies shortly after, finding his dearly beloved in the after life.

Along the same line of thinking, Francis Ford Coppola filmed *Peggy Sue Got Married* in 1986 starring Kathleen Turner. It is the story of a married woman

with two kids that is about to divorce her husband. During a party Peggy Sue faints and awakes 25 years before. From that moment she tries to change her life and correct the mistakes of her past and desperately remake her existence. But it is all a dream. When she wakes up her reality shows again and she realizes that time is immutable and that nobody can change the past facts.

Back to the Future (Robert Zemeckis, 1984): Marty McFly is an average, slacker teenager, who is friendly with a local eccentric scientist named Doc Brown. When Doc creates a time machine out of a DeLorean car, Marty is accidentally transported into the year 1955. There, he stumbles upon a younger version of his parents, disrupts the meeting, and must get the two back together so that they would get married and have him! The future for his father-to-be- and the teenager Marty McFly is not shaping up well. His family is dysfunctional, his schoolteacher, Mr. Strickland, is out to get him, his music is just too loud and the rest of the world doesn't care. Only with his girlfriend and Doc does he find the encouragement and excitement that he needs. The movie doesn't solve the time paradoxes allowing an infinite loop of possibilities instead. Marty arranged for his parents to get together but the way in which everything happens, completely changes Marty's present timeline in 1984. But it looks like Marty doesn't change at all. As is often the case, the best time travel stories, present inconsistencies and unsolved paradoxes.

In *Terminator* (1984) (James Cameron) a supercomputer starts a nuclear war to destroy mankind. John Connor leads the human resistance against the machines, so the computer sends the Terminator (Arnold Schwarzenegger) back

in time to kill John's mother before he is even conceived so he will cease to exist. The John from the future sends one of his soldiers, Kyle Reese back in time to protect his mother, Sara Connor (Linda Hamilton). She is targeted and attacked in the year 1984. Reese defends Sara from the Terminator and impregnates her, becoming himself, John Connor's father.

12 Monkeys (Terry Gilliam, 1995) In 1997, after a deadly virus has killed 5 billion human beings, the surviving 1% of the population is forced to retreat beneath Earth's surface. The scientists select James Cole (Bruce Willis), a prisoner, to return to the past (1996) and gather information useful in the defense against this deadly outbreak. Once back in time, he is to investigate the mysterious 'Army of the Twelve Monkeys' and report his findings but he is sent to 1990 by mistake, where nobody believes him and he is confined in a mental institution, where he gets in touch with Geoffrey (Brad Pitt. After explaining his plea to the psychiatrist in charge Dr. Kathryn Raily (Madeleine Stowe). When Cole is sent for the second time into the past, he successfully arrives in 1996, and kidnaps Raily after a lecture on the Cassandra Complex. Cassandra was the Trojan seeress who was cursed by Apollo so she uttered true prophecies but, lacking the power of persuasion, was condemned to never be believed on. Cole uses her to find the Army of the 12 Monkeys, a group of revolutionists that are supposed to be planning to release the virus into selected cities of the planet. But, he is wanted and chased by the authorities for murder and kidnapping, plus he refuses to return to the future; he is in love with Raily.

Event Horizon (Paul Anderson III 1997): The year is 2047 and a ship named the Event Horizon has re-appeared after disappearing 7 years prior, in experiments for faster than light travel. A rescue mission hastily speeds to the returned vessel after a transmission is picked up from the ship, garbled, but vaguely resembling a human voice. As the crew reaches the ship, and spends some time on it, it appears that someone or something is toying with them, and more, the question is what has the Event Horizon become? It turns out to be an alive and evil spaceship, that has come back from some place only comparable with hell itself, and it systematically kills the new crew, making each of them face their most feared situations.

Frequency (Gregory Hoblit, 2000) Due to a rare atmospheric phenomenon, John Sullivan (Jim Caviezel), a New York City homicide officer who is traumatized for 30 years following the death of his father, Frank Sullivan, (Dennis Quaid) a New York City firefighter who at the movie's start, is living on October of 1969. After running into the long-forgotten Frank's short wave radio, John begins somehow, that is never fully explained to us, talking to Frank, from 30 years into the future. The son uses this opportunity to warn the father of his death in a warehouse fire, and manages to save his life. But changing history has triggered a new set of tragic events, including the murder of his mother. Together, and while the aurora borealis allows them to keep in touch, they have to find a way to stop the serial Nightingale killer who exclusively kills nurses from murdering John's mother.

This is not a physical story about travel in time. What travels here is information.

This research has shown some general conclusions. Time travel may appear desirable and fun for the general audience, but for scientists this idea is somewhat scary because of the paradoxes that would emerge and the likely ways nature will solve them. The fact of its impossibility for our current levels of mental or technological development doesn't mean that we can ignore its consequences and implications in fantasy and literature and its link with the human desire to escape or change reality. The most likely future focus of research applied to explore the realm of time travel, will be devoted to developing a Theory of Quantum Gravity, which will reconcile quantum and gravitational physics-fields—that explain nature in a wide range and in microscopic realms. So far these areas of knowledge are responsible for developing nuclear energy and supermarket scanners, lasers and computer chips.

Achieving this theory is a priority among theoretical physicists. Perhaps Hawking and others are right and reality consists of multiple universes. Maybe our description of the universe will be totally revised.

It might be that time travel into the past is possible. It might be that time travel into the past is possible, but they haven't gotten to our time yet. They're very far in the future and it's the further back in time you go the more expensive it is. Then there's the possibility that they're here, alright but we don't see them. They have perfect invisibility cloaks of something. If they're so smart, if they have such highly developed technology then why not? Then there's the possibility that they're here and we do see them,

but we call them something else-UFOs or ghosts or... (Sagan, BBC Horizon n.p.)

So if travel in time is possible, why aren't we crowded with tourists from the future? This objection is covered with Stephen Hawking's observation that it is not possible to use a wormhole to go back in time before the wormhole was constructed. So the day we begin having tourism from the future will mean that the perfect time machine has been constructed already. "Relativity theory says in general that once you've made a time machine you can never use it to go backward in time before the period when it was made" (Sagan, BBC Horizon n.p.). This notion, unfortunately, invalidates Well's *The Time Machine* and many other works involving time travel to the past.

"To make time travel possible one seems to need both general relativity which describes a large-scale model of the universe and quantum mechanics which governs very small scales. These two theories are inconsistent with each other as they stand, so we have to find a new theory that combines them" (Hawking BBC Horizon n.p.).

No one quite knows what quantum gravity is going to say about time machines or about wormholes. In the meantime, Stephen Hawking insists that time travel is impossible and he puts this belief forward as the Chronology Protection Conjecture, maintaining that nature is designed to keep the world safe from time travelers. This innate mechanism would prevent infinitely advanced beings from coming back from the future and preserve the Natural Establishment

as it is. "Nature always comes up with an obstacle to prevent travel backward in time" (Davies 113).

The fantasy of travel in time has offered ground to the most exciting speculations in the realm of Physics to the point that physicists around the world spend time and money researching seriously about this issue: "Time travel is certainly one of the most fun topics in physics, but it has a serious side as well." (Gött xi)

In 1998, quantum teleportation was demonstrated in three laboratories around the world. Physicist Jeff Kimble, leader of the Cal Tech team, said that quantum teleportation could be applied to solid objects.

These quantum curiosities, defying logic and common sense, have received little attention from the public, but they will. According to some estimates, by the first decades of the new Century, the majority of physicists around the world will work in some aspect of quantum technology (Crichton xi).

There are two possible consequences in time travel:

1. That your presence is so infinitely unimportant compared with the total motion of the universe, so the past or the future cannot be modified by your actions. (Historical Inertia)

2. Our presence in the universe is so strategic, that no matter how small or insignificant we are, everything we do affects the rest of the cosmos; therefore, the tiniest intervention in another time would influence dramatically the course of history. (Chaos Theory, Butterfly Effect)

Nobody is the center of the universe. But everybody could be the center of the universe at a certain point. If it is true that the time is a linear structure, isn't it also truth that the line is a segment of a circle?

The discussions about time travel may appear fantastic and unproductive for some, but the truth is, that it has played a major role in the philosophical and scientific answers that the great thinkers of our time are offering to the same old questions that humankind has formulated over and over again since the beginning of our history: who are we and where do we come from?

Chapter 5

DISCUSSION

We could define science fiction as the narrative use of science's facts and theories to create stories introducing novel points of view to the imagination of the reader. In these stories a scientific premise is important, but its actual possibility is not crucial. It doesn't matter if the scientific premise is not believable. This genre relies on the speculations and discoveries of real scientists as a source of fictional narrative. Science fiction has most often been associated with space voyages but explorations of other themes, especially those relating to human psychology, an equally significant though sometimes overlooked in considering the characteristics of the genre. As a proof of this, we have Mary Shelley's *Frankenstein* (1818), which is regarded as the first science fiction novel. Here she looked at both social and psychological themes: the danger of science stepping beyond appropriate human limits, anticipating our age of devastating weaponry and debates about cloning; and psychological, dramatizing human reactions to the monstrous "other" as well as the inner life of the despised. Bailey describes a piece of science fiction as an imaginary invention or discovery in science and the story of its effect on the world. (Bailey 24) "The literature of travel to the past has a place in science fiction, in spite of its intrinsic implausibility, because its central tensions are the same tension expressed more nakedly which generate the central energies of science fiction." (Foote 172)

It is said that Hugo Gernsback invented the genre science fiction when he wrote in his first editorial of *Amazing* that by “sciencefiction” he was referring to Verne’s, Well’s and Poe’s kind of literature, a mixture of romance, science and prophetic vision. Gernsback wrote: “the ideal proportion of a sciencefiction story should be 75 percent literature interwoven with 25 percent science” (qtd. in Landon 51). The term evolved into science fiction later.

Robert A. Heinlein stated some specifications for a pure science fiction story:

1. The conditions must be, in some respect, different from here and now, although the difference may lie only in an invention made in the course of the story.
2. The new conditions must be an essential part of the story.
3. The problem itself—the plot—must be a human problem.
4. The human problem must be one, which is created by, or indispensably affected by, the new conditions.
5. And lastly, no established fact shall be violated, and furthermore, when the story requires that a theory contrary to present accepted theory be used, the new theory should be rendered reasonably plausible and it must include and explain established facts as satisfactorily as the one the author saw fit to junk. It may be far-fetched, it may seem fantastic, but it must not be at variance with observed facts, i.e., if you are going to assume that the human race descended from Martians, then you’ve got to explain our apparent close relationship to terrestrial anthropoid apes as well. (qtd. in Landon 61)

Due to the fact that science fiction novels treat facts that are imaginary, they have the task not imposed upon other branches of fiction of making the improbable at least believable. They must be rich in details to make the tales

credible to the readers while the action develops. In the case of science fiction, subject matter is intellectual, rather than emotional, and yet, to be readable, they must have some level of emotional interest, otherwise they will be boring. Obviously no formula fits every single story, but Heinlein provides solid general guidelines.

The writer that explores time travel must introduce a fact that to our minds is impossible. He must interest and convince us about the truth of his narrative. Some will open their stories with a round table of discussion about the nature of time and possibility of the travel in time (*The Time Machine*), the statement of a project for an invention, a biographical sketch of the protagonist followed by the incredible action, the discovery of a manuscript, (*Trojan Horse*) an average day in the life of the protagonist (*The End of Eternity*), assuming that the reader will bite the fishing hook. Other literary devices are the statement of a mystery of some kind, an encounter with the protagonist of the events that tells his story (*A Connecticut Yankee in King's Arthur Court*), the challenge of a scientific principle (*Timeline*).

Time travel presents some requirements for the writer, such as enhanced knowledge of history and mass trends through the centuries, understanding of society and enduring human emotions. The plots might be different, but the eternal human concerns of hunger, injustice, crime and misery, remain the same. Among the common sub themes in time travel literature, we find love stories between people from different times, the prevention of global destruction,

fortuitous travel where the protagonist didn't intend it, or the resolution of a wrong deed in an alien time.

Nevertheless, the differences between science fiction and fantasy are becoming increasingly blurred at the boundaries. "a sufficiently advanced technology would be indistinguishable from magic" (Arthur Clarke qtd. in Alkon 6). Today the concept of time belongs to the realm of Cosmology. "By reason of its character as continuous, successive, divisible, and measurable, time belongs to the category of quantity, which is a general attribute of bodies, and cosmology has for its object the essence and general attributes of matter" (Catholic Encyclopedia n. p.).

Time travel literature has received nourishment from the most important trends of thinking throughout its appearance and evolution. It is possible to trace this influence all the way back to the dawn of our culture by means of beliefs, legends and traditions.

The longing for the perfect society is a long caressed human dream. Since Plato's *Republic*, we have examples in literature of ideal human communities. Some utopias and satires represent human society, as it should be according with to author's ideals. From here is bred the expressed wish to achieve such desirable social structure by means of projecting the author's mind into the future, either portraying a dreamy world or the consequences of not performing the necessary changes to improve society. But literature and philosophy have also questioned how fulfilling can a permanent state of stability be for the morale of the individuals, as Asimov has asked us in his *End of Eternity* (1955).

Science fiction developed two branches that shaped time travel literature: technophilia exemplified in the works of Jules Verne versus technophobia where Mary Shelley's *Frankenstein* serves as a good example.

The last half of the nineteenth century witnessed the rise of the Industrial Revolution with all its consequences, and two cardinal concepts were being developed in Europe at this time: Darwin's Evolution Theory and Marxism. The high level of influence of these theories, are clearly reflected in the literature of that time, and the soon- to-be-born time travel literature was not an exception. Class struggle and the survival of the fittest were ideas that nourished much of the kind of fiction of the time. But this was not a one-way relationship between society and art. The works of fiction also constructed social positions instead of only reflecting them.

The reflections of this two-way philosophical trend can also be found in the origin of the stories about time travel that were projected from then on. The idea of time travel itself was germinated as "the spectre of communism was haunting Europe" as Marx and Engels announced in 1848. The first practical utopia was trying to take place in the world.

With Charles Darwin's (1809 -1882) new evolution theory, man was seen not as a result of divine creation, but rather the direct descendant of apes in a longer gradual evolutionary process. The feelings that the new view of the universe provoked are recorded in the art of the time: "...as the theory of evolution came to be more thoroughly understood, thoughtful men felt not so much hope or fear as resignation. It revealed how small men are in the scheme of

life and how short their life-span is, compared with geologic time”(Bailey 79). Nevertheless, the possibilities that evolution offered to the fantasy and science fiction writers of the time were innumerable.

Karl Marx’s (1818 -1883) ideology captured the imaginations of many almost instantly, influencing art in Europe as well, frightening the bourgeoisie and stirring revolt in the working classes. Together Marx and Darwin influenced a great deal of the fiction produced just when time travel storytelling was starting to find its ways through literature.

For this research, after the appearance of *A Connecticut Yankee on King Arthur’s Court* (1889) we were concerned with time travel novels exclusively, since they established a foundation for the rise of time travel literature in both fields: science fiction and fantasy.

It seems that Mark Twain was the first writer who imagined a character from the present going back in time, and trying to alter the past. Before that, this motif is not found in literature or folklore.

Before Twain the present only encounters an immutable past in the form of ruins, relics, monuments, histories and magical manifestations of earlier days as when Doctor Faustus conjures up Helen of Troy. The closest approach to tales of travel to the past were historical novels of the kind popularized by Sir Walter Scott and alternative histories of the kind inaugurated by Louis Geoffroy, but neither of these forms makes an explicit leap to projection of a fictive character from the reader’s present into the depicted actual or alternative past (Alkon 118).

At the time Well's published *The Time Machine*, the moment was ripe for such an idea. "Our ancestors seem to have been reluctant even to imagine those things which God Himself could not accomplish" (Foote 15).

Two main literary trends allow time travel: science fiction and the many variants of fantasy, with magical realism falling somewhere between them.

Travel in time is not motivated in fantasy and science fiction literature only because of the human desire to live in a different time and or the need to redeem ourselves from past mistakes and future consequences of our actions. It is also motivated because we are eager to know what really happened in the past and what is waiting for us in the future. Or we wish to enjoy those things that we are supposed to experience in the future, now.

After the appearance of the first novel about time travel in the proper sense, which would be H.G. Well's *The Time Machine*, the search was narrowed to novels strictly written about time travel.

One of the most imaginative and influential writers of the times was Jules Verne (1828-1905), one the most important figures in the science fiction field; even though he never fictively traveled to a different epoch his influence in the literature after him is undeniable. Verne's works are located in the present or in the immediate past with respect to the date they were published. His characters travel to the center of Earth, under the sea, to the moon and back, around the world in 80 days, but they don't travel through time.

Verne (*Cinq Semaines en ballon, Voyage au Centre de la Terre, De la Terre à la Lune*) and Wells (*The Time Machine*) coincided in time, but their

styles differed totally. Verne made the statement that his work and Well's was not of the same nature "We do not proceed in the same manner. It occurs to me that his stories do not repose on very scientific bases. No there is no rapport between his work and mine. I make use of physics. He invents. I go to the moon in a cannonball, discharged from a cannon. Here there is no invention. He goes to mars in an airship, which he constructs of a metal, which does away with the law of gravitation. Ça c'est très joliè but show me this metal. Let him produce it" (Sherard 59).

Their differences are deeper as one looks deeper into their work. Verne wrote for a young audience in plain terms and with notorious optimism. Wells had another background and was preoccupied by the social implications of his plots in the society that he created. His view of the future is bluntly disappointing. Verne opened a wide variety of possibilities for science fiction. Wells took it one step further.

In *The Time Machine*, explanations of the time machine itself may be dismissed because then and now such devices are impossible. Nevertheless, as a literary convention initiated by Wells, time travel is indispensable to the development of science fiction as a literary visionary genre, because without the concepts like interstellar trade, interstellar empires or interstellar anything else are impossible. For this, *The Time Machine* deserves high praise: It also marks the first time the writer imagines a time travel technology, a machine, not some kind of time traveling enchantment. This keeps the tale timely and significant and its readers within the cognitive boundaries of science, not magic, because we live in

an age which regards magic as superstition, but we are accustomed to machinery of all kinds that we do not really understand yet assume are operating on some rational principle derived from science.

The Time Machine work proposed that it is possible to mathematically treat time as fourth dimension. With this imaginative leap he anticipated our modern physics in which we depict our universe as four-dimensional. We can use George Gamow's excellent illustration of this point (Gött 8). To locate an event in the universe, we need four coordinates. For inviting a person to an event you will need more than just the physical location of the event over the face of Earth. If you want this person to attend you will provide a fourth coordinate: the time of the event.

In the field of science in the late nineteenth century, Newton was being challenged. Replacing his widely accepted notion that time is absolute, Einstein showed in 1905, when he was scarcely 26 years old, that time is relative, elastic. Time can be shrunk and stretched in a physical way. In his 1912 Theory of Relativity he declared that the faster you move the slower time passes; therefore time travel to the future is possible by moving very fast. An experiment performed by Joe Hafele and Richard Keating in 1971 proved him right. Four atomic clocks were flown around the world and the time that passed for the flying clocks was compared with the time that passed for the clocks that remained in the ground. After this comparison, the clocks on the plane disagreed with the ones on the ground by several nanoseconds, exactly in the way that Einstein's equations predicted. Time on the plane had warped (BBC-Horizon n.p.). These seminal

literary works imaginative projection of a time travel technology and time as a dimension, anticipates, projects and perhaps even influences entire fields of scientific activity in the new twenty first century.

Once established these crucial archetypes, launched by what can be regarded as a joint venture between Wells and Twain, the new century offered new possibilities for speculative thought in both literature and science. In the wake of the pioneers of this flourishing trend we have the writers like Ray Cummings (1887-1957), Robert A. Heinlein (1907-1988), Sprague Lyon De Camp (1907 -2000) and Isaac Asimov (1920-1992) that were raised under Twain's, Verne's and Well's spell, lived through the Big Depression years, and shaped the time travel writing of the beginnings of the twentieth century.

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