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SCIENCE FICTION AND FUTURISM IN MARY SHELLEY'S *FRANKENSTEIN*

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DEDICATION

To my dear and loving parents…

H. KHELOUFI

DEDICATION

To my dear parent, wife, relatives and friends.

N. DJAIDJA

ABSTRACT

Mary Shelley's *Frankenstein* is a novel which is deeply embedded in the cultural and the political context of its time. It establishes a close connection between science fiction and gothic novel. Therefore, the present research is aims to examine the generic qualities of the novel mainly science fiction and futurism. It also aims to explain the importance of understanding the context to render a critical reading of the novel. Hence, the first chapter discussesthe roots of science fiction as literary genre. The second chapter examines the science fiction and futuristic elements in the novel. The third chapter analyses the novel using a new historicist critical approach investigating the impact of the period on understanding the novel. *Frankenstein* is much more than a gothic novel that can be read for thrills and excitement; it is rather a science fiction novel that still reflects the dreams and realities of our present day.

Keywords: Mary Shelley, Frankenstein, Science Fiction, New Historicism, Futurism

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INTRODUCTION

Many futurists, scientists and inventors, have been inspired by the imagination and anticipation of the future inherent in science fiction novels. The Internet, iPads, and smart machines, some of the world's greatest advances in technology, were once fictional speculation. Arthur C. Clarke, a sci-fi author, wrote in *Profiles of the Future* (1962), *"The only way of discovering the limits of the possible is to venture a little way past them into the impossible."*[1] Isaac Assimov pointed: *"Science fiction writers foresee the inevitable, and although problems and catastrophes may be inevitable, solutions are not."*[2] They inspire us to turn fiction into reality, but they also remind us to reflect on the consequences of our actions and remember what is most important to humanity.

Mary Shelley's Romantic writings are characterized by a marked departure from the ideas and techniques of the literary period that preceded it, which was more scientific and rational in nature. The way Shelley introduces her themes is more complex and challenging. She exceeds much of what her contemporaries were writing by taking the Romantic Movement one step further through the use of science fiction as a new literary genre. This new genre allowed Shelley, for instance in *Frankenstein*, to express and predict deep scientific desires and ambitions, such as organ transplant, which is under debate nowadays. To her credit, she avoids offering her own interpretation for the reader to adopt. Instead, she creates a novel that is far more complex and sophisticated by provoking philosophical, ethical and moral questions that the reader is left to answer.

[1]Arthur C. Clark, *Profiles of the Future.* Gateway, 1962. p 65.
[2]Isaac Asimov, ''How Easy to See the Future. Natural History Magazine. April 1975.

Qualified as the first science fiction novel, Mary Shelley's *Frankenstein* can be read from two main levels; as a science fiction and as futuristic prospect. The whole novel moves around the invention of a scientist and its aftermath. Dangerous aspect of scientific experimentation is the subject matter of the novel. Indeed, the novel shows that thoughtlessness about the consequences of scientific researches causes destruction. Shelley shows the dangerous aspects of modern scientific world, and how scientific investigation goes beyond human control due to the excessive belief in science ability to transform human nature. The novel was written in 1818, an age characterised by the quest for knowledge and truth.

Frankenstein focuses on the future of the scientific advancement and shows that success is rewarded with terrible results. It is Shelley's dispute with the thoughtless development of modern science. The protagonist Victor Frankenstein is a scientist who is driven by personal ambition and scientific curiosity. The scientific investigation of the protagonist resulted in a deformed creature around which the whole plot structure is designed. It is eight feet tall, ugly, and attempts to integrate itself into human social patterns but whoever sees it will definitely feel disgusted and afraid. The feeling of abandonment compels him to seek revenge against his own creator. Also, at this point, it becomes clear that Shelley is very critical about the scientific invention and intention of contemporary people in regard to its results.

Thus, the whole novel spins around the scientific ambition of the protagonist, who makes every effort in the quest of a new kind of creation. However, most scientists are oblivious of the dangerous consequences that might stem from the scientific zeal. Victor Frankenstein is one of the representative figures of modern scientists who creates a monster due to his excessive belief in the ability of

science. But at last, he loses control over his own creation which causes the loss of his family members. Thus, his own creation becomes the very source of his own destruction. He is curious to explain the laws of nature due to his fervent love for science .This event in the novel symbolises the development of modern science.

As an early 19th century novel, Mary Shelley's *Frankenstein*, demonstrates an impending world of science fiction, as well as the consequences of it. Mary Shelly predicts the destructive aspects of the thoughtless scientific researches advancement that challenge both human existence and nature.

Mary Shelly's *Frankenstein*, in which a human body is assembled from the transplanted body parts of the recently dead, can be regarded as the first novel to feature transplantation, although the novel predates the term. Creating a monster do not turn out well for Victor Frankenstein in Shelley's novel, but that didn't stop us from building the atom bomb. We continue to pursue research in fields like genetic engineering, cloning, organ transplantation, and lately head transplantation, regardless of doomsday predictions surrounding these fields of research. So, although science has come a long way since Frankenstein was published, we are still grappling with some of the ethical questions posed by the novel, like what is a scientist's responsibility for the results of his research, and is there a limit to what he should try?

This dissertation will examine how marry Shelly uses her rich and elevated language in a creative narrative point of view combined with her knowledge about science to stimulate the reader's senses, and allowing him frighten himself by creating mental images. Moreover, it will discuss how Mary Shelly's *Frankenstein*

represents our growing interest (and anxiety) surrounding the prospect of organ transplantation, and the questions it posed for the future of mankind.

What science fiction writers imagine often will become a reality through exploring a wide range of themes including aliens, climate change, technological advances and more. Arthur C. Clarke imagined virtual reality in 1958, in a story called "The City and the Stars". In 1888, Edward Bellamy envisaged credit cards and Jules Verne a moon landing in 1865. Genetic engineering featured in Aldous Huxley's *Brave New World* in 1932, and Stanislaw Lem described the eBook in 1961. New research on cloaking devices may make H.G. Wells' 1897 *Invisible Man* a reality. Mary Shelley's electrical stimulation of the body springs to mind when watching someone uses a defibrillator.

In *Frankenstein*, Mary Shelley refers to a quote attributed to Sir Isaac Newton, *"Sir Isaac Newton is said to have avowed that he felt like a child picking up shells beside the great and unexplored ocean of truth."*[3]

Mary Shelley's novel is often taken to be a criticism of unbridled scientific experimentation. This pushes us to think about how much we should experiment with organ transplantation? And what might the consequences be?

This motivates us to go deep in the novel to explore how science fiction art plays an important role in the anticipation of futuristic events. Moreover, for many science fiction authors, writing about the future, is a way to make sense of the present and to express complex ideas of what's to come. Indeed all the works mentioned above including *Frankenstein* truly show to us as humans, that our future is the product of our own experiences.

[3] Merry Shelly. *Frankenstein*. Oxford; New York: Oxford University Press, 1998, p. 35.

Science Fiction usually deals with worlds that differ from our own as the result of new scientific discoveries, new technologies, and new social and psychological theories. Moreover, starting from existing scientific theories, it is used to consider questions about what might be next regarding science, technology, sociology, and psychology. For this reason, science fiction gives the art of literature the ability to influence the direction of humankind. Marry Shelly in her novel anticipates the negative side of the scientific zeal and the consequences of manipulating the secrets of creation.

The purpose of this dissertation is to dive in the novel and explore the impact of the questions it raises on contemporary arguments around head transplantation, stem cells, genetically modified crops, recombinant DNA. Moreover, this research paper first, aims to show the effect of science fiction elements in the novel. Since the originality of the novel shifted literary fiction from entirely imaginary writings to a new genre, this genre unified science facts with the imaginary world. Second, it also aims to point out the futuristic nature of science fiction in Frankenstein, and show how Mary Shelly anticipated nowadays moral and religious dilemma about organ transplantation and gene editing.

In an unprecedented attempt, Mary Shelley's *Frankenstein* mixes reality with the imagination to draw the image of the future. This dissertation seeks to answer the following questions. How does Mary Shelley's *Frankenstein* put the cornerstone of science fiction art? What are the futuristic elements manifested in the novel? And how does the novel reflect socio-historical aspects of its time?

The present study focuses on the art of science fiction and the futuristic elements manifest in Mary Shelley's *Frankenstein*. The novel tackles the thematic

concerns of the industrial revolution prospects and morality with very descriptive language. Thus, Mary Shelley draws vivid images to the nineteenth century man ambitions. She uses vivid description through which the reader can live within his characters and events.

Stylistic analysis of literary work is the examination of the writer's choice of words, and any linguistic phenomena used in the literary work. Shelley's *Frankenstein* presents different linguistic features and thematic concerns. Stylistically, the novel paved the way to new literary genres: science fiction and futuristic writings, which are the main emphasis of this study.

This dissertation will use the genre analysis approach to feature science fiction and futuristic elements in the novel such as partially true-partially fictitious laws and theories of science, realistic and fantastic details, warnings for the future of humankind, unknown inventions, giving life to an abstract theory,... etc.

The approach of New Historicism argues that a work of literature does not exist devoid of its conditions or circumstances. In this light, a literary work is as much a product of the author's mindset as well the conditions that surround it. The historical and social context of the author has a big importance in assessing the construction of the literary work. Our study also uses the new historical approach to analyse the novel in its historical context, and in the light of the author's biography and psychological status; because, it gives all kinds of super interesting context for better understanding works. Works that we read again and again, but when we learn more about how they were performed, or about how the author's biography feeds into them, or about how the political and social upheavals of the time are reflected in them, the work is totally transformed. New Historicism is all

about paying close attention to the historical context of literary works because arty things reflects the values of their culture, of the specific time and place, and it also comments on those values. This can be seen clearly in Mary Shelley's *Frankenstein*, which justifies the choice of this theory.

This inquiry investigates the use of science fiction elements and futuristic views in Mary Shelley's *Frankenstein*. It is composed of three chapters. Chapter one gives a Historical and theoretical background about science fiction as a literary genre and its characteristics, and the futuristic elements in literature. In addition, it focus on the features that make of *Frankenstein* the cornerstone of science fiction. Chapter two is a stylistic analysis of the novel. It focuses on the elements of language and style that demonstrate science fiction and futuristic aspects of the novel. Chapter three uses new historicism approach to examine how the author's biography, psychological status, the political, social upheavals of the time feed into the themes of the novel.

Chapter One: The Emergence of Science Fiction as a New Genre

Before studying the history of science fiction, one needs to think about it as if it is attached to the history of mankind. In its wider scope, science fiction asks the question of where we are as species, where we will go, and what will happen when we get there. Humanity has asked these questions since the dawn of civilization, but it was not until the nineteenth century that we realized that we had technology to do great things, things which were considered impossible in the past.

I.1. The Roots that Fed Science Fiction: Fantasy, Science, and Technology

The origin of science fiction stories is well-known to both critics and the public: by consensus, Mary Shelley's *Frankenstein* (1818) was the first science fiction novel. But the origins of "science fiction" as a concept are neither well-known nor agreed upon. The phrase "science fiction," meaning the genre of scientifically-oriented fantastic fiction, was popularized in 1929 by Hugo Gernsback.[4]

As a new literary genre, science fiction is often considered more appropriate for films than literature. Among the three subdivisions of fiction, which are

[4] Gary Westfahl. "Gernsback, Hugo". The Encyclopedia of Science Fiction edited by John Clute, David Langford, Peter Nicholls and Graham Sleight. London: Gollancz, updated 11 August 2018. Web. Accessed 27 August 2018. http://www.sf-encyclopedia.com/entry/gernsback_hugo.

fantasy fiction and supernatural horror, science fiction is the youngest, but since the late 1940^{s}, it has been by far the most popular, since the total number of science fiction titles published in book form presently exceeds that of fantasy and supernatural fiction combined.

Though science fiction is a modern literary genre, it has roots that go back into the antiquity. Many old texts depict scenes where man travels beyond the limits of the world, and dives into space and the cosmos. A bright example of that is the Greek writer Lucian who wrote *True History*. This story depicts a man who travels to witness a battle between the people of the moon and the people of the sun. Another example is the most well-known collection of short and long stories One *Thousand and One Night* (1995) written by Muhisn Mehdi which features images that feel like the sprang straight from science fiction story. The story *The Ebony Horse* depicts a man-made horse that, with the turn of a key, can carry a cart beyond the atmosphere into the outer reaches of space.

However, the old stories mentioned above do not credit science for these miracles. Rather, the books and stories depict these machines and aliens as magic and enchantments. It was not until the seventeenth century when writers began producing speculative fictions about new discoveries and technologies that the application of scientific method might bring about, the earliest examples being accommodated within existing genres and narrative framework.

A very important root that has a direct link to science fiction is that of utopian fantasy, whose usual narrative form was the imaginary voyage. The rich tradition of fantasy travelers' tales was launched by one of the first champions of the scientific method, Francis Bacon in his book, under the title of *New Atlantis*

(*1627*). Although the importance of technological progress to social reform had earlier been recognized by Johan Valentine Andrea's account of *Christianopolice* (*1619*) and Tomaso Campanella's description of *La Città del Sole* (The *City of the Sun*) (*1623*). Most subsequent utopian fantasies took scientific and technological advancement into account, but relegated it to a minor role while matters of social, religious, and political reform remained the center stage.

The extreme versions of fantastic voyage overlapped with the standard format of religious fantasy, the dream story. Whenever seventeenth and eighteenth century imaginary voyages found it convenient to cross interplanetary space their devices became phantasmagorical, and dreaming remained the only plausible means of gaining access to the future until the late nineteenth century. Another pioneer of scientific revolution, Johannes Kepler, was the first to couch an earnest scientific argument – a representation of the Copernican theory of solar system – a visionary fantasy. His *Somnium (A Dream, 1634)* also includes an ingenious attempt to imagine how life on the moon might have adopted to the long cycle of day and night.

Although most early accounts of lunar voyages are calculatedly ludicrous, the proposition that the moon and the planets were other worlds was a central contention of the heliocentric theory of the solar system. That theory became an important champion of the cause of science in its contest against religious faith because the Christian Church had adopted the geocentric cosmology favored by Aristotle into its faith-supported worldview. Francis Godwin's farcical account of *The Man in the Moon* (1638) may, therefore, be placed among the ancestors of science fiction as confidently as John Wilkins's earnest essay celebrating the

Discovery of a World in the Moon (1638) – to which a supplement was added in 1640, proposing that men would one day journey to the moon.

With the advent of the eighteenth century, we come to that period known as the "The Enlightenment". It has a paramount importance in the development of science fiction. The "Enlightenment" presents an eighteenth century philosophical consensus that agreed mostly on the primacy of reason and the importance of experimental and evidential science, and challenged the older religious myths and superstitions. Diderot's *Encyclopédie* (1751-65), a prestigious seventeen-volume collection of all that was then known, stands as one icon of the age since many pioneering French philosophers contributed to it among them is d'Alembert, Rousseau, and Voltaire.

The *Encyclopédie* represents a belief in the virtue of complete knowledge, especially scientific, material knowledge. In the words of Isaiah Berlin, *"the eightieth century was perhaps the last period in the history of Western Europe when human omniscience was thought to be an attainable goal"* and when almost all thinkers, despite their disagreements, agreed that *"the truth was one single, harmonious body of knowledge,"* the acquisition of which would solve humanity's problems[5].

Too much greater degree than is the case in the seventeenth century, the Eighteenth century sees close cross-pollinations between science and literature. Isaac Newton (1642-1726) was perhaps the greatest in Western tradition. Amongst his landmark scientific works are *D Motu Corporum* (*On the Motion of Bodies*1685) or what is known today as Newton's law of motion and gravitation.

[5]Isaiah Berlin, *Enlightening*. Paperback, 1960, p14.

Newton was part of the first great wave of scientific development, a period of rapid advancement in knowledge which included the work on atmospheric pressure of Robert Boyle (1627-1691), the natural and microscopic science of Robert Hooke (1635-1702), whose *Micrographia* (1665) contained many drawings of microscopic creatures and objects. Neal Stephenson's *Baroque Trilogy* (2003-04) extravagant dramatizes the bustling power of Restoration and early seventeenth century science precisely as a precursor discourse to science fiction.

I.2. Subgenres of Science Fiction

There has been a lot of discussion about the definition of Science Fiction; it is one of the most misunderstood reading genres. With roots going way back in history, science fiction is very diverse and overlaps with a number of other genres. Film and television are primarily responsible for the misconception most people have about science fiction which has focused on accounts of alien invasion, monsters, "space opera" and futuristic adventure tales. One simple definition of science fiction is that *"posits worlds and technologies that could exist, in a setting outside everyday reality."*[6] One useful way of understanding science fiction is by dividing it into two major categories of "hard science fiction" and "soft science fiction".

When it comes to "hard" science fiction, some aspects of future science and technology are so central to the tale that if you take out the science or technology, the story would collapse. Mary Shelly's *Frankenstein* is the best example. If the scientific elements are removed from it, there will be no story left. Hard science

[6]Northfield Public Library. https://guides.mynpl.org/c.php?g=523508&p=3579157.

fiction is based on reality, the real world, as science has discovered and explained it. But it goes a step further, beyond the known and into realms that have not been discovered and explained yet. The rule of thumb for a writer of hard science fiction is that the writer is free to use anything his or her imagination can invent and depict, so long that no one can show that it contradicts the tenets of known science. So hard science fiction is all about forms of fiction that are set in the here and now, on the Earth, where the sky is blue and where there is solid ground beneath your feet. Science fiction tales, however, can take us to other worlds, other times.

A good example that serves and explores the features of hard science fiction is the British author Arthur C. Clarke. He is one of the fathers of science fiction. Clarke wrote dozens of books, each one further cementing science fiction in popular culture. In 2001, *A Space Odyssey,* human explores the more distant depths of the solar system for the first time and it does not quite go according to plan. This book explores giant ideas like evolution, the expansion of technology, and the danger of nuclear war, all while detailing concepts such as orbital mechanics and space travel maneuvers with startling accuracy. There is no doubt to Clarke's contribution to science fiction, and hard science fiction in particular.

The other category is called soft science fiction. Unlike hard science fiction this category has two different definitions, the first one is that it explores the social sciences for example, anthropology, sociology, or psychology, rather than engineering or the hard science such as physics, astronomy or chemistry. The second definition is that soft science fiction is not scientifically accurate; it is more concerned with character and speculative societies. This term appeared in the late 1970^{s} and it was attributed to the Australian literary scholar Peter Nicholls.

Perhaps among the most popular examples of soft science fiction novels is Samuel R. Delany in his book *Babel-17*. This series explores human interactions over several periods and cultures. Another example is *This Immortal* written by Roger Zelany. This novel is perfect demonstration to the so called soft science fiction; it is about humans destroying earth and alien species interference to help and prevent earth from destruction. This post-apocalyptic novel also deals with history, myth, politics and the environment.

Indeed, every literary genre has sub-genres that define and specify the genre itself and science fiction is no different from that. Among the most famous sub-genres that science fiction can offer are as the following: space travel, horror science fiction, utopian novel, Alternative History/Parallel Worlds, Apocalyptic and post-apocalyptic. These sub-genres had largely contributed in making science fiction famous since they all share that uniqueness and difference from other literary genres and their sub-genres, because they deal with new subjects and topics such as humanity's future, the impact of science and technology on people, and settings in an alternate time and place.

From the beginning of times, man has looked to the stars and dreamed of reaching them. Stories about how we get there and what comes next are a fundamental part of that dream. Good science fiction can amaze and motivate, warn, raise questions and spark the imagination, inspiring human creativity and each new generation of stargazers.

One of the best things about space travel as a sub-genre in science fiction is its capacity for complexity, creativity, and imagination. From action-packed space operas to dystopian alternate futures to robot fiction, space travel has the power to

transport readers to another time, another place, and another world entirely. It is the kind of sub-genre that let one unplug from the real world to the vast open space of the galaxy which is entirely new.

Early science fiction authors, artists, and illustrators described space concepts and spacecraft based on the limited scientific knowledge available at the time, whereas more modern writers generally portray the same basic systems as used in real life space flight in their literature and art. Novel ideas clearly play an important role in science and technology, even when they do not have an immediately testable aspect, and writers predicted satellites and spaceflight well before they were actually possible.

Perhaps among the best examples of space travel is the novel of *The Martian Chronicles* written by Ray Bradbury in 1951. In *The Martian Chronicles,* Bradbury explores the gradual human settlement of the red planet, through a series of lightly connected stories. Bradbury paints the Martian landscape and its inhabitants with masterstrokes, but equally strong is his portrayal of the psychological dangers that awaits human settlers who arrive there. Reading his work today, it is amazing to see that although Bradbury writes from a time when human space travel had not yet begun, the issues and questions his stories raise are still relevant as humanity takes its first steps into that great frontier.

At first horror stories began as stories in which the focus is on creating a feeling of fear. Such tales are of ancient origin and form a substantial part of the body of folk literature. Horror stories featured supernatural elements such as ghosts, witches and vampires. Horror became a legitimate literary form in the

middle of the eighteenth century when Horace Walpole wrote *Castle of Otranto* in 1756.

Marry Shelley's *Frankenstein* is often regarded as a gothic horror novel; however, this novel is an important entry in the history of science fiction in specific and horror in general, as it is one of the first stories to truly break the traditional horror story through including the scientific element.

Before Shelley, most writers did not bring science to their horror stories. They only focused on the element of the supernatural power as the center. The wife of the famous poet Percy Shelley in *Frankenstein* approached very interesting questions, such as, what negative consequences await us if science continues to advance? Will we entreat on God's domain to create life? And, if so, what are the consequences? Thus, *Frankenstein* is the very first novel which united between horror and science, creating by this a new sub-genre of science fiction as many countless stories will follow later on where technology and scientific advancement went out of mankind control to create a horrific results and consequences.

The ability for the writer to imagine a better place to live in is truly another miracle created by literature. Originally, the concept of a utopia or "Ideal State" is linked to religious ideas of Heaven or the Promised Land and to folkloristic ideas, but it is essentially a future-historical goal, to be achieved by the active efforts of human beings, not a transcendental goal reserved as a reward for those who follow a particularly virtuous path in life.

It can be argued that all utopias are science fiction, in that they are exercises in hypothetical Sociology and political science. Frank Manuel, in *Utopias and Utopian Thought* (1973), argues that a significant shift in utopian thought took

place when writers changed from talking about a better place (utopia) to talking about a better time (euchronia), under the influence of notions of historical and social progress. When this happened, utopias ceased to be imaginary constructions with which contemporary society might be compared, and began to be speculative statements about real future possibilities. It seems sensible to regard this as the point at which utopian literature acquired a character conceptually similar to that of science fiction.

Science Fiction writers in their utopian novels aim to include adventure, risk taking, exploration of special and technological horizons as new revolutionary themes to make old religious utopian novels refreshing from the idea of perfection. In both his most famous novels *Childhood's End* (1953) and *The City and The Stars* (1956) Arthur C. Clarke describes a classic utopia, and then shows it as fatally flawed. In the apocalyptic ending of *Childhood's End*, Earth is destroyed along with its most population. In the course of the novel, Clarke expounds one of the most detailed and attractive utopian futures to be found the whole genre of science fiction. But it is a dead end: there is boredom; the Utopian end in the novel is not the creation of an ideal society on Earth, but humanity rise from the cradle of earth to extinction.

In *The City and The Stars,* the inhabitants of Diaspar ('Paradise') were, perhaps, as contented as any race the world had known, and after their fashion they were happy; there is no disease, no crime, no poverty, no conflict, no material want, and the inhabitants have an almost magical ability to control their environment. Yet, the protagonist Alvin, and Clarke, regard their existence as futile, apparently because it is man's destiny to be curious and to learn more about the world around him. Later on in the story, Alvin breaks apart this utopia, by

forcing it out of its isolation to a future of outward expansion and the winning of the stars, which is the true destiny of mankind.

Seen as both a subgenre of historical fiction and science fiction, alternative fiction stories are set in worlds in which history has diverged from actual history. Alternative history may involve time travel to the past or the future. It may involve travelling back and forth between both as well as current time. This is known as cross travel time. Alternative history stories may focus on a "psychic awareness" or universes parallel to our own. All alternative histories have three things in common. The story must have a point of divergence from the history of our world prior to the time at which the author is writing. The story must involve a change that would alter history as it is known, and the story examines the ramifications of that change. Parallel world stories feature earths or universes that exist simultaneously with Earth.

Often the alternate world's sub-genre in science fiction is framed by postulating that every historical event spawns a new universe for every possible outcome, resulting in a number of alternate histories. This literary interpretation is sometimes rooted in the many-worlds interpretation of quantum mechanics formulated by the physicist Hugh Everett, an alternative to the Copenhagen interpretation originally formulated by Niels Bohr and Werner Heisenberg. This kind of alternate universe is often the backdrop of stories involving time travel and is often used to rationalize the logical paradoxes that arise when an author allows characters to travel backward in time.

The concept also arises outside the framework of quantum mechanics, as is found in Jorge Luis Borges short story *El Jardín de Senderos Que Se Bifurcan*

("The Garden of Forking Paths"), published in 1941 before the many-worlds interpretation had been invented. In the story, a Sinologist discovers a manuscript by a Chinese writer where the same tale is recounted in several ways, often contradictory, and then explains to his visitor (the writer's grandson) that his relative conceived time as a "garden of forking paths", where things happen in parallel in infinitely branching ways. While this is a common treatment in science fiction, it is by no means the only presentation of the idea, even in hard science fiction. Sometimes the parallel universe bears no historical relationship to any other world; as in the novel *Raft* by Stephen Baxter, which posits a reality where the gravitational constant is much larger than in our universe.

In 1884, Edwin A. Abbott wrote the seminal novel exploring this concept called *Flatland: A Romance of Many Dimensions*. It describes a world of two dimensions inhabited by living squares, triangles, and circles, called Flatland, as well as Point land (0 dimensions), Line land (1 dimension), and Space land (three dimensions) and finally posits the possibilities of even greater dimensions. Isaac Asimov, in his foreword to the *Signet Classics* 1984 edition, described Flatland as *"The best introduction one can find into the manner of perceiving dimensions."*[7]

In 1895, *The Time Machine* by H. G. Wells used time as an additional dimension in this sense, taking the four-dimensional model of classical physics and interpreting time as a space-like dimension in which humans could travel with the right equipment. Wells also used the concept of parallel universes as the fourth dimension in stories like *The Wonderful Visit* and *Men Like Gods*, an idea proposed by the astronomer Simon Newcomb, who talked about both time and parallel universes.

[7]Isaac Asimov. *Signet Classics 1984 edition*. Barnes and Noble,1983, p1.

This subgenre includes works that have been written as a result of a nuclear holocaust, World War III and other apocalyptic wars between humans, pandemics, astronomic impacts, ecological catastrophes, cybernetic revolts. They may be about the decline and fall of the human race, an expanding or dying sun, a religious, supernatural, sociological, or economic collapse. Post-apocalyptic fiction differs from apocalyptic fiction, where the end of the world is currently taking place and the characters are fighting to survive it.

Post-apocalyptic fiction can be set in the current day or the far off future. Additionally, the story can take place right after the cataclysmic event or years after the event. In post-apocalyptic novels, technology can be that which we have never seen before, or there can be no technology at all. Also, characters can remember what the world was like, or they cannot remember at all what the world was like and will fantasize about the way it used to be or even go so far as to create myths about the world before the destruction.

The stories of post-apocalyptic novels are often action and adventure, survival stories. When post-apocalyptic fiction is written for teens, the protagonist or protagonists are surviving on their own or in packs, and oftentimes the "hero" of the story has outstanding survival skills and can figure out how to survive in this new world. As in most novels written for teens, adults can be absent in post-apocalyptic novels. However, it is not uncommon to have an adult in a post-apocalyptic novel positioned as an evil figurehead, or the one person our hero or heroes are trying to find or keep safe. Post-apocalyptic novels can have elements of other genres in their story. The most common is to have dystopian governments in place.

Wool written by Hugh Howey in 2013 is a perfect example that demonstrates the features of post-apocalyptic science fiction novels. *Wool* as a novel is about a ruined and toxic future, a community exists in a giant silo underground, hundreds of stories deep. There, men and women live in a society full of regulations; they believe are meant to protect them. Sheriff Holston, who has unwaveringly upheld the silo's rules for years, unexpectedly breaks the greatest taboo of all: he asks to go outside. Another work is a novel called *Cyber Storm* written by Matthew Mather in 2013. Matthew in his novel depicts as the world and cyber world come crashing down, bending perception and reality, a monster snowstorm cuts New York off from the world, turning it into a wintry tomb where nothing is what it seems. Author Mather has deep technology experience, and it shows: his nightmare scenario is hailed as both realistic and terrifying.

I.3. Mary Shelley and the Rise of Science Fiction

Frankenstein is often called a Gothic novel, on the grounds that the popular horror stories of its day mostly shared a set of characteristics which justified that label, but it ought not to be thus classified. Despite certain similarities of method and tone, its subject matter is very different from that of the classic Gothic novels. Horace Walpole's *The Castle of Otranto* (1764), Anne Radcliffe's *The Mysteries of Udolpho* (1794), Matthew Gregory Lewis's *The Monk* (1796) and Charles Maturin's *Melmoth the Wanderer* (1820) all involve sinister ancient edifices, evil conspiracies, and hideous apparition, invariably interpreted as supernatural, though sometimes ultimately rationalized. The pretention that *Frankenstein*, which employs none of these motifs, belongs to the Gothic sub-genre serves mainly to

obscure the remarkable originality of its own subject matter, which is broader and forward-looking.[8]

Victor Frankenstein might be regarded as a character of the diabolically inspired villains of the Classic Gothic novels, but his personality and his ambitions are very different. Although he takes some early inspiration from alchemy of a kind which the inquisitorially-minded might regard as the devil's work, he undertakes a decisive change of direction when he decides that it is modern science, not ancient magic, that will open the portals of wisdom for scholars of his and future generations.

By virtue of this move, *Frankenstein* began the exploration of imaginative territory into which no previous author had penetrated. For this reason, the novel is more aptly discussed as a pioneering work of science fiction. Although it was written at least half a century before its time, and it does considerable disservice to the image of science as an instrument of human progress.

Many critics and writers credited *Frankenstein* as the first real science fiction work. Dziemianowicz Stefan, who is both an author and a cretic, first defines science fiction as the fiction in which science plays an important role. These fictions tend to be *"based on speculative scientific discoveries or developments."* Science fiction emerges as a genre as science and technology increasingly become a part of everyday life. Dziemianowicz reports that the first science fiction novel is seen by many to be *Frankenstein*, released in 1818 as the Industrial Revolution is

[8]David Seed. *Anticipations: Essays on Early Science Fiction and Its Precursors.* Liverpool University Press, 1995, p47.

underway and scientific and technological advancement begins to become more salient.[9]

Some claim the novel to be the first legitimate example of the genre we now call science fiction, a genre that: is grounded in valid scientific research. It predicts what might be possible in the future given new scientific discoveries; and, offers a humanistic critique of either specific technological inventions or the very nature of scientific thinking.[10]

It is entirely appropriate that Brian Aldiss through his work *Trillion Year Spree: the True History of Science Fiction* should have worked so hard to establish *Frankenstein* as the cornerstone of the modern genre of science fiction; the underlying world-view of the novel entitles it to that position. He identified *Frankenstein* as *"the Origin of the Species"* of science fiction.[11]

First, such a claim can be supported by Shelley's representation of Victor's education as a man of science, and his subsequent experiment with the creature, which demonstrates how the novel establishes distinct kinds of experimental investigation into the meaning of life. Second, her representation of the creature's creation through the electrical reanimation of disparate dead body parts which is clearly about science.

In the first chapter of his own narration, Victor Frankenstein regards his engagement with science as the *"genius that has regulated his fate"* although tellingly, he does not describe it as "science", but *"Natural philosophy"*, the term

[9] Dziemianowicz Stefan. *H. P. Lovecraft Selects: Classic Horror Stories.* Fall River Press,2016, p 216.
[10] Mellor, A. K. *Mary Shelley: Her Life, Her Fiction, Her Monsters*. New York: Routledge,1988, p 46.
[11]Brian W. Aldiss, *Trillion Year Spree: the History of Science Fiction* London: Victor Gollancz, 1986, pp. 36-52.

used in the eighteenth century to describe both the physical sciences such as chemistry and physics and also the life sciences, biology and zoology. This distinction is not a slight one, for in the details of Victor Frankenstein's education as a "man of science", and in his most famous experiment, the novel proposes a kind of argument about the nature of science. As a boy, untutored but enthusiastic, Victor is an alchemist, but as he is educated, he seems to leave off alchemy, as a childish delusion, and to take up enlightenment science, chemistry, and anatomy especially. As we trace this move, we see the history of the scientific revolution, and the Enlightenment, being played out in miniature.[12]

Indeed, it is this failure, and the alchemists' ignorance of certain physical processes, distillation and "the wonderful effects of steam", that lead him to become disillusioned with alchemy. Instead, it is the new science, or the "science of natural philosophy"[13] as he himself calls it, that attracts his attention: first, the demonstration of the vacuum by use of an air pump (an experiment which proved that air was matter), and secondly, the vivid lesson accorded by the effects of lightening on a tree outside the family house in Belrive. Victor's discovery of electricity, as explained to him by his father, was the *"last stroke which completed the overthrow of Cornelius Agrippa, Albertus Magnus, and Paracelsus."*[14]

The creation scene itself, at the beginning of chapter four in the 1818 edition, summarizes this ambivalent encoding of alchemy and science. *"With an anxiety that almost amounted to agony, I collected the instruments of life around me, that I might infuse a spark of being into the lifeless thing that lay at my feet."*[15] Marilyn

[12]See Dorinda Outram, *The Enlightenment* .Cambridge: Cambridge University Press, 1995.
[13]Merry Shelly. *Frankenstein.* Oxford;New York: Oxford University Press, 1998, p34.
[14] Ibid., p37.
[15] Ibid., p38.

Butler has astutely suggested that this implies the presence of scientific apparatus. Referring to the research on electricity in the animal nervous system conducted by Luigi Galvani (1737-98), her suggestion is that the "spark of life" that is here infused is electrical in nature. *"Frankenstein may have calculated he needed a gigantic Voltaic battery."*[16]

The word "instrument"[17] is indeed used in a similar fashion earlier in the novel but Waldman also describes the alchemists as "instruments" of research.[18] Victor's procedure also calls to mind the vitalism theories of contemporary physiologists such as the anatomist John Abernethy, who argued in 1814 that life was an effect of *"a subtle, active, vital principle, pervading all nature […], and denominated the Anima Mundi."*[19]

The discussion above shows that, the main character and the main events in the novel are of scientific concern. This helps in establishing the claim that Mary Shelly's *Frankenstein* is well deserved to be the cornerstone to science fiction genre.

[16]Marilyn Butler. *Versatile Monster*. London Review of Books 1988 – Vol.10, No. 9 – p. 12-13.5 May
[17]Merry Shelly. *Frankenstein*, p33.
[18] Ibid., p31.
[19] Sharon Ruston, *Shelley and Vitality*.Basingstoke: Palgrave Macmillan,2005, p.24-25.

Chapter Two: Creating a New World in Merry Shelly's *Frankenstein*

Writing from personal experience is what makes a literary work a great one. A perfect example of the latter is Mary Shelly's piece of art *Frankenstein*. Mary Shelley's *Frankenstein* or *The Modern Prometheus* demonstrates the development of Shelley's darker, more horrifying literary style while at the same time reflects experiences from the author's life within the character of Victor Frankenstein. This cooperative duality between Mary Shelley and her character allows her creature, and the novel, to continue living.

II. 1. Science Fiction and Futuristic Elements in *Frankenstein*

What makes Mary Shelley's *Frankenstein* stunning and original is the way she decisively broke with the Gothic and other supernatural literary traditions. Shelley moves away from more common myths and religious tropes and creates a sort of scientific myth based upon recent scientific discovery. Then she expands upon this idea in which Doctor Victor Frankenstein creates a creature out of discarded bodies and slaughterhouse leftovers then bringing it to life with electrical impulses. This is quite similar to Luigi Galvani's electrical experiments. *Frankenstein* is constructed much like Isaac Asimov's famous collection *I, Robot* in that *Frankenstein* takes place along the cutting edge of modern science. In *I, Robot,* Asimov discusses the impact of intelligent robots upon humanity as well as humanity's impact upon the robots both from a scientific and social perspective. Mary Shelley combines two major scientific themes in *Frankenstein*: grave

robbing and electricity. Victor collects the pieces of his monster from the dissection table, charnel houses and graveyards much as the preeminent British biologists of the day were doing until the passing of the passage of the Anatomy Act in 1832. Shelley uses electricity as a means to reanimate the creature, and as a way to separate Victor from non-scientific terms like magic and sorcery. Frankenstein's monster is even much like Asimov's robots in that their creator's doubt their humanity and abandon them to a life of misery and servitude.

Shelley wrote *Frankenstein* in an age where scientific advances were exploding rapidly. The discovery of such concepts as electricity had the power to effectively shake the foundations of previously established constructs and truths about the natural world. What is interesting to note, however, is that these issues, considered very "modern" in Shelley's day, continue to resonate with our present age. Our society currently wrestles with such issues as artificial intelligence, cloning, DNA, genetics, neuroscience, and stem cells, which ultimately leads to controversy regarding the roles, uses, and limitations of science. *Frankenstein* as a novel does not exist only as a static representation of a period in history, but as a work that raises timeless questions on the role of science in human progress, technology, and evolution.

Frankenstein as the first science fiction novel is considered the starting point to analyse the relationship between science fiction and futuristic ideas. It is a novel where science plays a major role. Victor Frankenstein is a scientist, the events of the story occur as a result of his scientific experimentations, and as such science becomes closely related to nowadays or future scientific experiments.

Victor Frankenstein is a scientist who becomes interested in the process of imbuing inanimate bodies with life. He discovers a technique, which allows him to reach his goal, and he creates a creature by assembling various body parts from other dead bodies. After he does this, though, he abandons the creature, which turns against him and kills some of his family members and friends. As a result, the roles switch and Frankenstein hunts the creature all the way to Arctic Circle, near the North Pole. There Frankenstein dies of exhaustion and the creature vows to destroy itself so that no others will ever know of his existence.

The novel is representative of the motif of the scientist's creation, which turns against its maker. This idea has triggered a huge cultural outrage, debating issues of ethics and morality in science, which questions the limits of human knowledge. Even today, Frankenstein is a model for the modern scientists who breach the societal norms and want to test the limits of science. The Frankenstein metaphor is perfectly applicable to the issue of nanotechnology, which is branch in technology that deals with the manipulation of individual atoms and molecules. Science fiction writers like Karle Schroeder's *Ventus* (2001) exploit fears of this technology turning into a doomsday. In addition, the novel *Frankenstein* actually has many common elements with new technology, even though they might not be visible at first.

Preservation of anatomical material was of huge interest when *Frankenstein* was written, as it is now, though for very different reasons. Today, the interest is in preserving organs and tissues suitable for transplant. Some individuals even want to cryogenically freeze their entire body in case future scientists are able to revive them and cure whatever disease caused their original death. In that respect,

the aims are not so different from what the fictional Victor Frankenstein was attempting two hundred years ago.

At the time *Frankenstein* is set, the late 18th century, few people were really thinking about organ transplant. Instead, tissue preservation was of concern for anatomy professors who wanted to maintain collections of interesting, unusual or instructive specimens to use as teaching aids for future students. The aim was to halt the decay process whilst maintaining specimens as close to their original appearance as possible. Several techniques were employed and a lot of improvisation. Flesh was dissolved from bones in macerating tubs to preserve skeletons. Skin and nerves were dried out on huge boards. Macerating tubs were often located well away from other buildings to keep away rats and the bad smell. Space in dissecting rooms was so limited that at the university in Dublin, for example, drying boards were located on the roof for lack of a better alternative.

The fascination with human anatomy had reached a peak at the turn of the nineteenth century. In the UK, a number of private anatomy schools opened in the major cities. Anatomy professors and surgeons passed on their knowledge and skills to eager medical students.

Anatomy schools, and their collections of anatomical specimens, might have provided inspiration to Shelley. However, the surgical skills they taught would not have been a great help to her character Victor Frankenstein when he was constructing his creature. Surgery at that time was mostly concerned with cutting bits off rather than reattaching them. The idea of transplanting material between individuals was in its infancy but some aspects of plastic surgery were surprisingly advanced.

An increasing number of duels fought in the sixteenth century meant more and more people were walking around without noses. There was an interest in using skin grafted from another site on the body, often the top of the arm, to patch the gap. Extravagant scaffolds were constructed to hold the arm in place while the flap of skin slowly connected to the skin around the missing feature.

Mary's character Victor would have had to transplant all the internal organs as well as skin, something no surgeon at the time would have contemplated. Victor, like his real-life contemporaries, would have had no concept of tissue matching and would not have thought twice about using material from different species, let alone different human individuals.

Shelley described Frankenstein working in a small attic room using candlelight to illuminate his work *"my candle was nearly burnt out, when, by the glimmer of the half-extinguished light"*[20]. Small rooms, toxic vapours, alcohol fumes and naked flames are not a healthy combination *"I collected the instruments of life around me, that I might infuse a spark of being into the lifeless thing that lay at my feet*[21]. Shelly could show the side effects of the scientific experiments on Victor Frankenstein's health *"Every night I was oppressed by a slow fever, and I became nervous to a most painful degree"*[22] also *"I believed that exercise and amusement would then drive away incipient disease; and I promised myself both of these when my creation should be complete."*[23] Even if he managed to overcome these hazards, the fictional Frankenstein would have had to considerably adapt many of the techniques that had been developed in the 18th century. The anatomical

[20]Merry Shelly. *Frankenstein.*,p 72.
[21] Ibidem.
[22] Ibid., p. 57.
[23] Ibidem.

curators were undoubtedly extremely proficient, to the extent that some examples of their work survive to this day. But these curators were preserving their specimens indefinitely. What none of them were expecting was for their specimens to be incorporated into a creature and reanimated.

Another possibility for preservation is to cool samples, but Shelley was writing long before refrigeration or cryogenics. Even though it was well known that cooling perishable items would keep them fresh for longer, lugging the quantities of ice Frankenstein would have needed to the top of a staircase simply was not practical. Shelley creates a truly brilliant scientist, who perhaps found a method of preservation that enables all the basic physiological functions to restart again. Alternatively, Shelly may have found a method of reversing the inevitable damage from 18th century preservation techniques. The method of preservation that Shelly discusses in her novel inspired many scientific researches in our modern days that would be of huge benefit to health and prolonging life if it became functional.

Scientific experiments in electrical resurrection techniques by Italian physicist Luigi Galvani, and the new anatomical theories of German physiologists such as Johann Friedrich Blumenbach, were the fierce "vitalism" debates at England's Royal College of Surgeons between John Abernethy and William Lawrence, about the possible existence of an electrical "life-force" and the unique nature of human consciousness. These controversial ideas, alive in the great universities and research centres of Europe, fed into *Frankenstein*, and especially into the moral issues that it raised about the perils of scientific interference with nature.

Nowadays, the power of science is giving the public fears and at the same time hope, especially in the area of cloning and genetic engineering. There is a

perception that these new forms of manipulating biological processes threaten the natural boundaries between the human and nature for example, genetic engineering could create unknown side effects or outcomes. Certain changes in plant or animal could cause unpredictable allergic reactions in some people, which, in its original form does not occur. *Frankenstein* continues to be used as a framework with which to express the public's anxieties about these issues.

In *Frankenstein* if Victor had just told someone about the monster, maybe none of the tragedy would have happened. Scientists are responsible for sharing and explaining the results of their research, and the public is responsible for learning about contemporary science, so that they can participate more consciously in current ethical and policy debates about biomedical advances. The roles of ethicists and other interpreters of scientific work, and the media, are critical in informing the public.

II.2. Mary Shelly's Creativity: Engaging Science and Morals

Marry Shelley creates a huge impact on the science fiction genre through her novel *Frankenstein*.Science plays a major role in the plot of the novel. The focus of the story was arrogance of humanity to try to imitate God. There are many things throughout the novel that point out the science in this classic text. One of the most obvious examples of science in this novel is the actual creation of the Creature. In theory, making a creature would not be extraordinary challenge for one with a good knowledge of the human anatomy; the only thing missing here is the actual creation of life. This is where Shelley's creativity establishes a great connection between what is scientific, and what is ethical and moralistic.

Shelley in *Frankenstein* examines the pursuit of knowledge within the context of the industrial age, shining a spotlight on the ethical, moral, and religious implications of science. The tragic example of Victor Frankenstein serves to highlight the danger of man's unbridled thirst for knowledge, a science without morality; however, a deeper consideration of the novel's text reveals a subtle contradiction to such an interpretation. Shelley exemplifies a disastrous effect of unmitigated desire to possess the secrets of the earth; Shelley employs a subtext filled with contradictory language, which implies that such curiosity is innate to mankind and virtually inextricable from the human condition.

Frankenstein's claim to be a science fiction novel rests upon the way of how Shelly presented the character of Victor Frankenstein as "The Modern Prometheus" the Greek myth of the fire-thief and the terrible retribution of the gods certainly would have resonated with Shelley's classically educated readers. However, Victor is not a god; he is a scientist, in this sense Mary Shelley shines as a writer because she presents a scientist as the protagonist, which is a new type of protagonist in literature.

What is unique in Shelly's novel is that God does not direct the retribution that Victor faces in the novel; it is the Creature, who takes revenge on his creator. Shelly could depict the Creature as the symbol of science and technology when it is out of control and shows the wreaking havoc these technologies could bring. Throughout the novel, Shelly shows us that Victor is "The Modern Prometheus" not because he breaks the laws of the gods and suffers the divine retribution but because he is presumptuous enough to think he can wield the god-like forces of science to conquer death and produce a new utopia. The results lead to a tragic denouement with both the Creature and Victor facing destruction.

The creation of Frankenstein's monster is presented as an unsurpassed feat of scientific discovery, yet one that brings only sorrow, terror, and devastation to his maker. In a sense, the creation of the monster is a punishment inflicted upon Frankenstein for his unbridled pursuit of knowledge. This reflects themes presented in Marlowe's *Dr Faustus,* in which Faustus is condemned to hell for his overreaching ambition. These ambitions of Faustus and Frankenstein appear to be beyond the range of information available to mortal, and are in fact infringing upon knowledge meant only for the Divine. In the case of Frankenstein, he has usurped the power of God by creating life without the union of male and female.

In *Frankenstein,* we find a repeated dramatization of crises of perception. The most drastic of them is the shift from Victor's telling of the story to the Creature's account. We suddenly find ourselves plunged into an alien universe of Science Fiction where nothing is called by its right name and all objects reduced to a sensory data. Another example occurs when the Creature, who has been hiding in the novel next to the De Lacey's cottage, reveals himself to the old blind man. Everything goes well at first until the other members of the family arrive and with their unimpaired vision, immediately jump to the wrong conclusion that De Lacey is in danger from a monster. Here Shelley tries to show in a moral sense that a blind man sees better than they do.

Victor's character is that of a romantic scientist. This is demonstrated by his love for Elizabeth to whose beauty he is susceptible. It is also made apparent in the way he responds to nature. His heart leaps up with Wordsworth's when, after Justin's death, he retreats to the lakes and mountains of the Alps. When he hears the cracking and groaning of the ice his scientific instincts are reminded of the silent working of immutable laws which is a practical job of a scientist to discover.

Victor's soul is moved again after the death of William, the first victim of the Creature, he finds some relief in the electrical storm over Mont Blanc.

The two words "artisan" and "artist" have their roots in the same Latin noun, ars/artis, meaning "skill". While today we think of these as two distinctive appellations in which the artisan is a worker skilled in any trade, while the artist is specifically and individual gifted in the fine arts. During the Romantic era the terms were more fluid. Scientists such as Erasmus Darwin, Charles Drawing's grandfather, wrote poetry and Isaac Newton wrote theological tracts, while Victor Frankenstein, in the middle of his scientific investigation, expects to feel like *"an artist occupied by his favourite employment."*[24] The characterization of Victor as a Romantic scientist would have been much less incongruous to Shelly than to a modern reader.

Just one paragraph after the revelation of Victor's discovery, one that appears to defy the natural order concerning life and death, Victor delivers a warning regarding the thirst for knowledge that he himself has fallen victim to, *"Learn from me, if not by my precepts, at least by my example, how dangerous is the acquirement of knowledge."*[25] Yet this statement is fraught with contradiction. Victor first commands his listener to *"learn"* from him and then paradoxically warns of the danger of knowledge. Knowledge is inextricably linked to learning; by nature one leads to the other. Victor could have easily inserted a similar phrase such as *"listen to me."* Because he has not, the clause *"how dangerous is the acquirement of knowledge"* directly contradicts the command, implying that the listener ought not to heed his advice.

[24]Merry Shelly. *Frankenstein.*,p 56.
[25] Ibid., p 53.

Victor goes on to assert *"how dangerous is the acquirement of knowledge and how much happier that man is who believes his native town to be the world, than he who aspires to become greater than his nature will allow."*[26] While it appears that Victor endeavours to glorify a simpler, more provincial life, there is a condescending tone at work. The use of the word "believes" implies ignorance; it insinuates that such a man holds an opinion that is not based on fact or empirical evidence. The use of the word "native" also implies a primitive person; in Shelley's time the word would have had far deeper implications of ignorance than the manner in which it is used today. While the word appears as synonymous with "hometown," the effect on the nineteenth-century listener is to evoke images of a man who is primitive, largely uneducated, and perhaps only a few degrees removed from the "savages" of distant regions. Subtly implied through such subtext is the notion that it is, in fact, the ambitious man that is held in higher esteem, and that it is far superior to thirst for knowledge than to languish in ignorance.

Victor's speech is grandiose in scale as he purports to speak for a vast section of humanity. Victor effectively becomes a representative of mankind, who is supposed to eschew knowledge beyond *"what nature will allow,"*[27]yet in reality finding this quest for knowledge irresistible. In this language of double meanings, Victor, and perhaps even Shelley through him, is making a statement that the fundamental nature of human experience may indeed be to push beyond and surpass the natural limits that have been created. In Shelley's time, with the advent of such spectacular scientific breakthroughs as electricity, there is certainly much evidence for this mode of thought. Though Victor offers a warning against

[26] Ibidem.
[27]Merry Shelly. *Frankenstein.*, p 33.

unbridled curiosity, he serves also as a harbinger of the discoveries to come, discoveries made possible through the inability of humankind to accept its natural limits.

Mary Shelley kept a diary, just like many other writers. She detailed the events of her life within her journals, which have been collected and are now printed in volumes. Many scholars like Mellor A. K. in her book *Mary Shelley: Her Life, Her Fiction, Her Monsters* have acknowledged the importance of these journals that follow Shelley for most of her life. The journals of Mary Shelley provide a special kind of insight into her inspiration for *Frankenstein*, and information about the style of the novel in terms of thematic elements and structure. The Geneva Journal Fragments, in particular, reveal many experiences within Shelley's own life that make their way into the novel.

One of the most powerful comes when Mary describes the Arve as being one of the most beautiful places in the world, an idea that corresponds to Victor Frankenstein's within the novel. Shelley writes:

> *We leave St. Martin on mules at seven o'clock – the road for a league lay through the plain at the end of which we were taken to see the Cascade- the water here falls two hundred and fifty feet dashing and casting a spray, which formed a mist around it… This cataract fell into the Arve, which dashed against its banks like a wild animal who is furious in constraint.*[28]

There is a lot going on in this passage. First, the reader can see how heavily influenced by Romanticism Shelley is. She recounts the beauty of her surroundings in vivid and admiring detail, saying there is something *"divine"* found within the scenery around her, even when it isn't as *"magnificent"* as usual.

[28]Shelley, M. *The Journals of Marry Shelley.* Paperback, 1995, p 144-115.

This is pure Romanticism. This idea that nature and man are so deeply connected that the experience is almost that of a religious one is one of the major themes that pervades Romantic ideology.

Moreover, Shelley describes the way the water falls violently into the Arve. It is interesting the words Shelley choses to describe the water falling from the cascade; *"dashing…like a wild animal who is furious in constraint."*[29] Typically, when a writer refers to a non-human subject the word "that" would be used in the place where Shelley uses the word "who." By wording her sentence in this fashion the author has given a human quality to the crashing waters. The wording in this sentence also blends the savage and animalistic nature of the environment with the even-minded human nature. The dual natures illustrated here correspond to themes in her novel as Frankenstein struggles with his Creature's dual nature, the uncivilized animalistic one that murders his creator's brother, wife, and friend, and the human one that yearns for companionship and acceptance. Duality of natures can also be seen within the character of Victor Frankenstein himself. He starts out as a curious young scientistbut because of his inner turmoil and disintegration into isolation, he ends up extremely animalistic in nature, completely obsessed with obliterating his creation.

Shelley says that *"I was tempted to plunge into the silent lake, that the waters might close over me and my calamities forever."*[30] The idea of constraint is reflective of ideas in *Frankenstein* because the creature is constrained by his hideous appearance. The monster, originally a compassionate and gentle being, is restricted from any sort of companionship by anyone but his creator because of the

[29] Ibid., p 87.
[30]Merry Shelly. Frankenstein, p103.

way he looks. Even when he acts in an altruistic fashion, such as when he saves the drowning child, he receives only hatred and violence in return for his assistance.

Finally, Shelley mentions the glaciers, and tells of how they are part of the most beautiful piece of their journey. The glaciers must have made quite an impression on Shelley because they are present throughout her novel, with Frankenstein globetrotting ever-Northward after his creation, determined to have his vengeance on it. In both the first and the final scenes the glaciers are depicted, introducing the reader to the story and leaving the reader with a last mental image of the ice.

In chapter nine of *Frankenstein*, Victor Frankenstein describes the Arve in a very similar fashion. He says:

> *The weight upon my spirit was sensibly lightened as I plunged yet deeper in the ravine of Arve. The immense mountains and precipices that overhung me on every side -- the sound of the river raging among the rocks, and the dashing of the waterfalls around, spoke of a power mighty as Omnipotence...*[31]

The quote above contains many of the same characteristics as the quote from Mary Shelley's journal. For instance, the influence of Romanticism is evident in the above selection from Shelley's novel when Victor says that the beauty of the ravine lifted the weight from his spirit, and how his surroundings were as powerful as "Omnipotence.", which means almightiness. This once again demonstrates the Romantic ideal of the power and wonder of the natural world and its connection with mankind. Shelley uses many of descriptive words to illustrate the scenery

[31]Shelley, M. *The Journals of Marry Shelley.* Paperback,1995, p88.

around Victor as she does in her journals, she writes about the "raging" river, and "dashing" waterfalls, the "magnificent," "mighty," and "sublime" landscape.

There are many other similarities found in her novel that correspond to Shelley's own life. Obviously, the major one is science. Specifically, the branches of science called natural philosophy and galvanism. Around the time she was writing *Frankenstein*, Mary Shelley was reading a lot of recently published scientific research and having intellectual conversations with Percy and Byron about the findings of scientists like Erasmus Darwin and Luigi Galvani. Erasmus Darwin was reportedly able to reanimate dead matter, and Luigi Galvani found that electrical stimulation made the muscles in dissected animals twitch[32].

Mary Shelley's *Frankenstein: or The Modern Prometheus* demonstrates the development of her darker, more horrifying style through using science fiction as her motive,while at the same time reflecting experiences from the author's own life within the character of Victor Frankenstein in the novel. The cooperative duality between Mary Shelley and her character gives the piece life with its feeling of sincerity that could only have been captured through personal experience. Audiences have long delighted in the story of the tragic scientist, and *Frankenstein* was adapted into a major motion picture for the first time in 1910 where it has remained a favourite of Hollywood ever since.

II.3. The Present or the Future in Mary Shelley's Narrative

The science fiction stories that we remember such as *Frankenstein* are ones that resonate with the public imagination. Most science fiction is forgotten shortly after it is published, but a few of those tales live on for years, decades even

[32]Holmes, R. *Science fiction: The science that fed Frankenstein*. Nature, 2016, p 328.

centuries in the case of *Frankenstein*. In her novel, Shelly highlights that "*Nothing is so painful to the human mind as a great and sudden change."*[33] The fact that a story captures the public imagination does not mean that it will come true in the future, but it tells you something about the present. You learn something about the world when a vision of the future becomes a subject of controversy or delight.

When Shelley published *Frankenstein* in 1818, England was getting completely upended by runaway technological innovation in the Industrial Revolution. Ways of life that had endured for centuries disappeared in the blink of an eye. William Wordsworth would soon write mournful letters and poems about railroads ruining his beloved countryside. Ancient trades disappeared without fanfare; new careers appeared overnight. Every constant was unmade; the maps were redrawn; and the old, steady rhythm of life stuttered and pulsed erratically. Young Mary, eighteen years old when she started writing *Frankenstein*, she felt revolution in the air.

Frankenstein has done more than any other story to define the anxieties of modern life. Mary Shelley could genuinely create a narrative that links between her present days to our modern time. Although time brings many changes to nowadays societies, the conflicts will always remain constant in real life. A number of moral problems occurring in the past continue to be prominent issues of modern society *"When falsehood can look so like the truth, who can assure themselves of certain happiness?"*[34] In Mary Shelley's *Frankenstein,* there is a correlation between the preeminent issues described in the novel and the morally unethical conflict occurring within our modern days as this quote shows *"Listen to*

[33]Merry Shelly. *Frankenstein*., p244.
[34]Merry Shelly. *Frankenstein*., p105.

me, Frankenstein. You accuse me of murder; and yet you would, with a satisfied conscience, destroy your own creature. Oh, praise the eternal justice of man!"[35] In the 1800[s]as today, advances in medical science outpaced discussions of the social, cultural, legal and ethical implications of those advances. Just as Shelley and her contemporaries debated the issues, so do today's thinkers, and the study of bioethics is an international one, as Shelly shows by the quote

"On this occasion a man of great research in natural philosophy was with us, and excited by this catastrophe, he entered on the explanation of a theory which he had formed on the subject of electricity and galvanism."[36] In both form and content, the novel is a product of its time, of the developments in literature on the one hand, and of science on the other hand. We are in the early nineteenth century and thus in the age of electricity, the invention of the voltaic pile, and the experiments with galvanism. These experiments, which employ electricity to cause muscle contractions in human corpses, are incredibly fascinating for people since they create the illusion of breathing new life into the deceased. As a warning about human hubris and the danger of playing God, the novel is as topical today as it was two hundred years ago. Genetic engineering and stem-cell research play out in exactly that area of conflict between science and ethics that *Frankenstein* addresses.

Creating a monster does not turn out well for Victor Frankenstein in Shelley's novel, but that did not stop us from building the atom bomb. We continue to pursue research in fields like artificial intelligence (AI), genetic engineering, human-made pathogens, and Nano-bots, regardless of doomsday predictions

[35] Ibid., p115.
[36] Ibid., p37.

surrounding these fields of research. So, although science has come a long way since *Frankenstein* was published, we are still grappling with some of the ethical questions posed by the novel, like what is a scientists' responsibility for the results of their research, and is there a limit to what they should try in the first place?

Another theme in Mary Shelley's *Frankenstein* is responsibility. In a straightforward even didactic way, the novel chronicles the devastating consequences for an inventor and those he loves of his utter failure to anticipate the harm that can result from raw, unchecked scientific curiosity. The novel not only explores the responsibility that Victor Frankenstein has for the destruction caused by his creation but also examines the responsibility he owes to him. The Creature is a new being, with emotions and desires and dreams that he quickly learns cannot be satisfied by humans, who are repulsed by his appearance and terrified of his brute strength. So the creature comes to Victor, pleading and then demanding that he creates a female companion with whom he can experience peace and love. While Victor is grappling intellectually and practically with the implications of being responsible both for and to the Creature, he is also experiencing responsibility as a devastating physical and emotional state. In this way, Mary Shelley raises the impact of responsibility on the self.

Victor's error is failing to think harder about the potential repercussions of his work. Although he says that he hesitated for a long time about how to use the *"astonishing"*[37] power to *"bestow animation upon lifeless matter,"*[38] this hesitation is due to the many technical hurdles that he needs to overcome rather than to any concern for the questionable results of success. He considers the good

[37]Merry Shelly. *Frankenstein*., p35.
[38] Ibid., p37.

that might come from his discovery, it might lead to development of a method for bringing the dead back to life, but he fails to consider the future of his initial experimental creation. Although he is aware that the single-minded pursuit of his scientific goals is throwing his life out of balance, he utterly fails to consider the possibility that the form he has stitched together and will soon animate may go on to cause harm to anyone, including Victor himself. We might compare Victor to some modern scientists who have stopped their work to consider its potential for harm, such as those who gathered at Asilomar in the mid-1970[s]to consider the implications of research on recombinant DNA or those who recently called for a moratorium on germline gene editing.

Victor's failure to thoroughly anticipate responsibility to consider that there might be both upsides and downsides to his technical achievement is his downfall. As soon as the Creature opens his *"dull yellow eye,"*[39] Victor is filled with *"breathless horror and disgust."*[40] He flees, initially so agitated, he is unable to stand still, eventually falling into a nightmare-filled sleep in which he sees his fiancée, Elizabeth, first *"in the bloom of health"*[41] and then as a rotting corpse. Victor is waken by the creature, but "escapes" again[42]. He is unable to face his creation and is unprepared for the Creature's independent existence.

As the story progresses, Victor's initial emotional reactions to seeing the Creature come to life, disgust and horror, are substantiated by the Creature's actions. Victor learns that the Creature has killed his young brother William, whose death is then blamed on a family friend, Justine. However, Victor knows

[39]Merry Shelly. *Frankenstein*., p41.
[40] Ibid., p42.
[41] Ibid., p43.
[42] Ibidem.

the truth. He understands that he would be implicated in her execution if she is convicted as well as in the murder of his brother, *"the result of my curiosity and lawless devices would cause the death of two of my fellow-beings."*[43] He suffers greatly under this guilt, *"the tortures of the accused did not equal mine; she was sustained by innocence, but the fangs of remorse tore my bosom, and would not forego their hold."*[44] But he does nothing to intervene. The girl is unjustly convicted, *"I, not in deed, but in effect, was the true murderer."*[45]

Throughout the novel, Shelley does not only focus on the dangers of science when it is not under control but she also highlights social problems in which todays societies are suffering from. One of the issues in *Frankenstein* is crime. Whether it is genetic engineering or murder, these crimes still hold their place in society today. Another crime of sorts expressed in *Frankenstein* that is a prominent issue today which the abandonment of children by both parents and maternal units.

This leads to abandonments issues made worse judging of one's character bases solely on their appearance, leaving one on a constant search for acceptance. All these issues conveyed in *Frankenstein* mirror many of the pressing problems in society today. The genetic engineering in *Frankenstein* was also an act of moral turpitude. At that time, such acts were unheard of. Victor's scientific endeavours led him to the creation of an unnatural being unknown to the world. He went against his religious beliefs and his set of moral standards in an attempt to fulfil his unnatural obsession. Genetic engineering is a crime in the sense that it goes against moral, ethical and religious standards.

[43] Ibid., p62.
[44] Ibid., p65.
[45] Ibid., p75.

In today's societies, many mothers are left to raise a child all by themselves while other children have no mother to care for them at all. The very unfortunate children are left stranded by themselves with no one to care for them and guide them in the right direction. Abandonment is a serious crime that is getting worse and worse through time.

Similarly in *Frankenstein,* Although Victor knew that what he was doing is wrong, he could not bear to stay with the Creature and leaves, leaving the Creature alone to fend for itself from the very beginning of its life. The Creature do not know what to do or how to really live and as a result, it struggled from the very moment it was created. *"I, the miserable and the abandoned, am an abortion, to be spurned at, and kicked, and trampled on."*[46]

Even though the novel is a science fiction still it is a cautionary tale also, with a serious message from Shelly's era to our modern life about scientist's and engineers' social responsibility. Mary conveys a concern that unchecked scientific enthusiasm can cause unanticipated harm. For Victor, scientific curiosity threatens the integrity of his family and disrupts his ability to engage with nature and enter into relationships. By employing a protagonist who suffers so greatly as a result of failing to anticipate the consequences of his work, Shelley urges upon her readers the virtue of humility and restraint. In her development of a creature who suffers so greatly because he is despised and rejected by an intolerant human society, she asks her readers to consider their obligation to their creation before they bring them into being.

[46]Merry Shelly. *Frankenstein*., p200.

Chapter Three: Creating a Modern Monster: A New Historicist Approach to *Frankenstein*

All issues discussed in this chapter prove that Shelley's *Frankenstein* is not just a work of fiction whose main themes have no connection to the real world its author lived in, quite contrary, the main purpose is to discover how Shelley's fictional world and its norms reflect the attitudes of the society of her time.

New Historicism focus on investigating and criticizing the text through knowledge of the specific social, political, historical and cultural circumstances which connect with the text and with the author of the text. This chapter will focus on examining the novel from the perspective of the socio-political context as well as Shelly's own experience during that time. Moreover, it will attempt to, in a futuristic view, project *Frankenstein* ideologies on current circumstances.

III.1. Renewing Old Historicism: Dealing with the "Wor(l)d" of the Past

According to a very basic definition in Peter Barry's *Beginning Theory*, new historicism is "a method based on the parallel reading of literary and non-literary texts, usually of the same historical period"[47]. The word 'parallel' encapsulates the essential distinction between new historicism and earlier approaches to literature which make use of historical data. These earlier approaches make a hierarchical separation between the literary text, which is the object of value, and the historical 'background', which is merely the setting, and of lesser worth. In contrast to former

[47] Peter Barry. *Beginning Theory - an Introduction to Literary and Cultural Theory: Fourth*. (Manchester University Press, 2017), p. 172.

approaches, new historicism does not privilege the literary text, but instead *"literary and non-literary texts are given equal weight and constantly inform or interrogate each other."*[48]

A second important difference between old and new historicism is that new historicism is interested in history as represented and recorded in written documents, in other words, in history-as-text. Historical events as such, it would argue, are irrecoverably lost. This emphasis bears the influence of the long-familiar view in literary studies that the actual thoughts, or feelings, or intentions of a writer can never be recovered or reconstructed, so that the real living individual is now entirely superseded by the literary text which has come down to us. As it were, the word of the past replaces the world of the past. Since, for the new historicist, the events and attitudes of the past now exist solely as writing, it makes sense to subject that writing to the kind of close analysis formerly reserved for historical texts.[49]

This stress on the textual record of the past is the influence of deconstruction. New historicism accepts Derrida's view that there is nothing outside the text, in the special sense that everything about the past is only available to us in textualised form.[50] New historicist essays always themselves constitute another remaking, another permutation of the past, as the literary text under discussion is juxtaposed with a chosen document -in our case with Mary Shelley's journals- So that a new entity is formed. In this sense the objection that the documents selected may not

[48] [48] Peter Barry. *Beginning Theory - an Introduction to Literary and Cultural Theory: Fourth*. (Manchester University Press, 2017), p. 172.
[49] Ibid., pp. 174-175.
[50] Ibid., p. 175.

really be 'relevant' to the text is disarmed, for the aim is not to represent the past as it really was, but to present a new reality by re-situating it.

III.2. The Origin of Dreams and Nightmares

In Shelley's introduction to the revised 1831 edition, she tells a story of how she, Percy Bysshe Shelley, Byron, and Byron's doctor, William Polidori, after reading ghost stories together one rainy evening near Geneva in June, 1816, agreed each to write a thrilling horror story; how she tried for days to think of a story, but failed; and finally, on June 15, after hearing Byron and her husband discussing experiments concerning "the principle of life," she fell into a waking dream in which she saw *"the pale student of unhallowed arts kneeling beside the thing he had put together."*[51] In this reverie, the student felt the terror. He felt as the hideous corpse he had reanimated with a "spark of life" stood beside his bed, *"looking on him with yellow, watery, but speculative eyes."*[52]

Death and birth were thus as hideously intermixed in the life of Mary Shelley as in Frankenstein's "workshop of horrible creation." Who can read Mary's journal entry of March 19, 1815, which records the trauma of her loss, when she was seventeen, of her first baby, the little girl who did not live long enough to be given a name. "Dream that my little baby came to life again; that it had only been cold, and that we rubbed it before the fire, and it lived. Awake and find no baby. I think about the little thing all day. Not in good spirits." without shuddering, and without remembering her myth of the birth of a nameless creature ("I thought that if I

[51]Mary Wollstonecraft Shelley and Frederick L. Jones, *Mary Shelley's journal* (Oklahoma University Press, Norman, 1947), p. X.
[52] Mary W Shelley, *Frankenstein* (London: Henry Colburn and Richard Bentley, 1831), p. XI.

could bestow animation upon lifeless matter, I might in process of time renew life where death had apparently devoted the body to corruption."[53]

Six months before, on January 24, 1816, her second child, William, was born. She doubtless expected to be pregnant again in the near future, and indeed, she conceived her third child, Clara Everina, only six months later in December. Mary Shelley's reverie unleashed her deepest subconscious anxieties, the natural fears of a very young woman embarking on the processes of pregnancy, giving birth, and mothering. As many such newly pregnant women have asked, What if my child is born deformed, in Shelley's phrase, a "hideous" thing? Could I still love it? Or would I wish it had never been born? What will happen if I cannot love it? Am I capable of raising a healthy, normal child? One reason Shelley's novel reverberates so strongly with its readers, especially its female readers, is that it articulates in unprecedented detail the most powerfully felt anxieties about pregnancy and parenting.

Mary Shelley's dream thus gives rise to a central theme of the novel: Victor Frankenstein's total failure as a parent. The moment his child is "born," Frankenstein rejects him in disgust, fleeing from his smiling embrace, and completely abandoning him. Victor's horror is caused both by his creature's appearance. "His yellow skin scarcely covered the work of muscles and arteries beneath;" his "shrivelled complexion, and straight black lips"[54] and by his tremendous size. In order to simplify the process of creation, Frankenstein has chosen to work with larger than normal human and animal body parts, in an effort

[53] Ibid., p. 54.
[54] Mary W Shelley, *Frankenstein* (London: Henry Colburn and Richard Bentley, 1831), p. 43.

to simplify the process of creation constructing a being who is of "gigantic stature, that is to say, about eight feet in height, proportionally large"[55]

Never once has Frankenstein asked himself whether such a gigantic creature would wish to be created, or what his own responsibilities toward such a creature might be. "Mary Shelley's novel relentlessly tracks the consequences of such parental abandonment: Victor's unloved "child," after desperately seeking a home and family with the De Laceys and, later, with a mate, is rejected on both counts; Felix de Lacey flees in terror and Frankenstein cruelly retreat on his promise to create an Eve for this Adam. In time, the creature turns to violence and revenge, killing not only Victor's brother William but also his bride Elizabeth and his best friend Clerval. Here Shelley presciently reveals a now-familiar paradigm: the abused child who becomes an abusive, battering adult and parent; note that the creature's first victim, William Frankenstein, is a child that he had hoped to adopt as his own. She modelled this child both in name and appearance on her own son William. This suggests even deeper anxieties about herself as a mother."[56]

III.3. The Socio-cultural and Intellectual Contexts in *Frankenstein*

Mary Shelley's novel depicts the life of a man as he tries to unleash the meaning and essence of existence. Victor Frankenstein is the main character in the story. He describes his struggle of finding the truth behind the physical world. In the beginning, Victor is excited, but after he creates his gigantic creature, he perceives him as physical, emotional, and psychological threats. Throughout the novel, the author relates the story to the situation of the society during 19th

[55] Ibid,. p. 40.
[56] Anne K. Mellor, "Making a 'Monster.'" *The Cambridge Companion to Mary Shelley*, p. 11, doi:10.1017/ccol0521809843.002.

century. She creates a picture of the civilization wherein luxury, wealth, government, laws, and enlightenment are depicted. That is why it is interesting to discuss the historical context of the story based on Shelly's perspective during 19th century. Therefore, *Frankenstein* encompasses the history of 19th century civilization through the birth of science, the representation of woman, enlightenment, and the concept of Marxism.[57]

The creature himself is a symbolism of birth of science—an acquisition of intellectual power beyond the common learning. *"At first I started back, unable to believe that it was indeed I who was reflected in the mirror; and when I became fully convinced that I was in reality the monster that I am, I was filled with the bitterest sensations of despondence and mortification."*[58] This statement of Victor's creature signifies his extreme power and knowledge beyond human thoughts. During the period of 19th century science emerged as a profession. It becomes one of the distinct points of learning during the said era. It means that Shelley is aware of the capability of science to create different entities. Science is one of the most significant points of the novel because it establishes the conflict of the story. When the monster perceives his face into the mirror, Shelley conveys the authority of science over human existence because it has the power to create abnormal creatures – beyond expectation.

Moreover, Shelley also discusses the representation of women in the society within her novel. "At one time I considered whether I should not declare myself guilty and suffer the penalty of the law, less innocent than poor Justine had

[57]"The Historical Context Of Frankenstein English Literature Essay." *UKEssays*, www.ukessays.com/essays/english-literature/the-historical-context-of-frankenstein-english-literature-essay.php.
[58] Mary W Shelley, *Frankenstein* (London: Henry Colburn and Richard Bentley, 1831), p. 97.

been."[59] This statement of Victor encompasses his guilt towards Justine. He knows that this woman is not the murder—it is his creature, but because of his weak character, he lets Justine suffer. This idea is a depiction of women status in the society. During the 19th century when Shelley writes this novel, women have no voice in their culture. They remain as weak, unprivileged, and servants of men. Using the character of Justine as innocent, weak, poor woman, Victor tends to utilize her to surpass his sins. It happens without the knowledge of Justine; because, she does not know the situation in which she is involved. Therefore, Justine's case is a composition of 19th century history wherein women are objects of the society and not treated as individuals.

Shelley's novel is also a construction of social enlightenment during 19th century civilization. This is what Fred Randel (2003) believes in his article entitled "The Political Geography of Horror in Mary Shelley's Frankenstein." "Victor now resembles the European intellectuals who flirted with or actively promoted radical ideas at home, but were aghast when overseas colonies chose to apply Enlightenment notions of human rights to their own condition."[60] Randel states that Victor's character is a signification of social enlightenment through his acts and determination to unleash the secrets of physical life. It means that Victor tries to deconstruct the traditional perspectives of people towards the existence of humans. Shelley uses Victor's character to encompass the idea of enlightenment towards the birth of science. Since science is also a form of physical and intellectual enlightenment, the novel produces a point of history that talks about the non-traditional structure of civilization.

[59] Ibid., p.159.
[60] Fred V Randel. "The Political Geography of Horror in Mary Shelleys Frankenstein." *Elh*, vol. 70, no. 2, 2003, p. 483., doi:10.1353/elh.2003.0021.

Lastly, Shelley describes the concept of Marxism in her novel through the structure of Victor's creature. According to Diana Reese (2006) in her article entitled “A Troubled Legacy: Mary Shelley's *Frankenstein* and the Inheritance of Human Rights,” “Victor Frankenstein can hear the justice of the monster's claim (as an ideal citizen) but cannot grant him the corollary rights of man: the protection of the necessities of his life. In the “series of his being,” as an unfinished citizen, the daemon comes to figure something akin to the “unreal universality” of the rights-bearer in Karl Marx's analysis of the Declaration of the Rights of Man and the Citizen.”[61]

When the monster states his story, Victor perceives the human thoughts of the monster but his physical appearance hinders him to consider him a real human. The concept of Marxism emerges in this point because the creature is called as the “unfinished citizen” due to his appearance. Therefore, he could not obtain the privileges and rights of human beings. This scenario encompasses the history of the society during 19th century wherein people are not equal due to physical appearance. The civilization of this era is degrading as what Shelley is trying to convey because people perceive the beauty and humanness of a person through physical appearance—not by heart, mind, and soul.

In sum, *Frankenstein* depicts the historical context of 19th century in different portions—social class, knowledge, and enlightenment. Shelley unleashes the fact that *Frankenstein* is not just a simple story of horror, but a narration of social issues during the period of 19th century—the period of revolution, knowledge growth, and social awareness.

[61] Diana Reese. “A Troubled Legacy: Mary ShelleysFrankensteinand the Inheritance of Human Rights.” *Representations*, vol. 96, no. 1, 2006, pp. 48–72., doi:10.1525/rep.2006.96.1.48.

In order to show the historicity of the novel we will discuss two main events reflected throughout the novel as it unravels the 19th century life Feminist Movement and the aftermath of the French Revolution.

a. Feminism in *Frankenstein*

While as an extremely creative work of fiction produced by a female writer *Frankenstein* represented an issue of its own kind, its underlying subversive messages directed against male-dominated society of Shelley's time. Keeping in mind that she, though implicitly, in fact harshly criticises the male-biased society she lived in, it is not particularly difficult to understand the reasons for which Shelley decided to first publish her *Frankenstein* without claiming her authorship, since many male authors with the same intentions were criticized during the first wave of feminist movement.

Incidentally, she was the daughter of Mary Wollstonecraft, the author of one of the most influential feminist text - *A Vindication of the Rights of Woman* (1972) - and the first woman to present her distress and dissatisfaction openly. Critics, who did not know this information or have simply ignored it, were "irritated" by such marginal use of female characters in *Frankenstein* and cast them off as unworthy of attention and further study. Nevertheless, there lies the true magic of the novel and, above all, the significance of Mary Shelley's contribution to the world of literature through *Frankenstein*. Jessica Hale claims that Shelley's "completely gendered representation of weak women in need of male protection and careless men undone by unbridled ambition" for which "the binaries of public and private, male and female, presented in the novel demand to be read as a critique of the binaries themselves."[62] Therefore, one can conclude that Shelley did not write about submissive women typical of her time just because it was a Romantic

[62] Jessica Hale. *Constructing Connectedness: Gender, Sexuality and Race in Mary Shelley's Frankenstein*. (Texas University, 2003), p. 12.

tradition; she did it with the purpose of criticising each exhibited aspect of social injustice toward women. As a result of seeing beyond the exhibited social norms they have discovered that "a critique of these oppressive circumstances runs throughout [Shelley's] narrative."[63] But it was exactly this feminist subtext that has helped *Frankenstein* remain one of the most intricate, but interesting texts for the feminist interpretation up until today

Let us start by analyzing the correspondence between character's position of a depraved female as part of the aristocratic society of their time and the hardships of the real lives of the women in the eighteenth and nineteenth centuries. To begin, take a close look at Elizabeth's character. Because of her aristocratic background and the wealthy family she lives in, may give out the impression of a somewhat more prominent character, but her helplessness in relation to men is absolutely equal to the one of Justine Moritz who is a servant at the Frankenstein's house. There is absolutely no difference between the female characters regarding this attitude that the woman should patiently wait at home doing things which Wollstonecraft refers to as "useless" or even "ridiculous"[64] to fill her day while the man, whether it be a husband, father or a brother, could take on any task he wishes to do.

Additionally, Wollstonecraft's claim that marriage is the only way women can rise in the world testifies of a slightly better position which women could obtain if they became a lawful wife. When it comes to Elizabeth, this view is reinforced through the words of Victor who refuses to tell her about the creature and what he actually did during his stay in Ingolstadt before they get married. He says to

[63] Paul Youngquist. "*Frankenstein*: The Mother, the Daughter, and the Monster." *Philological Quarterly*, 1991.(Web. 13 April 2014), p. 344.
[64] Ibid., p. 9.

Elizabeth: “I will confide this tale of misery and terror to you the day after our marriage shall take place; for, my sweet cousin, there must be perfect confidence between us”[65], (clearly stating that he still does not trust her enough to share his troubles with her in spite of her unrelenting devotion. Mary Shelley uses this situation to support her mother's claim by showing just how deeply prejudiced the society of their time was. Although Victor is blatantly putting Elizabeth's life at a great risk by not telling her about the Monster and his killer intentions, he persists in this stubborn belief that women should not be allowed to engage in men's affairs under any circumstances, let alone if they are not married.[66]

Victor’s mother does not protest against her position because the inferiority is embedded in her mindset to that extent that she even acts towards other females in the same way, thus referring to Elizabeth as an object at the disposal of her future husband - Victor - . Bennett and Curran’s remark about Caroline being: “as much a victim of the dominant power system as its proponent.”[67] Moreover, it was also Caroline who decided that Elizabeth should marry Victor, “a design which [Elizabeth] never found reason to repent” [68] and a true characteristic of the patriarchal society of Shelley’s time.

In addition, the author uses Caroline’s character to present how the society of the eighteenth and nineteenth centuries looked on women who to some extent differed from the ideal female fully dependent on men. Shelley does so through a short account of Caroline’s life before she got married to Alphonse Frankenstein and had his children. So, Caroline’s father was a good friend of Mr Frankenstein’s

[65]Mary W Shelley, *Frankenstein* (London: Henry Colburn and Richard Bentley, 1831), p. 169.
[66] Jelena Pataki. “Women in Frankenstein: Mary Shelley's Novel versus Kenneth Branagh's Film.” *Osijek*, 2014, urn.nsk.hr/urn:nbn:hr:142:404215, p. 12.
[67] Betty T. Bennett and Stuart Curran. *Mary Shelley in Her Times*.JHU Press, 2000.Google Books.Web. 9 April 2014, p. 5.
[68] Ibid., p. 38.

who had lost all his wealth due to some unfortunate circumstances. He also became very ill during this time and was not able to take care of his daughter who, according to the ingrained belief of the time, put Caroline in great trouble because she did not have a male figure that would protect and procure for her. Only, Caroline supported herself as well as her father with "plain work; she plaited straw; and by various means contrived to earn a pittance scarcely sufficient to support life". This boldness of Caroline's character to "support her[self] in her adversity"[69] would nowadays probably be regarded as a natural course of action in such situation, but since Victor describes his mother as "a mind of an uncommon mould"[70] in relation to it, Mary Shelley obviously indicated to her readers that this certainly was not the case in her time.

At the end, Mary Shelley's portrayal of the discussed female characters leads to the conclusion that women of the eighteenth and nineteenth centuries suffered a great deal of injustice regarding their position in the society since they were excluded from every sphere of life except for the private one.

b. Frankenstein and the French revolution

The different ideologies, during the eighteenth and nineteenth century movements, are integrated within the theme and characters of Mary Shelley's Frankenstein. For instance, the story of the French Revolution and its aftermath surround and circulate throughout the novel. An essay by Anne K. Mellor, entitled "Why Women don't Like Romanticism: The Views of Jane Austen and Mary Shelley" offers some understanding into the way the French Revolution makes its way into the novel. In her article, Mellor argues that Frankenstein, as a monster,

[69] Mary W Shelley, *Frankenstein* (London: Henry Colburn and Richard Bentley, 1831), p. 19.
[70] Ibid.

represented the social and political context of the French Revolution. In fact, Shelley retorts to the French Revolution by showing what take place when one does take responsibility for his creation. Mellor further demonstrated how *Frankenstein* can be seen as a novel about "taking responsibility for one's creation, one's actions, and, in this case, one's political ideas." For instance, "she represented the havoc wrought by the French Revolution in the gigantic and misshapen body of Frankenstein's creature – like the French Revolution – originated in the idealistic desire to liberate all men from the oppressions of tyranny and mortality."[71]

Furthermore, literary critics believe that Shelley's novel operated as a tool for her to reveal her personal experiences into her writing. Since French Revolution of 1787 is historical turning points in the classification of what constitutes what human beings deserve and what they receive. Shelley's novel debates the aftermath of the iconic revolution. While Shelley lived in England during the publication of Frankenstein, one can say that she witnessed the impact on the public of Europe. Shelly connects the French Revolution to her literary masterpiece as well as the scene of the outcome of the revolution in her novel. In addition, Shelley obviously displays the idealistic desire to liberate all men from the oppression of tyranny and mortality.

III.4. Science and Medical Ethics in the Early 19th Century

"Mary Shelley's *Frankenstein* uses a sprawling network of allusions to contemporary literary and scientific works which strongly reflect Romantic,

[71] Anne K. Mellor. "Why Women Didn't Like Romanticism: the Views of Jane Austen and Mary Shelley." *The Romantics and Us: Essays on Literature and Culture*. Ed. Gene Ruoff. (New Brunswick: Rutgers UP, 1990), p. 85.

scientific, and literary ideology of the late Enlightenment and early Romantic period included personal and professional relationships, scientists writing literary works, and authors discussing scientific advances. "The closely linked scientific and artistic community helped define science and the nature of life in the new Romantic era. *Frankenstein* is a conscious example of a writer critiquing prevailing scientific views of the day, namely, the materialist and vitalist debates."[72]

At the time of the first publication in 1818, a highly controversial discussion started about living entities containing a kind of vital spirit or not, and how it is related to electricity and chemistry. The two main positions are on the one hand the vitalists and on the other the materialists. Vitalism consists of the supposition that every living source owns a vital force which brings life into them. It is supposed that a soul was infused into the body by a power like God via electricity and the fact that they contain this sort of energy makes them different from non-living entities. There has to be this force to regulate the physical functions within the living matter and with this statement, the vitalists, especially John Abernathy, tried to find a way to bring the bible and science together. The new spiritual flow based also on the allegations of Humphry Davy[73], whose persuasion was that electricity is a chemical reaction and the so called life force is similar to electricity. The power of life could be identified by researching dead matter. He described scientists as a kind of creative force which emphasizes the power that scientists get of knowledge. They could be able to reshape the natural world on the base that there is a contrast between organic and inorganic matter. This assumption then

[72] Allison Lemley. "Frankenstein and "The Labours of Men of Genius": Science and Medical Ethics in the Early 19th Century." *Grand Valley Journal of History* 4.2 (2018): 5, p. 1.

[73] Sir Humphry Davy, Baronet, (born Dec. 17, 1778, Penzance, Cornwall, Eng.—died May 29, 1829, Geneva), English chemist

again is based on Luigi Aloisio Galvani who was an Italian philosopher and physician. He ran electrical experiments with dead frog's legs and other executed animals and found out that they move when linked to electricity, they are producing convulsions. This led to the development of reanimation and defibrillators and is also an important invention for the content of Frankenstein. In contrast to this spiritual flow a public debate was fuelled by representatives of materialism. The materialistic theory is convinced that there is no vital force or spirit, living entities body is just a sort of machinery without anything divine in it. Because of this, they were also highly disparaged as blasphemists. Their position includes the non- existence of God, so the body is nothing more than a physical organisation without any kind of soul. Pumped by the press, Sir William Lawrence[74], whose settled conviction was that consciousness and thoughts of human beings were only a product of their brains and not, as Abernathy writes, a device of vital force. The debate was often fuelled with religious tensions. Everything is based on material interactions and can be explained by physical rules and thoughts are only a cause of movements of particles in the brain.

Shelley provides insight into this period through the critiques of scientific debates presented in *Frankenstein*. She incorporates work from several figures in the debate: leading chemist Humphry Davy[75]; the famous experimenter Giovanni Aldini;[76] and physicians William Lawrence and John Abernethy. The period

[74] Sir Lawrence Bragg, in full Sir William Lawrence Bragg, (born March 31, 1890, Adelaide, S.Aus., Austl. —died July 1, 1971, Ipswich, Suffolk, Eng.),Australian-born British physicist and X-ray crystallographer, retrieved from Encyclopædia Britanica.

[75] Sir Humphry Davy, Baronet, (born Dec. 17, 1778, Penzance, Cornwall, Eng. —died May 29, 1829, Geneva),English chemist who discovered several chemical elements (including sodium and potassium) and compounds, retrieved from Encyclopædia Britanica.

[76] ALDINI**,** GIOVANNI (1762–1834), Italian physicist, born at Bologna on the 10th of April 1762, was a brother of the statesman Count Antonio Aldini (1756–1826) and nephew of L. Galvani, whose treatise on muscular electricity he edited with notes in 1791. He became professor of physics at Bologna in 1798, in succession to his teacher Sebastiano Canterzani (1734–1819). His

discussed in this part has no set beginning and end, but gaps in research specific to developing medical ethics tend to occur from approximately the early 1780s to the late 1820s. This period is not defined by either Enlightenment or Romantic thinking, but rather by the tension between scientists professing either materialist or vitalist ideologies. This tension is shown through their interpretations of galvanism, the movement of muscles when stimulated by electricity, and their efforts to develop new concepts of science and the scientist. In particular, as scientists struggled to define the nature of life, they questioned their place in relation to this study: the way science, or natural philosophy, had been defined in the past was changing. Several factors influenced this period: the professionalization of science; questions surrounding religion and spirituality's place in science; and delineating science and metaphysics into separate fields of inquiry.

"In *Frankenstein*, Shelley references literary and scientific works that comment on both perspectives in order to reveal gaps in the development of medical ethics. Victor Frankenstein's conduct as a scientist and his reaction to his creation critiques the secular and spiritual aspects of materialism and vitalism. This includes the ethical dilemmas with secular and spiritual science. By portraying this debate in *Frankenstein*, Shelley sought to comment on the rift in the scientific community and focus the debate on ethics, rather than vitalist and materialist definitions of life. Shelley's comments on the debate do not offer a resolution to the scientific differences between the materialists and vitalists. Instead, Shelley demonstrates through Victor Frankenstein's extreme scientific

scientific work was chiefly concerned with galvanism and its medical applications, with the construction and illumination of lighthouses, and with experiments for preserving human life and material objects from destruction by fire. retrieved from 1911 Encyclopædia Britannica, Volume 1

objectivity and his later extreme spiritual beliefs the potential damage to science and humanity. Shelley generalizes this message with the frame for her story told by her fictional explorer, Robert Walton, who encounters his own scientific ethical dilemma with different results. Walton's story offers a counterpoint to the warning embedded in Frankenstein's."[77]

One of the central themes in *Frankenstein* also reflects a major debate in the scientific community at the time: how separate religion and science can or should be. As Victor Frankenstein swings from scientific objectivity to religious revulsion towards his creation, Shelley demonstrates the possibilities that this debate could bring about. "There is a myth that the Scientific Revolution removed religion from science and created the modern perception that they occupy very different spheres."[78] This "separation" does not reflect historical understandings of the influence of religion in science, as the definitions of "religion" and "science" have changed. "Science" as it is now understood would be unrecognizable in the 18th century. Science was known in this time as "natural philosophy," a field of study that dealt with questions surrounding the soul and divine providence as much as it did the study of plants and animals. Religion refers to doctrines and practices, often associated with institutions, i.e., the Roman Catholic Church. Theology is the explanation of religious doctrines and practices.

The concern with the "scope and limits of human knowledge" can be found in several significant places in the development of science. The late Renaissance and

[77] Allison Lemley. "Frankenstein and "The Labours of Men of Genius": Science and Medical Ethics in the Early 19th Century." *Grand Valley Journal of History* 4.2 (2018): 5, p. 3.

[78] Allison Lemley. "Frankenstein and "The Labours of Men of Genius": Science and Medical Ethics in the Early 19th Century." *Grand Valley Journal of History* 4.2 (2018): 5, p. 4.

early Enlightenment debates concerning blood transfusions, both against and for the practice were often based on theological arguments.[79]

By the early 1800s, the emerging figure of the scientist was still concerned with finding limits, but relied less on traditional religious authority and theology to inform or regulate practices. While science had been acquiring a new definition, it had also lost some of the ethical boundaries inherent in natural philosophy because of its inclusion of theology. The tension lies in the struggle the shifting definition of science had in redefining new limits.[80]

Shelley subtitled *Frankenstein* as a "modern Prometheus": In Greek mythology, the Titan Prometheus had a reputation as being something of a clever trickster and he famously gave the human race the gift of fire and the skill of metalwork, an action for which he was punished by Zeus, who ensured every day that an eagle ate the liver of the Titan as he was helplessly chained to a rock[81]. Prometheus is known for his intelligence and as a champion of mankind Frankenstein's scientific experiments to create life use earlier and contemporary understandings of the Prometheus myths within a scientific framework to illustrate the struggle between old and new ideas of science. This story also demonstrates the struggle with religious and theological issues that were deeply entrenched in the era's scientific thinking as scientists tried to define science and ethics in more secular terms.

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[79] Holly Tucker, *Blood Work: A Tale of Medicine and Murder in the Scientific Revolution* (New York: W.W. Norton & Company, Inc, 2011).

[80] Allison Lemley. "Frankenstein and "The Labours of Men of Genius": Science and Medical Ethics in the Early 19th Century." *Grand Valley Journal of History* 4.2 (2018): 5, p. 6.

[81] Mark Cartwright. "Prometheus." *Ancient History Encyclopedia*. Ancient History Encyclopedia, 20 Apr 2013. Web. 20 Sep 2018.

Frankenstein was as much a commentary on the nature of life as it was a critique of how the emerging figure of scientists in the early Romantic period treated life. Shelley demonstrates this through Victor Frankenstein's method of building his creature and his subsequent treatment of his creation. In constructing his experiment, Frankenstein describes his work as "dabbl[ing] in the unhallowed damps of the grave [and] tortur[ing] the living animal to animate the lifeless clay."[82] His work is solitary and he spends more time collecting the raw materials for his creation from "the dissecting room and the slaughter-house" than he does with others. Frankenstein is both passionately focused on his task of creating life, to the exclusion of all other activities, while simultaneously being clinically detached from the harsh reality of using corpses to continue his work[83]. In Frankenstein's physical creation of the monster, Shelley critiqued materialist views of life and experiments with galvanism. Materialists believed that life could be explained mechanically: the components of "life" could be broken down. Echoing materialist's view of objective science, Frankenstein dehumanizes the bodies he uses to craft his new being. While Shelley critiques the detached, objective materialist, Shelley's critique of vitalism begins with this "spark," and continues with Frankenstein's reaction to his own creation. He is racked with horror at his creation's first movements and sounds; he refers to it as a "miserable monster," a "demoniacal corpse," and more horrifying than a "mummy again endued with animation."

Against the background of the power of a lightning storm, part of Frankenstein's original inspiration, he is repulsed by his unnatural creature. In

[82]Marry Shelley, *Frankenstein.* (Oxford; New York: Oxford University Press,1998), p. 55.
[83] Mary Shelley, *Frankenstein: A Norton Critical Edition* (New York: W.W. Norton & Company, 2012), p. 34.

Romantic scientific philosophy, grappling with conceptions of a universal world soul, Frankenstein's created chimera has no place in the cohesive world-organism theorized by vitalists. Yet Frankenstein's success in "infus[ing] the spark of being" into his creation represents a scientific coup, and one that materialists and vitalists alike would envy: he has found the source of life, a scientific miracle. Frankenstein, however, refuses to tell Robert Walton, the explorer traveling to the North Pole who transcribes Frankenstein's story, how he achieved his goal:

I see by your eagerness… that you expect to be informed of the secret with which I am acquainted; that cannot be… Learn from me… by my example, how dangerous is the acquirement of knowledge and how much happier that man is who believes his native town is the world, than he who aspires to become greater than his nature will allow.[84]

Frankenstein's mistake, as he sees it, is the knowledge he has, more than how he mishandled his knowledge. In saying that knowledge makes man "greater than his nature will allow," Frankenstein reinforces earlier ideas of a natural hierarchy, found in works such Agrippa, an early alchemist. Frankenstein withholds his knowledge from Walton, believing it to be somehow above humanity's reach, yet on his deathbed; Frankenstein both admonishes Walton to "avoid ambition" and still hopes that "another may succeed." Shelley effectively demonstrates the kind of split personality developing in science at the time: both the desire to reach for new and greater achievements and the metaphysical concerns of overreaching humanity's place.

[84] Mary Shelley, *Frankenstein: A Norton Critical Edition* (New York: W.W. Norton & Company, 2012), p. 32.

Shelley's use of Walton introduces another branch of science into the novel and a foil for Frankenstein. Walton's desire for scientific achievement— and glory—run parallel to Frankenstein's, but their scientific endeavours have very different results. Walton writes to his sister before embarking to rationalize his reason behind his exploration to the North Pole:

> …you cannot contest the inestimable benefit which I shall confer on all mankind… by discovering a passage near the pole… or by ascertaining the secret of the magnet, which, if at all possible, can only be effected by an undertaking such as mine.[85]

Walton's single-minded dedication to his task and grandiose ideas of what his discoveries will bring to the scientific world and humanity are similar to Frankenstein's ideas about his own creation. Walton's wish to discover the secrets behind magnetism, a related field to galvanism, furthers the connection between the two stories. His belief that he would provide significant knowledge with his expedition also reflects Frankenstein's selfish motives. After experimenting on dead bodies and forming his plan to create life, Frankenstein "was surprised that among so many men of genius, who directed their inquiries towards the same science, that I alone should be reserved to discover so astonishing a secret."[86] Both Frankenstein and Walton believe that they are uniquely able to give their knowledge to the scientific community and the world.

Neither Frankenstein nor Walton's dreams go as planned. Frankenstein succeeds in giving life to his creation, but he is horrified by what he has done, and

[85] Mary Shelley, *Frankenstein: A Norton Critical Edition* (New York: W.W. Norton & Company, 2012), p. 3.

[86] Mary Shelley, *Frankenstein.* (Oxford; New York: Oxford University Press,1998), p. 52.

"unable to endure the aspect of the being [he] had created,"[87] he abandons his creation. The creature's appearance already prevented him from acceptance into the world, and Frankenstein's spurning guarantees the creature's ostracism. Walton's own situation is troubled as well. As his ship progresses northward, it encounters more and more danger; the ship is trapped by ice, which *"threaten every moment to crush [the] vessel" and only Frankenstein's "eloquence ... rouses their [the crew's] energies."*[88] Walton is afraid of a mutiny and when his men do finally demand to return home once the ship has been freed from the ice, Walton feels that *"in justice, I could not refuse."*[89] Walton understands that his desire for scientific glory put others into danger, and chooses to give up his goal because of this. Frankenstein, however, is enraged that the sailors would demand to return, and tries to move them with the promise of glory: *"your name[s] adored, as belonging to brave men who encountered death for honour and the benefit of mankind."*[90] To Frankenstein, to turn back, even when confronted with circumstances that ensure the loss of human life, the possible glory overrules everything else. Walton expresses his frustration at having to turn back, but acknowledges that he "cannot lead them unwillingly to danger."[91] The cost to his men does not justify the potential gain.

In those short scenes presented in Walton's final few letters, Shelley makes her culminating statement about scientific ethics: Frankenstein's single minded search for power and glory was removed from any consideration of the ethical

[87] Ibid., p .59.
[88] Mary Shelley, *Frankenstein: A Norton Critical Edition* (New York: W.W. Norton & Company, 2012), pp. 153-154.
[89] Ibid., p. 154.
[90] Ibid., p. 155.
[91] Mary Shelley, *Frankenstein: A Norton Critical Edition* (New York: W.W. Norton & Company, 2012), p. 156.

ramifications of his actions. Walton is also motivated by glory through scientific discovery, but in the end, his desires are overridden by his obligation to lead his men out of danger. Shelley uses Frankenstein and Walton to generalize scientific ethics as well as provide contrast between the differences in ethics that they demonstrate. As the leader or creator in both their scientific endeavours, Mary Shelley establishes that Walton and Frankenstein have an obligation to those influenced by their experiment for their safety and well-being. Walton and his men break free from the ice to return home. The image of the ice breaking and forming a passage to freedom is not one Shelley leaves with her readers. It is the respect of ethics that paved the way to salvation. The final scenes are, instead, Frankenstein's death and his creature's self-banishment to the North Pole in order to die. This reinforced the consequences of neglecting ethics in science: a loss of values and self. While scientific debates at the time concerned whether forces such as galvanism were the force of life and could, therefore create it, few were asking whether scientists should attempt to or to what extent they should.

Davy also articulated, as many were attempting at this time, a definition of science further separated from earlier Enlightenment views of science—which included alchemy—and other issues that would be considered religious, theology, or metaphysical topics as modern science emerged in the mid and late 1800s.

Davy could not completely separate his definition of science from earlier definitions. He showed derision for alchemists, yet his rhetoric emphasizes the power and influence scientists have over nature; alchemists claimed that their knowledge also gave them similar abilities to manipulate the world. The early stages of the Romantic period were still explicitly concerned with achieving knowledge that was, in some sense, above humanity. The change occurred in what

was considered "scientific." Shelley emphasizes this idea explicitly: *"my [Frankenstein's] father had taken the pains to explain to me, that the principles of Agrippa had been entirely exploded, and that a modern system of science had been introduced…"*[92] Davy's rhetoric from his 1802 lecture is particularly evident through Shelley's character M. Waldman, a university professor who inspires Victor Frankenstein. Waldman, unlike Frankenstein's father, used Frankenstein's early respect for alchemists, just as Davy dismissed the alchemist and earlier definitions of science only to affirm their goals and ideologies. Shelley uses Waldman to echo these ideas, particularly his conflation of scientific knowledge and power. Waldman embraces the alchemists' efforts; he praises them and their intellectual ancestors as "men of genius." Davy's concept of science as a benefit to mankind and the scientist as an integral part of subjugating nature for humanity's advantage is reflected in Waldman's speech further: "The labours of men of genius, however erroneously directed, scarcely ever fail in ultimately turning to the solid advantage of mankind."[93] Using Davy's language, Shelley revealed the kinship between Davy's power-centered vision of science and alchemy. This kinship resonated with scientific Romantic ideals of pushing the boundaries of human knowledge. The desire to go beyond what had been previously restricted by religion and the changing definition of what was or was not scientific also created questions about what was scientifically ethical treatment of those under science's influence. Where religion had supplied the answers in the past, the new boundaries of science had not yet been clearly defined. As Davy illustrated in his lecture, concepts about scientists and science were influenced by earlier ideas about science. Both Frankenstein and his creature live in the shadow of Frankenstein's

[92] Mary Shelley, *Frankenstein.* (Oxford; New York: Oxford University Press,1998), p. 34.
[93] Ibid., p. 47.

earliest scientific readings, especially Cornelius Agrippa, an Early Modern alchemist and advocate of high magic. Alchemy holds an important place in *Frankenstein* as Victor Frankenstein's original inspiration and its place in the beginnings of science. The scientist in the scientific transition period is the new magician, able to understand and manipulate the world. Scientific knowledge, such as galvanism, are the new alchemy. Waldman channelled much of Davy's rhetoric about the power of science, without his contempt for alchemy. Instead, Waldman, speaking about "these philosophers," claims that they "performed miracles," which modern scientists can no longer do:

> They [alchemists] penetrate into the recesses of nature; they show how she works in her hiding place. They ascend into the heaven; they have discovered how the blood circulates, and the nature of the air we breathe. They have acquired new and almost unlimited powers; they can command the thunders of heaven, mimic the earthquake, and even mock the invisible world with its own shadows.[94]

Mary Shelley uses the idea of scientific knowledge conferring power in *Frankenstein*, explicitly pulling them from both scientific minds of the day and broader cultural understandings of electricity scientific culture. Her critique of this material also includes questions concerning how scientific knowledge should be handled and under what sort of authority it should be regulated. While the traditional scientific community would claim that political sanction gave it authority, anti-establishment practitioners would offer a variety of different authorities.

[94] Mary Shelley, *Frankenstein.* (Oxford; New York: Oxford University Press,1998), p. 46.

Victor Frankenstein's interest in Agrippa strengthens the parallels between science and religion, or in the case of Romantic scientist, the creation of a new "unifying mythology," "including a fusion of poetry and physics."[95] In the past, religion had provided a boundary and regulations for ethics, but as Romanticism and its looser ideals of spirituality emerged, religion's place in science became tenuous. Ideas of a new "unifying mythology" of science and art would provide a spiritual component with scientific evidence for the Romantic ideology.

Unseating religion and theology from their former place in the scientific world, experimental attempts to understand and articulate life, even redefining "science" around new ideologies meant that ethical considerations had to change.

During the period in which Shelley writes *Frankenstein*, medical ethics was one of many components of science in development. Shelley's novel was introduced during the early period of the professionalization of medicine and reflected on many of the questions that both the public and medical professionals were struggling to articulate. *Frankenstein*'s affect in the literary community was mixed. In book reviews from the time of its release, *Frankenstein* did not garner high praise. Many at the time felt it was beyond question that scientists would treat human life with respect, given that the strong religious ideals still held sway. The consensus amongst several of the prominent reviews was that the writing itself was often excellent, even poetic, but the plot itself was absurd. The reviews that view the story as one trying to make a social or political statement, as it was doing, either relegate its message to the background or outright condemn it: its moral was

[95] Walter D. Wetzels, "Aspects of Natural Science in German Romanticism," *Studies in Romanticism* 10 (1971); pp. 44, 51.

irrelevant at best, and insulting at worst[96]. As a result, some felt that Shelley questioning the status quo was absurd and something of a non-sequitur[97]. While the scientific ideas were viewed in 1818 as outlandish, its publication helped to add and reinforce the struggle for scientific identity during this time period. The affect of Shelley's novel within the circles of literary criticism were not as strongly positive as its current reputation would suggest, but in looking at more modern discussions of science, Shelley's work has fundamentally shaped the ways that scientists and medical professionals are expected to treat the people under their influence and care.

Frankenstein has long acted as a cautionary tale of science—and the scientist—overstepping ethical borders. It is telling that William Whewell, an English scientist, when defining the term "scientist" for the first time laid out a scientist as not only someone who looks for knowledge and systematically organizes it, but applies it to a "useful purpose." While anecdotal evidence is often suspect, the sheer number of references to *Frankenstein* that are made when discussing new scientific discoveries by the public, the press, or even scientists themselves demonstrates how clearly this novel has become a part of the continuing evolution of scientific ethics. Shelley's novel helped to add further to the discussion in the 1800s and as a part of these tentative, formative years in the development of modern science has remained a part of it since.

Shelley's work provides insight into the struggle defining the scientific process concretely, both in terms of what "science" was or was not and who was qualified

[96] Croker, John Wilson. "*Frankenstein, or the Modern Prometheus,*" *The Quarterly Review*, 36 (1818): 379-385. Accessed August 2, 2017. http://knarf.english.upenn.edu/Reviews/quarter.html
[97] "*Frankenstein, or the Modern Prometheus,*" *The British Critic*, 9 (1818): 432-438. Accessed August 2, 2017. http://knarf.english.upenn.edu/Reviews/britcrit.html

to participate. She does not offer a resolution to the materialist and vitalist debate, or resolve the tensions between the disparate factions of the traditional and anti-establishment scientific communities. To expect that she would offer solutions would be to miss the larger point of her work. Her culminating statement ultimately concerns the larger, ethical questions that scientists left unanswered during this transition period. Shelley's work is significant, not only in a literary sense as both a complex novel and the first in the science fiction genre, but to historians seeking to better understand how modern science developed in the 1800s. The overlooked transition period represented in *Frankenstein* brings to life the origins of many of the concerns that were addressed later with the eventual formation of professional organizations with ethics committees. *Frankenstein* refocused discussions within the scientific community by questioning what the goal and ramifications of scientific discovery would be to individuals and society. Shelley sought to further this goal by revealing the close ties that new definitions of science still had to earlier interpretations of science, especially alchemy's place in the scientific world.

III.5. Mary Shelley Lives in the 21st Century

Published in January 1818, Mary Shelley's novel, *Frankenstein*, posed questions of medical ethics that we still grapple with today. And two hundred years after *Frankenstein* lurched onto the scene, questions about ethics in scientific research practices raised in Shelley's novel still hasn't definitively answered by

scientists. Questions like, just because you can create a monster, does that mean you should create a monster?

Two hundred years after Shelley's warnings, we don't learn the lesson. We still don't stop building the atom bomb. We continue to pursue research in fields like artificial intelligence, genetic engineering, human-made pathogens, and nanorobots, regardless of doomsday predictions surrounding these fields of research. Although science has come a long way since Frankenstein was published, some ethical questions posed by the novel- like what is a scientist's responsibility for the results of his research, and is there a limit to what he should try in the first place?- remain unresolved.

For instance, while building conscious creatures from dissected body parts is currently impossible. Doctors are now growing replacement organs and body parts in the laboratory from their patient's own cells[98], which is exciting because it might make organ donation obsolete. If the researchers get their way, in the next fifty years, we could just grow a new kidney out of your own stem cells instead of taking one from your very generous relative, or waiting years for a donor. But when we're talking about growing living tissue, we're still firmly in *Frankenstein* territory.

"Ethics are certainly part of the conversation," says Dr Karl Koehler, assistant professor at Indiana University School of Medicine, in an email. Koehler and a

[98] Brad Olsen. *Modern Esoteric: beyond Our Senses*. (Consortium of Collective Consciousness Publishing, 2018), p. 341.

team of researchers recently succeeded in growing a ball of mouse ear skin in the lab, complete with inner and outer layers of skin, in addition to hair follicles[99].

According to Koehler, one ethics discussion in this line of research has to do with the need to place boundaries on lab-grown organ production[100]. So far, most scientific research concerns are in individual organ systems, but in the near future, there will be attempts to put organoids[101] together — basically tissues that look and function like organs, grown in a culture dish . “There is another concern about “embryoids,” which are a special class of organoid containing all three layers of embryonic tissue: the ectoderm, mesoderm, and endoderm,” says Koehler. “It is feasible that embryoids could generate an entire embryo. Although this is technically impossible at the moment, we need to carefully consider how to use these systems responsibly as the technology improves.”[102]

Victor Frankenstein’s experiment is an animation of reassembled pre-existing body parts that ended up in developing a conscious entity, then asking his creator into making him a female mate and taking revenge from his loved ones after he refused. That's pretty far-fetched, of course, but according to Koehler, over the past five years, a lot of progress has been made into creating new organoids, and our catalog is growing fast: minibrains, kidneys, stomachs, intestines, pancreas,

[99] Jesslyn Shields. "Two Hundred Years On, How Close Is a 'Frankenstein' Future?" 23 January 2018. HowStuffWorks.com. <https://science.howstuffworks.com/innovation/scientific-experiments/two-hundred-years-on-how-close-is-frankenstein-future.htm> 20 September 2018

[100] Ibid.

[101] An **organoid** is a miniaturized and simplified version of an organ produced in vitro in three dimensions that shows realistic micro-anatomy

[102] Jesslyn Shields. "Two Hundred Years On, How Close Is a 'Frankenstein' Future?" 23 January 2018. HowStuffWorks.com. <https://science.howstuffworks.com/innovation/scientific-experiments/two-hundred-years-on-how-close-is-frankenstein-future.htm> 20 September 2018

lungs, teeth and eyes[103]. It is inevitable that researchers in the domain will shift their interest into trying to make those organs work in concert with each other.

"It's debatable how close we are to using organoids to regenerate body parts," Koehler says. "Right now, there is an ongoing clinical trial in Japan testing whether a lab-grown sheet of retinal cell scan survive implantation into a patient with macular degeneration. In addition, there are some exciting proof-of-concept studies demonstrating that other types of organoids grown outside of the body can integrate back into the body after transplantation." In the more immediate future, he says, we may be able to use organoids to figure out which drugs can initiate organ regeneration in the body.[104]

Shelley's contemporary scientists were trying to revive a dead body. Now we are growing tiny organs that actually work. Regarding the beneficial side of those researches on healthcare, it will be tough for us not to continue down this road, in spite of some serious ethical questions, when most of what we know about human embryonic development comes from studying frogs, fish, chickens and mice. Organoids give us a singular and brand new window into human developmental biology, so understanding human-specific features of organ development and function may help us uncover new regenerative therapies to improve people's lives.

While anecdotal evidence is often suspect, the sheer number of references to *Frankenstein* that are made when discussing new scientific discoveries by the

[103] Jesslyn Shields. "Two Hundred Years On, How Close Is a 'Frankenstein' Future?" 23 January 2018. HowStuffWorks.com. <https://science.howstuffworks.com/innovation/scientific-experiments/two-hundred-years-on-how-close-is-frankenstein-future.htm> 20 September 2018

[104] Ibidem

public, the press, or even scientists themselves demonstrates how clearly this novel has become a part of the continuing evolution of scientific ethics. Shelley's novel helped to add further to the discussion in the 1800s and as a part of these tentative, formative years in the development of modern science has remained a part of it since. Shelley's work provides insight into the struggle defining the scientific process concretely, both in terms of what "science" was or was not and who was qualified to participate. She does not offer a resolution to the materialist and vitalist debate, or resolve the tensions between the disparate factions of the traditional and anti-establishment scientific communities. To expect that she would offer solutions would be to miss the larger point of her work. Her culminating statement ultimately concerns the larger, ethical questions that scientists left unanswered during this transition period. Shelley's work is significant, not only in a literary sense as both a complex novel and the first in the science fiction genre, but to historians seeking to better understand how modern science developed in the 1800s. The overlooked transition period represented in *Frankenstein* brings to life the origins of many of the concerns that were addressed later with the eventual formation of professional organizations with ethics committees. *Frankenstein* refocused discussions within the scientific community by questioning what the goal and ramifications of scientific discovery would be to individuals and society. Shelley sought to further this goal by revealing the close ties that new definitions of science still had to earlier interpretations of science, especially alchemy's place in the scientific world.

CONCLUSION

In this thesis paper, we went through a detailed study to discover science fiction and its futuristic ideas and elements in the novel of *Frankenstein* written by Marry Shelly. Throughout the story Shelley's interests in scientific experiments is obvious, since before she writes the novel she met a lot of scientists who were friends with her husband, also she read a lot about scientific articles. This probably has a direct influence in the way she wrote *Frankenstein*. In *Frankenstein*, Victor begins studying natural philosophy at the University of Ingolstadt. After Victor meets professor Waldman and professor Krempe, he says in chapter three, page 32, ''Besides, I had a contempt for the uses of modern natural philosophy.''. Victor expresses great interests in how life is made and becomes quite obsessed with the creation of life through the use of scientific experiments, which leads to the creation of the Creature.

Chapter one examines, the origins of science fiction and its emergence as a modern literary genre. It sheds light on the different literary subgenres of science fiction and how science fiction is related to the birth Frankenstein as one of the first science fiction novels. According to Robert Scholes whether science fiction can achieve the of mainstream fiction may depend on the possibility of its developing into ''a realism of the future''[105]. Thus, the convention of science fiction science fiction derive from the convention of fantasy from the old literary works and romance, especially from those of the Gothic romance. Science Fiction

[105] Robert Scholes made this argument in a lecture on ''*Fiction and the Future*'' given at Indiana University, February 28, 1987.

grows out of literary forms antithetical to realism, so that the idea that it may evolve into a ‘’realism of the future’’ is a huge possibility.

This chapter also concludes with the fact that Mary Shelley’s *Frankenstein* can be read from two main levels; as a science fiction and as human nature. The whole novel moves around the invention of a scientist and the result of it. This is clearly a breakout from the traditional gothic novels, which is based only on fantasy like magic and sorcery.

Chapter two explores the ideas and terms of science fiction in the novel itself and how is this related to the creation of Marry Shelley to a new world that has futuristic characteristics through using her creativity in writing and her background experiences. The novel is written in 1880. In this period of time there is a huge news of new scientific experiments that could make the people’s lives better, thus the quest for knowledge became a very important aspect of life. This is similar to the quest of Victor in the novel of *Frankenstein*. The Creature that Victor created is a kind of scientific achievement around which the whole plot structure is designed. Victor’s absolute quest for knowledge and power has ended in his own destruction. Here, Shelley tries to show the dangerous aspect of modern scientific world and how terrible the results can be.

Moreover, Shelley’s novel acted as a tool for her to reflect her personal experiences into her writing. This personal revelation of Shelley’s mental and familial state allow readers to comprehend the depth and true meaning of *Frankenstein* by understanding the hardships faced by the author that caused Shelly to produce a literary masterpiece. Thus, *Frankenstein* is not a mere story of

horror. It represents a store of social, cultural, and historical ideas through the issues and ethical dilemma it rises.

After two hundred years of the publication of *Frankenstein*, we still grapple with the questions of social and medical ethics. In Shelley's days, scientists were trying to shock life into dead bodies. However, today scientists want to grow living part in lab environment, and they may make them work all together. Isn't exciting? But do they think about psychological impact on test subjects.

Do scientists address questions about changes in the identity or personal identity of a person subject to head transplantation, for instance, at the level of experiential consciousness? Because, scientists and philosophers have not come to a clear consensus on how to define or evaluate such questions: even if we could "ask" test subjects about their memories or their feelings about whether or not they are the same person after the procedure as they were before, we have no universal standard by which to evaluate their responses.

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ملخص الدراسة

فرانكنشتاين او بروميثيوس الحديث لصاحبتها ماري شيلي، التي نشرت لأول مرة عام 1818، تعد من أهم الروايات الإنجليزية. وهي رواية لها ارتباطات وثيقةبالأحداث الاجتماعية والثقافية والسياسية لذلك العصر. ومن ثم، فإن فرانكنشتاين هي أكثر من مجرد رواية، حيث أنها أرست العلاقة بين الخيال العلمي والرواية القوطية لتصبح واحدة من أوائل روايات الخيال العلمي التي تتضمن رؤى مستقبلية. وهو ما تحاول هذه الدراسة اثباته. حيث انها تتناول الجذور التي أدت الى ظهور هذا النوع الادبي. كما يناقش هذا البحث فروع روايات الخيال العلمي، كذا مساهمتها في اثراء الادب الحديث. ثم ينتقل هذا البحث الى ابراز وتمحيص الأفكار والالفاظ التي تحمل صبغة استشرافية في هذه الرواية، وكيف ان لها أثر في الوقت الراهن. في الأخير يتعرض البحث للرواية من منظور النهج النقدي التاريخي الجديد ويبحث في الخلفيات الشخصية والاجتماعية والفكرية والتاريخية التي أدت الى ولادة فرانكنشتاين. تخلص الدراسة في الأخير الى ان فرانكنشتاين ليست مجرد قصة رعب خيالية تدعو إلى الاثارة والتشويق، انما هي عبارة عن خزان هائل من الأفكارالاستشرافية التي تحدد ضوابط البحث العلمي،والتي تصور الى حد كبير الإشكاليات العالقة في الوقت الراهن.

الكلمات المفتاحية: ماري شيلي، فرانكنشتاين، خيال علمي، الاستشراف، نيوهيستوريسيزم.