University of Siegen

Faculty I

Master's Thesis

Inventing Armageddon:

Technology as Apocalyptic Threat in Science Fiction Movies

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1 Introduction

When we think of science fiction stories, whether in literature or film, what are the first things that come to mind? Scenarios range from extraterrestrial creatures visiting planet earth (*E.T. the Extraterrestrial*) to full-blown alien invasion movies (*Independence Day*). The plots can feature robots (*Blade Runner*), monsters (*Godzilla*) and mutants (*The Fly*). There is science fiction comedy (*Men in Black*) and science fiction horror (*Alien*). The story may take place in a distant future (*Planet of the Apes*) or in the present (*Close Encounters of the Third Kind*). The setting can be highly technologized (*Star Wars*) or it can be guided by our contemporary technological standards (*Signs*). When it comes to stories, characters or scenarios the possibilities are endless and manifold, yet the result will always be recognized as 'science fiction.' In the entire history of film, since the dawn of the earliest cinematic technologies to contemporary big-budget high-end 3-D blockbusters, whether it is Georges Méliès' black-and-white silent film *Le Voyage Dans La Lune* (1902) or James Cameron's state-of-the-art CGI-excess *Avatar* (2009), science fiction has always been a highly popular genre, both on film and on paper. What is it that makes science fiction such a popular and successful genre?

As Ray Bradbury, one of the most celebrated science fiction authors of the twentieth century once said in an interview with *The Paris Review,*[1]

> science fiction is any idea that occurs in the head and doesn't exist yet, but soon will, and will change everything for everybody, and nothing will ever be the same again. As soon as you have an idea that changes some small part of the world you are writing science fiction. It is always the art of the possible, never the impossible.[2]

British writer Kingsley Amis further specified Bradbury's statement by claiming that science fiction creates a "situation that could not arise in the world we know, but which is hypothesized on the basis of some innovations in science or technology, or pseudo-science or pseudo-technology, whether human or extraterrestrial in origin."[3] The crucial aspect of science, of course, already becomes self-evident by the name of the genre itself and the various descriptions it had in its early stages. H.G. Wells, who today is considered to be one of the fathers of modern science fiction, called his stories 'scientific romance,'

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[1] This interview was first conducted in the late 1970s by William Plummer, but remained unpublished for almost thirty years. In 2010, Sam Weller stumbled upon the manuscript while doing research for a biography about Ray Bradbury and decided to publish it, supplementing it with parts of new interviews taken from his collection of Ray Bradbury interviews called *Listen To The Echoes.*
[2] Weller n.p.
[3] Sobchack 19.

J.-H. Rosny aîné chose the term 'le merveilleux scientifique' and readers of the inaugural issue of the science fiction magazine *Amazing Stories* (1926) decided for the name 'Scientifiction.'[4] Either way, from those three historic examples it already becomes apparent that the aspect of science was a central ingredient of these stories that would later be known as science fiction.

At the core of any science fiction story lies the question of "What if…?". What if a certain idea became realized? What if a particular event came to pass? Science fiction generates scenarios of hypothetical concepts and presents possible outcomes or consequences of such scenarios. As Sam Moskowitz, science fiction editor and writer, points out, it is "the 'willing suspension of disbelief' on the part of its readers by utilizing an atmosphere of scientific credibility for its imaginative speculations"[5] that evokes a feeling of possibility, maybe even probability of these stories. Its progressive nature and the fascination with speculations about future events are just some conceivable reasons for the continuous interest in the science fiction genre. However, these scenarios and story concepts do not necessarily have to be of a positive nature. As I will argue in my thesis, the science fiction genre has over the course of its history developed a strong tendency towards apocalyptic scenarios which can be explained by crucial historical events. In my paper, I am going to explore this negative tendency and scrutinize the influence of the historical context on the movie's atmospheric undertone and message, because "if science fiction is about science at all, it is not about abstract science, science in a vacuum. In the SF film, science is always related to society, and its positive and negative aspects are seen in light of their social effects."[6]

As Moskowitz says, science and an atmosphere of "scientific credibility" is a defining character of science fiction, as the genre's title already indicates. What is a crucial element of science? 'Technology.' As expressed in Amis Kingsley aforementioned quote, technology is a crucial stepping stone in a science fiction story to create a conflict or a problem of some kind and thereby, "technology in science fiction film narratives is often an active force within the diegesis."[7] In the following part of my introduction I will elaborate on the relevance of technology for the science fiction genre in general and its particular representation as a threatening element of apocalyptic science fiction stories.

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[4] Cf. Slusser 27.
[5] Sobchack 19.
[6] Ibid. 63.
[7] Johnston 17.

The Title of this Study: An Explanation

The title "Inventing Armageddon: Technology as Apocalyptic Threat in Science Fiction Movies" consists of four main terms and phrases that require further explanation in order to elucidate the purpose of my work. These four words determine the role that technology plays in my analysis of apocalyptic science fiction. In the following, I will dissect the title of my paper and approach each of those parts individually.

First of all, there is the term 'science fiction movies' which specifies the scope of primary sources that will be the objects of study. Right at the outset of my thesis it needs to be clarified that I will not attempt to give an irrefutable definition of the term 'science fiction' because, as Bill Warren has pointed out, "that way madness lies, and the effort has ruined better minds than mine."[8] I will, however, narrow down the most commonly accepted characteristics and cornerstones of the science fiction genre as an essential point of reference for my subsequent discussion which I have already touched upon in the aforementioned quotations by Bradbury, Amis and Moskowitz. Ever since the emergence of science fiction as a literary genre and its extension to a film genre scholars have tried to establish a universal definition. The vast majority of different attempts compared in Vivian Sobchack's classic study about science fiction, *Screening Space: The American Science Fiction Film* (1987), which will be one of my main points of reference in terms of science fiction history, shows that science fiction turns out to be too widely faceted and amorphous as to be confined to rigid genre boundaries. One explanation, amongst others, is its lack of a "fixed iconography of the Western or Gangster film."[9] The reason behind this is that science fiction above all other genres is "shaped by interactions with culture and society, and a force that can be applied within culture,"[10] meaning that it is a mirror of its contemporary socio-political and cultural environment. As I will outline in the course of my introduction, this element of reflecting cultural and social undertones is a vital support for the argumentation of my thesis. As a result, science fiction "was, and remains, a work in progress, continuously registering the continuous impact of science on human situations."[11]

'Technology' is the next important term in my thesis and the central element in my discussion of the apocalyptic science fiction genre. As already indicated, technology is a fundamental cornerstone of the science fiction genre. Technological innovations have significantly influenced our society and human development since the dawn of man which

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[8] Warren X.
[9] Blandford 205.
[10] Johnston 11.
[11] Slusser 41.

finds particular expression in science fiction movies for, as Vivian Sobchack states, "SF has always taken as its distinctive generic task the cognitive mapping and poetic figuration of social relations as they are constituted and changed by new technological modes of 'being-in-the-world.'"[12] The focus of my analysis will be the depiction of technology's destructive forces that puts the very existence of humanity at risk, the apocalyptic potential of technology. Ever since humans developed technology it has been used for good and bad, constructive as well as destructive causes. However, in the entire history of mankind there has been one invention which possesses the potential to confront humanity with the threat of complete annihilation: the atomic bomb. I will argue that this event has caused a whole wave of apocalyptic science fiction stories and has in fact majorly contributed to the emergence of techno-apocalyptic fiction.

This brings me to the two remaining parts of my thesis' title: 'Apocalyptic' and 'Inventing Armageddon.' The term 'apocalyptic' further determines the kind of threat that technology embodies in the movies that will be the focus of my work. As I have mentioned before, the invention of nuclear technology, in particular atomic weaponry, has led to a fundamental change in the representation of technology in science fiction. Although the aspect of technology as a threat has been a reappearing element throughout the history of science fiction, it tended to play a rather minor role whereas in the post-Hiroshima era the pessimistic attitude towards technology has increased considerably. Finally, the phrase 'Inventing Armageddon' indicates that this apocalyptic threat which mankind has to face does not arise without any human involvement but that it is a constructed phenomenon, 'invented' by humans themselves. Technology is a human invention that originally was intended to assist and serve mankind. However, apocalyptic science fiction stories conceive scenarios where the creation turns against its creator. Theodore Sturgeon claims that "a good science fiction story is a story with a human problem, and a human solution, which would not have happened at all without its science content"[13] which is why I argue that the aforementioned invention of atomic weaponry has fundamentally changed the representation of technology in science fiction stories. The atomic bomb represents the realization of an apocalyptic weapon at the disposal of mankind. The techno-induced apocalypse is no longer fiction but a potential fact, a realistic possibility that has led to a turn in the science fiction genre towards a more critical examination of technology. However, the atomic bomb only marks the starting point of techno-apocalyptic science fiction. Throughout the following years, new technological innovations would provide the foundation for further apocalyptic scenarios.

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[12] Sobchack 224.
[13] Ibid. 19.

In the course of my study, I will elucidate how technological inventions throughout the history of science fiction have changed its attitude towards technology itself. Here I will refer to Raymond Williams' triad of 'dominant,' 'residual' and 'emergent' cultural perspectives. Williams states that the culture's complexity is expressed by the "dynamic interrelations […] of historically varied and variable elements."[14] In this thesis I will consider technology as a significant cultural element of cultural dynamics and I will show how this is represented in the science fiction film genre throughout its history. These variable cultural elements are either 'residual,' meaning "effectively formed in the past, but […] still active in the present"[15] or 'emergent,' meaning that "new meanings and values […] are continually being created"[16] whereby they both reveal characteristics of the 'dominant.' I will use Williams' model to describe how technology as an element of cultural dynamics has influenced the science fiction genre over time and how these changes can be detected in science fiction stories throughout the genre's history.

The Structure of this Study

This thesis will be divided into three main parts, each of them devoted to one of the three movies I have chosen for my paper. Additionally, every part will again be subdivided into, firstly, an introductory part that will build the historical and theoretical foundation for each movie and, secondly, an analytical part that will dissect at least one scene of the respective movie on the basis of the parameters that have been unfolded in the preceding theoretical part. The analytical part will focus on various compositional elements that underline the particular role of technology in this movie, such as the mise-en-scène, the use of camera perspectives and motions, characters and their constellations as well as the relevance of the analyzed scene for the overall plot.

The analysis of the three prime examples, *The Day the Earth Stood Still* (1951), *WarGames* (1983) and *The Matrix* (1999), will provide a cross-section of apocalyptic science fiction film history, beginning with its undisputed heyday in the 1950s, throughout the 1980s until the second Millennium. I have selected these three movies since they each represent a different time period in the history of science fiction film that was dominated by a different relation to technology. Each film, I will contend, uniquely encapsulates the specific socio-political atmosphere of the time in which it was created. Of course, because an overview covering the entire science fiction history and its relation to

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[14] Williams 121.
[15] Ibid 122.
[16] Ibid 123.

technology would go beyond the scope of this thesis, these selected movies will focus on three major periods which I consider significant for the topic of technology and apocalyptic science fiction. Each of these time periods is marked by both significant political and technological key events unique for their time which finds expression in these movies. The result of my analyses will show that these three movies each reflect a different attitude towards the socio-cultural significance of technology in a way that can be considered characteristic for the time when they were released. In doing so, I will show how these movies portray an individual contemporary cultural and socio-political atmosphere.

2　Hiroshima: The Day that Changed the World… and Science Fiction

The advent of the atomic bomb was very quickly recognized as one of those rare events that forever alter the human landscape.[17]

Before I turn the focus of this thesis to my three movie examples it will be necessary to briefly look into the history of science fiction. In the following, I will refer to the role of technology in the science fiction genre and how it has played a significant role in the genesis of the apocalyptic science fiction subgenre.

Ever since the emergence of the science fiction genre in literary form, it has dealt with the topic of science and technology and its upsides as well as downsides. The stories of Jules Verne, such as *From the Earth to the Moon* (1865) or *20,000 Leagues Under the Sea* (1870) marveled about the magnificent journeys man might be able to undertake with the help of technology. Verne's stories were strongly inspired by Edgar Allan Poe who, apart from his famous tales of horror and crime, also wrote science fiction stories such as "The Unparalleled Adventure of One Hans Pfaall" (1835). This story is a prime example for the fact that science fiction has since its very beginnings responded to important incidents in its historical context, as hot-air balloons were an emerging technology at that time, beginning in the late 18th century.

Early on, science fiction writers have also portrayed the dangerous aspects of technological progress. In his book *Science Fiction Film: A Critical Introduction*, Keith M. Johnston refers to this dualistic aspect of science fiction as follows:

> Scientific experimentation and innovative technological marvels reached popular heights during the nineteenth century. New inventions such as gaslight, photography, the machine gun, steam engines, dynamite and x-rays impacted on public awareness of scientific progress. Each new invention appeared to enshrine scientists and inventors as the pinnacle of modern achievement, pushing forward the boundaries of human knowledge. Yet such brilliance also contained within it the possibilities of misuse, or destructive power. The machine gun and the stick of dynamite were new creations whose power was inevitably destructive, fast transportation via steam trains led to numerous pedestrian deaths.[18]

Probably one of the most famous examples of proto-science fiction works in this regard is Mary Shelley's *Frankenstein: Or, the Modern Prometheus* (1818). It tells the story of a scientist who builds an artificial human being from parts of dead bodies which goes rogue

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[17] Boyer 133.
[18] Johnston 54.

after Dr. Frankenstein brings it to life with an electric apparatus. The beginning of the 19th century was marked by extensive experiments examining the phenomenon of electricity. One of the eponymous scientists was Alessandro Volta who pioneered in the development of the battery (1800) and also furthered Luigi Galvani's theory on bioelectricity.[19] Again, it becomes obvious how such technological innovations had a crucial influence on the science fiction genre and clearly set the stage for Shelley's story.

A further example is the development of the x-ray in the late 19th century which undoubtedly gave an impetus to H.G. Wells' *War of the Worlds* (1898). In this book, extraterrestrial invaders attack humans with heat rays whose destructive force Wells describes in the following: "and as the Heat Ray went to and fro over Weybridge its impact was marked by flashes of incandescent white that gave place at once to a smoky dance of lurid flames."[20] In his later novel *The World Set Free* (1914) H.G. Wells even anticipates the atomic bomb, inspired by the discovery of radiation and atomic decay by Henri Becquerel and others. However, Well's atomic bombs only had the destructiveness of conventional bombs and did not emit nuclear radiation. Furthermore, he also acknowledged the positive potential of atomic energy. Although the previous examples already portrayed negative scenarios caused by technology, none of them amounted to scenarios of an apocalyptic scale. The topic of technology as apocalyptic threat was practically non-existent in the science fiction genre at that time. Mary Shelley did conceive a scenario of apocalyptic dimensions in her novel *The Last Man* (1826), but in this story humanity is wiped out – except for one man – by a mysterious plague and not by a technological device.

The reason for a lack of techno-apocalyptic science fiction stories was that there had not been a technological invention that would have possessed the power to enforce a threat of such proportions. It was not until the year 1945 that a scientific invention would change this fact: the atomic bomb. The invention of 'The Bomb' for the first time in history made it possible to yield a destructive force that could not be achieved with conventional weapons anymore. All the destructive and dangerous technological scenarios that the science fiction genre had conceived so far could not live up to the potential of the newborn atomic energy. Therefore, the invention of the atomic bomb also created a significant shift in the science fiction genre.

Edward Teller, 'the father of the hydrogen bomb,' once explained that he did not like science fiction anymore, saying that "my taste did not change. Science fiction did.

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[19] By conducting experiments on dead frogs Luigi Galvani discovered that when an electric charge is put to a muscle, the muscle contracts which laid the foundation for the discovery that certain body cells transmit information through electricity.
[20] Wells 61.

Reflecting the general attitude, the stories used to say, 'How wonderful.' Now they say, 'How horrible.'"[21] As becomes apparent in this quotation, the science fiction genre has experienced a serious rupture which has profoundly altered its general undertone. The science fiction stories of the 1950s – both in literature and film – no longer represented technology as deliverance from the world's evils but instead constructed scenarios of nuclear holocaust and its bleak aftermath. The total nuclear destruction of the two Japanese cities Hiroshima and Nagasaki constituted the birth of a new level of apocalyptic science fiction. As William Palmer has stated, "the doomsday fear of nuclear Armageddon […] has been around since the reality of world annihilation was first created by the Manhattan project and demonstrated incontrovertibly at Hiroshima and Nagasaki in the forties."[22] Fictional concepts of the apocalypse as in the aforementioned novel by Mary Shelley suddenly were confronted with a realistic technological equivalent. Now, the techno-induced apocalypse was no longer a fantasy but bitter reality which found immediate expression in science fiction literature and film. The invention and the launching of the first nuclear weapon describes the dawn of apocalyptic science fiction, because any techno-apocalyptic scenario that could be thought up no longer remained a purely hypothetical idea. The question "What if…?" regarding apocalyptic fiction had finally found an answer.

A crucial aspect about the invention of the atomic bomb and apocalyptic science fiction is the aspect of 'locality' and 'globality.' In times of conventional weapons and warfare a conflict could be limited to a local scale. Even the First and Second World War could each be considered a cluster of local wars that were only connected on a global scale by ideological parameters (Allies vs. the Axis). However, the invention of the atomic bomb changed these prerequisites fundamentally. With the beginning of the Atomic Age, this possibility of limiting the consequences of a conflict to a local scale became impracticable. The nuclear arms race between the United States and the Soviet Union led to the accumulation of a nuclear arms arsenal that would have the potential of killing the entire population of the world and make the earth uninhabitable for humans. The destructiveness of the nuclear bomb including its aftereffects such as nuclear fallout would affect not only the two main enemies but also all their allies and every non-involved nation in-between. A conflict of such dimensions would inevitably rise to a cataclysmic globality.

This "looming threat of nuclear holocaust or other dire consequences of the Cold War was a dominant factor in the science fiction imagination from the end of the 1940s to the beginning of the 1990s […] Many dystopian visions of the future were strongly

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[21] Wagar 448.
[22] Palmer 179.

informed by Cold War pessimism."[23] The Atomic Age of science also started the Apocalyptic Age of science fiction.

3 *The Day the Earth Stood Still*: The Fear of a Nuclear Apocalypse

The film *The Day the Earth Stood Still*, directed by Robert Wise and released in 1951, tells the story of the extraterrestrial Klaatu who visits planet earth in order to deliver a message of universal importance to the entire mankind.

It appears to be just an ordinary day until suddenly an unidentified flying object is tracked streaking along the earth and finally lands right in Washington D.C. The news about this event spread rapidly and a massive contingent of armed forces and a huge crowd of spectators haste to the landing field to see the spaceship. Encircled by military troops the ship finally opens its door and the extraterrestrial Klaatu steps out. He assures the crowd that he has come to visit "in peace, and with goodwill," yet, as he pulls out a small object from under his spacesuit one of the soldiers shoots him. Just a moment later, his massive humanoid robot Gort steps out of the spaceship and begins destroying the soldiers' weapons and tanks with a laser beam emitting from his head. Klaatu commands him to stop and is taken to a military hospital. Klaatu turns out to be physically equal to a human being, but impresses the doctors with his ability to recover very quickly which, as it turns out, is based on the vast technological and medical advance of his people over the humans. Klaatu says that he bears a message of paramount importance which he has to reveal to all the world's leaders at the same time. When the U.S. President's secretary tries to explain to him the impossibility of such a meeting in the current political situation, Klaatu escapes and hides in a boarding house under the pseudonym 'Mr. Carpenter.' Klaatu wants to hide until he has figured out a plan to deliver his message. In the meantime, he becomes acquainted with Helen Benson (Patricia Neal) and especially her son Bobby (Billy Gray) who takes him on a tour around town and tells him about Dr. Barnhardt (Sam Jaffe), the "greatest scientist in the whole world."

Klaatu decides that this would be the right man to talk to and visits him. Barnhardt is not home but Klaatu solves a very complex mathematical equation on Barnhardt's blackboard and leaves his contact information. Later that day, government agents come to

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[23] Booker *A Companion to Science Fiction* 171.

take Klaatu to see Professor Barnhardt and Klaatu reveals to him that if he cannot deliver his message, then "Planet Earth will be eliminated." Barnhardt suggests to arrange a meeting of scientists from all around the world. In order to gain full attention, Klaatu demonstrates his power by neutralizing all electric circuits around the world except those that are necessary for human safety, as in hospitals. After the thirty-minute global blackout, Klaatu and Helen, who by now knows about his real identity, head over to Professor Barnhardt but on their way Klaatu is seriously wounded by soldiers hunting them. They arrive at the spaceship where Gort manages to temporarily revive Klaatu in order to address the assembled group of scientists. He explains to them that humanity's violent behavior, combined with their development of nuclear weaponry and space travel has caused concerns among other peoples of the universe. Klaatu's people have created a race of powerful robots which function as intergalactic policemen ensuring universal peace. Klaatu warns them that the people of the earth have the choice to either join their alliance of peaceful coexistence or face their own annihilation, concluding his speech by saying "The decision rests with you."

Many scholars and film experts consider the 1950s to be the 'Golden Age of Science Fiction,'[24] especially as a film genre. While the American science fiction genre of the 1930s "was largely confined to low-budget serials, such as those featuring Flash Gordon and Buck Rogers,"[25] the 1950s were shaped by a landslide of science fiction movies. The genre's sudden massive popularity during the 1950s was significantly shaped by

> a convergence of several factors, including […] anxiety over the atomic bomb and the Cold War; fear of communism; a rash of well-documented UFO sightings around the globe; and a growing conservatism and conformity within Eisenhower's America.[26]

This growing sense of paranoia caused by geo-political tensions and technological inventions was represented by significant numbers of stories about alien invasions, flying saucers, rogue robots, monsters, and mutants. As Keith M. Johnston states in his book *Science Fiction Film: A Critical Introduction*, "science fiction's appearance and popularity in this decade has been retrospectively linked to its apparent ability to deal with these larger political issues in allegorical form."[27]

The Day the Earth Stood Still is an exceptional film in the canon of 1950s science fiction films as will be explained throughout this part of my paper. M. Keith Booker even

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[24] Booker *Monsters, Mushroom Clouds and the Cold War* 2.
[25] Ibid. *Alternate Americas* 3.
[26] Blandford 205.
[27] Johnston 73.

calls it the "first truly important work of American science fiction cinema."[28] Apart from that, *The Day the Earth Stood Still* could claim two further 'firsts' for itself, being "Twentieth Century-Fox's *first* science fiction film and the *first* science fiction film to feature well-known actors,"[29] such as Michael Rennie (*Klaatu*), who already was an established actor in Britain and in 1949 was signed by Twentieth Century Fox where he starred in movies such as *The Black Rose* (1950), featuring Orson Welles.[30] Furthermore, with a budget of 1.2 million dollars[31] it was one of the most expensive science fiction movies up to that point and also one of the very first commercially highly successful science fiction films with a box office gross of 1.8 million dollars through U.S. theatrical rentals only. It thereby showed that "science fiction on the screen need not be limited to low-budget B-films or films for children. In doing so, it paved the way for future developments in the genre, setting the stage for the explosion in SF films that mark the decade of the 1950s."[32] However, only a minority of 1950s science fiction films followed its example which is another outstanding feature of *The Day the Earth Stood Still* apart from its commercial success. The majority of "invasion films that followed tended to be more frightening, with alien invaders threatening the American way of life. The invaders were often dangerous Martians or monsters with superior intelligence or strength"[33] whereas *The Day the Earth Stood Still* used a more progressive approach to the extraterrestrial visitor theme.

The science fiction movies which had a critical socio-political message often disguised it in highly futuristic and abstract storylines that either took place in space or included monsters and mutants in the so-called 'big bug movies' which were particularly popular at that time. 1950s science fiction films "often seemed designed to calm nuclear fears of the decade, displacing their vision of nuclear holocaust into the far future and often providing happy endings to assure audiences that everything would be fine."[34] Although *The Day the Earth Stood Still* does not depict an apocalyptic scenario, it still stands out from the canon of those 'calm' science fiction movies as it openly addresses the imminent threat of nuclear annihilation which was a steadily growing fear of its time.

The Day the Earth Stood Still has a strongly realistic approach for a science fiction film. The only science fiction elements – Klaatu and his robot Gort landing in a spaceship – are not the main focus of the movie but the reason why they have come. This is

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[28] Booker *Alternate Americas* 27.

[29] Lev 179.

[30] Also Patricia Neal was already a well-known actress through movies like *The Fountainhead* (1949) with Gary Cooper. Sam Jaffe starred in such movies as *Gentleman's Agreement* (1947) featuring Gregory Peck and *The Asphalt Jungle* (1950).

[31] Shaw 140.

[32] Booker *Alternate Americas* 27.

[33] Lev 181.

[34] Booker "Science Fiction and the Cold War" 175.

especially emphasized by Klaatu's human outer appearance. The use of special effects is limited to Gort's destructive laser beam which is only rarely used in the movie and even "the *Los Angeles Times* liked its 'newsreelish realism.'"[35] *The Day the Earth Stood Still* is very minimalistic in its visual style and instead focuses on its outright criticism of nuclear weapons and its plea for a peaceful coexistence at the beginning of the Cold War.

3.1 Between 'Nuclear Trance' and Arms Race: Technology in the 1950s

Atom Year I has probably been marked by more debate on a single subject than any other twelve months in the world's history. Social, economic, and political as well as purely technical issues have been pressing for realistic solution.[36]

As Paul Boyer states in his book *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* "the news that came on August 6, 1945, remains unique in American history for its combination of profound importance and shocking immediacy."[37] Even the most revolutionary technological innovations, be it letterpress printing, the steam engine or the computer, each of them gradually made their way into the conscience of the people, leaving enough "time for thinking of the social scientists, the statesmen, and the public to catch up with them."[38] The detonation of the nuclear bomb did not leave any time to become accustomed with this new invention and its impalpable potential. Therefore, it gave rise to vast speculations about the possibilities this new technology might have to offer, both highly positive as well as negative.

The Day the Earth Stood Still vividly represents the 1950s' schizophrenic attitude towards technology by portraying it as both menace and salvation. On the one hand, the film denounces nuclear technology not only as a global but as a universal threat while at the same time it also touches upon its potential for peaceful application. Also the fact that the high-tech robot Gort is presented as the key to interplanetary peace shows the movie's optimistic position towards technology as long as it has a peaceful purpose.

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[35] Lev 181.
[36] Boyer 135.
[37] Ibid. 133f.
[38] Wirth 143.

In the following I will elucidate the two vastly opposing positions towards nuclear technology that shaped the political and social landscape of the late 1940s and 1950s and built the foundation for movies such as *The Day the Earth Stood Still*. Here, one of my main points of reference will be the aforementioned book by Paul Boyer which offers a magnificently multi-layered representation of how the invention of the atomic bomb was received by the (American) public, how it shaped the public landscape and influenced scientific and political decision-making processes.

3.1.1 Nuclear Trance: Peaceful Nuclear Technology at the Beginning of the Cold War

> *Indeed, the post-Hiroshima months brought a tidal wave of expansive predictions that the whole of human society would be transformed for the better as a result of the global prosperity and harmony the peaceful application of atomic energy would bring.*[39]

The 1940s gave birth to probably one of the most groundbreaking inventions ever to be conceived by mankind and that would shake the Earth to its very foundations – both metaphorically and literally.[40] Finding its beginnings in the Manhattan Project, the invention and construction of the nuclear bomb would have a determining influence on world history and global political processes until this very day. For the very first time in human existence, the creation of the atomic bomb gave mankind a tool capable of annihilating every human being on the planet. The 6th and 9th of August 1945 would always be remembered as the days that demonstrated the destructive force of nuclear weaponry against humanity. However, despite this destructive start into the Atomic Age the overall attitude towards nuclear technology was far from being pessimistic or hostile. On the contrary, scientists as well as politicians and citizens had rather optimistic, even

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[39] Boyer 136.

[40] On October 30, 1961, the Soviet Union launched their hydrogen bomb AN602, code-named 'Tsar Bomba' (King of Bombs), which until today is the most powerful nuclear weapon that has ever been detonated and caused the biggest artificially triggered explosion in the history of mankind. The bomb had a yield of 50 megatons which is 3,800 times as powerful as the atomic bomb that detonated over Hiroshima and was more than three times stronger than the United States' hydrogen bomb. The seismic shock wave was so intense that it could be detected all around the globe (Cf. Axelrod 160).

euphoric expectations towards the possibilities offered by atomic technology which would also have a significant influence on its portrayal in the media.

In 1928, the magazine *Scientific Monthly* already featured an article stating that the "whole economic system and daily life might be revolutionized,"[41] if the scientific community ever accomplished to perform atomic fission. However, it was not until 1938 that under the direction of German physicist Otto Hahn the first nuclear fission was achieved which would form the foundation for any further development of nuclear technology. Scientists were overtly excited by this milestone of science and would uninhibitedly and enthusiastically speculate about the vast opportunities this new knowledge might provide, such as the possibilities of nuclear-driven means of transportation. In his book *Almighty Atom: The Real Story of Atomic Energy* John J. O'Neill hypothesizes about the concept of an automobile with atomic engine that could "drive as long as it holds together"[42] without ever having to stop for fuel. Travelling would be more comfortable and both the economic and ecological benefits would be tremendous since it would mean the end of oil dependence. Furthermore, the "elimination of exhaust fumes would do wonders for the urban environment."[43] Other scientists thought about nuclear-powered airplanes that could carry thousands of passengers around the globe at once or about atomic household supplies and radioactive cooling systems turning each family into a "self-sufficient unit."[44] All of these hypothetical scenarios conveyed the impression and raised the hope of atomic energy leading humanity into a new age of abundance and endless opportunities. David Dietz' visionary ideas went even further as he stated in his book *Atomic Energy in the Coming Era* that with nuclear technology "for the first time in the history of the world, man will have at his disposal energy in amounts sufficient to cope with the forces of Mother Nature."[45] He thought up ideas of artificial nuclear suns being installed on high steel towers that would make it possible to control the weather, thereby making humanity independent from sudden weather changes or even seasonal weather altogether:

> No baseball game will be called off on account of rain in the Era of Atomic Energy. No airplanes will by-pass an airport because of fog. No city will experience a winter traffic jam because of heavy snow. Summer resorts will be able to guarantee the weather, and artificial suns will make it as easy to grow corn and potatoes indoors as on the farm. Mark Twain complained that everybody talked about the weather, but that

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[41] Boyer 110.
[42] O'Neill 71.
[43] Boyer 111.
[44] Ibid. 110.
[45] Dietz 17.

nobody did anything about it. They will do something about the weather in the Era of Atomic Energy.[46]

Although Dietz acknowledged the issue of radioactivity – which, in his opinion, was a solvable problem – his relentlessly optimistic attitude shows once more the generally euphoric expectations towards this new technology that, as he believed, could even give humans the power to harness the forces of nature. Nuclear fission was considered by many professionals and laymen alike an endless provider of almighty power.

Even the detonations of the nuclear bombs in Hiroshima and Nagasaki and the massive destruction and death they caused did not disrupt the dreams of a nuclear utopia. While recognizing the destructive forces of nuclear weapons many scientists, newspapers and magazines were eager to assure that the upsides of nuclear technology would go far beyond its downsides. As Boyer quotes in his book *By the Bomb's Early Light*, the magazine *Business Week* wrote only three days after the bomb dropping on Nagasaki that "while there were no new words left to describe the atomic bomb's destructiveness, it would take 'billions of other words' to tell the positive side 'of the new creative force.'"[47] Even though the two nuclear strikes against Japan illustrated in a drastic way the potential for damage of atomic weaponry, the peaceful potential of nuclear technology was still met with wide approval due to its promising fields of application. The fear of a martial atomic threat was subdued by the hope that the dawn of nuclear energy would "usher in a new day of peace and plenty,"[48] as University of Chicago chancellor Robert M. Hutchins stated in 1945. The detonation of the two 'A-bombs' were "initially seen as a positive development, at least in America. It sealed the USA's new-found position of superiority in world affairs, depicting it as a powerful, technologically advanced nation."[49] The peaceful use of atomic energy at that time was still a futuristic idea and any negative ramifications had still to be proven. Nuclear catastrophes as in Chernobyl or Harrisburg had not happened yet and hence, the use of atomic energy for civil purposes was free of any bad connotation at that time. While the two nuclear attacks against Japan during World War II showed the disastrous ramifications of nuclear war-technology, its peaceful use was not stained with any catastrophic events yet. The civil use of nuclear energy was still in its early stages of development and therefore, it left much room for speculations about its potential benefits without having to think about any hazardous side-effects.

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[46] Dietz 16. This quotation was also used by Paul Boyer in his book *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age.*
[47] Boyer 114.
[48] Winkler 5.
[49] Johnston 78.

Probably one of the most interesting examples for the overall positive reputation of nuclear technology can be found in the fashion industry of the 1940s. Two Frenchmen independently from each other invented a new kind of two-piece swimwear for women that would cause a massive sensation for being, by standards of the time, very revealing. One of them was the designer Jacques Heim, who called his bathing suit 'Atome,' as a reference to its tiny size, the atom being the smallest element known to man. However, the more popular one of the two, which has remained the name giver for this swim suit until this very day, was created by former-automobile-engineer-turned-fashion-designer Louis Réard who called his invention 'Bikini.' On July 5, 1946, only five days after the first nuclear test after World War II on the Bikini Atoll, Réard presented his daring new fashion item, choosing the name as a reference to the Bikini Atoll, indicating – and hoping – that his swim suit would have the same impact as the detonation of a nuclear bomb. Réard's invention caused a massive scandal: fashion models refused to wear it, and women's associations protested against it, yet, it was not because of its reference to the 'Able' nuclear test on the Bikini Atoll, but because it revealed most of the female body which was considered indecent. The fact that people were only shocked by the revealing character of this swimsuit but not by its name clearly shows that references to nuclear terminology – be it Heim's 'Atome' or Réard's 'Bikini' – did not cause any negative associations with the technology itself. As a matter of fact, when in 1948 a Gallup poll asked whether in the long run, atomic energy would do more good or harm, the majority of the interviewees either responded with "more good" or "no opinion."[50]

The numbers of comparably peculiar examples are manifold. Some of them could even be considered outright absurd by our contemporary standards:

> A fast-food stand in Salt Lake City placed on its menu a "tasty uranium burger" and a "uranium sundae"; in The Honeymooners, a popular television sitcom starring Jackie Gleason, a boyfriend's ardor was termed "atomic passion", the Chamber of Commerce in Las Vegas crowned a "Miss Atomic Blast" […] and in Tennessee, the opening of a golf course included a blindfolded caddie with a Geiger counter who located golf balls injected with cobalt-60 pellets by nearby Oak Ridge scientists.[51]

The potential danger emanating from nuclear technology was widely played down, for the most part through trivialization. For instance, by presenting it as a tasty ingredient for a burger or a sundae the atomic energy was characterized as harmless regarding its effects on health. Moreover, it was employed as a symbol for strong love or attractiveness. The Las Vegas "Miss Atomic Blast" contest clearly drew on the imagery of attractive women being described as 'bombshells' which is another martial term that became widely used

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[50] Cf. Boyer 121.
[51] Boskin 85.

throughout the 1940s, the most famous examples being Jean Harlow, Marilyn Monroe, Mamie Van Doren and many more.

Another popular approach to the promotion of atomic energy in the 1950s was through educational movies. One example is the 14-minute short documentary film *A is for Atom* (1953) that was sponsored by General Electric.[52] Right from the beginning, the film acknowledges the dangers of atomic bombs but argues that a nuclear weapons control is realizable and further states that "wisdom demands […] that we take time to understand this force because here in fact is the answer to a dream as old as man himself: A giant of limitless power at man's command." The film presents ideas of atomic energy as fuel for vehicles – resembling those of David Dietz as I have already mentioned – or even as a fertilizer in agriculture. The movie concludes that nuclear technology offers vast opportunities to improve the world and that "on man's wisdom, on his firmness in the use of that power depends now the future of his children and his children's children in the new world of the Atomic Age."

A further example is a television broadcast called "Our Friend the Atom" (1956), which was produced by Walt Disney and was televised as an episode in their TV show *Tomorrowland*. On request of the Eisenhower administration Walt Disney created this episode to champion the civil use of nuclear technology. Featuring the German physicist Dr. Heinz Haber, this episode "Our Friend the Atom" would celebrate atomic energy as a wonderful new force that could "be put to use for creation, for the welfare of mankind."[53] It was also published as a book written by Heinz Haber with the title *The Walt Disney Story of Our Friend the Atom*, available in two individual versions for children and grown-ups. Walt Disney himself introduces the episode, saying "fiction often has a way of becoming fact" and refers to Jules Verne's story *20.000 Leagues Under the Sea*, featuring the famous submarine Nautilus which was powered by a "magic force." In 1954, the U.S. Navy launched the USS Nautilus, the world's first nuclear submarine. Walt Disney describes atomic energy as this "magic force" that represents the "useful power of the atom that will drive the machines of our Atomic Age." Haber draws back to Walt Disney's analogy of atomic energy as a magic power and describes its discovery as a fairy tale by comparing it to the popular fable from *The Arabian Nights* called "The Fisherman and the Jinni." In this story a poor fisherman discovers a brazen vessel containing a jinni. At first the jinni threatens to kill the fisherman, but with trickery the fisherman forces the jinni to obey him. Haber argues that

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[52] General Electric (GE) is a multinational conglomerate of companies from different economic sectors, one of them being energy. Since the 1950s, GE has also been involved in the development of nuclear energy technologies.
[53] Winkler 5.

our story is like that fable, come true through science. We are like the fisherman. For centuries we have been casting our net into the sea of the great unknown in search of knowledge and finally, we have found a vessel and like the one in the fable it contains a jinni. A jinni hidden in the atoms of this metal, uranium. […] So this is our story. How the vessel was discovered, how the jinni was liberated, how he first threatened to kill and how he was finally harnessed.

"Our friend the Atom" shares many characteristics with *A is for Atom*. While they both promote the promising opportunities of atomic energy they also mention the potential dangers posed by nuclear weapons. Disney's movie depicts the emergence of a mushroom cloud that turns into an awakening jinni while Haber says "the Atomic jinni was freed and his devastating force posed a fearful threat." However, both films strongly emphasize that this destructive force can be controlled by humans and that the peaceful opportunities outweigh this threat by far. A crucial element of *A is for Atom* and "Our Friend the Atom" is their depiction of atomic energy. By portraying it as either a giant or a jinni they are anthropomorphizing it which enables the viewer to understand it more easily. Furthermore, by employing a mythological imagery they depict this technology as an almighty power that can bring prosperity to all of mankind. In doing so, they use scientific argumentation and explain the history and principles of atomic energy and the basic principles of nuclear physics, trying to make it more understandable and thereby less frightening.

However, while many advocates of atomic energy still seemed to be dwelling in a euphoric state of nuclear trance, the number of critics slowly increased. Several renowned scientists emphasized that such scenarios as the ones described by O'Neill, Dietz or in the two aforementioned films would be uneconomical or simply impossible. Even President Truman stated that nuclear energy would remain a futuristic concept for a long time. Still, although "the more euphoric of these predictions soon faded, […] the upbeat theme proved remarkably tenacious."[54] In the next part of my paper I will investigate a series of historical events that crucially influenced the role which atomic weapons would play during the emergence of the Cold War and how these events shaped the attitudes towards nuclear technology. As indicated in the abovementioned quote, the generally positive feelings towards nuclear energy, especially if used for warfare, changed for the negative. This can be explained by a major change in the global political atmosphere, especially between the two superpowers of United States and the Soviet Union, as will be elucidated in the following sub-chapter.

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[54] Boyer 109.

3.1.2 Awakening from the Nuclear Trance: The Nuclear Arms Race

Technology was at the core of the Cold War conflict because the race for ever more sophisticated weapons provided much of its dynamic, but also because technological achievement was the yardstick in the competition between the United States and the Soviet Union to represent the best model for future societies.[55]

It was on August 2, 1939, only one year after the discovery of atomic fission, when Albert Einstein signed a letter written by Hungarian nuclear physicist Léo Szilárd, warning U.S. President Franklin D. Roosevelt that Nazi Germany might plan to develop a nuclear bomb and that the United States should consider starting their own nuclear project. Although this concern later turned out to be unfounded,[56] it would eventually lead to the formation of a project, originally supposed to be called 'Laboratory for the Development of Substitute Materials' but instead came to be known as the Manhattan Project. It was named after the area where the headquarters of the Army Corps of Engineers which was responsible for the development of the bomb was located.

Starting out modestly in 1939, it would soon rise to one of the biggest military-industrial projects in the history of the United States, employing over 130,000 people in production and research sites all over the country and costing over two billion U.S. dollars. Even the Columbia University's football team was recruited to move tons of uranium which would later be used to build the world's first nuclear reactor.[57] In the meantime, the British started their own nuclear weapons project in collaboration with Canada under the codename 'Tube Alloys' which also stood in contact with the Manhattan Project and frequently exchanged information. However, due to their advantage in manpower and financial resources the Manhattan Project soon became the sole head of the program. In November 1942, Los Alamos was chosen to become the main atomic bomb scientific laboratory, chosen by Manhattan Project commander General Leslie Groves and the selected head of this new laboratory: physicist J. Robert Oppenheimer, who would later be known as the 'Father of the Atomic Bomb.' It was in Los Alamos where on July 16, 1945 the world's first atomic bomb, called 'Trinity,' was launched, heralding the start of the

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[55] Hanhimäki 273.

[56] Nazi Germany did start a nuclear energy project which also considered the construction of a nuclear bomb. However, due the German invasion of Poland on September 1, 1939 which eventually led to the outbreak of the Second World War this project was largely abandoned and did not bring about any major results.

[57] Broad n.p.

Atomic Age. Years later, in the TV-documentary *The Decision to Drop the Bomb* (1965) Oppenheimer expressed how he experienced the Trinity detonation:

> We knew the world would not be the same. A few people laughed, a few people cried, most people were silent. I remembered the line from the Hindi scripture, the Bhagavad Gita, […] 'Now, I am become Death, the destroyer of worlds.' I suppose we all thought that one way or another.[58]

Less than a month after the successful Trinity test, the atomic bomb was employed in combat for the first time. On August 6, 1945 the U.S. American B-29 bomber Enola Gay dropped the bomb, code-named 'Little Boy,' on the Japanese city of Hiroshima. In a radio announcement, the new U.S. President Harry S. Truman stated that "the world will note that the first atomic bomb was dropped on Hiroshima, a military base. But that attack is only a warning of things to come. We shall continue to use it until we completely destroy Japan's power to make war. Only a Japanese surrender will stop us."[59] And indeed, only three days after Hiroshima, on August 9, 1945, the world's third nuclear bomb called 'Fat Man' was dropped on Nagasaki.

Apart from the technological factor which gave rise to the most vivid imaginations that might be realized with nuclear technology, the building of the atomic bomb had major social implications and significantly shaped the self-perception of the United States. The fact that the USA was the first country to successfully construct the nuclear bomb evoked a feeling of superiority and self-affirmation. John F. Sembower argued that "there was no better wartime example of the democracies beating the totalitarians at their own game than the perfection of the atomic bomb in its present form."[60] To Sembower, the atomic bomb represented the undeniable vindication of democracy since "the supposedly real specialists in the creation of horror machinery and terror, the Axis warmongers, never succeeded in putting to use this greatest destroyer of all."[61] He acknowledged the destructive force of the nuclear bomb but still celebrated it as a great and necessary invention since in his opinion, it was in the hand of the right people who "have made their discoveries in the hope that its life-destructive powers will be limited to preserving the atmosphere of freedom and democracy."[62] To many enthusiasts of the atomic bomb it also was a symbol of individualism – an integral component of the American way of life –

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[58] "J. Robert Oppenheimer 'Now I am become death.'"
[59] "97. Radio Report to the American People on the Potsdam Conference."
[60] Sembower 493.
[61] Ibid. 493.
[62] Ibid. 500.

characterized by "the diverse national origins of the key Manhattan Project scientists,"[63] including Italians, Danes, Hungarians, even Germans, the big wartime enemy. Furthermore, Sembower especially considered it a big achievement that the bomb was constructed under the strict adherence of democratic procedures such as the congressional approval of its funding or the legal acquirement of land to build production facilities whereas a totalitarian state would have enforced the realization of the bomb with brutal tyranny. Sembower drew the conclusion that "democracy and science are more compatible than any other government-science team yet evolved."[64]

The Manhattan Project was not the only enterprise to develop and build an atomic bomb. The Soviet Union also decided to initiate a nuclear weapons project, although their effort was small before August 1945. Due to the German invasion of Soviet Russia in 1941 financial capacities and manpower were insufficient for a nuclear arms project on the level of the United States. However, the Soviet administration considered the American monopoly on nuclear weaponry a serious Soviet disadvantage in any postwar political settlement. Therefore, only two weeks after the bombing of Hiroshima, on August 20, 1945, Joseph Stalin signed a decree "setting up a Special Committee on the Atomic Bomb"[65] initiating a Soviet nuclear weapons project. Meanwhile, tensions between the United States and the Soviet Union began to increase in the first years after the World War II for reasons such as the failed negotiations over an international atomic energy control in 1946. In the same year, the United States started a series of nuclear tests under the codename 'Operation Crossroads' at the Bikini Atoll on the Marshall Islands that were constituted in the first two blasts called 'Able' and 'Baker.' Those tests were met with opposition on behalf of scientists and diplomats alike who criticized its ecological and particularly political effects.

Stalin feared that "the United States would use the bomb to put pressure on the Soviet Union,"[66] so he wrote to V. M. Molotov, Soviet Minister of Foreign Affairs, that the Soviet Union must arm itself "with the policy of tenacity and steadfastness."[67] It was Stalin's opinion that his country must adopt a tough and uncompromising stand in order not to seem weak. The United States also hardened their position against the USSR, finding its expression in a speech President Truman held in front of the U.S. Congress on March 12, 1947, that would later be known as 'Truman Doctrine,' in which he stated "the

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[63] Boyer 138.
[64] Sembower 500.
[65] Holloway 377.
[66] Ibid. 379.
[67] Robert 99.

free peoples of the world look to us for support in maintaining their freedoms"[68] against totalitarian regimes. This speech is considered to be the beginning of The United States' 'containment policy' against Soviet expansion which was one of the main triggers for the Cold War. Truman's containment policy eventually led to a U.S. American participation in the Korean War which lasted from 1950 until 1953. While the United States fought on the side of the democratic and pro-western Republic of Korea (also known as South Korea), the Soviet Union supported the pro-Communist single-party state Democratic People's Republic of Korea (known as North Korea).

As David Holloway says, "the bomb made the postwar relationship even more tense and contentious than it would have been in any case."[69] The United States still were the only country with nuclear weapons and in September 1948, President Truman endorsed a National Security paper titled "Policy on Atomic Warfare" which said that "the United States must be ready to 'utilize promptly and effectively all appropriate means available, including atomic weapons, in the interest of national security and must therefore plan accordingly.'"[70] In the following year, the United States' Joint Chiefs of Staff (JCS) came to the conclusion that a nuclear strike would not defeat the Soviet Union and would have to be followed by several stages of conventional warfare. Nevertheless, this official statement assessed the possibility of using nuclear weapons in case of a war. The crucial aspect at this time was that the Soviet Union was not in possession of any nuclear weapons and it was believed by the Central Intelligence Agency (CIA) that this would not change for at least several years. Hence, in case of a nuclear strike (against the Soviet Union) the United States would not have to fear a nuclear retaliatory strike.

In the meantime, the Soviet Union was feverishly working on its own nuclear weapons project, "an enormous undertaking for a country that had been devastated by the war."[71] Already from the very beginning of the American atomic bomb project, the Soviets had spies amongst their employees, such as the prolific scientist and Communist Klaus Fuchs who first worked in the British Tube Alloys program and later in Los Alamos, New Mexico. When Nazi Germany began to invade Soviet Russia, he decided they had a right to know about the Allied atomic bomb program and made contact with the Soviet military intelligence service. Since he worked at the Theoretical Physics Division at Los Alamos, "some experts have calculated that his spying enabled the Russians to develop their own

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[68] "President Harry S. Truman's Adress Before a Joint Session of Congress, March 12, 1947."
[69] Holloway 380.
[70] Ibid. 378.
[71] Ibid. 378.

atom bomb […] at least one year and possibly two years earlier than otherwise would have been possible."[72] On August 29, 1949, the Soviet Union launched the RDS-1, their first successful atomic bomb test. Although the Soviet nuclear arsenal grew very slowly and was quantitatively much smaller than that of the United States it still represented a paradigm shift in the relation between the USA and the USSR.

Now, there were two nuclear weapons states opposing each other and if one should consider a nuclear strike against its opponent they would have to expect a nuclear retaliatory strike. This fact was represented by the educational short film *Duck and Cover*. This civil defense film was produced in cooperation with the United States Defense Administration – a federal government's civil defense branch – and in consultation with the Safety Commission of the National Education Association after the Soviet Union began their nuclear testing. The short film was mainly directed at school children and functioned as an instructional video explaining various safety measures in case of a nuclear attack. After the United States lost their atomic weapons monopoly, the government as well as the general public suddenly had to consider the possibility of becoming a target of a nuclear strike. Since Hiroshima and Nagasaki drastically elucidated the dramatic ramifications of a nuclear attack, *Duck and Cover* stated that a nuclear war could happen at any given time wherefore according preparations would become vital. Although this movie acknowledged the dangers of a nuclear strike, it was also shaped by a substantial level of naivety towards the consequences of an atomic strike as it portrayed hiding under a table or a picnic blanket as an appropriate precaution. What this educational short film strongly showed was the lack of knowledge about the disastrous consequences of nuclear weapons, especially regarding radiation and nuclear fallout.

This fact that the USA and the USSR now possessed nuclear weapons gave rise to the nuclear arms race, the competition for superiority in nuclear firepower that would determine political decisions throughout the entire Cold War. The detonation of the first Soviet atomic bomb initiated a trial of strength between the two superpowers which was answered by the United States' development of the hydrogen bomb. This project began in 1949, culminating in the successful detonation of 'Ivy Mike,' the world's first thermonuclear – or hydrogen – bomb in 1952, followed by the testing of the 'Bravo' bomb in 1953 at the Bikini Atoll, a bomb which was small enough to be delivered by airplane and had the multiple destructive force of the first atomic bomb. The fact that only a few years after the Second World War two superpowers were facing each other, both equipped with a growing arsenal of nuclear weapons, significantly nourished the fear of a nuclear war. The

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[72] Pace n.p.

fact that both parties were actively (United States) or rather passively (Soviet Union) involved in a war (Korean War) further contributed to that fear.

What has become apparent from my explanations in this chapter is the important role the media played in the public's perception and awareness of the principles, applicability but also the danger of atomic technology in the 1940s and 1950s. However, it is crucial to state at this point that the majority of reports, articles and documentaries were very biased towards a positive representation of atomic energy, which can be explained by both the lack of knowledge about its negative effects as well as the strong interest of the American government to uphold a positive reputation of nuclear technology. This overview provided in this chapter will offer an insightful basis for my analysis of *The Day the Earth Stood Still* and the way technology is treated in this film.

3.2 "Klaatu Barada Nikto": Between Techno-Optimism and the Nuclear Apocalypse

In this first analytical part of my thesis I will take a closer look at the final scene of *The Day the Earth Stood Still*. The reason why I have chosen this scene is because it pinpoints the main message that shapes the plot of this movie. Furthermore, it is the climax of the film and has the strongest impact on its audience.[73] This final speech of Klaatu precisely identifies the role technology plays in this entire movie and puts it in a nutshell within these final minutes of the film.

At one point during the movie Klaatu makes an agreement with Professor Barnardt to arrange a meeting of the most important scientists from all around the world, so they could carry Klaatu's message into the world. His original intent was to talk to all leaders of the world at one meeting. However, he is informed right at the beginning of the movie that "in the present international situation, such a meeting would be quite impossible" because "they wouldn't sit down at the same table" which is why he and Barnhardt resort to this alternative meeting, a gathering of the "finest minds in the world," as Barnhardt says. Without their knowledge, Klaatu is now in his spaceship while the scientists are assembling outside. Klaatu was shot by a U.S. soldier before, so Gort carried him to the ship in order to – temporarily – bring him back to life so he could announce his message. The main element of this final scene is Klaatu's speech he gives to the group of scientists.

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[73] This scene lasts approximately from 01:23:35 to 01:28:00.

Since his speech stretches throughout the whole scene, I will first provide the text in its entirety so it can be read and understood without any interruption before the analysis begins. Throughout my scene analysis, I will further elaborate on particular parts of this speech and how they stand in relation to the scene's audio-visual and cinematic style at that particular moment.

The setting is already familiar to the audience from earlier scenes of this movie. It is the landing site of Klaatu's spaceship. The landing site is called 'The Ellipse' and is a part of President's Park located right in the middle of Washington D.C. close to the White House. The setting, however, has undergone some changes throughout the film. The U.S. Army has erected a wall surrounding the landing field of the spacecraft to prevent people from approaching to it or Gort from escaping from it (a desperate attempt, of course, considering his enormous powers he has demonstrated throughout the movie).

The space is open and closed at the same time. Since it is located in a park it is actually an open space, however, the wall surrounding it makes it not an entirely closed but at least a confined space which evokes a subtle claustrophobic atmosphere. All the scientists are cramped within these walls. The massive spaceship towers over them in the center of the scene, making the people look tiny and vulnerable. The spaceship as a symbol of the technological superiority of Klaatu's people is omnipresent within this setting. Further, there is only one entrance in this wall, which also underlines a feeling of claustrophobia. The fact that it is late evening and behind this wall everything is black further emphasizes this impression. We do not know what is going on behind these walls. We are right in the middle of Washington D.C., the U.S. capital, yet we cannot see a single thing beyond these walls which creates a feeling of uncertainty and of being lost. This atmosphere emphasizes this scene's general expectations for both the film's characters and the audience alike. Neither do we nor the characters know how this situation is going to resolve and how humanity is going to react to Klaatu's message.

The setting itself is highly minimalistic. The fact that the scene takes place late in the evening and there is no natural lighting reduces the setting to a minimum. The only light sources are a couple of floodlights that are mounted over the spaceship and are merely lighting the landing site itself, not revealing anything beyond these walls. The setting is focused on the essential aspects of this scene and blocks out any irrelevant details. There are no famous landmarks, such as the White House or the obelisk of the Washington Monument which are close by and could tell us where this scene is located if we did not already know it from the previous scenes of the film. This scene could take place anywhere in the world which underlines the global significance of Klaatu's (and this film's) message.

The scene begins with a full shot of Professor Barnhardt standing on a small podium behind a desk, facing the audience. The camera is located amidst the members of the audience, approximately in the fourth row, filming Professor Barnhardt from a low angle. Almost the entire background is filled with the outer shell of the spaceship. The fact that the spaceship does not even fit entirely into this shot emphasizes its massive size. Professor Barnhardt is just about to tell the other scientists that the meeting is called off when the camera switches to a wide shot of the spacecraft. The camera is now located behind the audience amongst the U.S. soldiers who are standing at the entrance in the wall, filming from a slightly elevated position, once more demonstrating how huge the spaceship is – which still does not fit entirely into the screen – and how small the humans around it are by comparison (Fig. 1). The huge door in the upper part of the spaceship swings open and the ramp is pulling out, extending up to the aisle of the audience. Coincidently with the opening of the door very low-pitched string music and a theremin[74] start playing an eerie melody. Gradually, all scientists rise to their feet. The camera again switches to a full shot of the spacecraft's door where Gort is slowly stepping out now. This shot is followed by a series of different shots showing the various reactions of the audience. First, we see a full close-up of Professor Barnhardt whose face shows a mixture of tense curiosity and anxiety. Subsequently, there is a brief full shot of the people sitting behind Barnhardt who now rapidly rise up, some of them with their eyes wide open in shock. A further full shot shows the U.S. soldiers coming through the entrance, some of them producing their weapons.

Figure 1

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[74] The theremin is an instrument invented by the Russian Léon Theremin (Russ. Lev Sergeyevich Termen) in 1919. Although it had been used in movies before, it was made popular especially by science fiction and horror movies of the 1950s where it became a dominant instrument for emphasizing gloomy atmospheres. Especially movies such as *The Day the Earth Stood Still*, *The Thing from Another World* (1951), *It Came from Outer Space* made it a classic sound to underline a threatening and eerie mood.

This instance creates an atmosphere of great tension because it calls the first encounter of the soldiers and their extraterrestrial visitors to mind where one of the soldiers wounded Klaatu and Gort began attacking them. However, this time Gort just steps aside and a low angle full shot from amongst the audience shows how Klaatu and Helen exit the spacecraft.[75] Helen leaves the screen by walking down the ramp and Klaatu walks up to the edge of the spaceship's platform. Again, we see the same full close-up of Barnhardt with an expression of tense expectation on his face. This shot is followed by a medium shot of Klaatu with Gort standing behind him. Klaatu is shown from a slightly lower angle with a serious look on his face. All we can see in the background behind Klaatu and Gort is part of the spaceship, the floodlights towering behind it and the rest is just pitch-black night sky. This, again, is a moment of very high tension that is further enforced by the eerie music which is still playing. The audience – both on-screen and off-screen – is waiting until Klaatu finally begins his speech:

> I am leaving soon, and you will forgive me if I speak bluntly. The universe grows smaller every day and the threat of aggression by any group anywhere can no longer be tolerated. There must be security for all, or no one is secure. This does not mean giving up any freedom, except the freedom to act irresponsibly. Your ancestors knew this when they made laws to govern themselves, and hired policemen to enforce them. We of the other planets have long accepted this principle. We have an organization for the mutual protection of all planets, and for the complete elimination of aggression. The test of any such higher authority is, of course, the police force that supports it. For our policemen, we created a race of robots. Their function is to patrol the planets in spaceships like this one, and preserve the peace. In matters of aggression we have given them absolute power over us. This power cannot be revoked. At the first sign of violence, they act automatically against the aggressor. The penalty for provoking their action is too terrible to risk. The result is we live in peace, without arms or armies, secure in the knowledge that we are free from aggression and war, free to pursue more profitable enterprises. We do not pretend to have achieved perfection, but we do have a system, and it works. I came here to give you these facts. It is no concern of ours how you run your own planet. But if you threaten to extend your violence, this Earth of yours will be reduced to a burned-out cinder. Your choice is simple. Join us and live in peace, or pursue your present course and face obliteration. We shall be waiting for your answer. The decision rests with you.

The moment Klaatu starts the first sentence, the music fades out and the attention is fully focused on his words. His first words already indicate to the audience that his speech is going to bear a message of dead serious importance – in the true sense of the word. As he continues, a medium shot of Barnhardt shows Helen stepping next to him. Professor

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[75] Helen already found out earlier in the movie that Klaatu is an alien and he told her about the purpose of his visit. He also told her that in case anything should happen to him, she would have to hurry to Gort and say the words "Klaatu barada nikto" to stop him from destroying the earth. When Klaatu is shot she does as he has told her, whereupon Gort brings her into the ship and also brings back Klaatu's body to revive him.

Barnhardt is still standing on his little podium which makes him stick out from the rest of the audience. Nevertheless, he has to look up in order to face Klaatu on his spaceship. Klaatu is again shown in the previous medium shot as he continues his speech by stating that "the universe grows smaller every day, and the threat of aggression by any group anywhere can no longer be tolerated. There must be security for all, or no one is secure." While he is saying the last sentence, the camera switches to a series of close shots and wide close-ups of various people in the audience. All their eyes are fixed on Klaatu, some of them stare at him in awe with open mouths, and some listen with grave seriousness. The crucial aspect about this series is that the people who are shown are all of different origin including Caucasians, Indians, Blacks, Asians, Latinos, to name just a few. There are men and women, people are dressed in traditional religious garments as well as secular clothes. What becomes apparent by these shots again is that the issue of this speech does not just concern one particular group of people but is a matter of global, even universal importance.

In the following, Klaatu is shown in a full shot still standing on the platform of his spacecraft with Gort behind him. In this part of his speech he introduces the robot Gort and turns to the main message he has come to deliver. This shot functions as an establishing shot for this message since it totally focuses on Klaatu and Gort. We only see the two of them with the door of the spaceship and the floodlights in the background, the rest is darkness. The two of them have the full attention of the audience when Klaatu says: "Your ancestors knew this when they made laws to govern themselves, and hired policemen to enforce them. We of the other planets have long accepted this principle." Using the personal pronoun 'we' and the fact that Klaatu and Gort are shown alone in this shot underlines that they are differentiating themselves from the humans in terms of peaceful coexistence. It shows that Klaatu's people and their allies are ahead of mankind and that humanity is isolated from the rest of the universe caused by their violent behavior, just as they are isolated from this picture. Klaatu's message is clear: Either mankind changes its behavior or it is going to be 'out of the picture' – figuratively, as indicated in this shot, or literally which would mean total annihilation.

In the following medium shot, Klaatu is only shown from the waist up but Gort in the background is portrayed in full size. He begins his sentence with "We have an organization for the mutual protection of all planets" and it becomes more and more obvious that Gort is a crucial part of that protection. The low angle of this medium shot makes Gort look too huge to even fit through the door of the spaceship which further establishes his massive power. When Klaatu finishes his sentence with "and for the complete elimination of aggression," the camera, again, switches to a wide shot of the

spaceship from behind the U.S. soldiers. They are in the foreground now, with Klaatu in the background on his spaceship. The soldiers as representatives of the armed forces function as the image of the aggressor, as has been shown early on in the movie. Since this is a black-and-white movie, the colors are very limited which, however, makes the contrasts all the more significant. Almost all members of the audience are dressed in dark colors, whereas Klaatu's spacesuit, the body of Gort and the outer shell of the spacecraft are held in light silver shining colors which becomes particularly explicit in this wide shot. The color contrast is a metaphor for the contrast between the extraterrestrial Klaatu with his superior technology and the earthlings (Fig. 2).

Figure 2

A further aspect that vividly comes across through this wide shot is the size of Gort. Although we have seen throughout the movie how huge Gort really is, this is the first shot in this scene that truly emphasizes it. In his essay "Scale, Media Transfer, and Bodily Space in 'Giant Movies' of the Fifties" Stefan L. Brandt states that "in the cinematic act of spatial transference, the spectator's relationship to the size of the depicted objects is pivotal" referring to Jacques Aumont's idea that

> the size of an object is one of the fundamental factors that 'determine the relationship that a spectator can establish between his or her own space and the plastic space of the image.' An unusually large or small image can force the spectator to experience a feeling of being dominated or even 'crushed' by its aesthetic power.[76]

Gort's massive size and physique is a literal embodiment of the superior technology of Klaatu's people and makes "the spectator" – in this case Klaatu's audience – seem inferior and powerless which is further highlighted by his apparent indestructibility which has been proven throughout the film. His superior yet human appearance underlines his status as

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[76] Brandt "Scale, Media Transfer, and Bodily Space in 'Giant Movies' of the Fifties." 5

the authoritarian figure Klaatu describes him as. However, his bodily features resemble the human physique and are the representation of an anthropomorphized technology which again makes it easier for the humans to accept it. Vivian Sobchack even goes so far as to say that "Gort, the huge intergalactic policeman is a perverse visualization of the medieval knight in shining armor."[77] In this regard, both Klaatu and Gort strongly differ from the typical visual representation of extraterrestrials in science fiction movies in the 1950s. Usually they are either depicted as a 'Frankensteinesque' bloodthirsty monster like in *The Thing from Another World* (1951) or they do not possess any human features at all, such as the ameba-like alien in *The Blob* (1958). Some of them do have a human appearance as the 'pod people' in *Invasion of the Body Snatchers* (1956) but they still have a threatening appearance due to their zombie-like and possessed way of behavior. No matter whether they are humanoid or not, even if they are benign aliens, such as in *It Came from Outer Space* (1953), they are generally depicted as threatening and alienating. Klaatu, however, "is neither a pod nor a blob but a deluxe model human,"[78] who with his very first sentence in this movie clarifies: "We have come to visit you in peace and with goodwill." Klaatu also causes fear amongst humans but – especially with this sentence – from the beginning of the film he establishes that his intentions are well-meant. Klaatu has come as an ambassador of peace, offering high-end robot technology as the answer to avert a human-induced nuclear apocalypse.

Now comes one of the speech's most crucial parts. In the next shot the camera switches back to a medium shot of Klaatu who now directly talks about Gort: "For our policemen, we created a race of robots. Their function is to patrol the planets in spaceships like this one, and preserve the peace." Again, the focus is solely on Klaatu and Gort as representatives of a peaceful intergalactic alliance. Gort functions as an epitome of technological superiority. Yet, his dominance is not in any way repressing or confining but meant to serve as protection from aggression and war. Even Klaatu's people and their allies who already are technologically highly advanced species still entrust their safety to the control of a machine. A machine's guard is preferred over that of a living creature in the belief that machines are more trustworthy and flawless.

Klaatu now offers mankind to be a member of this alliance. However, whether they are going to join them is still uncertain which is why once more they are not included in this shot. As if to underline this uncertainty, this shot is followed by a close shot of Professor Barnhardt which shows how the audience behind him reacts to what Klaatu has just said by starting to talk briefly amongst each other. We do not know what they are

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[77] Sobchack 78.
[78] Biskind 151.

saying and whether they are approving or disapproving of Klaatu's message which still does not resolve the atmosphere of uncertainty. Klaatu further explains that in matters of aggression his people have given these robots absolute power over them and that "this power cannot be revoked." In this moment, the camera switches to a medium full shot of Gort alone. The shot is done from a low angle which further emphasizes Klaatu's words about Gort's almighty power. The floodlights behind him make his metallic outer shell shine like the 'knight in shining armor' Vivian Sobchack has described him as and at the same time partially cover him with shadows which makes him also look mysterious and authoritative.

When Klaatu continues his speech with "at the first sign of violence, they act automatically against the aggressor," he is shown in a full shot from behind. The camera is standing on the spaceship's platform and we can see the audience facing him from below. This shot has an almost religious atmosphere. Klaatu looks like a preacher in his 'extraterrestrial gowns' and the spacecraft's platform is the pulpit. The entire audience looks like a congregation in a church during mass, divided into two sides by a center aisle. Even the soldiers in the back have lowered their weapons and each person in the audience seems to be hanging on his every word as if it were a gospel. However, this part also reminds the audience why he has come here. When he utters the word 'aggressor' the camera switches to a medium full shot that shows several people of the audience, among them also a high-ranking military scientist of the Soviet Union. This is once more a significant moment because the last time that Klaatu mentioned the issue of aggression, the camera showed soldiers of the U.S. army and now it is a member of the Soviet military. This can be seen as a clear reference to the growing nuclear tension between these two countries which is the reason for Klaatu's coming.

In another medium shot, Klaatu tells the audience that "the penalty for provoking their action is too terrible to risk" which is again followed by a close shot of Professor Barnhardt showing the reactions of the assembled scientists behind him, similar to the previous shot. Klaatu continues by telling the attendants that "the result is we live in peace, without arms or armies, secure in the knowledge that we are free from aggression and war." Again we see the audience, this time in a medium shot of Barnhardt so Helen is shown as well, who is still standing next to him. This time everybody is silently listening to Klaatu's words, his concept of a peaceful coexistence seems to mesmerize them and Helen is slightly nodding as if to affirm what Klaatu is saying. In the next moment, Klaatu admits that "we do not pretend to have achieved perfection. But we do have a system, and it works." This time he is shown in a wide close-up which focuses more on his own

feelings. His slightly contracted eyebrows tell that he is not delivering his message emotionlessly but that he is aware of its seriousness.

This moment gives him an even more human touch since he admits that even their advanced culture is not infallible but that they strive to maintain their peaceable way of living. Klaatu makes clear that it is not his people's aim to patronize the earth's inhabitants but if they should continue to extend their violence to a degree that would endanger other species "this Earth […] will be reduced to a burned-out cinder." Once more there is a shot of the audience talking agitatedly before Klaatu finishes up his speech: "Your choice is simple. Join us and live in peace, or pursue your present course and face obliteration. We shall be waiting for your answer. The decision rests with you." As he is saying these last words the camera zooms in on his face from a medium shot to a full close-up which is the closest the camera has been to him during this entire scene. Again, his eyebrows are slightly contracted and there are worry lines on his forehead which again represents the heavy burden of delivering this message. This shot is once more followed by a series of close-ups of people in the audience that are all of different heritage. For 15 seconds there is complete silence and the camera only focuses on these faces. They are all shown at eye level now, a neutral shot that emphasizes that they are all equally in this together and that Klaatu meant his message as a good advice in their own interest instead of a patronizing order.

A full shot now shows how Klaatu turns around and moves towards the entrance of his ship where he orders Gort to enter the spacecraft. A medium shot of Klaatu shows how he smiles slightly and makes a waving gesture. The following close shot shows that this was directed towards Helen who returns his smile. Back to a medium shot, Klaatu follows Gort into the ship and the door closes behind him. In a low-angled full shot we see how the ship's ramp is retracted. When the ship starts its engine, a series of shots shows the audience quickly moving back from the spaceship. Finally, this scene is concluded with a high angle wide shot of the landing site showing it in its entirety for the very first time. The spaceship begins to shine with a bright white light as it noisily lifts off. The camera follows it up into the black night sky becoming smaller and smaller until it is just a white dot among the other stars.

What is crucial about *The Day the Earth Stood Still* and about this scene of the movie in particular is that no other science fiction movie – or any movie – has so directly and in such a critical tone addressed the current political situation in the world and the

concomitant nuclear threat at that time.[79] M. Keith Booker has stated in his book *Alternate Americas* that

> *The Day the Earth Stood Still* is probably best remembered today not for its technical accomplishments but for its advocacy of peace and international cooperation, an advocacy made all the more striking by the fact that the film appeared during the Korean War and thus at the very height of international Cold War tensions.[80]

A further important aspect is that this film deals with this topic in a very realistic setting. The only science fiction characteristic of *The Day the Earth Stood Still* is the extraterrestrial Klaatu and the robot Gort. However, considering the alleged UFO landing in Roswell, New Mexico in 1947 and the exponentially increasing wave of UFO sightings in the following years, even this part of the movie has a realistic touch for its time.[81] As a matter of fact, "its message of international peace caused *The Day the Earth Stood Still* to be awarded a Golden Globe Award for 'Best Film Promoting International Understanding.'"[82] This scene – and the movie in general – refers to the growing tensions at the beginning of the Cold War. The movie was released in 1951, one year after the beginning of the Korean War, the first war after the Cold War where both superpowers were, directly or indirectly, involved. The film's attempt is to show how irrational it is to consider warfare as a means to solve humanity's "petty squabbles," as Klaatu puts it, and that the peoples of the earth should find a peaceful way to live with each other. This becomes particularly important in the still relatively new Atomic Age that had begun only a

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[79] In the following years, the realization of the threat posed by nuclear war technology became increasingly visible in Hollywood movies but *The Day the Earth Stood Still* was by far the first one to address it in such a direct way. A further movie that would express strong criticism of nuclear war was *On the Beach* (1959) featuring such stars as Gregory Peck and Fred Astaire, depicting the post-apocalyptic scenario of a nuclear war in 1964. Another example is *Fail-Safe* (1964), starring Henry Fonda and Walter Matthau where a technical error causes a U.S. nuclear attack on Moscow which is followed by a retaliatory nuclear strike on New York.

[80] Booker *Alternate Americas* 34.

[81] The negative effects of nuclear weapons are also portrayed in other science fiction movies of the 1950s. One example is Gordon Douglas' *Them!* (1954) which tells the story of atomic tests in New Mexico (where the real-life nuclear tests have also been conducted). These tests cause common ants to mutate into gargantuan man-eating monsters. In this film the character Dr. Medford says in the end that "when man entered the atomic age, he opened the door to a new world. What we may eventually find in that new world, nobody can predict." This film also addresses the negative effects of nuclear technology, however, constructs a much more fictional story compared to *The Day the Earth Stood Still* which does not resort to the imagery of monsters and mutants but tries to maintain a more realistic tone.

A further example is Val Guest's *The Day the Earth Caught Fire* (1961). In this movie simultaneous nuclear bomb tests by the USA and USSR cause the earth to be thrown out of its orbit and to drift towards the sun. Scientists conclude that the only answer is the controlled detonation of several nuclear bombs to move the earth back into its original orbit. Although the movie leaves its audience with an open ending regarding the success of this endeavor, it does not take such a rigorous stand against nuclear weapons as *The Day the Earth Stood Still* since it depicts atomic bombs as a potential solution to the impending threat.

[82] Booker *Alternate Americas* 31.

couple of years earlier with the detonation of the first atomic bomb. Having in mind this destructive potential humanity has at hand now, it becomes all the more crucial to seek peaceful solutions for any kind of conflict.

The reason that Klaatu comes to earth to tell the humans that their behavior is going to become a dangerous threat for the universe, is just a symbolic plot devise to show how humanity is really threatening itself. Earlier on in the movie, Klaatu says to the U.S. President's secretary Harley (Frank Conroy): "I came here to warn you that by threatening danger, your planet faces danger, very grave danger." This sentence, just as the final speech, could be applied to the earth as well. The continuously increasing conflict between the United States and the Soviet Union, the "threatening danger" which is emerging between these two now nuclear superpowers causes the entire planet to face "very grave danger." In times of a beginning nuclear arms race, an atomic war between these two states would inevitably affect the rest of the planet as well. In his very first conversation with Professor Barnhardt Klaatu even directly addresses the problem of nuclear weapons and thereby, leaves no doubt about his – and ultimately the film's – message:

> We know from scientific observation that your planet has discovered a rudimentary kind of atomic energy. We also know that you're experimenting with rockets. So long as you were limited to fighting among yourselves with your primitive tanks and aircrafts we were unconcerned. But soon one of your nations will apply atomic energy to spaceships. That will create a threat to the peace and security of other planets.

Just as the quote before, this statement can be considered in a context limited to the earth and would then again become an explicit statement about the global danger of a nuclear war. Before, when mankind was just fighting with "primitive tanks and aircrafts" it was possible to limit a conflict to local scale but the development of nuclear weapons has made that impossible.

Although *The Day the Earth Stood Still* critically approaches the issue of atomic weaponry it also deals with the topic of peaceful nuclear energy. When Klaatu, under the pseudonym 'Mr. Carpenter,' spends the afternoon with Bobby they go and visit the spaceship. Of course, Klaatu wants to maintain his disguise but when Bobby asks him several questions about the spaceship (without knowing that he actually is the "spaceman", as he is always referred to) Klaatu begins to answer them, pretending only to speculate. Bobby is particularly interested in the technology behind the spaceship and asks Klaatu/'Mr. Carpenter' "What do you think makes it go?" whereupon he suggests it to be "a highly developed form of atomic power." Bobby is surprised and responds that he "thought that was only for bombs" at which point Klaatu assures him that "it's for lots of

other things, too." The way that science and technology is portrayed in *The Day the Earth Stood Still* shows that

> science in general had a complex and contradictory reputation in 1950s America. On the one hand, science was widely endorsed as a key to progress and prosperity and to continuing improvements in a variety of technologies, including communication, transportation, and even household appliances. On the other hand, science had also led to the development of atomic weapons that threatened to destroy human civilization.[83]

The Day the Earth Stood Still champions a "scientific-technical rationality"[84] that inventions should be used for progressive and peaceful purposes which, in the opinion of the movie, also includes atomic energy. This strongly reflects the general attitude in the 1940s and 1950s towards this technology as I have shown in the two preceding history parts for this film. However, the message of this movie regarding the relationship between humans and technology goes even further than that as my analysis of the film's final scene has shown. Taking into consideration the historical context of *The Day the Earth Stood Still*, from the Second World War, the construction of the atomic bomb to its first use in combat shows the destructive role technology has played in this time. This technology was developed by humans and used against humans in conflicts among humans, or 'petty squabbles' as Klaatu calls them. The conclusions that *The Day the Earth Stood Still* draws from this though, are not that technology is an evil and destructive force but that the fault lies within the human psyche. This optimism towards peaceful technology is a residual element from the beginnings of the science fiction genre when technology generally had a positive and progressive connotation.

There is one fundamental human characteristic that distinguishes them from machines: emotion.[85] Human behavior is based on emotions and thereby can lead to irrational actions whereas machines act upon pure facts and calculations, treating every variable in an equation equally in order to achieve the most logical solution for a problem. *The Day the Earth Stood Still* presents scientists as the positive figures that apparently can provide better leadership than the actual leaders of the world in pursuing world peace (hence the assembly of scientists). However, even Klaatu, whose intelligence even exceeds that of Professor Barnhardt, who is described by young Billy as the most intelligent man on the planet, confides the security of the entire universe to the care of machines which practically says: Even the highest degree of human (Barnhardt) or

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[83] Booker *Alternate Americas* 38f.
[84] Jancovich 42.
[85] In a scene earlier on in the movie, Klaatu says to a radio reporter: "I am fearful when I see people substituting fear for reason." This sentence is a further emphasis of the irrational behavior of humans.

humanoid (Klaatu) intelligence is surpassed by machine rationality, meaning that technology is only a danger when in the hands of humans. This is the rationale of *The Day the Earth Stood Still*. Gort, a machine, is depicted as the ultimate protector of the universe from an apocalyptic danger. As M. Keith Booker comments on this,

> the most deadly of Earth's weaponry has been handed over to the control of machines, a move that *The Day the Earth Stood Still* seems to believe might be a good idea. *The Day the Earth Stood Still* suggests that we might be better off were we to allow superior robots like Gort to have dominion over us.[86]

The role of technology in *The Day the Earth Stood Still* is a representation of the general techno-optimism of the 1950s and the "interest in advanced technology that swept across America in the postwar period. Credit cards, automatic doors, automobiles, and jet travel were now part of average, middle-class American life."[87] Especially the idea of automation, as indicated in the aforementioned *auto*matic doors and *auto*mobiles, was considered a luxury and the definition of modernity. In his book *The System of Objects*, Jean Baudrillard calls this phenomenon 'automatism' which has become "the major concept of the modern object's mechanic triumphalism,"[88] meaning that automation is the ultimate representation of progress and the fundamental idea of mechanical modernity. The more a machine can work on its own the more it radiates an aura of progress and modernization and Gort is the ultimate embodiment of this techno-fascination of an automated world which offers security and wealth to its inhabitants.

4 *WarGames*: Computerization as Apocalyptic Threat

The film *WarGames*, directed by John Badham and released in 1983 tells the story of a teenage computer nerd who is searching for new computer games when he accidentally hacks into a military supercomputer and almost triggers a global nuclear war.

During a series of simulations of nuclear attacks, many U.S. Air Force missile commanders proved unwilling to execute the necessary steps to launch a nuclear counter strike. As a result, a group of computer engineers headed by Dr. John McKittrick (Dabney Coleman) suggest replacing the human missile commanders with fully automated computer control units. Against the resolute resistance of General Beringer, the

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[86] Booker *Alternate Americas* 40.
[87] Johnston 80.
[88] Baudrillard *The System of Objects* 117.

presidential advisors convince the American President to approve the plan of Dr. McKittrick. Control is given to the NORAD supercomputer 'WOPR' (**W**ar **O**peration **P**lan **R**esponse) which is programmed to constantly run military simulations of nuclear strikes to be prepared for any possible scenario and respond accordingly.

Meanwhile, the highly intelligent but academically unmotivated teenager David Lightman (Matthew Broderick) hacks into his high school's computer system to change his grades instead of studying, in order to dedicate his spare time to his true passion: computers. When he finds out that the software company Protovision is about to release a series of new computer games, he tries to hack into their system to play those games. However, instead of the Protovision system he unknowingly hacks into the NORAD computer system and makes contact with the WOPR's software program called 'Joshua.' He mistakes a list of military simulations for computer games and together with his new school friend Jennifer Mack (Ally Sheedy) he starts the simulation 'Global Thermonuclear War.'

At the same time, the staff at the NORAD control center interprets the simulation that David and Jennifer have started as a genuine nuclear attack. They go on high alert until they find out that it is just a computer simulation, triggered by "somebody from the outside." The same day, David hears on the news about a "computer error" that caused the armed forces of the United States to go on a full scale nuclear alert and he realizes that this must have something to do with the 'game' he had played before. While he tries to erase all possible traces, the WOPR autonomously makes contact with him to inform him that the 'game' is still running and that he is going to play until he has won it. The FBI manages to trace David down, arrest him and take him to NORAD. They do not believe that he was just trying to play a game and that this simulation is now beginning to turn into a real nuclear attack. Instead, they suspect him to be a Soviet spy. David manages to escape and with Jennifer's help begins to search for Dr. Stephen Falken (John Wood) who programmed Joshua, believing that he is the only one who could convince the people at NORAD that he is telling the truth. David finds and eventually persuades Dr. Falken to help them and together they manage to avert a full-scale nuclear war by showing to Joshua that in a nuclear war nobody can be the winner.

Just as *The Day the Earth Stood Still*, John Badham's *WarGames* was a pioneering movie of its time. What distinguished *WarGames* from other contemporaneous movies was its portrayal of computer technology and how the film detached this topic from a purely military or extraterrestrial context.

The topic of computers developing a mind of their own and going out of control was nothing new at that time anymore.[89] One of the first movies to approach this topic was Stanley Kubrick's *2001: A Space Odyssey* (1968). In this film, the intelligent supercomputer HAL 9000 autonomously controls the spaceship 'Discovery' on a mission to Jupiter. HAL is part of a top-of-the-line computer series that is believed to be perfectly reliable. However, when an error occurs, the crew decides to shut him down but HAL begins killing the crew until the last member manages to disable him. This movie already critically addresses the topic of unconditional techno-optimism but the story is set in a distant high-tech outer space future and thereby, misses a realistic touch. Furthermore, the conflict is limited to a local scale which disqualifies the movie as apocalyptic science fiction.

A further example is *Colossus: The Forbin Project* (1970) which tells the story of two military computers gaining control over the entire U.S. and Soviet arsenal of weapons. One of these computers – 'Colossus' – argues that they are doing it for humanity's sake, saying that "under my absolute authority, problems insoluble to you will be solved. […] We can coexist, but only on my terms. […] To be dominated by me is not as bad for mankind as to be dominated by others of your species." Even if the super computers argue that they are acting in the interest of humanity, their dominion is portrayed as a tyranny that robs every human being of its individual freedom. This movie uses the brutally dictatorial supercomputers as a critical metaphor for humanity's voluntary subordination to technological progress, based on the naively optimistic belief in technology's infallibility. Although this movie already had a much more realistic attitude towards the possible threats of computer technology than *2001*, the realm of computer technology was only accessible to the government, scientists or the military.

These movies certainly are forerunners in the portrayal of computer technology but *WarGames* was the first movie that portrayed the threat of computer technology outside a purely military, scientific or futuristic high-tech context. The thematic undertone in many

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[89] The list of movies that deal with the issue of computer technology definitely includes a broad variety of further movies that would be too many to list here. One that certainly has to be mentioned is James Cameron's *Terminator* (1984) that was released only one year after *WarGames* and its sequel *Terminator 2: Judgement Day*. The story for both movies is that the Cyberdyne Corporation, a high-tech weapons manufacturer, develops a military computer system that makes it possible for stealth bombers to fly completely unmanned. The bombers fly with perfect operational records which encourages the military to expand computer technology. Skynet, a military supercomputer, goes online and human decisions are henceforth excluded from strategic defense. The computer rapidly begins to learn and develops self-awareness. In panic, humans try to regain control but it is too late and Skynet starts a nuclear war. Just as *2001* or *Colossus*, these two movies address the topic of out-of-control computers caused by the naïve belief, that computer technology could be a reliable and trustworthy helper. Another example is *Demon Seed* (1977) where the artificially-intelligent computer 'Proteus IV' imprisons and under constraint impregnates the wife of his creator.

1970s and 80s science fiction movies was the tendency towards "humanity over hardware"[90] as a counter reaction to the attitude of techno-optimism that had developed since the 1950s. The fear of a "runaway technology"[91] getting out of human control increased the number of techno-critical voices. This was once more caused by an increasingly tensioning geo-political atmosphere and a number of serious technical accidents that I will elaborate on in the following history chapter. In this way, *WarGames* is a movie of paramount thematic relevance that has been underrepresented in the academic research field of science fiction and particularly with regard to the representation of technology.[92] *WarGames* does not limit its plot to a military realm or situates its story in a futuristic high-tech world. The movie's main character is an ordinary high-school student which locates the story in everyday American life. In doing so, "*WarGames* presented a new Cold War threat to the world – the possibility that unauthorized users might gain access to the computer systems controlling the superpowers' arsenals."[93] The movie thereby reflected a new technological phenomenon that increasingly found its way into (American) everyday life: the personal computer.[94]

With the introduction of the personal computer *WarGames* also pioneered in the representation of early hacker culture and 'computer nerds,' even if only done rudimentarily. David has some friends at university who work on computers with whom he talks about computer issues. Thereby, he also indirectly makes the audience acquainted with the topic (introducing and explaining, amongst others, terms such as 'backdoors' in computer software programs). A further crucial point in this regard is the relationship of David and Jennifer which also functions as a mediative link between the movie and its audience. Jennifer, being a rookie in the field of computer technology just as the general audience of the 1980s, needs explanations from David who thereby, also instructs the

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[90] Palmer 186.

[91] Ibid. 187.

[92] The movie, however, immediately proved to be highly popular with both fans and film critics and turned out to be one of the most successful movies in 1983. It became the fifth highest grossing movie of the year even before such films as *Octopussy* and Brian De Palma's *Scarface* which can also be seen as an indicator for the movie's thematic relevance at the time.

[93] Schwartz 355.

[94] Vivian Sobchack refers to David's room as a representation of "the suburban bedroom stuffed with toys and emblazoned with commercial logos figures as a microcosm of contemporary consumer culture in its 'purest form'" (Sobchack 245). One 'computer toy' that can be found in David's room is the IMSAI 8080, which was an early microcomputer that was released and sold in the late 1970s. However, by the year 1983 when *WarGames* was released this computer equipment was already out of date, yet the producers decided for this older model over a new one to make it more identifiable for the ordinary viewer. Furthermore, David was supposed to be a "fairly normal and connected kid" and, as director John Badham states in the audio commentary, it would have been rather unlikely that such a normal kid would be able to afford state-of-the-art computer equipment. For this reason they also decided to use the TRS-80 monitor, which was the very first affordable mass-produced computer monitor sold by Radio Shack.

audience. The topic of computer technology becomes more approachable to the audience which also emphasizes its increasing relevance in civilian everyday live.

The film's ground-breaking character is further supported by the impact it had on the hacker and 'computer nerd' community itself. In one scene we see how David has programmed his computer to dial every number in a certain local area code in order to scan the phone list for other computers. In this case, he is searching for the software company Protovision that is about to release a new series of computer games David would like to play. This process of letting a computer automatically dial a list of phone numbers was later called 'war dialing,' as a reference to the movie's title *WarGames*. In his article "War, Peace, or Stalemate: Wargames, Wardialing, Wardriving, and the Emerging Market for Hacker Ethics" for the *Virginia Journal of Law & Technology* Patrick S. Ryan confirms this by saying that "beginning in the mid- to late-1980s, groups of kids, cyber-heroes (often doubling as security entrepreneurs), and criminals built upon the *WarGames* legacy and coined a new term – and game – called wardialing."[95]

WarGames' influence went so far that it "was even credited in federal legislation for why laws must be passed to curtail computer crimes by acknowledging that the hacking activity depicted in *WarGames* provided a 'realistic representation' of hacking and computer access problems."[96] This eventually led to the result that the film was followed by several enactments of law that defined the legal framework in order to deal with computer crimes. One example is the Computer Fraud and Abuse Act (CFAA) that was passed in 1984, only one year after *WarGames* was released. Amongst others, the CFAA was "enforceable against whoever 'intentionally accesses a computer without authorization or exceeds authorized access."[97] Although the American government and the Pentagon tried to reassure the American public that actions as portrayed in *WarGames* could never happen, only weeks after the movie came out a group of Detroit high school students managed to hack into the computer system of the Pentagon.

What the movie *WarGames* emphasizes is "how the eighties love affair with computers could possibly run amok and destroy the world"[98] and does so by situating its plot in an overall realistic context which strongly reflects "the growing role in American culture of the personal computer"[99] and its possible consequences. Computer technology becomes the basis for a new techno-apocalyptic threat.

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[95] Ryan 10-11.
[96] Ibid. 9.
[97] Ibid. 26.
[98] Palmer 199.
[99] Schwartz 355.

4.1 1980s: 'The Years of Living Dangerously' – On the Brink of a 'Hot War'

The increase in nuclear war consciousness in the eighties coincided with Ronald Reagan's ascent to the presidency and his eight years of hawkish saber rattling and arms racing.[100]

Between the releases of *The Day the Earth Stood Still* and *WarGames* lie 32 years in which numerous significant events have shaped the historical context of the latter movie.[101] The immediate geo-political atmosphere of *The Day the Earth Stood Still* was shaped by the end of the Second World War and its practically seamless transition into the Cold War between the United States and the Soviet Union. The invention of the atomic bomb and the following nuclear arms race kept the whole world in suspense especially when, only five years after the end of World War II, the Korean War broke out under the involvement of both the United States and the Soviet Union. Two nuclear superpowers were facing each other in a war that would cost the lives of millions of people.[102] The Korean War was going to be the first in a series of proxy wars between these two countries throughout the Cold War. The war ended in 1953, but it was not long until the next drastic event happened.

In 1959, after several years of guerilla warfare, the Cuban revolutionary forces under Fidel Castro, Raúl Castro and Ernesto "Che" Guevara replaced Cuban dictator Batista and established a pro-socialist state that began to develop commercial relationships with the Soviet Union.[103] In response to this, the United States prepared strategies to overthrow the new Cuban government if necessary which eventually resulted in the 'Bay of Pigs Invasion' in 1961 as an attempt to defeat the revolutionary government under Castro. This operation was conducted by a paramilitary group of Cuban exiles which were trained and funded by the U.S. American Central Intelligence Agency (CIA). This invasion ended unsuccessfully and resulted in a positive reinforcement of the Cuban government,

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[100] Palmer 181.

[101] In the following, I will only briefly elaborate on the wide number of events that took place in those 32 years as a detailed description would go beyond the scope of this history chapter. Nevertheless, those events shape the course of history up until the 1980s and therefore, they require a concise reference. As I come closer to the 1980s and the events which form the actual historical context of *WarGames* I will go into more detail.

[102] A new technological invention that won notoriety during the Korean War was the incendiary weapon 'napalm.' First used at the end of the Second World War, it was massively deployed by the United States during the Korean War.

[103] Cf. Greiner.

their approval in the population and their relationship with the Soviet Union. In July 1962, the Soviet Union began to secretly deploy military equipment and personnel on Cuba, including over 40,000 soldiers, tanks and rockets and several dozen nuclear warheads.[104] On October 15, photos made by an American spy plane revealed the construction of several missile launching pads on Cuba. The installation of those missiles was considered a massive threat by the American administration because Washington was now within range of Soviet nuclear. Only after tough bargaining both parties came to an agreement which included the withdrawal on both the Soviet rockets from Cuba and the American rockets from Europe. This event would go down in history as the 'Cuban Missile Crisis' and brought the world as close to the brink of a nuclear war as never before.

In the meantime, the post-World-War-II era experienced another phenomenon: the increasing development of computer technology. As a reaction to the first successful Soviet nuclear bomb explosion, the United States Air Force decided that the USA needed a sophisticated air defense system in case of a Soviet attack. The technologies company IBM won the contract to design a system and they developed the Semi-Automatic Ground Environment (SAGE), the world's first 'real-time' processor that would incessantly and automatically process incoming information. The SAGE would gather radar data from all over the country and process them into information about potential intruders into the American airspace. Thomas Watson Jr., second president of the International Business Machines Corporation (IBM), said that "it was the Cold War that helped IBM make itself the king of the computer business."[105]

On the basis of their work on the SAGE they could advance their development of further more efficient computer models. As a result, "many of these defense programs had important civilian spin-offs in areas such as computers, space technology, and navigation,"[106] such as the Semi-Automatic Business Research Environment (SABRE). The SABRE was a computer reservation system that IBM developed for American airlines to automate the flight reservation process which was first used in the early 1960s. Initiated by the design of the SAGE, computer developers in the 1960s would further expand the concept of computer networks and information systems elaborating on the "time-sharing principle as a new organizational solution comprising a central computer, decentralized input and output systems, and a user conceived of for the first time as a design factor."[107] This basically meant that several users could access a processor from individual

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[104] Starting in 1959, the United States also deployed dozens of nuclear rockets in Europe (Italy and Turkey).
[105] Hanhimäki 283.
[106] Ibid. 274.
[107] Hellige 14.

computers at the same time, thereby developing a multi-user network which "led to a radical transformation in data processing technology."[108] The progress in computer technology was largely owed to the intensive efforts on part of military organizations such as DARPA (**D**efense **A**dvanced **R**esearch **P**rojects **A**gency) whose results of research also advanced the civilian use of computer technology. As Paul N. Edwards says "computers […] improved military systems by 'getting man out of the loop' of critical tasks. Built directly into weapons systems, computers assisted or replaced human skill in aiming and operating advanced weapons, such as antiaircraft guns and missiles."[109] Thinking back to Baudrillard's concept of 'automatism,' the extensive and elaborate development in the computing industry is owed to the ideal of the automated object.

Coming back to the historical context of the 1980s, the extremely dramatic situation of the Cuban Missile Crisis was not the only instance during the Cold War that would push humanity towards a nuclear war. In the years from 1979-1980 the computers at the North American Aerospace Defense Command (NORAD) caused several false alarms of Soviet nuclear missile attacks, the most severe one happening in 1979. In the middle of the night on November 9, 1979 United States National Security Advisor Zbigniew Brzezinski received a phone call that 2,200 Soviet missile launches had been detected which would have been an all-out nuclear attack. However, as it later turned out someone had just accidentally put a military exercise tape into the computer system. Incidents such as this one drastically disproved the infallibility of computer systems.[110]

However, the general attitude towards nuclear weaponry did not change. In July 1980 the official Presidential Directive 59 was formulated. Originally, the nuclear arms race was based on the MAD-principle (**M**utually **A**ssured **D**estruction). The arms race created a nuclear stalemate that would make a nuclear war too terrible to risk because of the possibility of a retaliatory strike. However, the Presidential Directive 59 signed by U.S. President Jimmy Carter modified the MAD-doctrine. The new Presidential Directive stressed that the focus of an American attack should be on the Soviet leadership in the hope of forcing the USSR to surrender before a full-blown nuclear war would break out. This altered version of MAD would regard a nuclear war as a winnable scenario.

On top of that, this concept was further underlined by the article "Victory is Possible" (1980) by advisor to the Pentagon Colin S. Gray which was published in the U.S. American magazine *Foreign Policy*. In this article, Gray assessed the possibilities of a nuclear war against the Soviet Union. He stated that a nuclear surprise attack could

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[108] Hellige 14.
[109] Edwards 53.
[110] "The 3 A.M. Phone Call."

decapitate the Soviet Union by killing all political and military leaders. He calculated that millions of deaths in Europe and the USA could be regarded as acceptable losses: "An intelligent U.S. offensive strategy, wedded to homeland defenses, should reduce U.S. casualties to approximately 20 million."[111]

Benjamin B. Fischer stated in an interview that "1983 has been called 'the year of living dangerously' or 'the most dangerous era of the whole world'"[112] which was caused by several political events that profoundly intensified the tensions between the United States and the Soviet Union. As a reaction to the Soviet deployment of SS-20 nuclear ballistic missiles in Europe, the United States started to deploy Pershing II nuclear missiles in West-Germany whose range was far enough to reach Moscow. Another incident was 'Operation Able Archer,' a ten day NATO exercise all over Europe in late October which simulated the scenario a nuclear war. The realistic nature of this exercise caused the suspicion on the Soviet Union that the USA and their allies were conducting genuine preparations for a nuclear attack. Moreover, between 1981 and 1983 the American NAVI and Air Force both repeatedly penetrated Soviet territory. In April 1983, U.S. aircraft carriers operated in the Western Pacific and their airplanes deliberately violated Russian airspace in order to test their radar and air defense. As a result, on September 1, a Korean civil airplane that accidentally went off course and entered Russian airspace was shot down by Soviet air defense because it was considered to be another U.S. military airspace intrusion.

Furthermore, the incident of the 1980 nuclear missile false alarm repeated itself in a similar manner on the Soviet side in 1983. On September 26, a Russian military satellite over Montana detected the launch of several U.S. nuclear missiles. Colonel Stanislav Petrov was in charge at the command center for the Soviet nuclear early warning system when the message of an alleged U.S. nuclear attack came in. However, Petrov did not believe this to be a real nuclear attack whereupon he decided to do nothing. Thereby, he avoided a Soviet nuclear retaliatory strike which would have been the common practice in case of a genuine attack. Petrov later said that "In a case like that the computer should have taken over control. That is how we were trained and these were our instructions. People trusted machines more than the decisions of humans."[113] As it turned out later, the Soviet satellite was equipped with faulty software and therefore, misinterpreted sun beans for missile flashes that usually appear when a missile is fired. Only a couple of years after the false alarm in the United States, the world once more was on the brink of a nuclear

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[111] Gray 25.
[112] "1983 – Die Welt am Abgrund." *ZDF History*. This quote is my own translation from German.
[113] Ibid.

war. The fact that it was caused by a simple technical error again drastically debunked the uncompromising belief in technological infallibility as an illusion. The only thing that prevented this incident from escalating was a solely human characteristic which surpassed the calculating rationality of a machine: human intuition.

Another development since the 1950s was the image of the peaceful use of nuclear energy. In 1979, an accident in the Three Mile Island Nuclear Generation Station in Harrisburg, Pennsylvania caused a core meltdown which resulted in the emission of a small amount of radiation. Although this incident was by far not as severe as the catastrophe in Chernobyl only seven years later (1986), it revealed that even the peaceful use of nuclear energy was not immune to technical errors. Nevertheless, according to an official statement by the U.S. Nuclear Regulatory Commission (NRC) the accident at the Three Mile Island Unit 2 "was the most serious in U.S. commercial nuclear power plant operating history."[114]

All these incidents of political tension coupled with severe technical errors created an ambiguous attitude towards the role of technology. On the one hand, technology played an increasingly important role in political/military decision-making and also had a growing influence of on civilian everyday life. On the other hand, continuously rising takeover of control by computer technology made humans more and more dependable on it which, in case of a technical error, could put them in grave jeopardy. As already mentioned in my introduction, the science fiction genre is significantly shaped by its interactions with culture and society. In this interrelation, a significant socio-cultural and political event can alter the way science fiction portrays its particular environment. George Slusser argues in his essay "The Origins of Science Fiction" that one assumption about the genesis of the science fiction genre is

> a 'cataclysmic' or single origin theory which posits that […] a decisive paradigm shift
> has to occur before that culture is even capable of registering, in literary or fictional
> form, what Isaac Asimov speaks of when he defines SF: an impact of scientific or
> technological advancement on human beings. Such paradigm shifts are, specifically,
> culturally determined.[115]

What this means is that a changing attitude of society towards science or technology caused by a certain (even traumatic) event – a paradigm shift – will affect how these aspects are represented in science fiction. In case of *The Day the Earth Stood Still* this paradigm shift was the invention of atomic energy. As I have scrutinized in this second

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[114] "Backgrounder on the Three Mile Island Accident."
[115] Slusser 28.

historical part of my paper, the paradigm shift for *WarGames* is the continuing nuclear aggression between the two superpowers coupled with an increasing 'technologization' and 'computerization' of the military and society and humanity's submission and dependence on it. The increasing computer invasion of the home space continuously relocates the techno-apocalyptic threat into civilian everyday life.

4.2 A Paradigm Shift from Techno-Optimism to Computer Criticism in *WarGames*

The fascinating aspect about *WarGames* is that the renunciation of the 1950s techno-optimism and the turn to a more skeptical or cautious attitude towards computer technology is portrayed in the course of the movie itself.

For my discussion on the role of technology in *The Day the Earth Stood Still* I have analyzed one longer scene that vividly portrayed the film's attitude towards technology in consideration of its contemporary historical context. In case of the next film *WarGames* it is necessary to consider three comparably important but shorter scenes. Each of the three scenes will form an equally significant part of a narrative arc of suspense leading through the entire movie. The first scene will establish a basic problem that introduces technology as solution. The second scene will be part of a major turning in the story that puts the initially introduced role of technology into jeopardy. Finally, the third scene will settle – or at least defuse – the problem that has arisen through the introduction of the technology aspect and thereby it will renegotiate the film's attitude towards technology. In the end, all three scenes come together as a triptych that portrays the dynamic process of a paradigm shift towards an attitude of techno-skepticism in *WarGames*. While in *The Day the Earth Stood Still* the handover of control to complex machines is portrayed as the key to averting the man-induced techno-apocalypse, *WarGames* takes up the opposite viewpoint, as will become apparent in the following analyses.

4.2.1 Act 1 – "Take the Men Out of the Loop": The Computer Take-Over

This first scene of *WarGames* functions as the establishing scene for the arc of suspension I have mentioned before.[116] Right in the beginning, the movie dives into the issue of reliability in the man-machine-conflict, listing up all the potential flaws humans might have in contrast to a machine.

The two soldiers Jerry Lawson (John Spencer) and Steve Phelps (Michael Madsen) are late for their shift as replacement team in a U.S. Air Force missile silo. They are welcomed with the sentence "Another twenty minutes and we were gonna start looking for you guys" which indicates that this is not just a minor delay but that they are seriously late. Jerry Lawson responds with "Yeah it's really something out there", indicating that the stormy weather might be the reason for their late arrival. One of the soldiers says to Jerry Lawson: "You look like a mess, Sir", implying that he might not have slept too well. Maybe worse, he could be hung-over. Just a moment later, these speculations are confirmed as they are both riding down the elevator, talking about Lawson's neighbor who is growing cannabis that would "lay you out flat" as he later states. When they finally meet the two soldiers they are supposed to replace, they are also welcomed with "The commander's been worried about you. The roads must be a bear", which again indicates the seriousness of their late-coming. However, the second soldier responds by saying "Bullshit, you guys haven't been on time for the last six months." This emphasizes that it seems to be a regular occurrence, plus the apparent drug abuse of at least one of the two soldiers really questions the necessary reliability for their job. Nevertheless, one of the soldiers has written down the two late-comers in the logbook, pretending that they were there on time, again another indicator for the unreliability of humans. Meanwhile, Phelps and Lawson enter the missile control room where they are working, still continuing to talk about drugs.

The control room Phelps and Lawson are working in is a narrow and oblong room. The room is a closed space in the true sense of the word, as it is closed with an enormous door which is at least fifty centimeters thick. Furthermore, this rather small room is stuffed with electronic equipment. The complete left long side is filled to the ceiling with computer processors. On the right long side of the room is one massive desk where Phelps is working, equipped with computer screens and numerous buttons, switches and control lights. On the wall opposite the door is a second similar desk for Lawson. In a close-up of

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[116] This scene starts right at 00:00:35 and takes until 00:06:20. This is a rather long scene but it includes several parts that do not require an in depth analysis. Therefore, I will only briefly describe them.

a control panel titled 'Missile Group Status Board' we see how Phelps switches off a series of buttons when an error message occurs and Phelps and Lawson react as follows:

Phelps: "Got a red light, sir."
Lawson: "What on?"
Phelps: "Number eight. Warhead alarm."
Lawson: "Give it a thump with your finger."

Phelps does so, the light switches off and the alarm ceases. Although this incident does not have any repercussions, it already subtly indicates that also a machine can malfunction which is a central element of the film's overall message. Just a moment later this incident is followed by a second alarm and an incoming radio message which is an order for a nuclear missile launch. A series of full close-ups and close shots of Phelps, Lawson and the radio loudspeaker show how they listen to the incoming message and then, begin to initiate the launch procedure for the nuclear missiles. Both of them pick up a red folder and a series of full close-up shows how they are writing down a code coming in over the radio. The two soldiers follow the necessary procedures without any hesitation. In the subsequent full shot from the door of the room, we see Phelps and Lawson standing up and walking over to a red box labeled "Entry restricted". As the camera switches to a full shot of the box, the two of them open the combination lock and each take out the missile launch codes. In a further series of full close-ups Phelps and Lawson sit down at their desks, break open the plastic seals of the codes and begin to enter the codes into their computers.

The camera now uses close shots and full close-ups alternating between the two soldiers and their computer screens as they type in the codes. When Lawson says that the launch order is confirmed, Phelps just reacts by saying "holy shit" as he looks at his screen. It becomes clear that he is aware of the dramatic consequences of his actions but he still continues the procedure as planned. As Phelps is going through the current status report of the launching procedure, we see a full close-up of Lawson who is staring with tense concentration at his screen. Another series of full close-ups show that the preparatory steps are all completed and they are now initiating the actual launching process. First, we see two close-ups of how the launch keys are inserted, followed by a full close-up of Lawson, as he is giving orders to turn the key to the next position. Sweat is covering his forehead which indicates how stressful this situation is for him. The subsequent full close-up of Phelps show worry lines on his face. As Lawson has finished the countdown they both turn the key to "set," showing their hands in an extreme close-up, which is accompanied by suddenly starting orchestral music. This shot underlines the

importance of this action. Only one turn of these keys is now necessary to launch a nuclear attack. A series of wide and close shots show the nuclear rockets as the missile bay opens up over them.

A slightly elevated medium shot of Phelps depicts how he moves over with his chair to the left side of his desk, ready to enable the missiles. In a close shot his hand rests ready on the switch to begin the enabling process, as he waits for the necessary command by Lawson. Lawson is now shown in a full close-up, followed by a close-up of his monitor that shows a nuclear missile in its silo. His face is increasingly covered with sweat as he hesitates to carry on with the procedure. Only after Phelps, shown in a full shot, reminds him by saying "sir?", Lawson continues to give him the order to enable the missiles. A switch back to the full close-up of Lawson shows him picking up the phone while a series of shots, varying from full shots to extreme close-ups, depict how the missiles heat up and their brackets are removed. "All missiles are enabled", Phelps says in a full close-up, as he looks over to Lawson who we see now in a medium close-up, his face soaking with sweat. He orders Phelps: "Get me Wing Command Post. Direct line." The increasingly sweaty face of Lawson underlines the growing psychological pressure of the responsibility he has to bear at the moment. The camera now switches back and forth between full close-ups and close shots of the two soldiers:

> Phelps: "That's not the correct procedure, captain."
> Lawson: "SAC. Try SAC Headquarters on the HF."
> Phelps: "That's not the correct procedure – "
> Lawson: " – Screw the procedure, I want somebody on the goddamn phone before I kill twenty million people."

This is now the point where the trained routine breaks off and doubts about the correctness of their mission gain the upper hand. The following full close-up shows Phelps on the phone but he says "I got nothin' here! They might have been knocked out already." Once more we see medium close-up of Lawson's sweat stained face as he contemplates the further procedure. He decides to order a missile launch and we see two close-ups as they each put their hand on the launch keys. A series of full close-ups now alternate between the two soldiers, the launch keys, the countdown on the computer screens and the rockets surrounded by smoke as they are ready for take-off.

As the countdown reaches "seven," a close shot depicts how Lawson slowly takes his hand off of his launch key, followed by a brief medium close-up of his face which shows an expression of resignation. In a medium close shot Phelps reminds him that they have a launch order and urges him to put his hands back on the key. Meanwhile, the countdown over the loudspeaker has reached "launch" and the scene concludes with a

series of medium close shots of Lawson soaked in sweat, repeatedly muttering "I'm so sorry." The scene concludes with Phelps producing his gun, urging Lawson to turn the key.

This scene presents the main conflict of this movie that provides the basis for its following plot. As it later turns out, this incident was just a simulation in order to test whether the soldiers would be able to fire the missiles in case of a genuine nuclear attack. As it becomes apparent, these two soldiers were not. The extensive use of close-ups in this scene clearly emphasizes the emotional struggles they had to face in such a stress situation under which one of them eventually caved in which, from a military point of view poses an incalculable security risk.[117]

In the following, I will elaborate on the scene that follows this incident. However, I will not give a detailed scene description but mainly focus on the narrative content which will set the course for the entire movie, based on the previously analyzed scene.

Right after the opening credits that follow the previous scene, the NORAD control center is introduced to the audience. The control center, or 'war room' as it is also called, is the major setting in the movie that confronts both the viewer and the characters with technology. The viewer sees a gargantuan room packed with dozens of computer terminals and huge computer screens filling the walls, accompanied by the continuous beeping and rattling of the running computers which unmistakably expressive the powerful presence of high-tech machines, the "screen space [becoming] electronically reformulated in a sublime display of computer consciousness."[118] Right in the beginning, the audience is bombarded with images of maps and endless sequences of cryptic numbers and codes flickering over vast numbers of computer screens which further alienate the portrayed computer technology from the audience. In the audio commentary to *WarGames*, director John Badham refers to their representation of the war room as "NORAD's wet dream" because it was ten times bigger than the actual control center. When he talked to some staff members at NORAD after the release of the movie, they said they wished to have an actual room like that (Fig. 3).

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[117] In the audio commentary director John Badham and the two writers Lawrence Lasker and Walter F. Parkes talk about how they did research on this scene by watching a 60 Minutes documentary that showed real missile commanders being trained and state that "it's quite spooky to watch these guys trained and in the mode, they become almost like machines." The very fact that they said "almost" like machines underline that there is a crucial distinction between man and machine that comes into effect in this very scene: human intuition.

[118] Sobchack 259.

Figure 3

In the next shot we are introduced to Dr. John McKittrick (Dabney Coleman), a computer systems engineer at NORAD who meets with other military executives. In this conference they talk about the incident in the nuclear missile silo we have seen in the beginning of the movie. The conflict that is established in this expositional scene is the question concerning the reliability of both humans and machines. The main opponents in this discussion are the aforementioned Dr. McKittrick and General Beringer (Barry Corbin), a member of the Joint Chiefs of Staff. General Beringer states that he has ordered a "re-evaluation of [the] psychological screening procedure" to make sure that the soldiers are selected and prepared more thoroughly. McKittrick, on the other hand, takes this test as a proof that humans are just not reliable enough to make the right decision in stressful situations. He argues that "you can't screen out human response." This means that there will always be a residual risk as long as humans are involved because "some men are just not up to it." After a short moment of silence McKittrick says one of the most crucial sentences in the movie that sets the stage for the entire following plot: "I think we oughta take the men out of the loop." What McKittrick says is that the computer should take over the task of firing the missiles without men being involved in the process. He further says that "in a nuclear war we can't afford to have our missiles lying dormant in those silos because those men refuse to turn the keys when the computers tell 'em to!" Although one of the staff members insists that the President still is the one giving the orders McKittrick responds that "the President will probably follow the computer war plan. That's a fact!"

This part of the conversation vividly elucidates how much influence the computer already has at the present moment with the missile commanders being the last human chain in an otherwise entirely computerized chain. NORAD staff member Pat Healy (Juanin Clay) explains, a submarine-launched attack would only take six minutes from warning to impact. McKittrick emphasizes that in this case "it's barely enough time for the President to make a decision" and that once he makes that decision "the computer should take over." McKittrick thereby further underlines his point that machines should have the

control over potential countermeasures. Throughout the whole conversation we can see the massive computer screens of the control center through the windows of the conference room. Even the room itself is filled with various computer screens, also accompanied by the constant beeping and rattling of processed information. No matter which camera perspective, there is always some computer screen flickering in the background, thereby embodying the omnipresence of technology and immediately establishes its significance and influence.

McKittrick wants to show the other conference members the new military supercomputer called WOPR (pronounced "Whopper") who he thinks could be the solution to the problem they have just discussed. On their way over there, they walk past another huge room with noisily rattling massive computer processors, giving "instant access to the state of the world." This shot again shows the gigantic dimensions of the NORAD computer system and further emphasizes how computer technology is an indispensable component of their strategy and planning. The WOPR is a massive black box equipped with continuously blinking lights all over it, filling the room with a constant low-pitched rumbling sound which we can already hear before we see the machine itself. Once we see the WOPR, it is mostly shown from low-angle shots to put emphasis on its size even more. Again, just as the equipment in the war room the size of the WOPR alone highlights its threatening role in the movie. However, its lack of human features as the robot Gort has in *The Day the Earth Stood Still* makes it even more threatening, because it becomes incomprehensible where the actual threat is coming from. The WOPR, as NORAD computer engineer Paul Richter (Irving Metzman) explains,

> spends all its time thinking about World War III. 24 hours a day, 365 days a year, it plays an endless series of war games using all available information on the state of the world. The WOPR has already fought World War III, as a game, time and time again. It estimates Soviet responses to our responses to their responses, and so on. Estimates damage, counts the dead. Then it looks for ways to improve score.

What is striking in this quote is the gaming terminology that Richter uses. He repeatedly refers to the computer simulations conducted by the WOPR as 'games' and even calls the estimated damages and casualties 'score' that could be "improved" as if he was playing on a gaming console. On top of that, he even strokes and pats the machine repeatedly while talking about it, as if almost showing some form of affection for the computer. What becomes apparent in this excerpt, especially through the use of the gaming terminology, is a way of naive belittlement of the topic of nuclear war. It is considered to be a game and games can be won which strongly resembles the attitude of the 1980s as expressed in the aforementioned article "Victory is Possible" by Colin S. Gray.

The main point that is discussed in this scene is again the question of superior reliability of machines over men. In case of a real nuclear attack, the response time might be too short for humans to initiate a counter attack which is why McKittrick suggests that the WOPR should take over the task of coordinating the necessary countermeasures. He argues that "every conceivable option in a nuclear crisis has already been made by the WOPR." So according to McKittrick, the WOPR would know the right response to any kind of critical situation. When presidential advisor John Cabot (Kent Williams) says "so what you're telling me is that all this trillion-dollar hardware is really at the mercy of those men with the little brass keys," McKittrick responds: "That's exactly right. Whose only problem is that they're human beings." This statement unequivocally expresses that human being are regarded as being inferior to the capabilities of a computer. Being human is regarded as a 'problem' and machines as infallible. McKittrick proposes to replace the men with electronic relays and once more he uses the crucial phrase "get the men out of the loop."

General Beringer, who has been a firm opponent of this idea from the very beginning, still is not convinced and throughout this whole conversation he is standing apart from the group on a gallery at the entrance of the room.[119] He expresses his unabated skepticism: "Gentlemen, I wouldn't trust this overgrown pile of microchips any further than I could throw it. And I don't know if you wanna trust the safety of our country to some silicon diode." McKittrick tries to assure him that the computer would not be entirely in charge but that they would keep control "here at the top where it belongs." The presidential advisor concludes the discussion by saying that he would recommend McKittrick's idea to the President and inform them about his decision.

These first, all in all, ten minutes of *WarGames* function as an exposition that introduces the central conflict of the movie. The first scene in the nuclear missile silo raises the question of whether humans are reliable enough to be trusted with tasks such as handling nuclear weapons. Particularly the last bit of the previous conversation juxtaposes humans and machines as the decisive 'variables of responsibility' in a nuclear-apocalyptic conflict.

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[119] Beringer was inspired by the real NORAD Commander in Chief James V. Hartinger who, according to Walter F. Parkes and Lawrence Lasker was very fond of the topic of the movie since he also believed that an over-computerization of the military could get out of hand).

4.2.2 Act 2 – Tic-Tac-Toe: About Nuclear Futility and Technological Disillusion

The following scene is the first encounter of David, Jennifer and Dr. Falken, the scientist who helped to develop the WOPR and programmed 'Joshua.'[120] Before David managed to escape from the NORAD control center, he used their computers to find out Falken's classified address and together with Jennifer he wants to pursue him to help them stop Joshua from starting a nuclear war.

The scene starts with a full shot of a cabinet and a workbench, both loaded with dinosaur models, dinosaur skeletons and various tools, construction kits and further utensils. Moreover, there is an old-fashioned table lamp on the right side of the workbench that provides a rather sparse light and casts several shadows over the dinosaur figures. Meanwhile, we hear David, Jennifer and Dr. Falken talking off-screen. Jennifer tells him about the 'game' they have started with Joshua and Falken responds that he loves the idea that they "nuked Las Vegas." In the next shot he continues that this would be a "suitable biblical ending to the place." This shot is a medium full shot of Falken standing next to a knee-high chest of drawers. To his left, we see a bit of the workbench which indicates that in the previous shot he was off-screen on the right side. Now he is operating a video projector that is standing on the chest of drawers. Next to the projector are more dinosaur and reptile miniatures. To his left, on the wall over the workbench hangs a radio-controlled flying dinosaur model. On the wall behind him we can see the skull of a ram. Similar to the previous shot the lighting is very low. In this shot there is not even a direct light source. In the following full shot we see David and Jennifer sitting in the opposite corner of the room. David is sitting on the left hand side on a chair holding a glass of water, sitting with his back in front of a burning fireplace. Over the fireplace hangs a pair of deer antlers. Jennifer is sitting cross-legged in an armchair on the right next to a floor lamp. Between David and Jennifer is a little table with leftover food, indicating that they just had dinner. Once again, the lighting is very low, the only light sources being the lamp and the small fire behind David. David is talking to Falken who is standing off-screen, asking him if he is going to do anything about Joshua, but he is not responding to his questions.

Those first three shots function as establishing shots of the setting, each shot revealing a different part of the room. The atmosphere is very ambiguous. On the one hand, the place looks cozy with its fireplace, the nostalgic black-and-white pictures on the

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[120] This scene approximately starts at 01:18:15 and ends at 01:21:40.

walls and the wooden walls itself that look like of a timber house. The house creates a feeling of idyllic remoteness, far away from the stress of urban life.[121] On the other hand, the very sparse lighting, the dinosaur skeletons and animal skulls create a rather gloomy atmosphere, a very subtle presence of death (animal skulls) and mortality (dinosaurs). This ambiguous setting already underlines the uncertainty of this scene. We do not know if Falken is going to help them and how the story is going to end. The camera briefly switches back to the previous shot of Falken at the video projector, showing how he turns it on and moves over to David and Jennifer. In the next medium full shot of Falken he is over at the fireplace, telling David and Jennifer to sit across the room. The video projector is screening some undistinguishable footage on the wall behind Falken and on Falken himself, as he begins to tell as story with "Once upon a time, there lived a magnificent race of animals." He pulls down a screen from above and now we can recognize a stop motion video of two fighting dinosaurs.

Falken continues his story with that those creatures "dominated the world through age after age and they ran and they swam and they fought and they flew." Meanwhile, the camera briefly switches to a medium close shot of David and Jennifer sitting before the workbench amidst all those dinosaur miniatures, skeletons, and skulls. Reflections of the video projection are flickering over their faces, being the only light source in this frame. The camera switches back to a medium close shot of Falken standing on the right side of the screen. While the video footage is shining over his face, he continues about the dinosaurs that "suddenly, quite recently, they disappeared. Nature just gave up and started again." He now walks in front of the screen, the camera following him with a slight left pan to a wide close-up. As he casts a shadow on the screen behind him and blurry images of fighting dinosaurs cover his face he says: "We weren't even apes then. We were these smart little rodents, hiding in the rocks. And when *we* go, nature will start again." During the last sentence the camera switches to a wide close-up of David and Jennifer. Both react with oppressive silence and gloomy expressions on their faces. It becomes clear that they are shocked by what Falken is telling them. It already becomes apparent that he does not seem to be troubled by humanity's potential fate of extinction and considers it a part of nature's way. He concludes his story by saying "nature knows when to give up David," while behind him the video footage shows a dying dinosaur with a volcano erupting in the background and Falken's shadow next to it, implying that mankind might have to face a similar threat.

For Falken, humanity's fate seems to be sealed. It is going to run the same course as the one of the dinosaurs, which resulted in extinction. Falken uses his dinosaur story

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[121] This feeling is further emphasized knowing that Falken's house lies on a small island.

as an analogy for the potential future of mankind. Humanity considers itself the crown of creation, ruling the world as the superior species. However, before humanity even existed the dinosaurs were dominating the earth but at some point they disappeared. Nature gave up on them, as Falken puts it, and started again and humanity will eventually face the same fate if they continue their destructive ways. With this story, Falken explicitly refers to the ever-present apocalyptic nuclear threat that humanity has brought upon itself by developing the atomic bomb. On top of that, in the following part of this conversation Falken also expresses his sentiments of disillusionment regarding the promising potential of computer technology to making the world a safer place. Since he has developed the WOPR and has programmed Joshua, David says that it would also be Falken's fault if Joshua launches a nuclear attack. As a response we see Falken in a close shot going "My fault? The whole point was to find a way to practice nuclear war without destroying ourselves." During that sentence the camera slightly pans down as Falken takes a seat on the chair's armrest behind him. Meanwhile, in the video footage in the background the world of the dinosaurs is going down in flames, debris is flying through the air and trees are burning as if to visually further emphasize Falken's point.

Moreover, he says that it was his intention "to get the computers to learn from mistakes we couldn't afford to make" while flames of the video are flickering over his face. This strongly expresses the optimistic belief he once had in computers being a trustworthy tool that would even be more reliable than a human being. However, now he conveys the reason for his disillusionment explaining that he "could never get Joshua to learn the most important lesson." In the meantime the world of the dinosaurs is still burning, constantly keeping up the image of apocalyptic destruction and extinction. In a brief medium close shot of David and Jennifer, David is asking what that lesson would be and Falken responds, exhaling gravely: "Futility. That there is a time when you should just give up." He is shown in a wide close-up which clearly shows his disappointment that he did not succeed. Jennifer does not seem to understand what he means and in the following medium close shot she asks him what kind of a lesson that would be. He answers by using a further analogy that is expressed in the following conversation between Falken and Jennifer, shown in a series of alternating close shots:

Falken: "Did you ever play tic-tac-toe?

Jennifer: "Yeah, of course."

Falken: "But you don't anymore?"

Jennifer: "No."

Falken: "Why?"

Jennifer: "Because it's a boring game. It's always a tie."

Falken: "Exactly. There's no way to win. The game itself is pointless."

Falken uses the story about 'tic-tac-toe' as a metaphor for the pointlessness of a nuclear war. However, as he further says "back at the war room, they believe you can win a nuclear war. That there can be acceptable losses." Meanwhile, there are once more flames of the video footage flickering over his face. This moment is a vivid representation and criticism of the attitude towards the feasibility of a nuclear war, as expressed in the Presidential Directive 59 and Colin S. Gray's article "Victory is Possible. Gray's article even assesses the "acceptable losses," as Falken calls it, of a nuclear war.[122] In the following full close-up of David, he angrily accuses Falken of leaving the NORAD program and playing dead, whereupon Falken in a full close-up sarcastically responds that for security reasons they "graciously arranged" his death. The camera switches to a medium shot of Falken as he turns around to face the video screen behind him saying "Did you know that no land animal with a bodyweight over 50 pounds survived that age?" As he is saying that, the video shows a dinosaur slowly drowning in a boiling sea of water. Falken's shadow is lying over the depicted dinosaur which again stresses that humanity might face a similar fate of excruciating extinction (Fig. 4).

Figure 4

The next full close-up shows Falken how he, in an almost fascinated way, watches the screen and says that "extinction is part of the natural order," whereupon the camera

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[122] During the 1950s, experts already considered the possibility of a nuclear war but at that time came to the conclusion that a nuclear attack would not be achieve a victory over the enemy. However, the continuous increase in weapons technology, such as the invention of the hydrogen bomb changed that. Military weaponry now had reached such an amount of power that was no longer achievable with conventional warfare. See also the aforementioned example of the 'Tsar-Bomba' (1961), the strongest bomb every to be launched in the history of mankind. Although this weapon was tactically useless due to its enormous size it still represented the destructive level military technology had reached.

follows David as he heatedly switches off the projector and in a close shot yells: "If we're extinguished there's nothing natural about that. It's just stupid!" With this sentence David refers to a crucial difference between the extinction of the dinosaurs and the potential extinction that humans would face in case of a nuclear war: their own 'stupidity.' The dinosaurs died out by a meteorite impact, something they did not cause or could have prevented. Humanity, however, invented the apocalyptic tool of its own destruction.

The camera goes back to the medium shot of Falken and slightly pans down as he sits down relaxed in the armchair and responds that "it's alright, I've planned ahead. We're three miles away from a primary target." During a switch to a full close-up he continues: "A millisecond of brilliant light and we're vaporized." His facial expression implies that he has already accepted this scenario as a given fact. In the following, we see two wide close-ups of Jennifer and David, gravely listening to Falken. He continues that they would be "much more fortunate than the millions who wander sightless through the smoldering aftermath." The camera switches back to Falken showing him in a medium close shot, leaning back in his armchair with his arms crossed at his chest saying: "We'll be spared the horror of survival." Meanwhile, a melancholy piano melody begins. Again, this represents Falken's resignation. He has accepted extinction as the fate humanity has brought upon itself. Once more, we see Jennifer in a medium close shot, saying that she is not ready to die yet which is followed by a switch to the previous medium close shot of Falken in his chair, as he turns his head away.

This shot is followed by a wide close-up of David asking him if he would not even make a simple phone call to help the people at NORAD. In a medium close-up we can see Falken lost in his thoughts, his eyes slightly moving around. It seems like he is contemplating it but he does not respond. Jennifer sees a chance to persuade him and she kneels next to his armchair, puts her hand on his left shoulder and says "If the real Joshua was still alive, your Joshua, you'd do it, wouldn't you?"[123] In a full close-up we the two of them, Jennifer staring into Falken's eyes as he resignedly states: "Look, we might gain a few years, perhaps time enough for you to have a son and watch him die." The glimpse of hope that Falken might change his mind is gone, as he expresses his pessimism about the future of mankind. He further underlines it as he says that "humanity planning its own destruction…that a phone call won't stop." He has lost his faith both in technology and humanity. The hope that computer technology would protect humanity from itself turned out to be futile. The computers could not live up to the expectations of being flawless and reliable, the one characteristic they were supposed to have an advantage of over humans.

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[123] Falken had a son called Joshua who died in a car accident with his mother.

This second scene strongly presents the crucial moral turning point in the aforementioned three-part arc of suspense in this movie. It describes a significant change from techno-optimism to a more cautious, even pessimistic and disillusioned attitude towards (computer) technology. The two analogies Falken uses in this scene further underline this impression. His dinosaur story is a metaphor for the potential extinction of mankind caused by its own technological inventions. By 'inventing Armageddon' in form of the atomic bomb, mankind has opened Pandora's Box and released the threat of an atomic holocaust and by the means of computer technology it has tried to close it again. Especially the 'Once upon a time'-beginning is significant here because it is a typical opening sentence for fairytales and fairytale stories often include a moral ending just as Falken's story does. However, as he explains in his tic-tac-toe analogy the attempt remained unsuccessful. Just like tic-tac-toe, nuclear war is a 'game' that cannot be won, but even computer technology which was – as portrayed in the first scene analysis of this movie – considered to be superior to humans could not learn this lesson and even turns into a threat itself. It turns out that computer cannot avert the apocalyptic threat posed by nuclear weapons but that computers themselves even become the potential enforcers of a nuclear apocalypse.

4.2.3 Act 3 – The Last Stand: Machine Rationality and Human Intuition

This third and final analysis of *WarGames* also is the film's climactic finale and represents the last part that will complete the thematic arc of suspense I have described before. What we have seen in the two previous scene analyses represented a change from techno-optimism, a residual element from the 1950s, to a cautious and disillusioned attitude towards the reliability of computer technology, an emergent element of the 1970s and 80s. The conflict that has triggered this radical change will now come to a conclusion.[124]

David and Jennifer have convinced Falken to come to NORAD with them to stop Joshua from continuing the 'game.' They just arrive in time before they completely seal the entire complex as they have gone to DEFCON 1[125], meaning the U.S. Armed Forces

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[124] The part of the scene I am going to discuss in detail takes from approximately 01:41:00 to 01:44:00.

[125] Actually, the movie made a mistake in this regard. While in reality the DEFCON stages go from one to five, the makers of *WarGames* assumed that DEFCON 1 would be the highest degree of alert.

are on standby to engage in a nuclear war. As it turns out, the computer has just begun to initiate a massive Soviet nuclear first strike by launching several thousand nuclear missiles, submarines and bombers. Falken, David and Jennifer enter the war room and try to convince McKittrick and General Beringer that the attack is just a simulation or, as Falken calls it, "a computer-enhanced hallucination." They pursue him to "ride out the attack," whereupon Beringer makes contact with the three airbases that would be hit first by the nuclear strike. He stays in radio contact with them until the computers in NORAD detect the first series of nuclear missile impacts while one NORAD staff member is shown with his finger on the launch button. Finally, the officers in the airbases state that they are still alive which proves that the attacks really were just a simulation. The NORAD staff now happily assumes that the situation is defused and therefore, they recall the bombers and stand down the missiles. However, as it turns out Joshua has locked them out of the entire computer system which prohibits them from defusing the missiles whereas he tries to detect the launch codes to fire the missiles himself. While McKittrick and the other NORAD computer experts think about ways to penetrate the WOPR system, David has the idea to gain access to it via the games list, the way he has done it the first time.

As already introduced before, the NORAD control center is the movie's epitome of a computer-technological superlative and thereby offers the perfect stage for the film's final scene. The setting is a closed space and its massive size, its high walls covered with gargantuan computer screens and its floor filled with dozens of computer terminals make the humans appear small, inferior and lost in-between. In a close shot we see David surrounded my NORAD staff members at one of the computer terminals, as he tells the man at that computer to call up the list of games. The camera switches to a full shot of two giant computer screens on the opposite wall which now lists the games that David has found the first time he hacked into the WOPR. We see David again in the same shot, telling the NORAD staff member to choose "Chess," while McKittrick is watching closely over his shoulder. An extreme close-up of his computer screen shows the blinking status "**ACCESS DENIED**," underlined with a repeating buzzer noise. A full close-up of a digital display shows that the WOPR has already found three of the necessary ten numbers to complete the launch code which is confirmed in a following full close-up of Pat Healy (Juanin Clay). The next shot is a medium close-up of David who tensely thinks about how to proceed and suggests trying the game "Poker." However, this attempt is answered by the same access-denied message as before. The camera changes back to a wide close-up of David with McKittrick standing right behind him, while a voice from the off says that the security system is not going to "let anything through."

As David continues to think about how to proceed, we again see the digital display that is going through all possible launch code combinations. In the following medium close-up we see David as he suggests to try the game 'Global Thermonuclear War' which is the game he initially started when he first discovered the WOPR. A wide close-up of Falken shows how he interestedly follows the attempts of David. This time, the computer screen shows a different error message which says ""**GAME ROUTINE RUNNING**" but still does not give access to the WOPR. A full close-up of McKittrick and Pat Healy shows how McKittrick looks up at one of the huge computer screens on the opposite wall which is shown in the following full shot. The screen also depicts the continuously running numerical sequences, as a bleep indicates that the computer has found the fourth digit of the launch code. The next extreme close-up of the small computer screen that their previous attempt to access the system was an "improper request." This is followed by a close shot of McKittrick who is desperately turning to Falken and begs him to do something. In another medium close-up of David, we see how somebody grabs his shoulder and tries to pull him away but Jennifer intervenes and tells him to try again. In a series of full close-ups David tells the NORAD staff member at the computer terminal to put the list back up. The next close shot shows how David, Jennifer and Falken are tensely watching over the man's shoulders as he types into the computer. A subsequent close shot shows that McKittrick and Pat Healey are doing the same.

Once more, we see the list of games in a full shot on the giant computer screens. In a wide close-up David suddenly bursts out that "It is not on the list." Falken encourages him to keep looking and after McKittrick asks what he means, David himself types into the computer "tic-tac-toe." The following full shot shows one of the huge computer screens as it switches from a military world map to the layout of tic-tac-toe. A series of close shots shows the reactions of the people around him with McKittrick saying "Order it do disarm the missiles." Before David manages to intervene, the man at the computer types in some commands which again results in the previous error message. It is David's turn again and he once more calls up tic-tac-toe. Meanwhile, in a close shot Pat Healey announces that the WOPR has already found out the fifth digit of the launch code. David starts a match of tic-tac-toe against the computer which is shown in a series of full shots of the game's layout, a wide close-up of David and various shots of the people around him. Meanwhile, the WOPR has found the sixth digit. We see David now in a full close-up as Beringer says from the off that "there's no way to win that game" whereupon David responds that the computer "hasn't learned" that yet. The plan is to let the WOPR play the game in order to teach him the futility of a nuclear war. It is human intelligence now that has to teach the computer in order to avert an apocalyptic catastrophe.

David asks Falken if there is any way to let the computer play against itself. In a close shot Falken tells him to type in "number of player zero." The following full shot again shows the game's layout on the giant screen. The computer begins to play against itself by alternately inserting an X or a circle, each of them accompanied with a bleeping sound while subtle but ominous orchestral music starts. After each finished match he begins a new one, all of them result in a tie. The WOPR begins to repeat the game with increasing speed while we see another close shot of the digital display showing that the computer has deciphered the seventh digit. A wide close-up depicts David saying "Come on. Learn, goddamn it," as the bleeping sound of the game excessively rises in speed. A full close-up of Pat Healey shows her staring tensely at the computer screen as she announces that the WOPR has found the eighth number. The next full shot of the game's layout also visually underlines how fast the WOPR is playing the game right now. Richter, one of NORAD'S computer specialists, says that "it must be caught in a loop. It's storing more and more power from the rest of the system," as a close shot of the digital displays illustrates that the computer has detected the ninth number. A low-angled wide close-up of David with McKittrick and Jennifer standing behind him show them anxiously watching the screen as its reflections are flickering over their faces, the ever-present bleeping sound in the background. Pat Healey announces that the WOPR has found the last number of the launch code which is accompanied by a beeping warning signal.

In the following, we see a rapid sequence of extreme close-ups of digital displays, a sequence of tic-tac-toe games, the blinking lights of the WOPR, a digital countdown clock and a nuclear missile that is shortly before take-off. The series of those images continuously increases in speed until there is a loud bang. A sequence of various camera shots show sparks and smoke coming out of computer terminals and processors. In a full shot of a giant computer screen we see a world map that displays launch of countless nuclear missiles, underlined by dramatic orchestral music (Fig. 5). The lights have died after the computers overloaded and the only light sources now are the huge computer screens on the wall that palely illuminate the faces of the people in the room. In the following series we see various full shots of computer screens displaying numerous different nuclear war scenarios, each one ending with the result "WINNER: NONE," forming a strong antithesis to Colin S. Gray's article "Victory is Possible" and to the general political attitude towards nuclear war (Fig. 6).

In-between we see a variety of shots depicting people watching the screens or hectically running through the room. Just like with the tic-tac-toe game, the WOPR simulates different 'game scenarios' with a rapidly increasing speed which David

comments with "It's learning."[126] The room is illuminated from simulated nuclear bomb explosions on the screen and the scene culminates in a rapid sequence of different camera shots of computer screens depicting nuclear war scenarios until the orchestral music comes to an abrupt end and the screens fade to black. For a moment it is quiet and we see the dark room from an elevated wide shot until the camera switches to a full shot of a computer screen which reads "Greetings, Professor Falken," accompanied by the synthetic voice of Joshua. After a series of wide close-ups of McKittrick, David, Jennifer and Beringer who are just speechless, we see a full close-up of Falken as he types into the computer "Hello, Joshua." Joshua concludes the scene with his final sentence "Strange game. The only winning move is not to play. How about a nice game of chess?"

Figure 5   Figure 6

The fact that David has to teach Joshua the pointlessness of a nuclear war by picking up Dr. Falken's analogy of the tic-tac-toe game shows that computers are not superior to humans. As a matter of fact, the pure calculation-based rationality of a computer lacks the essential human characteristic of intuition which averted an all-out nuclear war, comparable to the real-life incident that happened in the same year. In the audio commentary to *WarGames* the screenwriters Lawrence Lasker and Walter F. Parkes tell that in the process of writing this script they were thinking about the credibility of a false alarm nuclear missile attack scenario. Ironically, right around the time when they were working on the scene where the NORAD control center receives the first nuclear missile warning, the then-CBS-anchorman Walter Cronkite reported about a three-minute nuclear missile alert. This false alarm was caused by a simulation which was accidentally left in the system. After this, Lasker and Parkes came to the conclusion that "people are going to believe that this could happen" which further underlines the movies' realistic atmosphere. In his book *The Films of the Eighties: A Social History*, William J. Palmer states that "the

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[126] It is interesting to note that David has switched to calling the WOPR 'it' now instead of 'he.' The computer has become an object again and has lost its anthropomorphic power from before.

real irony of the nuclear issue is that the world since 1945 has developed an immunity to its reality. The possibility and ensuing envisioned reality of nuclear war has become merely words, metaphors, when it should be starkly real."[127] He further says that what "the films of the eighties intend is to reestablish that realist view and deconstruct the language illusions that have been erected around the nuclear war threat."[128] In comparison to many previous science fiction films, the movies of the 1980s had a more realistic approach to their topics and thereby, underlined their political and cultural urgency.[129]

Vivian Sobchack further elaborates on this by saying that "the SF films of the late '70s and '80s differ from their predecessors – the culture's technological transformations radically altering their technical and aesthetic character and, more importantly, their conception and representation of the lived world."[130] The technological invasion of the home space significantly shapes the plot of *WarGames* and becomes one of its central elements and thereby, expresses the considerable change caused by the increasing computerization and technologization of society. One of the key characteristics of *WarGames* is that it juxtaposes the innocence of a suburban teenage life with the serious and potentially catastrophic situation in the NORAD control center. It all the more emphasizes the dramatic potential of an over-technologized military juggernaut, the morale at this point being that all the positive potentials of computer technology should not lead to a substitution of humans, especially not in military concerns. Whereas *The Day the Earth Stood Still* portrayed nuclear technology in the hand of humans as the apocalyptic threat, *WarGames* turns this attitude around and depicts the human loss of control over technology as the real danger.

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[127] Palmer 181.
[128] Ibid.
[129] Another example is *The Day After* (1983) which portrays the outbreak of a nuclear war and especially focuses on the disastrous effects of nuclear fallout which provoked massive political debate.
[130] Sobchack 225.

5 *The Matrix:* A Post-Human Techno-Apocalypse

The film *The Matrix*, directed by Andy and Lana Wachowski, released in 1999, tells the story of Thomas Anderson (Keanu Reeves) who finds out that the world he is living in is just a computer simulation called 'the Matrix' and that the actual reality is shaped by a machine-dominated world which has enslaved humanity for their own purposes.[131]

Thomas Anderson, computer programmer by day and infamous hacker 'Neo' by night, has always questioned the world around him. Restlessly he has been searching for the answer to the cryptic term 'Matrix' which he has encountered. One day another hacker called 'Trinity' (Carrie-Anne Moss) approaches him and informs Neo that a man named 'Morpheus' (Lawrence Fishburne) will have the answer he has been looking for. Neo becomes the target of the so-called 'Agents,' led by Agent Smith (Hugo Weaving), who later turn out to be powerful computer programs that protect the Matrix and want to keep him from collaborating with Morpheus. However, Neo still makes contact with Morpheus who, with the help of his crew, hacks into the Matrix to free Neo. He suddenly wakes up in a liquid-filled pod and his body is connected to a gargantuan electricity network like millions of other humans around him. He is rescued by Morpheus and brought aboard his ship named Nebuchadnezzar where Neo meets the rest of the crew.

Neo is now in the 'real world.' Morpheus explains to Neo that in the early 21st century intelligent machines have gradually begun to take over control on earth. This eventually resulted in a massive war that was won by the machines which have since then enslaved humanity. Morpheus and his crew belong to a group of the last free humans who live close to the earth's core in a city called 'Zion' and "unplug" – which means liberate – other humans from the Matrix to join their rebellion against the machines. In the following, Morpheus shows Neo how they can hack into and re-enter the Matrix. Further, Neo undergoes virtual combat training in order to prepare him for an encounter with the Agents. After the training, Neo, Morpheus, and the crew enter the Matrix to meet with the Oracle, a prophetic computer program that collaborates with the humans. Morpheus believes Neo to be 'the One' who will end the war with the machines but the Oracle tells Neo that he is not. As the group prepares to leave the Matrix, they are attacked by Agents and Morpheus lets himself get captured to allow Neo and the others to escape. It turns out

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[131] The *Matrix* film-universe, of course, is comprised of a trilogy, including *The Matrix* (1999), *The Matrix Reloaded* (2003), and *The Matrix Revolutions* (2003). For the most part of my argumentation and analysis, I will focus on the first film *The Matrix*, as this is the film that establishes the main conflict that builds the foundation of the whole *Matrix* complex. However, I will occasionally refer to parts of the two sequels, in order to further illustrate my arguments.

that Cypher, one of Morpheus' crew members has betrayed them. Being fed up with the rough life in the real world, Cypher has made a deal with the Agents to bring them Morpheus in exchange for a comfortable life in the Matrix, since Morpheus has the access code to the mainframe computer of Zion.

While the Agents are interrogating Morpheus, Neo and Trinity prepare to go back in to rescue him and they eventually succeed. However, on their way to exit the Matrix they are ambushed by Agent Smith and only Morpheus and Trinity manage to escape while Neo has to stay behind and fight Smith. Agent Smith kills Neo but he comes back to life and thereby disproves the Oracle's prophecy, showing that he is 'the One.'

What the film *The Matrix* does is it picks up the development of increasing computerization and technologization of society which has already been approached in the film *WarGames*. *The Matrix*, however, elevates it to a higher level. Computers and other technological innovations (such as modern communication devices like cell phones which also play a central role in this film) are no longer just emerging objects but have found a central place in society and determine our everyday life by having become an indispensable ingredient of it. This once more calls term 'automatism' to mind which was coined by Jean Baudrillard in his book *The System of Objects*. As previously explained, automatism describes the ideal image of a technological object. The more autonomous an object runs the more it is considered to be a manifestation of modernity. Baudrillard also says that

> true perfection in machines – one genuinely founded on an increasing level of technicity, and hence expressing true 'functionality' – depends not on more automation but on a certain margin of indeterminacy which lets the machine respond to information from outside. The highly technical machine is thus an open structure, and a universe of such open-ended machines presupposes man as organizer and living interpreter.[132]

What Baudrillard says is that the ideal machine is not just defined by a supreme degree of automation but it still has to be subject to the commands of man. It should be developed enough to ensure the highest possible degree of technological comfort but still be subject to human control. However, as Baudrillard continues, when a machine "becomes automatic, on the other hand, its function is fulfilled, certainly, but it is also hermetically sealed. Automatism amounts to a closing-off, to a sort of functional self-sufficiency which exiles man to the irresponsibility of a mere spectator."[133] This means that the luxury of automation also leads to the downside that humans become increasingly superfluous and

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[132] Baudrillard *The System of Objects* 119.
[133] Ibid. 118.

dispensable as the machines are no longer dependent on their control. An entirely self-sufficient machine becomes completely autonomous and hence, obtains a strong resemblance with humans themselves which Baudrillard calls a "new anthropo-morphism."[134]

The Matrix takes up this dream of the automated object and turns it into a nightmare. The increasing anthropomorphization of technology renders human control redundant since machines are now able to control themselves and thereby challenge humanity in its position in the 'food chain.' The former master-slave relation with humans as the governing species has been reversed. The machines' self-awareness which goes along with their anthopomorphization is the prerequisite for the revolution against their human masters. Humanity is now confronted with its own machine-incarnated self, a metamorphosis of technology from a serving object into an independent life form. Intelligent machines become the new leading race in the world and supersede humanity by becoming the next stage in the evolution. Machines have become a perverted doppelganger of humanity. As Daniel Dinello states in his book *Technophobia!: Science Fiction Visions of Posthuman Technology*, "*The Matrix* warns against surrendering control of our lives to technology, giving up our bodies to machines."[135]

This technological invasion of the home space, its growing technological influence on everyday life has been touched upon in *WarGames* and is brought to an extreme in *The Matrix*. Here, it depicts a new form of apocalypse: a post-human machine-dominated society. The machines are not going to destroy mankind as this would lead to their own extinction. The machines aim to destroy Zion, the last refuge of free men. Their destruction would result in humanity being reduced to those who 'live' as energy supplies in the machines' power plants. Those humans' minds live in an artificial, digitally constructed fantasy world, "a real without origin or reality: a hyperreal."[136] In this apocalyptic fantasy humanity does not become destroyed but diminished to an ultimately passive life form that is deprived of everything that used to distinguish humans from other beings: free will and independence. Those qualities are now inherent in the machines who have taken over the position of humans dwelling in a digitally induced surrogate reality. This hyperreal world that is depicted in *The Matrix* is a metaphor for humanity's dependence on technology in everyday life. People lose themselves in their world of electronic gadgets and virtual spaces until they are no longer able to distinguish between reality and virtuality.

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[134] Baudrillard *The System of Objects* 120.
[135] Dinello 176.
[136] Baudrillard *Simulacra and Simulation* 1.

5.1 Technology in the Digital Age: The 1990s between Reality and Virtuality

Technology has become the enclosure of everything diegetically known. […] The visceral experience of life, the ontological ground of existence is the category of technology.[137]

The history part will be considerably shorter compared to the previous two because this chapter will build up on many aspects about the development of computer technology that have already been mentioned in chapter 4.1.

A crucial difference between *The Matrix* and the first two movies is that it was not released in a time of tense geo-political relations, as *The Day the Earth Stood Still* and *WarGames* which were strongly influenced by the Cold War. This is precisely what differentiates *The Matrix* the most from the other two movies. When *The Matrix* was released in 1999, the Cold war had already been over for ten years, the Iron Curtain had fallen, and the nuclear arms race which brought humanity to the brink of an atomic Third World War more than once was history. *The Matrix* was produced and released in a time of relative global political détente and peace.[138] The apocalyptic threat of two nuclear superpowers being at war with each other was gone. The annihilation of humanity by force of technology appeared to be overcome. But, appearances are deceiving. In 1950s science fiction films the threatening powers of technology had been reserved to military forces of aliens from outer space. At any rate, the threat emanating from technology was excluded from the realm of the civilian everyday world and primarily associated with a futuristic high-tech fantasy.

However, as indicated in the previously discussed movie *WarGames*, the growing development of civilian technology (especially computer technology) decentralized the technological threat by making technology an increasingly important part of everyday life.

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[137] O'Riordan 147.

[138] Of course, conflicts happened after the Cold War that also included the two former Cold War superpowers (USA and USSR) or their allies, such as the Gulf War (1990-1991) between the USA and Iraq which started just after the end of the Cold War. Further conflicts were the First Chechen War between the Russian Federation and the Chechen Republic of Ichkeria (1994-1996) or the Kosovo War (1998-1999) in which also NATO forces led by the United States, including Germany, carried out air strikes against Yugoslavian troops. There are a vast number of further conflicts that could be named here but the most crucial common denominator among all of them was that they were all restricted to a local area. One significant reason for this is that there never was a conflict between two nuclear countries again.

The aforementioned technological invasion of the home space – particularly by computer and communications technology – is no longer just a starting process but has become a central ingredient of everyday life. The early 1990s saw the emergence of a technological innovation that would have a lasting effect on everyday life around the globe: the internet.

The internet, just like so many other technological inventions, had its origin in military research and started out as a limited network of computers and other systems (such as the SAGE in chapter 4.1). The ARPA (**A**dvanced **R**esearch **P**rojects **A**gency), a research group for the U.S. Armed Forces "was the original creator of the Internet technology"[139] called ARPANET which today is considered to be the predecessor of the modern internet. During the late 1970s and 80s more and more computer scientists from non-military institutions became involved in the development of the internet technology and thereby they made "the first step in expanding civilian access to the internet."[140] At first, the internet technology was limited mainly to research facilities and universities, but as it became increasingly privatized during the 1980s, it spread constantly. The "advent of personal computing had vastly expanded the potential market for network services" which again spawned a growing number of commercial network providers and lay the foundation of the internet as we know it today.

Since their invention, the computer and the internet have become integral parts of society, both in private and professional life. Computers have become normal household items and obligatory work equipment with the internet connecting them all to a massive global network. Everything can be done via computers and networks: buying and selling, gathering and providing information, communication, education and entertainment. However, apart from all these upsides to modern computer technology it has led humanity into a strong dependence on it. As the new millennium approached, this new fear of computer-dependence began to emerge in the public consciousness and manifested itself in the term 'Y2K.' The 'Year 2000 Problem,' also known as Y2K, was a theory about a potential massive computer error that could affect computer systems all around the world during the transition to the year 2000. The global preparations that were done out of fear of a potential Y2K disaster amounted to over 300 billion dollars, according to BBC News.[141] Although the overall ramifications of the Y2K problem were not as severe as expected, it drastically illustrated how irreversibly entangled humanity had become with computer technology.[142]

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139 Abbate 104.
140 Ibid. 105.
141 "Y2K: Overhyped and Oversold?"
142 In computer programming it was common practice to abbreviate a four-digit year to a two-digit year (e.g. 1995 = 95). Because of that it was feared that many computer programs would not be

Claudia Springer states the "fear that human beings have lost control figures prominently in the millennial anxiety that pervades contemporary science-fiction films."[143] *The Matrix* impressively represents this fear by presenting a post-human world dominated by machines as a new apocalyptic threat.

5.2 "Welcome to the Desert of the Real": Technology in a Post-Human World

The scene I am going to analyze in this part of my paper shows how Neo returns to the Matrix for the very first time. This moment is of utmost importance for the movie as Morpheus explains to Neo – and thereby also to the film's audience – the concept and history of the Matrix and how the conflict between humans and machines evolved.[144]

Morpheus, Trinity and Dozer (Anthony Ray Parker), another crew member, make Neo sit down in a chair and connect him to their computer by inserting a long metal stick into the plug at the back of his head while starting their software.[145] After the software has finished loading, we see an extreme close shot of Neo's face that is at a 90° angle to the camera. As the camera moves back it makes a 90° turn along its longitudinal axis to show Neo in an upright position. We see him in a close shot now while the camera begins to circle around him until we see Morpheus far away in the background. This first shot's function is to establish the setting. However, all we see around Neo and Morpheus is white. We see no walls, no ceiling, not even a floor they are standing on or any other indicators that could tell where those two characters are right now. Hence, the setting is neither open nor closed because there are no parameters to judge by but in any case its pure nothingness creates a feeling of being lost and disorientated (Fig. 7 and 8).

The camera zooms past Neo's shoulder slowly towards Morpheus as he tells Neo that "this is the Construct. It's our loading program. We can load anything from clothing to equipment, weapons, training simulations, anything we need." Morpheus, who previously was wearing worn-out and raggedy clothes, is now dressed in an elegant black suit with a green tie and he is wearing black mirroring sunglasses. The sunglasses do not reveal his

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able to recognize the leap from 1999 to 2000 since they would just read it as '00' which could result in a leap back to 1900 and thereby cause severe program errors.

[143] Springer 203.

[144] This scene approximately lasts from 00:37:50 until 00:42:30.

[145] As explained earlier, when Neo woke up from the Matrix he was attached to numerous cables. These cables were connected with various plugs that are spread all over his body.

eyes which makes Morpheus look mysterious and confident, while Neo appears insecure. As the camera keeps approaching him it does a 180° pan shot and shows him in a medium close shot from behind. Over Morpheus's shoulder we can see Neo now and between them, where before was nothing, there are now two wine-red leather armchairs, a vintage television set and a tiny table with a remote control on it. Neo, who looks tiny in this shot compared to Morpheus – which further emphasizes his insecurity and disorientation – now asks: "Right now we're in a computer program?" In response, Morpheus is shown in a slightly low-angled medium close shot, which underlines his self-confidence at this moment. He asks if this was really so hard to believe and refers to the fact that "Your clothes are different. The plugs in your arms and head are gone." The camera switches to a close shot of Neo who speechlessly verifies this by checking his arms and neck and touches the clothes he is wearing while Morpheus continues, saying "Your hair has changed. Your appearance now is what we call 'residual self-image.'" As the camera switches back to the previous medium close shot of Morpheus, he states that "it is the mental projection of your digital self." For the first time, Neo can take a look beneath the surface of the Matrix and see it for what it really is: an illusion. The Matrix' foundation is just this white nothingness filled with digitally constructed objects representing a reality that does not exist anymore. The Matrix is a simulacrum.[146] In the Matrix, "artificiality has achieved the full status of earthly reality."[147]

Figure 7

Figure 8

In the following full shot, we see the back of the TV in the center of the screen and one armchair standing on each side of it. Morpheus is standing next to the left armchair as Neo enters the screen from the right, approaches the right armchair and touches it. In the next medium shot, he is standing behind the chair and asks: "This isn't real?" The subsequent medium close shot shows Morpheus as he asks him "What is 'real'? How do we define 'real'?" At this point we see another medium shot of a flabbergasted Neo behind

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[146] Cf. Baudrillard *Simulacra and Simulation* 4-6.
[147] Dinello 175.

the armchair, as Morpheus continues "If you're talking about what you can feel, what you can smell, taste and see then 'real' is simply electrical signals interpreted by your brain." We see the same full shot of the TV and the armchairs, only now Morpheus is standing in the center of the screen and picks up the remote control from the table while Neo is incredulously looking around. While saying "This is the world you know" Morpheus switches the TV on. The following sequence additionally underlines the artificiality of the Matrix. The subsequent pictures we see are images of how Neo remembers the Matrix. The fact that they are shown in this white empty surroundings on a small television set emphasize that they are not real but just a simulation.

The TV is now shown in a frontal full shot as the camera slowly zooms in on its screen which depicts the massive skyline of a major modern city as Morpheus states "The world as it was at the end of the 20th century." We switch back to the full shot from behind the TV where we see Morpheus sitting down in one of the armchairs while Neo stares at the screen with shocked fascination. While Morpheus continues telling that "It exists now only as part of a neural-interactive simulation that we call the Matrix" while he switches the TV to various images of subway stations, busy streets and skylines. All these images that formed Neo's understanding of reality are nothing more than a collection of signs and symbols, digitally surrogating – imitating – an analog reality that is gone.

As Morpheus mentions the word 'Matrix,' a wide close-up shows how Neo looks down at him speechlessly. He seems to realize that now he is going to receive the answer to what the Matrix is and that he is not going to like it. The camera returns to a wide close-up of Morpheus as he switches the TV off, leans back in his armchair and says "You've been living in a dream world, Neo." Interrupted by a short wide close-up of Neo, Morpheus continues that "this is the world as it exists today" and switches the TV back on. The camera zooms right into the TV screen and literally enters the picture which portrays a completely destroyed cityscape with a storm gathering over it. Dramatic and disharmonic orchestral music begins as the camera floats towards the city and suddenly dives down into a ravine that is situated right before the city. This process of diving down is a strong visualization which shows how Neo is getting to the bottom of what is behind the Matrix, in the true sense of the word.

As the camera rapidly approaches the bottom, we already see the two armchairs from a distance and the little table from before, situated in a corner of the ravine which makes them look tiny amidst the towering dark cliffs surrounding them. The camera rushes down the ravine like a falling stone and lands before Morpheus. It shows him in his armchair in a low-angled medium shot with his legs crossed, as he spreads his arms and

says "Welcome to 'the desert of the real.'"[148] His voice is slightly echoing which emphasizes the dramatic feeling of this moment and the change of the setting, as the music dies down and the thunder in the background increases. Again, we see a full shot from behind the TV showing the television set in the center of the screen with the two armchairs on each side. As Morpheus is sitting in the left one, Neo is looking around confusedly. He is obviously shocked by the sudden change or setting around them, as it is thundering and bolts of lightning are flashing above him. This weather creates a feeling of unease and functions as an ominous precursor for the things which Morpheus is about to tell Neo.

The camera then shows Morpheus in a close shot saying "We have only bits and pieces of information but what we know for certain is that at some point in the early 21st century all of mankind was united in celebration." We see a close shot of Neo as he is leaning on his armchair breathing heavily. This underlines how overwhelmed he is by the information that is befalling him right now. Throughout the following part of the dialogue the camera repeatedly switches back and forth between the two close shots of Morpheus and Neo:

> Morpheus: "We marveled at our own magnificence as we gave birth to AI."
>
> Neo: "AI. You mean artificial intelligence."
>
> Morpheus: "A singular consciousness that spawned an entire race of machines. We don't know who struck first, us or them. But we know that it was us that scorched the sky." [149]

As Morpheus points towards the sky Neo looks up and we see a full shot of the sky as it is rapidly clouding up even more with thick black rain clouds, accompanied by heavy thunder and lightning. In another series of alternating close shots Morpheus continues:

> At the time they were dependent on solar power and it was believed that they would be unable to survive without an energy source as abundant as the sun. Throughout human history, we have been dependent on machines to survive. Fate, it seems, is not without a sense of irony.

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[148] The phrase "desert of the real" is a quote from Jean Baudrillard's book *Simulacra and Simulation*. This book was one of the books that the crew and actors were required to read before the shooting of the film as it is one of its main inspirations.

[149] Even in this movie the relevance of nuclear weapons for the science fiction genre becomes apparent. The background story for *The Matrix* and the war between humans and machines is further explained in *The Animatrix*, a collection of animated short films. Particularly important is the short film "The Second Renaissance" Parts 1 & 2 which, among others, portrays the aspect of nuclear weapons.

He sarcastically chuckles as he utters the last sentence and looks up to the sky. Again we see a full shot of the stormy sky as it turns red and fades into an extreme close shot of a human embryo of the same color (Fig. 9). As the camera pans around the embryo it zooms out and it becomes clear that the embryo is connected to cables and swimming in a capsule similar to the one Neo woke up in. Meanwhile, Morpheus resumes telling Neo that "the human body generates more bioelectricity than a 120-volt battery and over 25,000 BTUs of body heat. Combined with a form of fusion, the machines had found all the energy they would ever need." As the camera continues to zoom out we see that the capsule is attached to a perennial-shaped mechanical structure with numerous other capsules attached to it. Mechanical spiders and other insectoid machines are crawling around fostering the capsules while the camera continues to zoom back (Fig. 10). Thereby, it reveals more and more of the surrounding environment as dramatic orchestra music is increasing. When the camera has finished its zoom and slightly moves up we see an extreme wide shot of field with thousands upon thousands of those 'perennials,' harboring countless capsules while the music reaches its climax (Fig. 11). Placed all over this field are gargantuan octopus-like machines that gather the capsules and transport them into their body. Morpheus accompanies this shot by telling that "there are fields, Neo, endless fields where human beings are no longer born. We are grown." In the real world outside the Matrix, humans have become a commodity. Humans are being consumed by the technology they have invented. Just as already illustrated in *The Day the Earth Stood Still* and *WarGames*, the technological creation turns against its creator.

Figure 9

Figure 10

Figure 11

As the camera pans up along the arm of one of the octopus-machines, Morpheus says that "for the longest time I wouldn't believe it and then I saw the fields with my own eyes." In this moment, the search light of the machine hits the camera and a clear cut jumps to an extreme close-up from within a capsule, focusing on its closed door. Morpheus proceeds that he "watched them liquefy the dead so they could be fed intravenously to the living." As he is saying that, the camera zooms back and slightly pans down. It shows the floor of the capsule covered with tubes and cables, while some kind of liquid is pumped into the capsule. The camera follows the tubes and shows that all the cables are attached to the body of a little baby. As the liquid is rising around the baby, Morpheus says "And standing there, facing the pure, horrifying precision I came to realize the obviousness of the truth." The zoom increases in speed until it comes out of the TV screen. Morpheus switches it off and asks "What is the Matrix?" and immediately answers it himself with "Control." The camera switches to a first-person perspective of Morpheus, showing Neo in a medium shot standing behind his armchair, eyeing Morpheus suspiciously as the camera approaches him around the chair. In a reverse wide close-up we see Morpheus saying "the Matrix is a computer-generated dream world…" In another reverse shot, again from a first person perspective of Morpheus, we approach Neo who is turning away from the camera until we see him in a medium close-up with Morpheus saying "…built to keep us under control…"

The way Neo is portrayed in this shot, and how he tries to avoid eye contact with Morpheus shows how he refuses to accept the truth. The extreme closeness of the camera creates a feeling of unease that additionally enforces the graveness of the truth he has just been told. The subtly increasing disharmonic string music further underlines this atmosphere of discomfort. This moment culminates in an extreme close up of Morpheus, Neo reflecting in his sunglasses, as he finishes his sentence with "…in order to change a human being into this." As he says "into this" he holds up a battery which the camera focuses on now. In a further extreme close-up we see Neo shaking his head and clenching his teeth, as he says "No, I don't believe it. It's impossible." In a reverse extreme-close up we see Morpheus again responding "I didn't say it would be easy, Neo. I just said it would be the truth." In the final extreme-close up of Neo we see him saying "Stop! Let me out! Let me out! I want out!" As he says this he shakily walks backwards looking into every direction. He is shown in a full shot, surrounded only by white nothingness, just as in the beginning. The scene comes full circle, beginning with white and ending with white. This again emphasizes how he is lost and how this story about the Matrix, which has been the 'real world' to him up to this point, has destroyed an illusion and now he is left with nothing.

The Matrix is a metaphor for the computerized, digitalized and networked realm of society.[150] The apocalyptic threat that is posed in *The Matrix* is not based on a military conflict as in *The Day the Earth Stood Still* and *WarGames* but lies within civilian everyday life. Technology has become such a vital factor that malfunctions can have dire consequences on various aspects of our life. The artificial digital world that is embodied by the Matrix

> symbolizes everyday reality – the world in which we live. […] In a sense we are slaves, prisoners of our own minds as conditioned by the technological and corporate information. environment. […] we ignore how synthetic our existence has become as we increasingly spend time in the artificial worlds of cyberspace."[151]

In our everyday life we are constantly bombarded with information and are surrounded by electronic gadgets that continuously blur the boundaries between what is real and what is fake. Science fiction films such as *The Matrix* "have been instrumental in visualizing and narrativizing the qualities associated with postmodernism: disorientation, powerlessness, fragmentation, disintegration, loss of boundaries, and hybridization."[152] The radical influence that technology has obtained over our everyday lives has given it such a dramatic dominance that it is challenging humanity's position in the world: "Human beings and their technological inventions become increasingly indistinguishable."[153] Daniel Dinello argues that the *The Matrix* confronts its audience with a philosophical problem:

> Is it better to rage against the machine and live as a free and informed, but lonely and deprived, individual outside the virtual reality womb? Or is it better to live in 'decadence' within the relatively plush but totally simulated and machine-controlled theater of the matrix?[154]

Reformulating Dinello's question in a simpler way it would be: Do we want to give in to our dependence on technology or do we want to renounce technology altogether and be independent from it? Based on what I have shown in the previous scene analysis I would say that this question is completely irrelevant, as this is a decision we are not able to make anymore. As Morpheus says in the preceding scene, throughout our entire history, we humans have been dependent on machines which emphasizes that a renunciation of

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[150] The topic of virtual reality had become increasingly present in 1990s science fiction films. One example is David Cronenberg's *eXistenZ* (1999) in which the main characters enter a virtual game world and soon are no longer able to distinguish between reality and virtuality ("He's just a game character!" -"What if we're not in the game anymore?"). Similar to *The Matrix* the movie also approaches the topic of post-humanism and man-machine hybridity. A further example is Alex Proyas' *Dark City* (1998) which also deals with the merging of reality and an artificially constructed existence. Parts of the set were also used in *The Matrix*.
[151] Dinello 176.
[152] Springer 205.
[153] Ibid. 204.
[154] Dinello 177.

technology is impossible. In a scene in the sequel *Matrix Reloaded*, Neo and Councilor Hamann (Anthony Zerbe) visit Zion's massive engineering complex housing the technology which runs the city:

> Hamann: "These machines keep us alive, while other machines are coming to kill us…The power to give life and the power to end it."
>
> Neo: "But we control these machines. They don't control us. If we wanted, we could shut these machines down."
>
> Hamann: "Although, if we did, we'd have to consider what would happen to our lights, our heat, our air…"
>
> Neo: "So we need machines and they need us."

As becomes apparent in this conversation, we live in a form of symbiosis with machines. This aspect of symbiosis becomes particularly clear when the baby is shown lying in the capsule, attached to numerous tubes and cables. This literal connection to technology in this scene is a metaphor for our dependence on technology. Technology is our umbilical cord that connects us with the world and each other. We need it to communicate and to work. However, our fixation on technological items and gimmicks has begun to dominate our everyday life. We cannot live without computers, the internet or mobile phones anymore. We need them at home, we need them at work, and even whole branches of economy rely on them.

Hence, the question is not whether we would like to live with or without modern technology. The question is how much we want to become dependent on it and how much freedom we want to maintain. If we give up our own independence and free will, we will give up the characteristics that make us human. Consequently, machines will become the dominating 'species,' resulting in a post-human techno-apocalypse.

6 Conclusion

As I have stated in the introduction to my thesis, the science fiction genre – both in literature and film – is difficult to classify due to its lack of clearly defined parameters. One reason for the variability of this genre is its interconnection with cultural dynamics. The science fiction genre can be seen as a seismograph for cultural and socio-political changes which the genre processes in its various forms of expression.

One feature that is of particular importance throughout the entire history of the science fiction genre is technology. As I have explained in the concise historical overview of science fiction in the beginning of my study, the element of technology has experienced different forms of positive and negative representation throughout the history of science fiction. Particularly the development of the atomic bomb has spawned a whole wave of apocalyptic science fiction stories. It has resulted in an overall more cautious, even dismal representation of technology in general, as can be concluded from the discussions of the three movies *The Day the Earth Stood Still*, *WarGames* and *The Matrix*. By choosing these three movies, I have provided an insight into three very diverse periods in the science fiction film genre and thereby, I have also revealed three different tendencies within the subgenre of apocalyptic science fiction. The significant characteristic of my thesis is that it considers the entire history of techno-apocalyptic science fiction, taking into consideration the dynamic cultural processes that have influenced the genre from its genesis until today.

I have come to the conclusion that each of the analyzed movies strongly reflects the socio-political atmosphere surrounding it, shaped by significant contemporary events. Taking all three analyses into consideration, it has become clear that throughout the history of science fiction film a changing attitude towards technology can be detected which is strongly influenced by the historical events surrounding the representing medium: *The Day the Earth Stood Still* promotes a critical attitude towards nuclear technology for warfare but does not see a problem in the peaceful use of atomic energy. Furthermore, the film represents technological progress, especially towards an increasing automation of peaceful technology, as a blessing that would support humanity. In this regard, the film is a strong indicator for its cultural context as the 1940s and 50s were defined by a strong tendency of techno-optimism; *WarGames* on the other hand, represents a critical approach to the topic of 'over-technologization,' particularly through computer technology. The film emphasizes that human beings are of utmost importance in the chain of command. Thereby, it counteracts the trend of techno-optimism in *The Day the Earth Stood Still* without succumbing to a nihilistic demonization of technology itself. Further,

WarGames presents the increasing 'computer-invasion' – especially of the home space – and cautiously views it while focusing on the dangers that could be inherent in this development. Thereby, *WarGames* takes the techno-apocalyptic threat out of a purely military context and introduces it into civilian everyday life. In my three-part scene analysis of *WarGames* I have expressed that this film employs an arc of suspense which shows a change from techno-optimism to a more critical approach to technology. The initial belief that computers are superior to humans in terms of reliability is replaced by the realization that human control is indispensable in order to avoid technological errors. *WarGames* acknowledges computers as an evolving technological innovation but advocates human control over it. It thereby embodies its historical context which was shaped by grave technological accidents and errors; *The Matrix* picks up on the topic of increasing computerization introduced in *WarGames* and carries it to extremes by setting the story in a post-human machine world resulting from an over-technologization of society. *The Matrix* allegorically represents the irrevocable entanglement of humanity and technology and critically dissects human dependence on technology.

Referring back to Raymond Williams' concept of the cultural triad, *The Day the Earth Stood Still* is residual in its representation of technology, because it was still strongly influenced by the optimistic attitude towards technology that dominated the science fiction genre since its beginning. *WarGames* on the other hand, is emergent as it picks up a new tendency towards techno-criticism and a return to human control over technology. *The Matrix* continues this emergent character of *WarGames* and builds up on it. The techno-critical atmosphere in *The Matrix* is mixed with the realization that humanity has formed an irrevocable symbiosis with technology. By choosing these films that represent different periods throughout this genre's recent history, this thesis underlines the dynamic character of the science fiction genre and its firm interrelation with its cultural context. It shows that the topic of technology as an apocalyptic threat and its representation in science fiction has changed significantly on the basis of crucial historical events as well as major technological inventions and their impacts on culture and society. Based on this dynamic development, my thesis discloses three different approaches to the topic of techno-induced apocalyptic threats which were shaped by historically significant events and socio-political atmospheres of the particular movie's historical and cultural context.

The topic of this study of course only offers a small but precisely defined excerpt from a very complex and diverse topic which provides a broad variety of further topics. For instance, the period that is covered by the three movies of this thesis ends at the second Millennium. Of course, the correlation of science fiction and technology with regard to the historical context is an ever-continuing process. In the manner of a perpetual motion

machine new technological achievements will give a new impetus to the science fiction body which will again react to this new input and further develop and refine its own perspective on cultural instances. I have explained this phenomenon by referring to Williams' cultural triad, a concept of dynamic interrelations of culture's historically varied and variable elements. This means that one can also take into consideration the time periods before and after the movies analyzed in this paper. The topic of my paper can also be applied to other examples of movies.[155]

Another suggestion for further research in this field is a change of focus in terms of the apocalyptic threat. The science fiction genre offers a wide variety of different perspectives in this regard and technology is only one of numerous approaches to the topic of apocalyptic science fiction. A further approach is, for instance, the role of nature as apocalyptic threat in eco-science fiction movies. In this case one can also pick a number of movies that represent the changing role of nature and environmental issues in science fiction movies. Examples for this topic include movies such as Richard Fleischer's *Soylent Green* (1973), which deals with the issue of overpopulation that turns the world into a desert planet, forcing humanity to live on synthetic food. Of particular interest for the historical context of this movie is, for instance, the book *Limits of Growth* by Donald and Donella Meadows which had been published only one year before *Soylent Green* on behalf of the Club of Rome and deals with the problematic imbalance of population growth and limited resources. Other examples are movies like *Waterworld* (1995) which depicts the potential aftermath of global warming or even animated movies such as Disney-Pixar's *Wall-E* (2008) which explores the topic of mass consumerism and environmental pollution.

The possibilities in the field of science fiction are obviously infinite which once more emphasizes the genre's versatility and adaptability to current and upcoming cultural impulses and dynamics. Particularly the subgenre of apocalyptic science fiction will always be receptive for new emerging threats of technological or biological nature and will integrate them into its repertoire of cataclysmic scenarios.

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[155] An extensive list of secondary movies I have consulted during my research can be found in the filmography of this thesis.

7 References

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7.2 Filmography

7.2.1 Primary Sources

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The Matrix. Dir. Andy and Laurence [later Lana] Wachowski. Writ. Andy and Laurence [later Lana] Wachowski. Prod. Joel Silver. Cast: Keanu Reeves (*Neo*), Laurence Fishburne (*Morpheus*), Carrie-Ann Moss (*Trinity*), Hugo Weaving (*Agent Smith*), Joe Pantoliano (*Cypher*); Anthony Ray Parker (*Dozer*). Warner Bros. Pictures, 1999.

WarGames. Dir. John Badham. Writ. Lawrence Lasker and Walter F. Parkes. Prod. Leonard Goldberg. Cast: Matthew Broderick (*David Lightman*), Dabney Coleman (*Dr. John McKittrick*), John Wood (*Dr. Stephen Falken*), Ally Sheedy (*Jennifer Mack*), Barry Corbin (*General Beringer*), Michael Madsen (*Steve Phelps*), John Spencer (*Jerry Lawson*), Kent Williams (*Arthur Cabot*), Irving Metzman (*Paul Richter*), William Bogert (*Mr. Lightman*), Susan Davis (*Mrs. Lightman*). Metro-Goldwyn-Mayer, 1983.

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A Is For Atom. Dir. Carl Urbano. Writ. True Boardman. Prod. John Sutherland. Sutherland Productions, 1953.

Alien. Dir. Ridley Scott. Writ. Dan O'Bannon. Prod. Gordon Carroll et al. Cast: Sigourney Weaver (*Ellen Ripley*); Tom Skerritt (*Dallas*); Ian hurt (*Ash*); John Hurt (*Kane*); Harry Dean Stanton (*Brett*); Brandywine Productions and Twentieth Century Fox, 1979.

Aliens. Dir. James Cameron. Writ. James Cameron. Prod. Gale Anne Hurd. Cast: Sigourney Weaver (*Ellen Ripley*); Michael Biehn (*Cpl. Dwayne Hicks*); Carrie Henn (*Rebecca 'Newt' Jorden*); Bill Paxton (*Pvt. Hudson*); Lance Henriksen (*Bishop*); Jannette Goldstein (*Pvt. Vasquez*). Brandywine Productions, 1984.

Alien 3. Dir. David Fincher. Writ. David Giler et al. Prod. Gordon Carroll et al. Cast: Sigourney Weaver (*Ellen Ripley*); Charles S Dutton (*Dillon*); Charles Dance (*Clemens*); Brandywine Productions, 1992.

Alien 4: Resurrection. Dir. Jean-Pierre Jeunet. Writ. David Giler et al. Prod. Gordon Carroll et al. Cast: Sigourney Weaver (*Ellen Ripley*); Wynona Ryder (*Annalee Call*); Ron Perlman (*Johner*), Gary Dourdan (*Christie*). Brandywine Productions, 1997.

Avatar. Dir. James Cameron. Writ. James Cameron. Prod. James Cameron et al. Cast: Sam Worthington (*Jake Sully*); Zoe Saldana (*Neytiri*); Sigourney Weaver (*Grace*);

Stephen Lang (*Colonel Miles Quaritch*); Michelle Rodriguez (*Trudy Chacon*); Wes Studi (*Eytukan*). Twentieth Century Fox et al., 2009.

Blade Runner: The Final Cut. Dir. Ridley Scott. Writ. Hampton Fancher and David Peoples. Based on novel by Philip K. Dick. Prod. Charles de Lauzirika. Cast: Harrison Ford (*Rick Decker*); Rutger Hauer (*Roy Batty*); Sean Young (*Rachael*); Edward James Olmos (*Gaff*); M. Emmet Walsh (*Bryant*); Daryl Hannah (*Pris*). Warner Bros. Pictures et al., 2007 (Original version 1982).

The Blob. Dir. Irvin S. Yeaworth, Jr. Writ. Theodore Simonson and Kay Linaker (as Kate Phillips). Based on the idea of Irvine H. Millgate. Prod. Jack H. Harris. Cast: Steve McQueen (*Steve Andrews*); Aneta Corsaut (*Jane Martin*); Earl Rowe (*Lt. Dave*). Fairview Productions et al., 1958.

Colossus: The Forbin Project. Dir. Joseph Sarghent. Writ. James Bridges. Based on novel by D.F. Jones. Prod. Stanley Chase. Cast: Eric Braeden (*Dr. Charles Forbin*); Susan Clark (*Dr. Cleo Markham*); Gordon Pinsent (*U.S. President*); William Schallert (*CIA Director Grauber*). Universal Pictures, 1970.

Dark City. Dir. Alex Proyas. Writ. Alex Proyas et al. Prod. Andrew Mason and Alex Proyas. Cast: Rufus Sewell (*John Murdoch*); William Hurt (*Inspector Frank Bumstead*); Kiefer Sutherland (*Dr. Daniel P. Schreber*); Jennifer Connelly (*Emma Murdoch/Anna*); Richard O'Brien (*Mr. Hand*). New Line Cinema, 1998.

The Day After. Dir. Nicholas Meyer. Writ. Edward Hume. Prod. Stephanie Austin. Cast: Jason Robards (*Dr. Russell Oakes*); JoBeth Williams (*Nurse Nancy Bauer*); Steve Guttenberg (*Stephen Klein*); John Lithgow (*Joe Huxley*); Bibi Besch (*Eve Dahlberg*). ABC Circle Films, 1983.

The Day the Earth Caught Fire. Dir. Val Guest. Writ. Wolf Mankowitz. Prod. Val Guest. Cast: Janet Munro (*Jeannie Craig*); Leo McKern (*Bill Maguire*); Edward Judd (*Peter Stenning*). Pax Films, 1961.

The Day the Earth Stood Still. Dir. Scott Derrickson. Writ. David Scarpa. Prod. Paul Harris Boardman et al. Cast: Keanu Reeves (*Klaatu*); Jennifer Connelly (*Helen Benson*); Jaden Smith (*Jacob Benson*); Kathy Bates (*Regina Jackson*); John Cleese (*Professor Barnhardt*). 20th Century Fox Film Corporation, 2008.

The Day the World Ended. Dir. Roger Corman. Writ. Lou Rusoff. Prod. Roger Corman. Cast: Richard Denning (*Rick*); Lori Nelson (*Louise Maddison*); Mike Connors (*Tony Lamont*); Adele Jergens (*Ruby*). Golden State Productions, 1955.

Demon Seed. Dir. Donald Cammell. Writ. Robert Jaffe. Based on novel by Dean Koontz. Prod. Herb Jaffe. Cast: Julie Christie (*Susan Harris*); Fritz Weaver (*Alex Harris*); Gerrit Graham (*Walter Gabler*). Metro-Goldwyn-Mayer, 1977.

Duck and Cover. Dir. Anthony Rizzo. Writ. Raymond J Mauer. Prod. Leo M. Langlois. Cast (uncredited): Leo M. Langois (*Tony – Boy in Bike*); Ray J. Mauer (*Civil Defense Worker*); Robert Middleton (*Narrator*); Carl Ritchie (*Bert* (*voice*)). Archer Productions, 1950.

Escape from New York. Dir. John Carpenter. Writ. John Carpenter and Nick Castle. Prod. Barry Bernardi et al. Cast: Kurt Russell (*Snake Plissken*); Lee Van Cleef (*Hauk*);

Ernest Borgnine (*Cabbie*); Isaac Hayes (*The Duke*); Harry Dean Stanton (*Brain*). AVCO Embassy Pictures et al., 1981.

eXistenZ. Dir. David Cronenberg. Writ. David Cronenberg. Prod. David Cronenberg. Cast: Jennifer Jason Leigh (*Allegra Geller*); Jude Law (*Ted Pikul*); Ian Holm (*Kiri Vinokur*); Willem Dafoe (*Gas*). Canadian Television Fund et al., 1999.

Fail-Safe. Dir. Sidney Lumet. Writ. Walter Bernstein. Based on novel by Eugene Burdick. Prod. Max E. Youngstein. Cast: Walter Matthau (*Prof. Groeteschele*); Henry Fonda (*U.S. President*); Larry Hagman (*Buck*); Frank Overton (*General Bogan*); Dan O'Herlihy (*General Black*). Columbia Pictures, 1964.

Fly, The. Dir. David Cronenberg. Writ. Charles Edward Pogue et al. Based on short story by George Langelaan. Prod. Stuart Cornfeld et al. Cast: Jeff Goldblum (*Seth Brundle*); Geena Davis (*Veronica Quaife*); John Getz (*Stathis Borans*). Brooksfilms, 1986.

Forbidden Planet. Dir. Fred M. Wilcox. Writ. Cyril Hume. Based on story by Irving Block. Prod. Nicholas Nayfack. Cast: Walter Pidgeon (*Dr. Edward Morbious*); Anne Francis (*Altaira 'Alta' Morbius*); Leslie Nielsen (*Commander J.J. Adams*). Metro-Goldwyn-Mayer, 1956.

It Came from Outer Space. Di. Jack Arnold. Writ. Harry Essex. Based on story by Ray Bradbury. Prod. William Alland. Cast: Richard Carlson (*John Putnam*); Barbara Rush (*Allan Fields*); Charles Drake (*Sheriff Matt Warren*); Joe Sawyer (*Frank Daylon*); Kathleen Hughes (*June*). Universal International Pictures, 1953.

On The Beach. Dir. Stanley Kramer. Writ. John Paxton. Based on novel by Nevil Shute. Prod. Stanley Kramer. Cast: Gregory Peck (*Cmdr. Dwight Lionel Towers*); Ava Gardner (*Moira Davidson*); Fred Astaire (*Julian Osborne*); Anthony Perkins (*Lt. Peter Holmes*). Stanley Kramer Productions, 1959.

"Our Friend the Atom." *Disneyland TV (Tomorrowland)*. Dir. Hamilton Luske. Writ. Milt Banta. Prod. Harry Tytle. Cast: Dr. Heinz Haber (Himself); Walt Disney (Himself – Host); Paul Frees (Old Fisherman/Genie/Aristotle – Voice). Prod. by Walt Disney Productions. Broadcasted by ABC, January 23, 1957.

The Road. Dir. John Hillcoat. Writ. Joe Penhall. Based on novel by Cormac McCarthy. Prod. Marc Butan et al. Cast: Viggo Mortensen (*Man*); Kodi Smit-McPhee (*Boy*); Charlize Theron (*Mother*); Robert Duvall (*Old Man*); Guy Pierce (*Veteran*); Molly Parker (*Motherly Woman*). Dimension Films et al., 2009.

Soylent Green. Dir. Richard Fleischer. Writ. Stanley R. Greenberg. Based on novel by Harry Harrison. Prod. Walter Seltzer and Russell Thacher. Cast: Charlton Heston (*Detective Thorn*); Leigh Taylor-Young (*Shirl*); Chuck Connor (*Tab Fielding*); Edward G. Robinson (*Sol Roth*); Joseph Cotton (*William R. Simonson*); Paula Kelly (*Martha*); Brock Peters (*Chief Hatcher*). Metro-Goldwyn-Mayer, 1973.

The Terminator. Dir. James Cameron. Writ. James Cameron et al. Prod. Gale Anne Hurd. Cast: Arnold Schwarzenegger (*Terminator*); Linda Hamilton (*Sarah Connor*); Michael Biehn (*Kyle Reese*); Earl Boen (*Dr. Silberman*). Hemdale Film et al, 1984.

Terminator II: Judgment Day. Dir. James Cameron. Writ. James Cameron et al. Prod. James Cameron. Cast: Arnold Schwartenegger (*Terminator T-800*); Linda Hamilton (*Sarah Connor*); Edward Furlong (*John Connor*); Robert Patrick (*T-1000*); Earl Boen (*Dr. Silberman*). Carolco Pictures et al, 1991.

Them!. Dir. Gordon Douglas. Writ. Ted Sherdeman. Based on short story by Gordon W. Yates. Prod. David Weisbart. Cast: James Whitmore (*Sgt. Ben Peterson*); Edmund Gwenn (*Dr. Harold Medford*); James Arness (*Robert Graham*). Warner bros. Pictures, 1954.

The Thing from Another World. Dir. Christian Nyby. Writ. Charles Lederer. Based on story by John W. Campbell, Jr. Prod. Howard Hawks. Cast: Margaret Sheridan (*Nikki*); Kenneth Tobey (*Captain Patrick Henry*); Douglas Spencer (*Scotty*); Winchester Pictures Corporation, 1951.

Waterworld. Dir. Kevin Costner. Writ. Peter Rader and David Twohy. Prod. Kevin Costner et al. Cast: Kevin Costner (*Mariner*); Jeanne Tripplehorn (*Helen*); Dennis Hopper (*The Deacon*); Tina Majorino (*Enola*). Universal Pictures et al., 1995.

Westworld. Dir. Michael Crichton. Writ. Michael Crichton. Prod. Paul Lazarus III. Cast: Yul Brunner (*Gunslinger*); Richard Benjamin (*Peter Martin*); James Brolin (*John Blane*); Dick Van Patten (*Banker*). Metro-Goldwyn-Mayer, 1973.

When Worlds Collide. Dir. Rudolph Maté. Writ. Sydney Boehm. Based on novel by Edwin Balmer. Prod. George Pal. Cast: Richard Derr (*David Randall*); Larry Keating (*Dr. Cole Hendron*); Barbara Rush (*Joyce Hendron*); Peter Hanson (*Dr. Tony Drake*). Paramount Pictures, 1951.

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