

**THE IMPACT OF SCIENCE ABUSE TO SOCIAL LIFE AS REFLECTED IN
WELLS'S *THE INVISIBLE MAN***

*DAMPAK PENYALAGUNAAN SAINS TERHADAP KEHIDUPAN SOSIAL
YANG DIREFLEKSIKAN DALAM NOVEL THE INVISIBLE MAN KARYA
WELLS*

**FATNIA PARAMITHA MAKATITA
F022181021**



A THESIS

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Written and Submitted by

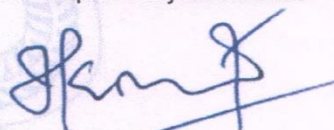
FATNIA PARAMITHA MAKATITA**F022181021**

Has been defended in front of the thesis examination committee which was formed in order to complete the study of the Master Program in English Language Studies Program, Faculty of Cultural Sciences, Hasanuddin University on January 18th, 2022 and is declared to have met the graduation requirements.

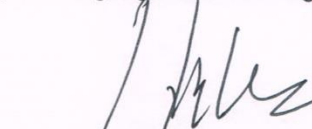
Approved by:

Head of
The Supervisory Committee

Prof. Drs. Burhanuddin Arafah, M.Hum., Ph.D.
NIP. 196503031990021001

Member of
The Supervisory Committee

Dra. Herawaty Abbas, M.Hum., M.A., Ph.D.
NIP. 196301031988032003

The Head of
English Language Studies Program

Dr. Harlinah Sahib, M.Hum
NIP. 196211281987032001

The Dean of
Faculty of Cultural Sciences

Prof. Dr. Akin Duli, M.A.
NIP. 196407161991031010

STATEMENT OF THESIS AUTHENTICITY

The undersigned :

Name : Fatnia Paramitha Makatita

Register Number : F022181021

Study Program : English Language Studies

States truthfully that this thesis entitled:

**THE IMPACT OF SCIENCE ABUSE TO SOCIAL LIFE AS REFLECTED IN
WELLS'S THE INVISIBLE MAN**

is an original work of the writer and there are no works or opinions that have been written and published by other people or institutions, except for the citations where the sources are mentioned in the bibliography. If it is proven that some parts of this thesis are work of others, I am willing to accept any sanctions for my dishonesty.

Makassar, January 24nd 2022

The Writer



FATNIA PARAMITHA MAKATITA

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FATNIA PARAMITHA MAKATITA

ABSTRACT

FATNIA PARAMITHA MAKATITA (F022181021). *The Impact of Science Abuse to Social Life as Reflected in Wells's The Invisible Man* (Supervised by Burhanuddin Arafah and Herawaty Abbas)

This research aims to analyze the relationship between science abuse and the impact to social life in the novel *The Invisible Man* by H. G. Wells. This study focused on science abuse committed by the main character as well as the social impact.

The method applied in this study was descriptive qualitative and analyzed by employing sociology of literature approach by Swingwood and Laurenson. The data were collected from text, the primary data was taken from H.G. Wells's novel *The Invisible Man* and secondary data were taken from books, journals, and articles that related with the topic of this study.

The research result indicates that the kinds of science abuse that represented in the novel are robbery, terrorization, violations, and murder. Those science abuse acts later lead to social rejection and anger towards the main character. The community then hunts him and the main character is murdered by mob.

Keywords: *science abuse, invisible man, society dynamics*



ABSTRAK

FATNIA PARAMITHA MAKATITA (F022181021). *Dampak Penyalagunaan Sains terhadap Kehidupan Sosial yang Direfleksikan dalam Novel The Invisible Man karya Wells* (Dibimbing oleh Burhanuddin Arafah dan Herawaty Abbas)

Penelitian ini bertujuan menganalisis hubungan dampak sosial penyalagunaan sains terhadap kehidupan sosial dalam novel *The Invisible Man*. Fokus penelitian ini adalah penyalagunaan sains yang dilakukan oleh tokoh utama dan dampak sosialnya.

Penelitian ini menggunakan metode deskriptif kualitatif dan menggunakan teori sosiologi sastra dari Laurensen dan Swingewood. Data primer dalam penelitian ini adalah novel H. G. Wells, *The Invisible Man*, adapun data sekunder diperoleh dari buku, jurnal, artikel, serta sumber yang terkait dengan penelitian ini.

Hasil penelitian ini menunjukkan tindak penyalagunaan sains untuk kejahatan seperti pencurian, kekerasan, terror dan pembunuhan. Penyalagunaan sains tersebut kemudian mengakibatkan kemarahan dan penolakan sosial terhadap tokoh utama. Masyarakat kemudian memburunya dan tokoh utama terbunuh oleh massa.

Kata kunci: *Dampak sosial, Perpenyalagunaan Sains, Dinamika sosial.*



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CHAPTER I

INTRODUCTION

This following chapter includes an overview of general ideas and critical issues that the writer wants to investigate, also the importance and the significance of this research.

A. Background of Study

In society, literature is often regarded as an imaginative writing, and people read it only as an entertainment. However, like the other form of art, the writer believes that literature is also a tool in expressing idea of its creator. Literary work in fact has something more to offer, it contains valuable lessons which the author tries to express through the work. The lesson could be delivered in explicit way through the text, or implicitly hidden so the reader can interpret the work from their own perspective. The value in literary works is usually a kind of reflection of truth from the author's perspective and idea, which she/he wants to show the readers. The idea is about various things related to real life problems, such as attitude, behavior, and social issue.

The relationship between literature and society has been very close and inseparable. In Literature especially novel, it has settings as its intrinsic element that contained information about the background of the story. This setting usually tells about the time

period, or what kind of society that occur in the story, and also how society interplays the plot. The societal element in literature is inseparable because it has a huge influence and support to the storyline.

According to Swingewood and Laurenson (1972: 11), sociology and literature are quite distinct areas of research. However, at the most basic level, that of content, they share similar conspectus. In addition, Spector and Kitsuse (1977: 5) also stated that literary work usually reveals situation or problems that occur in social life. The problem are called social problem. It is unusual condition or a form of behavior, which is considered to be deviated from the social norms. Furthermore, Culler (1997: 22) argued that literature is just like weed that keeps growing up by periods.

Based on these statements, literature is not just a story created for mere entertainment only, but it also had value inside of it. It could be reflecting the social situation of a certain period according to the setting of the story or the social situation that occurs around the author when the story has been written. Hence, instead of being a mere entertainment, literature is also capable of talking about social problem that are happening in the world such as poverty, environmental conservation, or science abuse.

Science is the best way to find out the natural world. Almost everything in this world can be explained logically and systematically by science. In Collins Dictionary, it is written that science is the study of the nature and behavior of natural things and the knowledge we obtain about them.

Science has no barriers. It can create a cure to deathly disease, but also can create the disease itself. It is helpful but also destructive, depends on who uses it. For an example, a famous scientist, Louis Pasteur might use science to discover vaccines to several diseases and save human life, but other scientist also discovered atomic bomb that has the potential to wipe out not only human but also natural life the second they are encounter it.

To the versatility, science can also be abused by certain people in order to fulfil their own benefit. In his book *The Republican War of Science*, Mooney (2005: 1) identified science abuse as an act of manipulating science to meet one personal interest, not only done by one particular person, but also can be in a massive scenario.

At their best, scientists represent the best in humanity. They are an epitome of human intelligence and curiosity. However, they are still humans and can use their knowledge to the wrong way. There are few cases of science abuse in the past.

One of them is the most horrible experiment in history done by Nazi. Their agenda is creating superhuman troops by conducting so many non-consensual medical experiments to humans from injecting dye into the eyes of children to change their eye color to creating conjoined twins by stitching them together (Sheldon and Whitely, 1989: 16)

Because of all the richness, science is often adapted as theme of stories, and films classified as Science Fiction or Sci-Fi genre. According to Gunn (2002: 1), Science Fiction is the literature of change. Its most characteristic inserts the reader into a world significantly different from the present world. It is a branch of literature that deals with effects of change in people in the real world as it can be projected into the past, the future, or to distant places. As time goes by, Science Fiction has adopted other fictional mode such as the adventure or the romance, but it is most typical when it deals with ideas worked out in human terms.

In Science Fiction, there is a fictional device called *the novum*, which is the premise that focuses in the difference between the world the reader inhabits and the fictional world of the Science Fiction text. This *novum* might be something material, such as spaceship, a time machine, or highly developed communications device, or it might be something conceptual, such as New World or superhuman (Roberts, 2016: 1).

There is countless literary works in this genre, from telling about nature, and hidden worlds like in Jules Verne's works to the madness of evil scientists like Shelley's *Frankenstein* and Stevenson's *Dr. Jekyll*. The writer decides to pick *The Invisible Man* by H. G. Wells as the object of research.

Herbert George Wells or H. G. Wells was an English author born in Bromley, England. As a young man, he received a scholarship to the Royal College of Science which he attended during the 1880s. This formal training in science linked with Wells's great works of science fiction (McDonnell et al., 1982: 501). Wells was an author of several famous works like *The Time Machine* (1895), *The Island of Doctor Moreau* (1896), *The Invisible Man* (1897) and *War of The Worlds* (1898). He is a futurist who wrote a head of time, his works tells about aircraft, space, alien invasions, and biological experiment that can turn a human to be transparent. He is considered as "Father of Science Fiction" for his scientific romances. He was nominated for the Nobel Prize in Literature in 1921, 1932, 1935, and 1946 (Famous Authors, 2021). According to McLean (2009: 1) the first significant breakthrough in Wells's career occurred when he published his brilliant scientific romance *The Time Machine* in 1895, and then continue with *War of The Worlds* serialized by a popular magazine *Pearson's* in 1898. Wells himself have a degree in zoology and has published scientific essay, and

educational journalism in prestigious journals such as *Saturday Review* and *Nature* in the early 1890s. Quoted from McLean (2009: 1) in his interview with the Weekly Sun Literary Supplement in December 1895, Wells said that he is simply a story-teller who happens to be a student of science.

The Invisible Man is one of Wells's famous works. The novel was published in 1897, the title alone was attractive enough to trigger people curiosity. The idea of invisibility is tempting, fascinating, but also terrifying. Anyone who possessed this ability can escape people notice, free from social pressure and criticism based on appearance, can eavesdrop important information, quietly monitoring people, even entering any unlocked room without challenge. But this idea also attracts the interest of sexual predators, robbers, and peeping toms. Invisibility in literature is as old as history itself and was common in early nineteenth century. Wells modernized a theme rooted in Greek myth and folklore from Plato's *Ring of Gynges*, to the caps and cloaks of Celtic fairytale and medieval romance (Williams, 2010: 22). The *Invisible Man* has given innumerable literary limitations, films adaptations, and television series. The first film adaptation, *The Invisible Man* is produced by Universal Studio in 1933, next was *Abbott and Costello Meet the Invisible Man* (1951), *Memoirs of an Invisible*

Man (1992), and *Hollow Man* (2000). The most recent is the Netflix adaptation released in 2020. (Sirabian, 2001: 382).

This novel tells about a great invention discovered by a man named Griffin, a talented scientist. He found a way to make himself turn invisible, and became a parable of the dangerous power of science. Feeling superior after obtain such power, Griffin, driven by his fierce ambitions, grows to become megalomaniac. He isolates himself during the research to pursue his ambitious project due the paranoia of his work maybe stolen from him and gradually loses his humanity in the process. After he became invisible, he commits many crimes like breaking people's home to rob money and also casually murder people in the process. His madness became worse when he rejected by society. The society around him refused to support him and constantly challenges his existence. Even though invisibility sounds powerful, it also has weakness. The angry people in his village later use his weakness to hunt him down. Griffin later died tragically beaten to death by mob.

Originally, this discovery was intended for fulfilling a dream, but eventually turns to become a misery to the inventor. Though the story, it is implied that science is powerful and human should be wise in the application. Griffin portrays the image of mad scientist who abuse his knowledge and using it for his personal greed.

Furthermore, the writer chooses one of H. G. Wells's most remarkable novel entitled *The Invisible Man* (2019) as the object of the research. H. G. Well was famous because of his Science Fiction works and *The Invisible Man* is a one of them. Wells examines the impact of science on society from essentially societal point of view. The narrative written in few perspectives made the reader see the invisible man through the eyes of the various individuals who come across him (Singh, 1984: 21). *The Invisible Man* is a simple and briefly realized story, but it contained great value in it. Invisibility, the novel suggest, removes a man from social interaction and therefore from social responsibility, with malign consequences. The writer also found many journals and research related to the novel, but most of them are about the internal matters such as psychological analysis of the main character of the novel. Thus, the writer attempts to discuss something different from those previous studies by try to analyze the external conflict between the main character and the social life as the result from science abuse he did with his experiment. The writer will describe the impact of science abuse to the social life by using the sociology of literature approach. And since the majority of the previous studies about the novel mostly focused on the inner conflict and psychological issues of the main character of the novel, the writer hope that this study could give a contribution about the relation between science and

social life study. Hence, title of this thesis is *The Impact of Science Abuse in Social Life Reflected in the novel The Invisible Man by Hebert George Wells*.

B. Identification of Problems

After reading *The Invisible Man* by H. G. Wells, the writer identifies several problems that could be investigated and developed as a research topic. The first is the psychological disconnection and social isolation of the main character. During the story, Griffin was portrayed as someone who always paranoid because he scared someone might steal his research and took all the credit of all his works.

The second topic that could be analyzed is the science abuse done by the main character, Griffin. Griffin performing his experiment on cats without concerning about it, then once he realized the power he have he later conduct experiment on his own body. Once he turned invisible, he robs a store and beats a man to a pulp, rob his father money which leads to his father suicide, murders people and creating terror to the village.

The novel also describes a dynamic relationship between an individual and a society. The villagers of Iping are loud, noisy, and like gossiping.

C. Research Questions

This thesis to investigate the impact of science abuse by the main character and the impact of the social life in novel, *The Invisible Man*,

written by H. G. Wells, the questions of this research can be formulated as follows:

1. What kinds of science abuse does the novel *The Invisible Man* present?
2. How do the impacts of science abuse arise in social life reflected in the novel *The Invisible Man*?

D. Research Objectives

Based on the problem above, the objectives of this study are as follows:

1. To identify the kinds of science abuse presented in *The Invisible Man*.
2. To analyze science abuse impacts arise in social life reflected in the novel.

E. Significance of the Study

The significance of this research contains the theoretical and practical aspects. This study is expected to theoretically helping the students and researchers to obtain necessary information that will beneficial to their research related to science abuse and sociology literature study

Practically, the writer hopes this study would give additional understanding to the researcher or student about what kinds of impact in social life when science been abusing and using for bad intentions.

F. Sequence of Chapters

This research consists of five chapters. Chapter one presents five fundamental parts of this study: the background of the study, identification of research problem, research questions and objectives, and significance of this study.

Chapter Two is a summary of literature reviews of this research. They are previous related studies and theoretical background that explain about the theories and approach that will be used in this research.

Chapter Three explains the methodology of the research. The writer presents data collection techniques, data analysis methods, data sources and explains step by step the research procedures.

Chapter Four presents the finding and discussion. The collected data were elaborated and analyzed by applying sociology of literature approach.

Chapter Five summarizes the essential findings and the result or the outcome of this study. This section also includes the recommendation by stating the limitations of this study and suggests how they might be improved in future work.

CHAPTER II

LITERATURE REVIEW

This chapter presents a literature review, consisting of previous related study, theoretical background, and the term's definition in this research.

A. Previous Related Studies

In order to analyze the novel, the writer has read several unpublished theses and articles from reliable journals. These few findings are related to H. G. Wells's novel *The Invisible Man* and the research topic.

The first research carried out by Robert Sirabian entitled *The Conception of Science in Wells's **The Invisible Man*** (2001). This study focused on the scientific method that used by the main character. The objective of this study was to show how the novel, *The Invisible Man* challenge the traditional nineteenth century scientific thinking. Baconian methodology was well established in the nineteenth century, this methodology solely focused on proofs and facts that lead to theory. The result of this study shows that *The Invisible Man* challenges the notion of traditional nineteenth century science by making the imagination a vital component of scientific method.

The second research paper entitled *Science Abuse as a Threat towards the Establishment of Utopian Community in H. G. Wells's **The Invisible Man*** (2007) conducted by H. Agung Prasetyo. This study discussed about how science abuse imposed threat toward the development of the utopian society. Prasetyo used the moral philosophical

approach and examined the science abuse by the main character as well as the impact. The result of this study show that science abuse considered to be the possible threat for the peaceful life of Iping village community due the undergoes imbalance condition upon the coming of the Invisible Man and the horror he caused.

The research entitled *The Influence of Motivation towards Behavior resulted in Griffin's Self-Destruction in H. G. Wells's **The Invisible Man*** by Nanang Prasetyo (2009) explored the deep characterization of the main character. This study used psychological approach to investigate the motivation influence towards the behavior of the main character. The result of this study described the hunger for fame and glory the main character had and how it led him to perform aggressive behavior. Griffin slowly lost his humanity during the process then led him to self-destruction.

The next study, ***The Invisible Man** and the Invisible Hand: H.G Wells's Critique of Capitalism* (2010) carried out by Paul A. Cantor. This study presents how Wells used his works to explore a large set of economic and political problems. Cantor argued in his paper that Wells is socialist who uses his parable of the Invisible Man to challenge Adam Smith's economic theories. The result of this study described how the novel *The Invisible Man* offers an opportunity to examines Well's view about capitalism also how he used creative writing for criticizing the impersonality of the market economy and its invisible forces.

Another study by Rachel A. Bowser entitled *Visibility, Interiority, and Temporality in **The Invisible Man*** (2013). This study analyzed *the Invisible Man*'s deep characterization by using psychological approach. The objective of this study was to describe the role of invisibility and how it advanced the establishment of psychological interiority in character analysis. The result of the study shows that the invisibility feature that the main character had is helping in elaborates Griffin's "deep self" character based on the interiority and how the narrative represented him by using the term "figure".

Tarryn Handcock's research entitled *Revelation and the Unseen in H. G. Wells's **The Invisible Man*** (2017) examined the relation between the primacy of the visual and the role of spectatorship and how both are interplays each other. According to the study, the Invisible Man is an allegorical articulation of imaginative possibility, social and personal fears, highlighting the importance of the visualized body to stay socially connected. It has been known that appearance and clothing provide visual clues that can told about an individual's race, lifestyle, wealth, and habits. The results show the ways that skin, body, and clothing can be culturally communicative media that function at the forefront of social survival.

The research is entitled *H. G. Well's **The Invisible Man**: A Precursor to the Anonymous Netizen* (2018) conducted by Chandra Sekar V. This study focused on modern aspects in the novel by comparing *the Invisible Man* to Anonymous netizen. The scope of this paper included literature,

psychology, and Internet studies. Anonymity on the internet provides the freedom of expression but also leads to an alarming level of violence like cyber-bulling and hacking. The result of this research shows that drawing the line between the freedom of expression and offending of sensibilities has always been a complicated task.

The next research conducted by Muh. Ardiansah entitled ***The Effects of Technological Abuse to Social Life as Reflected in Mary Shelley's Frankenstein*** (2019) examined the technological abuse in the novel and the effects towards the main character social life. This study used Sociology of Literature as the approach in analyze the novel. The result of the study described two forms of effects that illustrated in the novel namely, Anti-Social and Procrastination.

The most recent study has done by Bindu Gahatraj entitled Critique of Ethical Degradation in Wells's ***The Invisible Man*** (2021). This study discussed about moral degradation of the main character due the feeling of superiority after he obtained the unusual invisibility ability through his experiment. The result of this study show how science was used without considering humanity. Griffin discovery of invisibility represents him as an antisocial person who disobeying ethics of modern science and technology and later leading terror to society.

Several previous studies above generally dealt with the novel characterization and internal issues. They were also raised similar object

by focusing in the main character interiority and psychological matters. The difference between the current research and previous researches can be seen from the theory and the objective of the research.

This study aims to describe the relationship between science and society and the impact of science abuse to social life as revealed in the novel, *The Invisible Man* by H. G. Wells. In this research the writer used sociology of literature and more focus to the external issue which is the impact to the social life. The writer attempts to discuss something different from those previous studies by try to analyze the external conflict between the main character and the social life as the result from science abuse he did with his experiment.

The writer describes the impact of science abuse to the social life by using the sociology of literature approach to analyze the novel. And since the majority of the previous studies mostly focused on the inner conflict and psychological issues of the main character of the novel, the writer hopes that this study could give a contribution about the external issue in the novel analysis.

B. Theoretical Background.

In this part, the writer presents overview of literature, sociology of literature, social aspect, the social condition in England 19th century and science abuse. In analyzing a literary work, the theoretical background is needed to give a more depth explanation of the terms that is analyzed. In

this case, the writer uses sociological approach in analyzing a novel and through a sociological view point. The writer can analyze the conditions that occur in society.

1. Literature

Generally, literature is often regarded as an imaginative writing and entertainment. However, as a branch of art, literature is also a medium to express ideas and feelings of the author in regards to their issue that occurs at a particular time. The author uses the depth of their imaginations, visions, and intellectuality in writing the literary work. Literary work has become a part of human experiences, both as entertainment purpose or as a reflection to social reality that occurs at the moment.

Literature is a social creation expressed by author using language as the media. Moreover, literature contains social norms and it represents life and social reality. Thus, the reader can appreciate the reality and the human life problems that happened in society as reflected in literary works (Wellek and Warren, 1962: 94).

2. Sociology of Literature Theory by Diana Laurenson and Alan Swingewood.

Alan Swingewood was a lecturer in Sociology at London School of Economics and Political Science. He was born in Staffordshire 1938 and died in April 24 2020. He receive his Ph.D in

1968 with his the Scottish Enlightenment and its role in the rise of sociology. In 1987 he was promoted to Senior Lecturer, and stayed in the Department until 2000. Alan had impressive sociological career. He published books about the sociology of literature, sociological theory, and culture. In early 1972, he co-authored a book with Diana Laureson entitled *The Sociology of Literature* (Jadhav, 2014: 661).

Diana Laurensen was a lecturer at North East London Polytecnic. *The Sociology of Literature* is one of the most influential book she wrote with Alan Swingewood, this book presents the approaches and the method in analyzing literary works in sociological approach. The book has been written in hope that it may serve to introduce the idea of the sociology of literature both to those for whom literature is a unique subjective experience which defies scientific analysis (Swingewood and Laurensen, 1972: 1).

According The Penguin Dictionary of Sociology, The term *Sociology* has two stems, the Latin *socius* (companion) and the Greek *logos* (study of) – and literally means the study of the processes of companionship. More technically, sociology is the analysis of the structure of social relationship as constituted by social interaction (2005: 367).

Sociology of literature is one of subfield among literature theories. It focused on the social aspect in the literary work. In other words this is the study about the relation between the literature and society and how both interplays each other. This relationship can go both ways either in how the society influenced the author's imagination in creative writing or how the literature impacts the society in general.

The relationship between literature and sociology has been very close and inseparable. According to Swingewood and Laurenson, sociology and literature are quite distinct areas of research. However, at the most basic level, that of content, they share similar conspectus (1972: 11).

Swingewood and Laurenson (1972: 12) added that with sociology, literature concerned with man's world including his adaptation to it, and also his desire to change it. Thus, as the major literary genre, the novel can be seen as a faithful attempt in re-creating the social world.

In the book *The Sociology of Literature*, Swingewood and Laurenson stated that there are three ways to approach sociology of literature. First one is the most popular approach adopts the documentary aspects of literature, and consider literary works as the mirror of the age. This perspective deals with the time and

period when the literary works are created and set, and consider it as the reflection of the real situation and phenomenon happened in the society at the moment (1972: 13).

The second approach to literary sociology moves away from the emphasis on the work of literature itself to the production side which deals with the social situation of the author. Swingewood and Laurenson stated that the social situation of the author had the consequent impact in his literary style and content. Last approach is tracing the ways in which a literary work actually received by a particular society at a specific historical moment (1972: 17-21).

Sociology of Literature focuses on people relation and society. It seeks the relationship between literary work and the reality of society from various perspective and dimensions. Spector and Kitsuse stated that literary work usually reveals situation or problems that occur in social life. The problems are called social problem. It is unusual condition or a form of behavior, which is considered to be deviated from the social norms (1977: 5).

The writer chooses Sociology of Literature as a theoretical approach to analyze with the social aspects of the novel in this study which explores the impact of science abuse to the social life.

3. Social Aspect.

As a social creature, interaction with people and society is an essential for human. Having strong connections, tight bound with community and decent amount of support are very healthy both physically and mentally for an individual.

Stafleu (2005: 151) suggested, the good possibility that the social aspect introduces into reality is company. Which means that the relationship between people in sociological perspective. Some examples are: the roles people have in families (parent-child, sibling-sibling, etc.), clubs an individual join, how students interact with peers and teachers in school, women "fighting for" equal rights, people practicing their religion, people participating in crime, work relationships, giving to charitable causes, etc.

According to Searle (1997: 4) there are portions of objectives facts in the real world that are only facts by human agreement. In sense there are things that exist only because we believe them to exist, things such as money, governments and marriages. Searle called these things as the institutional facts because they required human institutions for their existence.

Social aspect is the commonalities among people in a specific culture may include language, norms, and rules. Social aspect is also focused on social relations between individuals and

organizing the relationship between members of society. It plays an important role as the foundation of society and they encompass all aspects of it.

4. English society in 19th Century.

The Invisible Man took place in England 1890s. This era called The Victorian Era (1837-1901). This era was peaceful and prosperous, although there were issues about the social structure. The social classes of this era divided into three, the Upper class, Middle class, and lower class. The Upper class is including Royals, important officer and lords, and wealthy business owners. The Middle class consisted of those who referred as the Bourgeoisie, merchants and shopkeepers, and the white collar men that earned high salary. And last, the lower class consisted of laborers, farmers, and unskilled workers. (British Literature Wiki, n.d.)

The action took place at a village named Iping Village in the Chichester district of West Sussex, England. The people there are country folk whose concerns focus on their land. Like the typical of any good rural Englishmen, they are extraverted, loudly, opinionated, nosy, and egalitarian. Wells's portrayal of country people are stereotypical, but not offensively so. His Sussex natives come off as unintelligent and ignorant, and like gossips.

5. Science Abuse.

Science is much too grand to be defined in a few words. Ziman suggested that the conventional definitions of science tend to emphasize quite different features depending upon the point of view. For example, if science is defined as a means of solving problems this emphasizes its instrumental aspects as a tool to find out facts and investigating the trust by a systematic and objective research. But if science defined as organized knowledge, it emphasizes its archival aspect. Information about natural phenomena is acquired by research, organized into coherent theoretical schemes (1984: 1).

Ziman also added that the objective of science is to decipher myths and blind beliefs also provide unbiased knowledge base for all. Science has a huge contribution to human, it bring many benefits and make our life easier. Throughout civilization, science has played an important role in human lives. The origin may be based on curiosity and out of necessity but the intentions are mostly noble, to improve human life quality. In this modern era people using science and technology in their everyday life to the point they started abusing it where it is not possible to live without it even for a second (1984: 1).

There are many reasons why few science great discoveries are kept confidential and inaccessible to public. One of them is to

minimize the possibility of science abuse by irresponsible people who might take advantage and using it to harm others. Even though science should be value-free, the idea might be interrupted in many different ways. When the science knowledge flow into society and manipulated by certain values, then science would become dangerous (Tudge, 1999: 46).

In the preface of his book, *Dangerous Science*, Rozell stated that few people would argue that scientists bear absolute no responsibility for how their work is used. Yet the potential use of research can be difficult to predict (2020: xi). Regardless the benefits human gained from science, it is important to acknowledge how scientific creativity can lead to destruction, it can be swayed by colleagues, military forces, and even ideology to utilize non-ethical choices (Thomas, 2013: 42).

In his book, *The Republican War on Science*, Mooney identified science abuse as act of manipulating science to meet one personal interest. Science abuse not only did by one particular person like mad-scientist and his personal benefits, also it can be on massive scenario such a politics policy which can put many lives in danger, for example the issue of biological warfare and nuclear bomb in war (2005: 1).

Furthermore, natural microorganism such as bacteria and toxin can be used to kill or injure people. This is fascinating discovery turned into biological weapon by human because it offers many benefits in war, it can be used for secret assassination or wipe out thousands people with single blow. During World War I, Germany and France developed secret biological weapon program using the bacteria *Bacillus anthracis* or Anthrax. The dangerous threat of biological weapon really concerned international politicians in the world. As the result, in 1925 the *Geneva Protocol for Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare* was ratified and signed by 108 nations (Barras and Greub, 2014).

Another case of science abuse is the evil experiment by Nazi. Nazi did terrible things by gathering hundreds people in concentration camps and using them as an object of non-consensual experiment. Various dangerous experiments conducted with dubious scientific value, from injecting dye into the eyes of children to change their color to stitch two children together to create conjoined twins. In 1942, a Nazi doctor strapped a young boy into a chair and repeatedly hit his head with mechanized hammer. Women at the camp had a synthetic antibiotic tested on them by having their arms and legs wounded constantly in the process (Sheldon and Whitely, 1989: 16).

Nowadays, scientists secretly start to conduct a research to make a human immortal or at least delaying their death. It is not even a surprise that scientist starts to develop such an idea since we know that it is human nature to always be curious. These scientists believe that death is caused by particular technical problems on human body that can be solved. Universal Declaration of Human Right does not states that human have right to live until 90 years or what so ever, it only states that human have a right to live. This right does not limited to expiration date (Harari, 2019: 27).

Accordingly Harari added that the foremost example is a gerontologist Aubrey de Grey and a brilliant scientist Ray Kurzweil. Kurzweil is a winner of US National Medal of Technology and Innovation in 1999. In 2012 he is appointed to be Director of Engineering at Google and the next year a subsidiary of Google launched named Calico LLC, a research and development biotech company. This company is focused on health, well-being, and longevity with the intended goal of combating aging and associated disease by investigating ways to harness advanced technology to increase our understanding of biology that control lifespan (2019: 28).

Thus, the dangerous developments from fields such as genetic engineering, regenerative medicine, and nanotechnology reinforce a much more optimistic treatise. Some scientists believe

that human would be able to overcoming death in 2200 while the others said in 2100. Some of them even more optimistic, they are believe that with a healthy body, and also indeed a lot of money, in 2050 people would be able to increase their lifespan for at least a decade. Hypothetically, once in a decade this people could go to clinic and do remodeling treatment which not only cure disease they may have, but also regenerating every cells in their body so practically they would have a brand new body that functioning better than the old one (Harari, 2019: 28).

Even with all of these sophisticated inventions cannot change the fact human still a mortal being. Human do not have godly power to resurrecting dead, they only can trick death with their knowledge. The cells remodeling method only work on the living and would be useless in a second as the body explode due bomb or car crashing accident.

Science is very versatile, so far as the well-being of humanity is concerned science need guidance from other sources. Science itself is not enough, it may contain any corruption. Science may facilitate man to steal, abuse, kill or any crimes. The science works well in accordance to its goals if the scientists are concerned with the morality in creating and applying the scientific invention. Indeed, the morality is the foundation of any disciplines including science. It would prevent us become slaves to our own creation.

C. Conceptual Framework.

