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A Postmodernist Investigation into The History of The Chernobyl Incident Through its Representation in McKeon's *All That Is Solid Melts into Air*

A Dissertation Submitted in Partial Fulfillment for the Requirements of the Degree of Master in Civilization, Literature and Language Teaching.

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Dedication:

To my family, especially my parents and baby brother.

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Abstract:

The Chernobyl incident is considered as the world's worst nuclear disaster for its long-lasting impact and obscure details. This study aims to investigate the accident through one of its popular literary representations entitled *All That Is Solid Melts into Air* by Darragh McKeon and detect elements of historical context within the novel that enable its author to bear witness to Chernobyl. The research aims to examine McKeon's employment of intertextuality to achieve the aforementioned effect through the medium of literature. Moreover, the study attempts to apply Lyotard's theories of metanarrative legitimation and his notion of small histories on *All That Is Solid Melts into Air* to emphasize its postmodernity as well as the novel's role in unveiling the secrets of Chernobyl. This research follows an analytical approach relying on a descriptive method by using a number of books and articles that tackle the same topic of the present dissertation.

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General Introduction

The accident of Chernobyl that took place in Soviet Ukraine on the 26th of April, 1986 has been rightfully described as the worst nuclear disaster in world history. The immense level of radiation that emitted from the meltdown has resulted in irreparable damage to the environment surrounding the accident site. For around 24000 years, the Exclusion Zone encircling the Chernobyl power plant will remain inhabitable due to its high contamination and severe health hazards. Moreover, the accident has resulted in grave social and health implications for the inhabitants of the area and neighboring countries. Because of the longevity of radiation, the residents of certain regions around the Exclusion Zone still suffer the repercussions of an event that took place over thirty years ago. The mortality rates in Gomel and Mogilev regions are twenty percent greater than birth rates (Alexievich 1); most newborns are birthed with genetic mutations, Leukemia or thyroid cancer. The Soviet authorities refuse to acknowledge these conditions and have repeatedly attempted to conceal information regarding the accident.

The exact details of the event remain ambiguous, to this day, due to the secrecy that accompanied its proceedings and the fabrication of official documents by Soviet authorities. For around five years after the accident, all information about its details had been heavily monitored and largely concealed from the public. Following the dissolution of the Soviet Union, however, many witness accounts and testimonies started to emerge and contribute to the disillusionment of the public opinion. Nevertheless, these accounts proved to be paradoxical as they contradicted not only the false official documents but other testimonies as well. This contrast in information is what hitherto renders the event mysterious and limits our knowledge of its particulars.

The nuclear meltdown of Chernobyl was arguably the result of certain Soviet metanarratives regarding their scientific superiority and ideological supremacy. As a multifaceted apocalyptic event that is the product of authoritarianism and grand narratives,

Chernobyl would be best analyzed through the similarly complex postmodern theories. The multiplicity of perspectives that is celebrated by postmodernism is perhaps the most suitable to approach such calamitous incident which is the goal of this research.

The postmodern theories will be applied as an attempt to deconstruct Chernobyl as a historical event through one of its literary representations. The chosen novel to be analyzed accordingly is entitled *All That Is Solid Melts into Air* (2014) by the Irish author Darragh McKeon. The novel had been previously examined by Stuart Lindsay in his research under the title of *Reading Chernobyl: Psychoanalysis, Deconstruction, Literature* (2014). Lindsay focuses on trauma theories and applies them across a variety of mediums that tackled Chernobyl including non-fiction narratives, multiple novels of different genres, cinematic adaptations and videogames. He briefly analyzes *All That Is Solid Melts into Air* applying Abraham and Torok's intergenerational phantom theory on one of the characters who experiences the trauma of nuclear apocalypse through the phantom of his late father.

This research, on the other hand, aims to investigate Chernobyl through the postmodern concepts of intertextuality and Lyotard's theories on grand narrative legitimation as well as their opposing notion of small histories. The focus of this study is directed towards the role of postmodern literature, specifically *All That Is Solid Melts into Air*, in bearing witness to the nuclear catastrophe of Chernobyl and shedding light on the faulty metanarratives of the authoritarian Soviet regime.

The significance of this investigation is manifest in its emphasis on the corruption of authoritarianism and the consequences of the blind adoption of metanarratives as a legit set of beliefs. This study also criticizes the human urge and tendency to utilize inefficient scientific knowledge as a means by which to conquer nature and tame its inherent unpredictability. The Chernobyl nuclear meltdown serves as concrete proof, with long-lasting impact, that critical scientific fields like nuclear physics require full competence rather than claims of supremacy

with underlying motives of greed. The purpose of postmodern literature is also emphasized regarding its role in the revelation of the multiple perspectives with which an event can be perceived in pursuit of disillusionment.

This study attempts to answer one central question surrounding the Chernobyl incident. The investigation is concerned with the contrast between official Soviet records and witness testimonies and whether McKeon, the author of the novel, aims to validate one over the other. It also analyzes to what extent the event and its literary depiction, *All That Is Solid Melts into Air*, are compatible with postmodern theory. Both enquiries lead to the question of whether McKeon manages to bear witness to Chernobyl through fiction and the means by which this representation is effective.

The analysis follows a descriptive-analytical approach. The sum of qualitative data collected for this research includes historical narratives that tackle Chernobyl as well as theoretical recourses concerning postmodernism. Most of these sources had been solely available in epub format which excludes the page numbers from the content. Therefore, the material had been converted into pdf format to restore the function. However, the referenced page numbers may not match the original ones because of the possibly inaccurate conversion. This limitation was inevitable due to the lack of physical copies.

The research encompasses three chapters, the first of which serves as a historical and theoretical background that tackles Chernobyl from the Soviet narrative, then the subsequent witness accounts and finally through a collection of postmodern fiction novels. The second chapter is concerned with the elements of historical contextualization that are detected in McKeon's *All That Is Solid Melts into Air* with reference to the aforementioned accounts. The third chapter closely examines the novel's employment of the postmodern concepts of metanarrative legitimation, intertextuality, and small histories in its literary representation of Chernobyl.

Chapter One:
Historical Background and Review
of Literature

Introduction:

This chapter is concerned with background information about the Chernobyl nuclear disaster; some of the events leading to its occurrence; its political, social, physical and environmental impact; Soviet narratives of the accident as well as other emerging accounts and lastly, some examples of postmodern literary works dealing with the topic. The focal point is the analysis of this disaster first through the highly fabricated official Soviet records, then through the later emerging history narratives that exposed such fallacy, followed by a short review of some novels with similar effects through their fictitious representation of the event.

For the better understanding of what happened at Chernobyl in 1986, this chapter attempts to provide a historical background starting from certain aspects of The Cold War and the concurrent nuclear arms race, the beginning of Chernobyl as a medieval town then a modern nuclear utopia, and ultimately its decline as a site for what came to be known as world's worst nuclear catastrophe. The investigation then shifts focus to the contradictory accounts of the accident and its aftermath regarding the Soviet narrative in contrast with later revelations of testimonies and historical events. And finally, the attention of this research is then directed towards postmodern literature and its role in the unveiling of the concealed secrets of Chernobyl which will be further analyzed in the following chapters.

1.1 The Soviet Stance on Nuclear Energy during the Cold War

Following the events of the Second World War, storms of military conflict finally subdued to reveal two clearly defined peaks towering on opposite sides of the world: the Capitalist United States of America (USA) and the Union of Soviet Socialist Republics (USSR). Both, in pursuit of world dominance, applied alternative strategies to reinforce their ideologies through indirect geopolitical tension instead of conventional armed

combat. This marked the beginning of a new bipolar world order in which the western and eastern blocs competed to promote Capitalism and Communism in a period known within world history as The Cold War.

Although an emerging superpower, the Soviet Union was politically as well as economically exhausted by the end of the Great Patriotic War. The country was devastated by famine, purges and corruption infecting a society that was already plagued with massive class gaps between its civilians and elites. While Politburo members, Socialist political elites, lived in extravagance, lower class citizens resorted to eating grass at one point throughout the tyrannical rule of their communist dictator (Hays).

After the death of Joseph Stalin in 1953, came a period of relative ease characterized by the efforts of Nikita Khrushchev to decrease former repressions and reduce control over the society which was also known as De-Stalinization. Similar were the attempts of Mikhail Gorbachev who introduced the new reforms of Glasnost and Perestroika: political translucency and economic reconstruction respectively. Both sets of policies proved ineffective, as they were concurrent with a global oil and energy crisis that further drained the impoverished fifteen soviet republics more so than it did the west. Simultaneously, the very nature of Communism halted any prospects of economic prosperity and a new approach was necessary lest they sink further into financial drought and political repression, especially with the Cold War being a backdrop for the then-current global affairs.

Tension between the two rival blocs reached its peak when the scope of their competition surpassed the circumference of earth to reach outer space as well as the subatomic level of nuclear energy. While the Soviets were initially well ahead with Space Race programs, their western counterparts became the leading power of nuclear

warfare after having asserted dominance through their bombing of Hiroshima and Nagasaki, Japan in 1945. Despite the crippling economic distress, Soviets were determined to crawl their way to the forefront of an ongoing nuclear arms race and bridge the ever-expanding gap between them and the U.S. in terms of international influence. However, this long-term goal required massive resources that could only be provided through alternative sources of energy.

Nuclear fission was promoted as one of the cleanest sources of energy especially when compared to conventional sources such as coal and oil. The 'Atoms for Peace' propaganda dates back to 1953 when the American president of the time, Dwight D. Eisenhower expressed at the UN General Assembly his determination to dedicate the power of the atom not to wars and destruction but to human freedom and prosperity (Simon). Such statement within the context of Cold War arguably holds little integrity as the main concern of the period was the possibility of a global nuclear apocalypse.

The 'peaceful Soviet atom' in the other bloc was glorified on a similar basis to the extent that a nuclear catastrophe became impossible to envision and those who questioned its safety were often dismissed for exaggerated 'alarmism'. The development of nuclear energy went through several phases to domesticate it for civilian electricity generation and the Soviets managed to create the first reactor of this sort in June 1952. Named Atom Mirny-1, Russian for 'Peaceful Atom-1', this nuclear reactor "symbolized Socialism's superior ability to harness nuclear power for the benefit of mankind" despite the fact that initial knowledge in this field was taken from the West through espionage coordinated under the instructions of Joseph Stalin (Higginbotham 45).

Multiple attempts to develop more powerful reactors took place in the west as well as in the USSR since the AM-1 barely generated 5 megawatts of electricity,

nowhere near the amount of energy needed to power anything larger than a locomotive (Higginbotham 45). In 1954 Britain introduced its first commercial reactor that generated ten times more energy and the competition intensified (Leatherbarrow 13). Almost twenty years later, the Soviets used their AM-1 prototype to develop the much more powerful RBMK-1000 reactors in 1973 which were later used in Chernobyl.

1.2 Chernobyl: Historical Background and Soviet Narrative of the Accident

Over the course of history the word Chernobyl became a signifier to different meanings depending on temporal context. The town of Chernobyl dated back to the twelfth century and had a significant history long before the accident. Located in northwestern Ukraine, the area survived multiple wars, purges, famine and pogroms until it found peace during the second half of the century when it flourished into a quiet town near the intersection of two prominent rivers: Pripyat and the Dnieper (Higginbotham 21).

The location of the town made it an excellent candidate to host industrial projects, and the national urge to exploit nuclear energy further nominated it to become the epitome of Soviet 'Atomgrads'. The expression Atomgrad stands for 'atomic city' and is the Soviet vision of a nuclear utopia where the abundance of energy financially provides for the town to the extent of affluence compared to other regions in the union. Whereas neighboring towns lived in constant shortages of agricultural and consumer products, atomgrad residents led decent lives and enjoyed luxuries rarely ever found elsewhere in the country (Plokhy 13). With the rising popularity of 'Soviet friendly atoms,' Chernobyl embodied the modern nuclear dream and its name became directly linked with its colossal power plant.

As of 1986 onwards, the word Chernobyl came to instantly elicit apocalyptic images of doom and radioactive wreckage, however exaggerated those depictions may be. What remains of the Chernobyl Nuclear Power Plant (NPP) can be considered a proper monument for a dystopian catastrophe whose stigma has not yet dispersed. In fact, concerns about its radioactive debris reignited recently when a series of wildfires threatened to spread radioactive fallout far beyond the contaminated area on April of 2020 before they were mostly extinguished within two weeks (Varenikova).

1.2.1. Beginnings of the Chernobyl Power Plant

The careful selection of Chernobyl as a location for the nuclear facility was due, in part to its safe proximity to Kiev, the Ukrainian capital, and to River Pripyat after which the city that housed the plant workers was named. In 1970 began the assembly of the power plant in parallel with the construction of Pripyat city that was to accommodate for approximately 50,000 plant workers and staff (Plokhy 24). The director of the plant, Viktor Briukhanov, faced several obstacles yet managed to successfully construct the world's largest and most powerful reactor at the time, despite the two-year delay and the overwhelming lack of proper material.

The plant encompassed four units the first of which was commissioned in 1977 and the last in 1983. The solemn facility accurately expressed Soviet 'Gigantomania', or the obsession with giant structures that possess a distinct aura of authority (Higginbotham 24). Each of the four reactors generated as much as 1000 Megawatts of energy and provided one tenth of Ukraine's electricity at the time of their operation (Leatherbarrow 27, 130). Considering the tight schedule, the pressure to double the output and the extremely low material quality, Briukhanov's power plant became as much a source of pride to him and his staff as it was to Ukraine and the Soviet Union in general.

The reactors used in the Chernobyl NPP were of the commercial RBMK-1000 type instead of the safer pressurized water reactors from the West since the Soviet design insured less construction cost and more energy production. According to Anatoly Alexandrov, the president of the Academy of Science, the reactors were as harmless as samovars and could never pose any risk on the environment (Plokhy 29). They were supposedly designed with superior Soviet expertise to utilize the power of the friendly atom for the benefit of humanity and their stability was rarely ever questioned. Indeed, when properly exploited, nuclear energy is reported to be the safest and cleanest source besides modern renewable energy. Based on a 2007 analysis of energy production in the European Union, nuclear fission "results in more than 442 times fewer deaths than the 'dirtiest' forms of coal; 330 times fewer than coal; 250 times less than oil; and 38 times fewer than gas" (Ritchie). However, the radiation that might possibly emit from the core in case of an incident can cause grave consequences if not immediately contained. Contrary to what most Soviets believed, radiation is definitely not as safe as was promoted: So harmless that "you could spread it on bread" (Higginbotham 34).

1.2.2. The Soviet Narrative of the Accident

On the 26th of April 1986, a major explosion took place in Unit 4 of the Chernobyl NPP at exactly 01:23:40 am. Several history narratives recount the details of the accident with various degrees of reliability as numerous accounts of the same events coexist to this day. The following passages are compatible with what multiple sources claim to be the Soviet account of the Chernobyl disaster which has admittedly been subject to distortion over the first five years following the accident. This falsification was an attempt by Soviet officials to perpetuate a narrative that places the blame entirely on the plant operators who were present on the night of the accident.

Efforts to expose the Soviet fabrications of the events required an analysis of said narratives so as to contrast them with details that later unfolded when different accounts of the accident resurfaced. Various historical sources adopted this approach in their endeavors to debunk the Soviet narrative of the Chernobyl nuclear catastrophe and are the basis of the information presented below. The same sources will be later reviewed in this chapter.

The accident begins with an impressive act of irony as it actually happens during a safety test. One day before the explosion, the staff members proceeded to prepare the reactor for a sudden test that was scheduled on the same day. The preparation of the reactor required its partial shutdown for a brief period of time before commencing the test yet a delay occurred because the deputy chief engineer, Anatoly Dyatlov, who was to direct the procedures arrived several hours later than planned. The much more experienced afternoon shift staff, by then, was dismissed so the relatively new members of the night shift would replace them. One of the operators, Leonid Toptunov, barely twenty five years old, had served for only two months in the plant when he was suddenly expected to partake in such complicated task (Higginbotham 65).

A phenomenon that happens inside the reactor core called ‘positive void coefficient’ is the result of keeping a reactor on standby for an extended period of time, which was exactly what happened on the test day because of the twelve-hour delay (Leatherbarrow 49). This causes an uncontrollable accumulation of the poisonous element of Xenon inside the reactor core which leads it to overheat in the absence of cooling water (Higginbotham 91). The operators seemingly failed to take notice of that and continued with the test when abortion was the safer option.

It is worth mentioning that Dyatlov’s presence was for the mere purpose of monitoring the operation while a senior expert member, Alexander Akimov, was

intended to supervise all. The former, nonetheless, continuously harassed other operators into submission to his every command which was not a unique characteristic to Dyatlov more so than a typical Soviet workplace environment. Such hierarchies were common in most institutions at the time; hence, because of his position rather than experience, the deputy chief engineer had to be obeyed under any circumstances by default (Higginbotham 27).

Alerted by the drastic decrease in reactivity inside the reactor, Akimov and the other staff members called for immediate abortion but were violently silenced and instructed to further push the reactor. The young Toptunov, then, proceeded with the incredibly dangerous mistake of withdrawing up to 203 - in other sources 158 - out of the units' safety control rods.[1] As their name may suggest, control rods serve as moderators in the reactor to decrease its reactivity and keep it at a safe level; removing them would do the opposite.

As a final measure to prevent the reactor from wreaking havoc, and judging by the astronomical increase in its current reactivity, Akimov pressed the AZ-5 button on the control panel to completely shut the reactor. This button is specifically designed to abruptly stop reactivity in case of emergency. What was unfathomable to the operators, however, was the great explosion that followed suit.

The initial assumption of the operators was that of a far less lethal explosion at the emergency water tank because, to them, damage to the reactor core itself was virtually impossible and would entail their inevitable doom. On that basis, measures to contain radiation came late and everyone within the NPP was unprepared to face the

[1] Multiple sources present different numbers despite the fact that all RBMK reactors strictly follow the same design. Serhii Plokhy documents 158 control rods withdrawn out of 167 whereas Adam Higginbotham recognizes 203 out of 211.

consequences. Initial response came from the fire department that successfully managed to extinguish the fires and by the time operators realized to what extent the reactor was damaged, several firefighters were already being hospitalized for 'severe gas poisoning'.

Radiation emitting from the reactor reportedly reached 3.6 roentgens-per-hour, or a level equivalent to 'four chest X-rays' which seems manageable considering humans are constantly exposed to radiation from sources as ordinary as bananas, for instance. To contain the radiation within the plant circumference, advanced robots were commissioned from Germany as well as from the Soviet Union to collect radioactive rubble ejected from the reactor. These proved ineffective and were replaced by liquidators: soldiers and volunteers who were offered salary raises to do the job.

Other liquidators took the task of uprooting the neighboring forests and burying whatever was beyond normal levels of radiation. All animals in the area were hunted and executed in the process lest they continue circulating radiation through their fur. As for city streets and houses, special chemical products were used to decontaminate them before their residents were evacuated.

Orders of evacuation came as soon as news reached the authorities nearly two days after the accident. People were informed of the procedures and were allowed to take only the most necessary of their belongings as they were to return after few days. Approximately a thousand buses arrived from the capital Kiev to deport families living within a 30km radius from the plant to safer areas in an organized army-controlled procession.

Once the city was cleared and decontaminated, the reactor had to be concealed so as not to further contaminate the environment. For that reason, the government provided necessary resources for the construction of a gargantuan structure to encase the reactor

labeled ‘Sarcophagus’. The completion of said concrete sepulcher concluded an immaculate series of measures taken to entomb the ruins of what was deemed world’s worst nuclear disaster.

In July of 1987, a trial was held to prosecute the six men thought to be responsible for the disaster. Dyatlov, the deputy chief manager; Briukhanov, the plant director; along with Nikolai Fomin, the chief manager, received the maximum sentence of ten years’ imprisonment. This final verdict was founded on the basis that disasters of such magnitude could never take place in a Soviet nuclear facility without the intervention of an external factor; this factor was decided to be ‘human error’. Thus, they were singlehandedly blamed for the accident, the fatalities, the environmental impact, the evacuation of citizens, the trauma of an entire nation and the consequent damage to the Soviet reputation.

Accordingly, ‘operator error’ included violations that ranged from overall negligence and ill management of the plant to corruption and abuse. The delay that damaged the reactor core was a result of Dyatlov’s inattention to the schedule and abuse of his status as he allegedly reprimanded the staff members for not having started without him. It was revealed that the three main culprits were promised long-awaited promotions in case of rapid completion of the test which was, then, rushed “in a frenzy of last-minute activity to meet their production quotas and win bonuses before the May Day holiday . . .” (Higginbotham 86). As it later transpired, the safety test conducted on the night of the accident was already more than two years overdue. Another major delay was that of realization; the plant managers completely dismissed the possibility of a reactor core explosion and continued enforcing the false narrative of ‘emergency water tank explosion’ despite obvious signs and reports from staff members. The fire fighters

were thereby informed that the accident they were to control was ‘fire on the roof of Unit 4’ without any mention of radiation being involved.

The official death toll reached 31 fatalities of fire department members and plant staff including Akimov and Toptunov as well as two trainees who were directly instructed by Dyatlov to manually manipulate incredibly radioactive control rods. They were all buried in double zinc coffins and covered in cement so as not to contaminate the soil, for they were extremely radioactive and posed a threat to their surroundings. Official Soviet documents also report 3.6 roentgens of estimated radiation emission; 135,000 evacuees, currently revised to 116,000; approximately 600,000 registered liquidators who were granted health care and wage raises; and the equivalent of over $5 billion spent on the construction of the Sarcophagus besides to an estimated eventual bill of around $128 billion (Higginbotham 125, 300, 325; Leatherbarrow 95; Mould 103).

Official statements were broadcasted three days after the accident to clarify the misinformation spread by exaggerated western headlines. The announcement revealed no more than the date and place of the accident as ‘first of its kind’ alongside an estimate of 197 injuries and two deaths, which was still accurate at the time. American media outlets on the other hand, took the accident to a new level with headlines that varied from “Atom cloud horror”, “Gigantic reactor ‘kettle’ that became a killer” and “Russia’s cloud of death” to the more exaggerated “2,000 dead in atom horror” and the ridiculous New York Post claim of “Mass Grave for 15,000 N-Victims” (Herbert).

It is now well established that both Western and Soviet accounts of the Chernobyl nuclear accident were subject to some sort of fallacy: the former being exaggerated anti-soviet propaganda and the latter a desperate attempt of counter-propaganda. Other narratives inevitably started emerging in the form of testimonies, memoirs, and exposés

to reveal hidden details of the accident that were either concealed or fabricated by corrupt Soviet authorities.

1.3 Debunking Chernobyl through Historical Nonfiction: Review of Literature

For years the former narrative was adopted as an authentic official account of what happened at Chernobyl in April of 1986. It was not until the suicide of Valery Legasov, first deputy director of the Kurchatov Institute of Atomic Energy, exactly on the second anniversary of the accident that speculations surrounding its details started to surface. In the recorded tape memoirs he left, Legasov exposed the Soviet scheme and revealed what would turn tables against the government. The testaments did not reach larger audiences than their regional readers because they were in Russian and translation to English was not available until the year 2000 when Richard F. Mould included, for the first time, the full memoirs in his *Chernobyl Record*. Paired with comments from Legasov's widow, Mould states "Together these statements represent a valuable historical account of the events" (287) mainly because of the most vital concealed detail they reveal: the design flaw.

So as to fathom the extent to which this detail is most critical, a basic understanding of the internal workings of an RBMK reactor is necessary. *Chernobyl Record* is one of the many sources that provide an extensive description of the mechanism behind a nuclear reactor and the basics of nuclear energy. Including a second-by-second record of the accident-related data found in the reactor control panel, the book offers precise details from the start of the accident to its end backed with scientific, foolproof evidence.

Briefly put, an RBMK reactor generates electricity through an operation called nuclear fission whereby atoms are driven to split and create a chain reaction provided they are maintained within a controlled environment. This reactivity produces heat and evaporates an amount of water that had been introduced to create a powerful flow of steam which then drives special turbines to rapidly spin and generate electricity. To prevent reactors from becoming nuclear bombs, as they operate through similar procedures, a stable atmosphere should be sustained within the core via control rods. As stated earlier, control rods keep the reactivity at a manageable level and are, for that matter, composed of boron which is known to slow chain reactions once the rods are inserted. Besides to that, the entire reactor is required to be enveloped in giant concrete claddings to prevent any radiation from escaping. Executed correctly, this operation would successfully fulfill the Leninist vision of "Russia is communism and electrification" (Mould 26) without implications to the environment.

It is here where the Legasov memoirs intervene to reveal a design flaw that was most definitely the direct cause behind Chernobyl's nuclear disaster. Apparently, the boron rods were tipped with the much cheaper substance of graphite to cut production expanses despite it being a reactivity-increasing moderator. Having done so, the designers exponentially increased accident risks and the only layer of protection would have been the concrete claddings had they not been removed as well. With that in consideration, the explosion of the reactor core as soon as Akimov pressed the AZ-5 button had been a direct result of inserting graphite-tipped rods into the already critical reactivity within. Because graphite stimulates chain reactions, the core reached an uncontrollable state of reactivity before the boron was allowed to intervene and decrease it, leading to the explosion. Had the rods been entirely made of boron, the reactor would have instantly ceased operation but because of their cheaper tips and the absence of

concrete claddings, the disaster occurred. Moreover, production costs were cut to half through the abovementioned shortcuts in addition to the usage of bitumen, a highly flammable material, on the roofs of each unit instead of safer, but more costly options. This came at the price of a fierce inferno atop Unit 4 on the night of the accident.

Such appalling design flaws were approved and enforced by the Soviet government in which case the plant director and operators were but followers of system commands as they were all unaware of the fatal defects. Andrew Leatherbarrow, in his book *Chernobyl 01:23:40* analyzes:

> It is likely that a flaw in the reactor design or - more probable - poor manufacturing quality was identified as a principal cause of the accident, but the politicians chose to go with the easy option and blame an operating engineer instead. One instance of human error is more palatable than acknowledging that your brand new nuclear reactor, developed and built at enormous expense, and already operating at two other existing plants, has a flaw in its design. (23)

Legasov's memoirs are heavily quoted in books that tackle the Chernobyl accident for their impact and the change they brought about in the Soviet nuclear industry and in the international perspective of this technology. Instead of further stressing the mistakes of plant operators he exposes the real culprits and criticizes the entire system; in a memorable analogy he describes: "Imagine personnel of a plane which is flying very high. Whilst flying they begin testing the plane, opening the doors of the plane, shutting off various systems… The facts show that even such a situation should have been foreseen by the designers" (Leatherbarrow 5). After his suicide the RBMK reactors were revised to prevent similar incidents by enhancing their design and laying new regulations to govern future endeavors in the field.

Months after the memoirs' release, another account was published under the title of *Chernobyl Notebook* by nuclear engineer Grigori Medvedev that included multiple interviews with survivors besides to his own breakdown of the accident based on previous visits to its site (Higginbotham 339-342). Author Adam Higginbotham thoroughly analyzes this groundbreaking exposé in his book *Midnight in Chernobyl* alongside other reports, testimonies and documentaries that soon followed in a wave to reveal popular misconceptions concerning the accident and the communist ideology in general. According to him, this surge of information "finally shattered the illusion that the USSR was a global superpower armed with technology that led the world . . . even the most faithful citizens of the Soviet Union faced the realization that their leaders were corrupt and that the Communist dream was a sham" (321-322).

Shocking revelations about the accident started to emerge and contradict not only official records but other witness testimonies as well. Leatherbarrow expresses his frustration with the enormous amount of contrasting information he encountered while writing his book and concludes that such contrast still manifests today and is more likely to continue (6). He lists in his book the previous nuclear accidents that took place in the Soviet Union to refute their claim that Chernobyl's was the first of its kind. A Soviet strategy, he explains, in the event of an accident is to divert some of the attention away from their failure by enumerating similar catastrophes that took place in the West. While reporting what happened at Chernobyl, media outlets made sure to mention the American Three Mile Island and the British Windscale accidents including numerous others that preceded this 'first Soviet nuclear accident'. The author, then, proceeds to list at least five previously concealed Soviet nuclear accidents including one that took place in 1982 at the Chernobyl NPP itself (31).

In fact, the Soviet government intended to conceal the 1986 accident as well had it not been exposed by a radioactive cloud that travelled to Scandinavia. Two days after the accident, abnormal levels of radioactivity were detected over 1,200 km away from Ukraine in the Swedish NPP of Forsmark. The cloud was tracked back to Chernobyl, and the Soviet government, confronted with outrage, had no other choice but to announce the accident to the world and to its unsuspecting population. Until that point the evacuation orders had not yet been issued so as not to raise suspicion and 'unnecessary panic and rumors'. People were, hence, encouraged to participate in May Day parades as the events overlapped with the international Labor Day, a sacred holiday for Soviets on the first of May. As radioactivity levels skyrocketed, citizens of all ages unsuspectingly celebrated in the streets, when members of the politburo made sure to deport their families to safer areas. This secrecy endangered the lives of Ukrainian people and the citizens of neighboring countries by keeping them in highly contaminated areas for over two days.

One characteristic of radioactivity is that it spreads in unpredictable patterns and has different effects according to the amount of exposure, the duration, the proximity to a radioactive source, the immune system of the exposed person besides to countless other factors that can be found, detailed, in any of the aforementioned books. Due to this instable nature of nuclear energy, the hottest radioactive spots can be detected as far as three hundred kilometers away from the Chernobyl NPP in Belarus which is one of the most negatively affected countries (Higginbotham 323).

Normal background radiation usually amounts to 0.000023 Roentgens-per-hour (R/h) which is an outdated unit of measurement but one that was used by Soviets to determine the extent of contamination through special dosimeters. Lethal doses of radiation differ from one individual to another but mostly a sixty-minute exposure to

500 (R/h) is definitely fatal in all cases (Higginbotham 112). On that premise, the officially documented 3.6 (R/h) should not form an extremely hazardous environment to humans; nonetheless, these readings proved to be missing one detail: The dosimeters used during the accident maxed at the 3.6 mark. Meaning that in case radioactivity surpassed that mark, the operators would find no way to read beyond it and tools with larger capacity were not within reach. Actual levels of radiation within the Chernobyl NPP reactor hall reached a frightening dose of 30,000 (R/h) thousands of times the amount reported by Soviet documents (Leatherbarrow 68)[2]. Thankfully this was not consistent throughout the country otherwise it would render the entire European continent inhabitable for centuries; the exclusion zone, on the other hand, is estimated to remain highly contaminated for around 24,000 years. Some sources equate these radioactivity levels to ten, sometimes twenty or 500, Hiroshima bombs, but Richard F. Mould considers such comparison to be greatly misleading as the two accidents inflicted different forms of damage (57).

Mould classifies the exposure pathways into irradiation by radioactive cloud, by radioactive material, by inhalation or ingestion of contaminated substances, alongside contamination of the skin through Beta radiation (181). Amplified by the fact that radiation is invisible, this indicates the versatile methods through which it can spread, mostly undetected, among people, animals, objects and vegetation. This justifies the procedures of hunting animals, burying forests and isolating the 30km Exclusion Zone surrounding the power plant. Mould also illustrates through a collection of photographs and medical charts the symptoms caused by radiation exposure and the consequent

[2] Other readings are available, some of which are exaggerated and others severely understated. Leatherbarrow's estimation was cited because of his claim of moderation based on extensive research and comparison.

injuries and diseases classified into "early or *acute effects,* and late or *chronic effects*" (10).

Victims of acute radiation syndrome usually die in a cycle of severe symptoms followed by a deceptive period of stability before relapsing back into deteriorated conditions that are eventually concluded by the most gruesome deaths. Radiation exposure ceases vital bodily functions and causes organs and tissues to decompose while the patient is still alive. The process can occur within the first days or weeks of exposure and last as long as 49 days by which time the victim becomes unrecognizable due to burns and blisters that cover the skin (Mould 6). Chronic radiation syndrome, by comparison, is the result of long-term exposure to lower levels of radiation and is still common today within the contaminated regions of Ukraine and Belarus. This form of exposure generally results in several types of cancer, most commonly thyroid, alongside Leukemia and unusual birth defects in second-generation victims due to genetic mutations passed by exposed parents (Mould 249).

Witness testimonies like *Voices from Chernobyl* by Nobel Prize winner Svetlana Alexievich offer graphic descriptions of such conditions by survivors who witnessed the death of relatives and friends. The book includes well over 100 monologues from liquidators, nurses, evacuees, farmers, soldiers and ordinary citizens who lived through the catastrophe. One of the most heavily quoted accounts is that of Lyudmilla Ignatenko, wife of deceased fireman Vasily Ignatenko in which she recounts her journey to Hospital Number Six where her husband was discharged along with fellow firemen to receive treatment for 'severe gas poisoning'. Upon entering the bio-chamber in which he was isolated she describes:

> He was producing stool 25 to 30 times a day. With blood and mucous. His skin started cracking on his arms and legs. He became covered with

> boils . . . . I changed that little [bed] sheet every day, and every day by evening it was covered in blood. I pick him up and there are pieces of his skin on my hand, they stick to my hand . . . . I clipped my nails down till they bled so I wouldn't accidentally cut him . . . . Pieces of his lungs, of his liver, were coming out of his mouth. He was choking on his internal organs. (Alexievich 15, 17, 19)

The struggle, then, is not exclusive to those who are physically affected by the accident but is shared with other people in multiple ways. Evacuated citizens, for instance, deal with the burden of leaving their contaminated homes to live within communities that usually alienate them out of ignorance. There are countless stories about people who were treated like outcasts, sometimes by their own relatives, and were denied job opportunities as a result of an unreasonable fear that stemmed from what came to be known as 'Radiophobia'. The number of those people is reported to surpass 200,000 civilians evacuated from the Exclusion Zone to areas that are sometimes no less contaminated than some places in Pripyat (Ridgwell).

Another greatly harmed category of victims includes those who were recruited, oftentimes unwillingly, as liquidators for post-accident decontamination. Historian Serhii Plokhy chronicles in his book *Chernobyl: The History of a Nuclear Catastrophe* his own experience as a survivor, to expose the inhumane violations of Soviet authorities in recruiting unaware people to complete the failed missions of special robots. According to him, over 600,000 liquidators, mostly younger than twenty years of age, were enlisted from many regions of the Soviet empire, especially non-Russian speaking republics, to perform various tasks of decontamination in highly radioactive environments with little protection and information (191, 192). Close to 340,000 soldiers joined from military forces and were collectively given the dehumanizing label

of ‘biorobots’ as they came to replace the damaged electronic ones without prior knowledge about radiation (Plokhy 193, 194). The historian reports that 60,000 of the aforementioned liquidators died of health complications in the months and years following the accident while 165,000 were permanently disabled (212). Other sources recognize 25,000 fatalities and 200,000 disability cases[3]; by comparing either estimate to the official number of 31 casualties, the blatant manipulation of Soviet authorities becomes evident. The author further includes a scholar estimation of a predicted rise in death tolls to 93,000 given the fact that nuclear accidents of such scale most definitely result in long-lasting environmental degradation.

The Exclusion Zone is now akin to a natural reservoir for wildlife due to the absence of humans. It is also home to some of the most unusual flora and fauna mutations especially in those of the Red Forest. Higginbotham reports that “in the cooling reservoir of the plant, silver carp grew to monstrous sizes; the leaves of the trees around the Red Forest had swelled to supernatural proportions, including giant conifers with pine needles ten times their usual size and acacias with “blades as large as a child’s palm”’ (324). In another passage he describes “piglets with froglike eyes and malformed skulls, and calves born without legs, eyes, or heads” (Higginbotham 324). The effects of radiation are to this day evident in wildlife and humans alike and are most likely to last for generations as physical evidence of a former nuclear dystopia.

Former Soviet leader Mikhail Gorbachev blames Chernobyl’s nuclear disaster for the subsequent fall of the USSR five years after the accident. In doing so, he completely discredits the role of his Perestroika and Glasnost reforms despite their great contribution to the downfall. The ‘economic restructuring’ failed to produce any form

[3] Leatherbarrow lists these numbers but expresses his skepticism towards them as there are few reliable official sources for most statistics surrounding the Chernobyl accident.

of financial prosperity that could alleviate some of the economic distress while his vision of 'political transparency' only amplified the amount of backlash towards the accident by garnering more audiences the freedom to criticize Soviet systems. While many attribute the Chernobyl catastrophe directly to the failure of Communism and corrupt Soviet authorities, Gorbachev seems to stress the opposite in a demonstration of how diverse perspectives about historical events can coexist.

Serhii Plokhy acknowledges such diversity and reasons: "The key to understanding the causes, consequences, and lessons of the disaster is historical contextualization and interpretation . . ." (14). He, therefore, encourages thorough analysis of history narratives not only in retrospect but with constant regard for current manifestations of similar aspects as he clearly indicates: "The causes of the Chernobyl meltdown are very much in evidence today" (Plokhy 16). Thus, his emphasis lies on drawing conclusions and lessons from past events to apply on present contexts and pose such questions as: "Could the nuclear Armageddon called Chernobyl repeat itself?" (Plokhy 16). This invitation to challenge history narratives includes the historian's own account of the accident as well as other representation in the form of historical novels, science fiction, cinematic adaptations, visual arts and so forth.

1.4 The Role of Postmodern Fiction in Unveiling the Truth behind Chernobyl

The nuclear meltdown of Chernobyl had been a complex event that is still highly debatable and can be seen from multiple perspectives which qualifies it most for analysis through postmodern theories. The essence of Postmodernism is also a controversial topic for its vast scope and unstable nature; suffice to say that it can be defined by its unlikelihood to be precisely defined. Jean-François Lyotard, describes Postmodernism as "incredulity towards metanarratives" (xxiv). By which he emphasizes

the disillusionment and disenchantment towards whatever claims total understanding of the world or provides a totalizing, uniform template through which the world is to be ordered and understood. Such grand or master narratives include transcendent absolute truths claimed by religion, the regulations of law and science, unchallenged history narratives, overarching political and economic ideologies, cultural and social norms, certainties brought about by the enlightenment and so on.

Postmodern literature challenges such authoritarian views and promotes a pluralistic perception of the world that embraces the inherent multiplicity of perspectives and implies "a fundamentally skeptical attitude towards human knowledge" (Carter 120). Lyotard, hence, favors the alternative of small narratives that are exclusive to their context, rather than universal and all-encompassing truths, or what he calls "the little narrative [petit recit]" (60). Postmodern literature focuses on portraying this diversity of perspective to counter metanarratives that started to lose their appeal especially by the end of the twentieth century. The events of World War II played a major role in the consequent skepticism of people who became increasingly disenchanted by the concept of salvation through scientific development, law, and ideology judging by the ensuing destruction and moral decay. Similarly, the nuclear catastrophe of Chernobyl, its initial concealment and the consequent damage had been a powerful blow to the communist supremacy metanarrative and to the superiority claim of Soviet nuclear technology.

And with the surge of new information following the dissolution of USSR, other accounts in the form of fiction novels also started to emerge such as David Thorpe's *Doc Chaos: The Chernobyl Effect* (1988), Martin Cruz Smith's *Wolves Eat Dogs* (2004), Adam Roberts' *Yellow Blue Tibia* (2009), Hamid Ismailov's *The Dead Lake* (2014) and Darragh McKeon's *All That Is Solid Melts into Air* (2014). All of which

portray versatile aspects of the same event through the different literary genres of science fiction, crime fiction, magical realism and historical fiction.

Stuart Lindsay, in his research paper entitled *Reading Chernobyl: Psychoanalysis, Deconstruction, Literature*, provides an analysis of most of the aforementioned novels through trauma theories. The emphasis of his research mainly concerns the various approaches whereby postmodern content creators attempted to transmit the trauma of Chernobyl via multiple mediums including non-fiction, novels of different genres, cinematic adaptations and videogames. He acknowledges three traumas of Chernobyl and analyses each through Freud's psychoanalysis on the direct witnesses of the accident; Derrida's deconstruction and his concepts of archive fever, impossible mourning, and ethical mourning on the evacuees and victims who did not directly encounter the explosion; and lastly through Abraham and Torok's intergenerational phantom theory on the second generation victims. Throughout the paper, Lindsay provides summaries of four out of the five previously listed novels which will be the basis for the following analysis.

In the novella *Doc Chaos: The Chernobyl Effect*, Which was published two years after the Chernobyl meltdown and with limited information about its background, David Thorpe attributes the catastrophe to the ignorance and greedy nature of humans *in general* rather than Soviets specifically. To him, such occurrence, whether caused by operator error or scientific incompetence, originates from the unawareness or denial of limits that should not be crossed especially regarding a domain that is as unforgiving as nuclear physics. This is mirrored in his protagonist Doc Chaos who performs unethical procedures on human subjects in the form of brain transplants that render them severely disabled or dead (Lindsay 187). The results are opposite in effect to the experiments of Frankenstein in the sense that these creatures preserve their human appearance but lose

all cognitive capacities that distinguish them from other objects. This is similar in essence to the priorities of Soviet scientific communities towards nuclear energy to the detriment of environmental wellbeing and public safety. Once confronted with his crimes, the scientist excuses the inhumane operations for their end goal of scientific advancement and promises vengeance (Lindsay 188). His revenge represents the nuclear meltdown of Chernobyl in which he somehow embodies radiation and describes his unlimited ability to inflict destruction; in his description he exposes the previous known nuclear accidents and the impact of unethical scientific practices on nature without blaming Soviets exclusively (Lindsay 189-190). Because of the lack of information concerning the accident at the time of its release, the novel takes a global standpoint in its approach to Chernobyl and science communities in general.

Martin Cruz Smith's *Wolves Eat Dogs* tackles the accident from the perspective of a Russian detective who becomes involved in a crime that leads him to Chernobyl. During his visit to the Exclusion Zone he encounters a group of illegal resettlers, corrupt officials, and operators from whom he learns about the secrets of Chernobyl as he works on his case (Petit). The author describes, through his characters, the destruction, radiation and diseases that infect the Zone as well as the corruption of its authorities. In a comparison between Soviet and modern Russia he comes to the conclusion that his country fell from the grip of Soviet tyranny to that of mafia and corrupt capitalists and that those who continue to pay the price are the likes of Chernobylites and Gomel residents.

Adam Roberts' *Yellow Blue Tibia* is another work of science fiction that creatively addresses Chernobyl through its unconventional plot. In his alternate version, the meltdown was not so much an accident as it was a carefully plotted plan by Stalin. The protagonist of *Yellow Blue Tibia*, a science fiction writer himself, is summoned

alongside a group of his contemporaries by their Union leader to create a plausible story of an imminent alien nuclear attack to unite the Soviet people, once again, since the Western capitalist threat is not as intense as that of the former Nazi Germany (Nussbaum). They select a remote region in Ukraine as a setting for the alleged nuclear attack because of its isolation which would guarantee the secrecy of their scheme; but before the completion of the story, they are dismissed and instructed to forget about it (Lindsay 155, 158). Around forty years later, the Chernobyl accident takes place and the writers are convinced that their story was coming to life and that alien invasion is on the horizon. The protagonist tries his best to dissuade them out of conviction that the meltdown was the result of pure human error and fails. After his decline "from [an] idealistic young SF writer to Gulag prisoner and then washed-up alcoholic," (Froggatt) he finds no other option but to succumb to the now-official alien threat narrative of Chernobyl. This alternate version of the accident parodies the fallacy of Soviet narratives by exaggerating the extent to which they are willing to fabricate events to legitimize their nuclear arms race. The inclusion of aliens in a science fiction story within a science fiction novel is, apparently, one way to narrate the story of Chernobyl through parody.

Another creative way of approaching the topic with much potential is through magical realism. Hamid Ismailov's *The Dead Lake* can be considered as a work of such genre because of its mystical plot and incorporation of traditional Kazakh myths that are regarded as ordinary matters in the novella. The events take place in a remote Kazakh village whose residents were affected by the radioactive fallout and are in constant fear of war and the prospects of nuclear apocalypse. The protagonist of *The Dead Lake* is an intelligent twelve-year old boy who shows unprecedented musical talent and takes violin lessons from a nearby villager to achieve his dreams. Before he is able to develop

his talent and grow as an artist, he partakes in an absurd venture that deprives him from the property of physical growth (Lindsay 207). During a school trip to the Dead Lake, a radioactive body of water that resulted from the Chernobyl nuclear explosion, he takes a swim in the emerald-green water against instructions to impress his peers. The aftermath of this trip is an immediate halt in his physical development and the death of his stepsister and uncle because of radiation and myths related to the lake. He recounts his story at the age of 27 to the narrator who mistakes him for a preadolescent child. While transmitting the events through his novella, the narrator provides vivid descriptions of the Kazakh landscapes and the radioactive zone besides to the negative impact of nuclear experiments on the remote peripheral region without benefits to its residents.

The abovementioned were some examples of literary works that tackled Chernobyl with striking diversity and emphasis on various social, political, historical, and cultural facets. All of these accounts directly reject the acknowledged Soviet official records and their supremacy metanarratives by exposing the concealed details of the nuclear meltdown or by means of parody and exaggeration of their secrecy. Darragh McKeon's *All That Is Solid Melts into Air* also adopts Chernobyl as its backdrop and addresses the impact of radiation and corruption on Ukraine and Russia at the time of their subordination to the USSR. The novel has been chosen for analysis in this thesis and will be further examined in the second and third chapters through the lens of postmodern theory.

Conclusion:

The nuclear disaster of Chernobyl had been a multilayered event that underwent multiple fabrications and contradictions rendering it mysteriously unfathomable even today. Following The Cold War, the USSR had become a politically powerful yet

economically drained superpower which further necessitated its involvement in the lucrative nuclear industry. The Western competition in terms of arms race also played a major role in the Soviet legitimization of nuclear fission which became a pivotal source of energy and pride to the Union. This 'Soviet Peaceful Atom' propaganda made it nearly impossible to imagine that a nuclear disaster of immense magnitude could ever take place especially in the Soviet Union.

In an attempt to conceal the true impact of the accident and the causes behind its occurrence, Soviet authorities made it their priority to create false narratives that portray Chernobyl's meltdown as the result of human error rather than scientific incompetence or bureaucratic corruption. This misleading response endangered the lives of not only Ukrainian citizens but those of neighboring countries as well besides to the consequent environmental damage, the health impact, the increasing number of evacuees and casualties, and the level of contamination–all of which had also been concealed or modified. This fallacy was eventually bound to be exposed with the emergence of multiple accounts, such as Legasov's memoirs, that directly opposed Soviet records and revealed previously hidden details of the accident.

Postmodern literature reflected all of the above in its portrayal of Chernobyl through different genres and standpoints. These various representations emphasized the plurality of perspectives and angles through which an event can be perceived rather than the blind recognition of a singular metanarrative. Among the well known literary works that addressed the event is Darragh McKeon's *All That Is Solid Melts into Air* which recounts the stories of multiple Soviet individuals who were either directly or indirectly affected by Chernobyl. This novel had been selected for analysis through postmodern theory in the following chapters.

Chapter Two:

The Historical Contextualization of Chernobyl in *All That Is Solid Melts into Air*

Introduction

It is a central postmodern principle that literature cannot be separated from the world nor can it offer authentic realist representations of its happenings in an objective manner. One of the roles of postmodern fiction, hence, is to embed historical elements within its fictitious events without claiming authority. This chapter investigates certain traces of historical context surrounding the Chernobyl nuclear disaster and the Soviet status leading to its occurrence in *All That Is Solid Melts into Air*.

As demonstrated in the previous chapter, the accident of Chernobyl resulted in grave social, political, and environmental consequences besides to the ones already inflicted by the corrupt regime for decades in the Soviet Union. By extension, these traces are present in Chernobyl's literary representations including Darragh McKeon's *All That Is Solid Melts into Air* which will be analyzed following a descriptive method through which the social, environmental, and political allusions in the novel will be extracted with reference to those listed in the first chapter. This is intended in order to highlight McKeon's incorporation of historical elements in his fictitious work of literature which will be further examined in the final chapter through postmodern theories.

2.1 Overview of *All That Is Solid Melts into Air*

Darragh McKeon is an Irish author whose debut novel *All That Is Solid Melts into Air* was published, almost thirty years after the Chernobyl accident, in 2014. The title of the novel is taken from a passage in Carl Marx's *The Communist Manifesto* that was included in the epigraph as follows: "All that is solid melts into air, all that is holy is profaned, and man is at last compelled to face with sober senses his real conditions of life, and his relations with his kind" (qtd. in McKeon 4). This was trailed by a comment from H. G. Wells in which he

describes radiation as ‘disease of matter’ that causes whatever it spreads upon to decay, reflecting the decline of old culture in society.

The novel depicts the lives of a group of ordinary Soviet citizens who are affected by the accident on some level: socially, politically or physically. Narrated in a fragmented manner, each of the 28 chapters represents the perspective of one of the characters but not exclusively; instances when the narration abruptly shifts from the consciousness of one character to another, seemingly unrelated one, are plenty. For this the novel was described as having “the sort of mild schizophrenia of a debut book” (Lloyd). This fragmentation, nonetheless, allows the author to include further details in the form of flashbacks or establish a link between characters by including one in the point of view of another.

The paths of those characters eventually overlap because of the accident and the author appears to have dedicated some of them for its various consequences. For instance, it is through the experience of Grigory, a Soviet surgeon, that the health and environmental effects of the disaster are illustrated in the novel. His ex wife Maria, on the other hand, represents the political conditions of the Soviet Union at the time leading to Chernobyl’s accident; whereas Artyom and his family experience the social implications and consequences that were the result of such event. This does not exclude others from being affected by the aftermaths on different levels: Grigory and Maria face social complications as well; Artyom and his father are physically affected by radiation and so forth.

The main character, Grigory, is a skillful Russian cardiothoracic surgeon who is summoned to Ukraine on the exact date of the accident to offer his expertise along with his fellow surgeon Vasily. He spends months in the contaminated region to operate on children and secretly keep records of all the abnormal cases that go under his knife intending to

publicly reveal those implications. His health and career continue to deteriorate after his return to Moscow until he commits suicide.

Maria, an average factory worker, faces multiple hardships related to the Soviet system and becomes involved in politics because of her previous job as undercover journalist. She is threatened by her superiors into an extramarital affair to save her carrier besides to that of her husband. Her relationship with Grigory is severely affected when she resorts to the abortion of her illegitimate child whom he mistakes for his own and they separate. She moves to live with her sister Alina, a laundry worker, and nephew Yevgeni, a nine-year old piano prodigy, in difficult living conditions toiling in two different jobs to survive. She protests against the Communist regime in pursuit of rights and fair chances for workers and youths to ensure a better life for her nephew who becomes, decades later, a successful international pianist.

Artyom is a teenage peasant who lives ten kilometers away from the Chernobyl NPP in the Gomel region. His father volunteers to help liquidators in the decontamination of the nearby Red Forest shortly before they are instructed to evacuate the village. Artyom and his family are sent to a resettlement camp while his father receives treatment in the hospital wherein he remains for a fortnight before his death. Because the rest of the family was not as severely exposed, the mother, Tanya, and sister, Sofya, survive with minimum damage whereas Artyom has his thyroid removed in a surgery performed by Grigory. The family and the rest of characters, face a complex web of interrelated political, social and health implications following the nuclear meltdown at Chernobyl.

2.2 The Environmental and Health Impact of Chernobyl in *All That Is Solid Melts into Air*

The novel is set in the Soviet Union immediately after the accident at Chernobyl but the event is not directly mentioned until the fourth chapter. Before that, only physical indications of its occurrence provide ambiguous clues for a catastrophe taking place. Solely by following those indicators and making the necessary links are the readers able to place the accident into perspective which puts them in the same position as the unaware characters at the beginning of the story.

The first sign of the accident in the novel appears ten kilometers from the power plant in a small village near the Gomel region. During his first hunting trip with the farmers of the village, Artyom discovers an anomaly within his neighbor's bullock herd that stirs speculations among the men: all the animals seem to be healthy with the exception of the streams of blood gushing out of their ears without causing them apparent discomfort. The farmers decide not to read much into the phenomenon and continue their trip when another incident raises their suspicion. Upon reaching the lake where they were to hunt grouse, they position themselves and shoot in unison but immediately witness an imbalance in the flock's reaction. Instead of swiftly escaping the scene, the birds collectively collapse on the grass and remain grounded which makes them an easier pray to collect. However, the men announce them risky for human consumption based on the behavior they witnessed. Such anomalies are the product of radiation exposure; and because animals are often unsheltered, they tend to show signs of radiation poisoning earlier than humans.

After the accident is confirmed, the male villagers believe it their duty to volunteer and participate in the decontamination of the neighboring forest. They are appointed the

tedious task of uprooting trees and burying them, chopped into smaller pieces and wrapped in cellophane. None of the liquidators realize the extent to which they are draining their health beyond the obvious fatigue and muscle ache caused by physical labor. They do not understand why their chainsaws continue to malfunction or what causes the countless small punctures on the red leaves of the normally green forest. Their tents are lined with highly radioactive straw from the power plant and they rely on equally radioactive animals for food. As a result of continuous exposure to high levels of radiation, the liquidators start to collapse one by one and are, hence, told that vodka serves as excellent remedy for their illness. In fact it was a popular Soviet myth at the time that the alcoholic beverage protects against radioactivity.

Artyom's father, Andrei, is then sent to the infamous Hospital Number Six to receive treatment under the care of his wife after all nurses show reluctance to supervise his case. He spends fourteen days in agony before dying of acute radiation syndrome, the same condition that harvests the souls of his fellow farmers. His son also suffers the effects of radiation but his youth and minimal exposure allow him to survive after a thyroid surgery. The Ukrainian Government's Scientific Centre for Radiation Medicine recorded an estimated 20% to 30% increase of mortality among children living in the contaminated regions of Chernobyl due to thyroid cancer, leukemia and other rare diseases (Leatherbarrow 131). Most of them receive stable doses of radiation from which their thyroids store the radioactive Iodine needed for their functioning; therefore, they undergo surgery or receive chemotherapy in the case of cancer. Liquidators, in contrast, are more likely to receive lethal doses in shorter periods of time leading to acute radiation syndrome.

The doctor responsible for most operations on children in the novel is Grigory whose skill and reputation grant him the position of main surgeon in the resettlement camp. Artyom

and the evacuated villagers cross paths with Grigory in the camp that was hastily constructed to shelter all of them. The great number of evacuees provides the surgeon with a plethora of unprecedented medical conditions and abnormalities that are extremely rare elsewhere which reshapes his perspective about the outcomes of nuclear disasters. This new perception encourages him to document the various cases he encounters with little regard to the risk such measure may pose. He dedicates his time and energy to this cause despite the health hazards of being surrounded by radioactive people in a contaminated region.

Grigory observes the various conditions he has never previously encountered and often times resorts to improvisation when medical references are unavailable. The cases differ according to age and exposure but the most affected are children who lived in the contaminated areas or were born to parents who did. The healthiest ones, he records, are seen with identical scars on their necks as a result of thyroid surgery; once they recover, they are often able to resume their previous activity as per usual. The children who were more exposed, on the other hand, become weaker overtime resembling "marionettes whose strings have been cut" (McKeon 127) as they easily tire and lose balance. Those are often seen in the playground, with bloody noses and pale faces, trying to match the vivacity of their playmates.

The surgeon also encounters more serious cases of kids whose illness reached their internal organs rendering them in dire need for intensive care. The few hospital beds available often do not accommodate for all of them hence most receive treatment in their sheds where the necessary equipment are inaccessible. The most unfortunate are infants who are born with birth defects, Grigory witnesses:

> In the past few months, infants have emerged from the womb with fused limbs, or weighed down with oversize tumors. There are children whose bodies have

> no sense of proportion, football-size growths on the back of their skull or legs as thick as small tree trunks, or one hand miniscule and the other swollen to grotesque dimensions. Others have hollowed-out eye sockets . . . For many, there are tiny holes where the ears should sit. (McKeon 127)

Similar cases are still being recorded in Ukraine and Belarus because of the residual contamination in the affected areas. The author includes personal interviews with children who suffer from birth defects and other diseases related to radiation in the final section of the book. These demonstrations are completely incompatible with official Soviet records of the injuries caused by the Chernobyl nuclear disaster. The latter were continuously modified to conceal the true damage of the accident which remains, to this day, unknown.

In contrast with the abovementioned medical cases, Grigory also receives patients who need treatment due to exaggerated protective measures. One of the functions of the thyroid is to store Iodine which is necessary for its activity. In order to stop it from absorbing the radioactive Iodine that emitted from the reactor after the accident, citizens were instructed to take Iodine pills to replace the radioactive one. However those medicines were not abundantly available and were, therefore, monopolized by the party elites. Many of Grigory's patients were members of the politburo who needed to have their stomachs pumped because of Iodine overdose. Ironically they belonged to the same party that denied the accident and postponed the evacuation of civilians. In this context, the act of taking pills per se is counterintuitive at best and its exaggeration to the point of overdose exposes the blatant hypocrisy of party members.

After several months of constant contact with patients and proximity to contamination, Grigory's health starts to decline which grants him permission to return to Moscow. Before

departure, he receives a final gift from his patients who express their gratitude and faith in his skill. Usually, the efforts of doctors tend to be shadowed by those of other liquidators who are more involved in the accident scene than behind the scenes. Grigory, on the other hand, volunteered with liquidators as well. He and Vasily participated in the initial cleanup where they disposed of sand and boron from a helicopter directly into the reactor core to extinguish the fire which exposed them to a deadly dose of radiation. After returning to Moscow, Grigory's health conditions continue to deteriorate until he finally commits suicide. This decision, his ex wife understands, stems from his certainty of what is to be expected in his case based on the illnesses he already witnessed in the resettlement camp.

Indeed, the patients of radiation poisoning suffer from unimaginable symptoms during their slow death. The widow of one of the Chernobyl liquidators recounts in *Voices from Chernobyl* the gradual decomposition of her husband from a healthy handsome man "into a monster" as a result of the grotesque changes to his body from exposure. Because of his apparent agony, the doctors constantly encouraged her to euthanize him; one of them memorably exclaims: "Oh, dear woman, then let this end quickly! Quickly! I've seen how the ones from Chernobyl die" (Alexievich 229).

What remain from the experience of Grigory are the documents. His records of all the medical conditions and abnormalities are carefully stored in two large boxes of folders in Maria's apartment. The information is then passed to her nephew who learns about the history of Chernobyl's accident for the first time, in detail, through the written words of Grigory over a decade later. Yevgeni confirms some of the myths that had been circulated throughout his childhood and realizes the extent to which he, and everyone else, had been denied full access to the truth.

2.3 The Soviet Social Conditions in *All That Is Solid Melts into Air*

Darragh McKeon captures the essence of the Soviet social status during the final decades of the Union in a manner that emphasizes its continuous decline long before the accident at Chernobyl. De-Stalinization came as a break from one of the darkest periods in Soviet history to rejuvenate the broken society and improve living conditions but to no avail. The entire nation continued to endure economic stagnation and political repression for the benefit of a corrupt minority who propagated among them the illusion of comradeship and patriotism to enforce Communism. Soviet citizens wholeheartedly believed in the superiority of their nation despite their regressive conditions and, therefore, supported the system in all decisions including nuclear warfare. Civilians in *All That Is Solid Melts into Air* scoff at the Western attempts to sabotage the Chernobyl NPP: "The capitalists were intimidated by the progress of Soviet energy, they were becoming desperate in their scheming" (Mckeon 174). Villagers, in a similar vein, refuse to abandon their contaminated crops because such catastrophe befalling the glorious motherland is unfathomable on every level to them.

McKeon describes in the novel a society ruled by an overwhelming sense of collectivism, one that is Soviet in nature, be it in Ukraine or in Russia. It seems as though the vast expanse of land between the two countries shrank in the presence of ideology when Grigory travels to the accident site and a sense of eerie familiarity arises. The usual opulent ambiance of the Pripyat atomgrad is replaced by chaos first then by ominous solitude after the evacuation of its inhabitants while the rest of Ukrainians, much like other citizens in the union, resume their collective toil in blissful ignorance. Workers were believed to be the foundation of Communism and its most celebrated class because of their contribution to 'the collective effort' when their living conditions, anywhere in the union, suggested otherwise.

Grigory leaves underpaid exhausted individuals in Moscow to find equally drained citizens in Kiev as though in a parallel universe; similarly, most of the characters in the novel belong to the working class and are unable to successfully climb higher in the social ladder.

After her separation with Grigory, Maria loses her identity in the daily grind of monotonous labor in a car factory that houses thousands of workers like her, all indistinguishable in their uniforms, in seemingly infinite assembly lines. She teaches English as a side job and adds the wages to those of her sister's two jobs which barely amount to support them and Yevgeni, her nephew. Her days consist of operating a lathe in the usual workstation for hours on end in extremely hazardous conditions then standing in yet another queue for food. When the chief officer in the factory orders her to quit the teaching job because her employment elsewhere would undermine the significance of her work in the factory, she has no other choice but to comply because of her position at the bottom of their small workplace hierarchy. McKeon describes: "She dresses anonymously, she nods her head in agreement with almost any statement floated in her direction. She has made it a point to avoid eye contact . . . a kind of self-containment . . ." (98). This seems to be the norm in most Soviet institutions instead of the celebrated image of workers as ruling class.

The scope of communist philosophy appears to reach beyond ideology in professional settings to include all aspects of life in the Soviet society. In the city, people seem to move and think in unison, reside in identical grim buildings, labor in industrial mega structures and respect the system at all times. Maria and Alina, her sister, share the same public bathroom with many families for which they have to stand in line, dedicating more of their time to queues. In the countryside, villagers share land and work in collective farms called Kolkhoz for small wages. People shed every aspect of individuality to contribute as much as possible

to the collective effort which results in an obedient society that lacks autonomy and ambition and is, therefore, easily brainwashed.

McKeon illustrates the impact of a nuclear disaster on such society through the perspective of villagers who live in the exclusion zone and were most affected by it. During the evacuation of the village, farmers distribute and consume contaminated milk because they are told it would protect them against radiation. Men volunteer to stay behind and help with decontamination out of conviction that it is their duty to bury their radioactive lands when they are denied proper protection and basic information. The evacuation is executed in utter chaos: families are separated from each other and their concerns are discarded by soldiers; pets are shot in front of their owners; people panic in crowds and wreak havoc; pregnant girls and drunken people remain unaware of the accident for several hours. In *All That Is Solid Melts into Air* the evacuation process is definitely not as organized as reported.

Artyom and his family successfully deviate from the crowd once they reach Minsk so as to visit his aunt, Tanya's sister. Upon arrival at the station, they notice the cold treatment they receive from the citizens and manage to link it to the accident. One of the bystanders calls them 'glowworms': a derogatory term to refer to their radiation exposure. This radiophobia affects their aunt also as she refuses to receive them and instead argues: "You're poison, don't you know this? You can't stay around other people" (McKeon 93). Once threatened by the neighbors, they make their way back to the shelter with the conviction that their lives are permanently changed.

In the resettlement camp, Artyom, Sofya and Tanya are assigned, as their 'quarters', a square of floor barely enough for the three of them to sit. The space is extremely crowded and noisy as opposed to the quiet village life to which they are accustomed so it becomes harder

for them to acclimate to their new surroundings. Shower time is especially humiliating to women because they are done in public for the lack of bathrooms in the camp. Both Sofya and her mother are traumatized by the continuous harassment they receive from soldiers during the baths. Accidents are more frequent during the chaotic event and many infants are severely injured by the primitive equipment used to heat water. Nonetheless, the evacuees have no other option but to endure the mistreatment since they are not allowed to leave due to the threat they pose on others for the amount of radiation their bodies have absorbed. Artyom and his family, thus, are estranged from their land as a result of the accident; they are alienated by ordinary people because of their radioactivity and are ill-treated in the camp that was designed especially for their accommodation.

They remain confined for a month before Artyom bribes one of the camp guards into allowing him to leave in search for his missing father. Once Andrei is located in Hospital Number Six, his family has to bribe the hospital guards as well, this time for entrance. They spend almost two weeks during which Tanya tends for her decaying husband, against the rules but out of necessity, and when he finally dies they return to their shelter for the last time. Living conditions in the settlement improve when families are finally housed but the huts begin to degrade as time passes and the evacuees face physical and mental health implications that are compounded by the poor housing and harsh winters of the Soviet land. It remains undetermined, in the novel, whether or not Artyom and the rest are released from the camp much like the uncertainty that accompanied all procedures since the accident, beginning with containment and control to evacuation and decontamination.

The evacuated people of Chernobyl had to face the initial trauma of the accident itself, then that of forced displacement afterwards. As the Exclusion Zone remains inaccessible to

most people today, its original inhabitants are indefinitely separated from their lands unlike what they had been informed. The evacuation, hence, shifts from being a temporary protective measure for the unaware dwellers to becoming an inevitable fate with long-lasting effects. Despite that, around 400 elderly people had since illegally resettled in the contaminated area near the Exclusion Zone, wishing to spend their final years at home regardless of health hazards (Pleasance). Considering the hostility with which evacuees are treated elsewhere, this becomes less unreasonable.

The alienation of evacuated citizens stems not only from becoming newcomers to different lands among unfamiliar people but from their new identities as perceived by their host societies. They are discriminated against for being tainted with radiation and are, therefore, called 'glowworms' and 'fireflies' (Mould 373). Neither kids in schools and playgrounds nor adults in workplaces or in public receive compassion. In *Voices from Chernobyl* some evacuees describe the poor treatment their children receive at school or elsewhere when they reveal their Chernobyl origins. One parent explains: "The other kids were afraid of him [her son], they called him "shiny"' (Alexievich 153). Another reveals the description of her daughter by other children: "She's a Chernobyl rabbit. She glows in the dark"' (Alexievich 194).

Adult individuals are also affected in casual as well as in professional settings. Some lose connection with friends and family members, some are denied job opportunity; others lose their right to form families either by not being able to marry because of radiophobia or by the impossibility of baring children as an aftermath of radiation. For that, the results vary from depression and other mental conditions to suicides and health complications due either to those social issues or to radiation syndrome itself (Mould 87-88). Grigory's suicide in *All*

That Is Solid Melts into Air mirrors such complex relation between social and health implications because he, too, suffers both in addition to political ones as well.

2.4 The Soviet Political Implications in *All That Is Solid Melts into Air*

The Soviet Union during the Cold War and earlier events had been governed by a corrupt regime that, even with its restoration reforms, infected the empire with social, economic and political repression leading to its gradual decline and eventual dissolution in 1991. It can be argued that the nuclear catastrophe of Chernobyl and its consequent impact on the environment and society as well as on national and international politics had been an inevitable product of such failed system. In *All That Is Solid Melts into Air* author McKeon, in reference to the accident, reasons: "Of course politics comes into it. Politics comes into everything" (McKeon 122). Through the overlapping fates of his fictional characters, he expresses the complex relationship between politics and environmental and societal matters within the Soviet context before and after the nuclear disaster of Chernobyl.

Political allusions are heavily present in the novel within contexts that could be as ordinary as daily life situations or as grave as a nuclear meltdown. In the workplace or at school and other institutions, it is mandatory to occupy no more than the space given in accordance to one's position in the hierarchy; any deviation from the order, no matter how small, is a punishable violation. Therefore, full compliance is required "to ensure the satisfaction of one's superior or one's superior's superior and so on and so on along the line of carefully manicured delusion" (McKeon 48). In the hospital where Grigory works, the safety of medical procedures is neglected in favor of prestige and a pristine image for the institution through its equipment with elegant but inefficient machinery. When he insists on establishing certain safety protocols, in compensation for the technological deficiency, his attempts are

immediately considered “an implicit criticism of his predecessors” (McKeon 54). Maria’s work environment and Yevgeni’s school experience are also similar and never seem to improve.

Aside from the unreasonable request for Maria’s resignation from her teaching job, she faces several difficulties in her carrier that are often directly related to politics. Before her occupation at the car factory, Maria wrote articles for newspaper as well as other secret samizdat publications in which she criticized the system. One of her headlines in the newspaper implicitly included dangerous political speculations about the death of a priest who was known for funding Solidarity groups in Warsaw and for his popular sermons that exposed the regime injustices against workers. Her suggestion that the case was a matter of murder rather than natural death jeopardized her carrier, and this was compounded by the discovery of her secret samizdat publications.

In order to save Grigory and herself, she was threatened into an extramarital affair with her employer who fired her afterwards, ending her career and marriage. The murder of the priest was confirmed, shortly after, and three secret police agents were arrested and imprisoned which eventually calmed the situation. Soviet authorities, in defense of their reputation, appear to be keen on placing all the blame upon operators instead of those who command them.

After the accident of Chernobyl, rumors start to circulate and the response from Soviet authorities comes in the form of televised propaganda to undermine its effects. Tanya recalls to Grigory:

> Sometimes on TV they show things from the area. One night they showed people swimming in the Pripyat River, people tanning themselves by the

> banks. The reactor in the background, smoke still coming from it. They get an old lady to milk a cow, she pours the milk into the bucket, and a man comes over with a dosimeter and measures the radiation level, and it's normal . . . . In the shelter, after we were evacuated, some of the other women would get letters from their husbands at the plant. Same thing. Life is returning to normal. (McKeon 222).

Those who witness the accident or its containment measures are prohibited from leaking details; therefore, all means of communication are strictly monitored which explains the positive attitude of the husbands in their letters. Vasily and Grigory are always under surveillance so as to ensure complete secrecy. Grigory seems to be less controlled because of his lack of contact as a celibate preserved man while his married friend deals with more restrictions. His phone calls are always short in duration and devoid of political comments or accident details. However, Vasily is not the only member in his family whose privacy is compromised as soon as he becomes involved in the cleanup. His wife, Margarita, complains about constantly being watched by members of the KGB, secret soviet police, whose car is frequently parked by her apartment building. Despite the unconditional service her husband provides in Ukraine, her family receives no compensation after Vasily's usual salary from the hospital is suspended due to his absence; she cries to Maria, "why, if Vasily is doing their work, are they watching, listening, denying his family a decent meal? I mean, is this what it means to be a good citizen?" (McKeon 192).

The KGB, Komitet Gosudarstvennoy Bezopasnosti or 'Committee for State Security,' had been an effective method to control and terrorize the masses which was also implemented to manage the Chernobyl catastrophe. They often worked undercover and kept tabs on people

around them including friends and relatives, out of greed or obligation. In *All That Is Solid Melts into Air* Maria and Alina were feared, as kids, because of their father who worked with the KGB. The two sisters would often disagree about his morality: Maria accusing him of being corrupt and Alina, on the defense, believing he was forced into it considering his sudden disappearance. They had to stand in a ten-day queue for information concerning his whereabouts amidst hundreds of other people with missing friends and family members. Most were told to come back later, every time, until they declared it a hopeless cause and made peace with their loss. Maria's father was one such case.

Instants where people simply seized to exist were very common in the Soviet Union for as long as it stood. The KGB members who were planted throughout the empire to keep records made sure to document any potential anti-communist individual or political activist who could have the slightest affiliation to opposing ideologies. The targeted people included ordinary citizens and artists and intellectuals who, if accused of the smallest act of treason, were sent to forced labor camps called 'Gulags' for extended periods of time. The captives often could not survive because of the continuous labor, hunger and unsanitary living conditions and would most likely die in the camps before the end of their sentences.

In *All That Is Solid Melts into Air* a relative peace in the secluded village where Artyom lives sets it apart from the rest because of its isolation; the author describes: "In other places they still sent people to the gulags for arriving to work two minutes late, for taking home a pencil in their breast pocket, for not having a particular stamp on a particular document on a particular day" (McKeon 73). These mentioned violations affected the collective effort and common property of the union and were, thus, redeemed by serving in labor camps to compensate by boosting agrarian or industrial production. Oftentimes captives

were selected randomly to serve in gulags without evident offense. And this was the case for the pianist who tutored Yevgeni after school. Mr. Leibniz recounts to Maria his constant fear of being arrested by the KGB for his profession as an artist. He alerts her about his unfair ten-year sentence that might as well be the fate of her nephew if the political status in the union remains as corrupt. The artist then concludes by placing his faith in her generation to change their conditions: "Resistance is for the young. And you, whether you realize it or not, are still young" (McKeon 216). Maria, as a character whose development was deeply rooted in politics since childhood, realizes that this long-term goal to uproot the system should start from smaller hierarchies such as that of her factory.

In concurrence with the Chernobyl rumors, other speculations about an uprising surfaced and were further enforced by the accident and its subsequent subtle changes. Before that, a successful 'Shining Solidarity' movement in Poland managed to survive because of its secret momentum among the population when it appeared to have officially ceased activity. Maria's colleague, Pavel, attributes its success to the popular belief in its ability to achieve it while Maria reasons that such movement in Russia would fail because of the lack of supportive media coverage outside Samizdat. She reminds him about Khrushchev's De-Stalinization and her disappointment in its results: "The end of Stalinism, the end of fear. We were expecting an era of prosperity. We listened for a great chorus of contradictory opinions. But it didn't come" (McKeon 162). Maria then recalls a certain unusual experience of Margarita in which she encounters the hanging corpses of around twenty cats in an obscure alley, and declares it a "statement of some kind" (McKeon 155). She manages to link the strange phenomena, including teenagers modifying and wearing old military uniforms as fashion statements, with the mysterious accident and senses an impending turn of events

which further encourages her to accept the invitation of her colleague to participate in an upcoming protest.

Pavel, and Maria's factory colleagues plan to replicate the Polish strikes, using her nephew's piano recital as a cover. Previously she has offered, without knowledge of the protest, to organize a small concert wherein Yevgeni would entertain the factory staff and director with a piano recital as a way to lift their morale and showcase raw Soviet talent. The suggestion of her employer to invite a prominent Soviet pianist further increases their chances of gaining public attention because having Yakov Sidorenko, a world-renowned pianist, as a hostage would put their factory in the spotlight. Their plan consists of capturing the artist, their director, and an invited member of the ministry inside the factory with the workers for as long as it would take for their demands to be fulfilled. After the performance is concluded, a senior committee member of the worker's union, Zenaida Volkova, would list their demands for an independent trade union and freedom to strike and organize meetings.

This protest, however, fails when an electricity shortage obscures the entire city and the organizers and workers flee from the factory amidst a commotion in which everything of value is robbed. Maria regrets jeopardizing the future of her nephew for a futile cause when, around five years later, the USSR grants independence to its fifteen republics and the situation remains unchanged. Apparently, the typical Soviet lack of autonomy is evident even in the events that call for a break from the oppressive system and for independence.

On the opposite side of the empire, Grigory is praised for his critical mind and tendency not to blindly follow instructions without assessment. Through these traits, besides to his medical skills, he was recommended by Vygovskiy, one of the least corrupt party members, to partake in the accident cleanup. They discuss the incident and Vygovskiy

confesses about his failure to prevent its occurrence when he could. After the construction of the reactors, he apparently noticed their lack of safety measures in comparison to Western nuclear power plants and decided to learn from their experience with the previous Three Mile Island incident. Vygovskiy, hence, prepared proposals to enhance the safety system but was advised not to submit them to the responsible committee so as not to risk his position. He further elucidates: "So I did the smart thing, I withdrew my recommendations. . . . Because I did this, they made me chief advisor to the ministry" (McKeon 57). His only possible act of repentance after the catastrophe is to ensure an orderly management of all the containment procedures, which also fails because of one call from the Kremlin instructing them to contain the information.

Grigory is deeply disappointed by the chief advisor who proved to be a typical weak willed character despite having praised the doctor's critical mind previously. In his defense, Vygovskiy reasons that orders to halt the evacuation and contain the information came as a measure to prevent mass panic and international hysteria. When Grigory proposes receiving aid from neighboring and Western countries, his comrade prioritizes their country's international profile over the safety of its people and proceeds with the orders to avoid "An international embarrassment of incredible magnitude" (McKeon 197). The main protagonist, then, becomes the second character to be accused of spreading anti-Soviet sentiment in the novel.

All attempts to contact the Soviet or foreign authorities are futile because of the KGB surveillance in the area so Grigory resorts to an illegal alternative method of communication. He convinces his friend to break into an empty civilian apartment where phone calls were not as heavily monitored. Grigory plans to use the phonebook to call as many families as possible

to alert them about the accident and provide them with safety instructions. Upon understanding the risk, Vasily refuses to partake in the plan out of fear for his career and family. Grigory, then, continues alone and manages to make around sixty phone calls before the line dies. Instead of receiving a sentence for violating orders from the highest levels in the Kremlin, the surgeon is deported to a resettlement camp where his medical expertise would be put to use.

The time he spends in the contaminated camp negatively affects his health which grants him permission to return to Moscow. Upon arrival, he discovers that his reputation is irreversibly tarnished as a result of his involvement in the cleanup. His closest friends and acquaintances, including Vasily, refuse to acknowledge him to protect themselves and families from the vigilant eyes of the KGB. This further motivates him to publicly reveal his secret documents therefore he accepts the invitation of the European Atomic Institute to make a presentation during their nuclear safety conference. However, this plan fails when Grigory is suddenly denied entrance to said conference as well as access to all media outlets through which he intends to spread awareness about the catastrophe. His health further deteriorates when he sinks into depression leading him to commit suicide less than two weeks later. This gradual decline of a healthy and respectful, skilled surgeon was the product of several social, political and health issues resulting from the Chernobyl nuclear meltdown.

Undeniably, for several years after the accident, information about its details and true impact had been concealed and falsified through whichever measures that guaranteed secrecy. These continuous attempts to cover the truth paved the way to a surge of rumors and speculations and myths that, combined with the witness accounts that later emerged, make it impossible to know the actual magnitude of the accident even today. One example of these

secrecy measures is the mysterious two-year delay in the publication of Grigori Medvedev's *Chernobyl Notebook* for its controversial account about the official statements concerning the nuclear meltdown. In another attempt, Valery Legasov's testament was published two years after the accident, solely in Russian, under the vague title of: *My Duty Is to Tell about This.* As previously mentioned, English translation of the testament remained unavailable for twelve years after the suicide of its creator. Similarly, in *Voices from Chernobyl* an instructor at Comel State University reveals: "In the first days after the accident, all the books at the library about radiation, about Hiroshima and Nagasaki, even about X-rays, disappeared. Some people said it was an order from above, so that people wouldn't panic" (Alexievich 85).

Conclusion

Through the perspectives of multiple characters, Darragh McKeon recounts a version of Soviet life before and after Chernobyl from various viewpoints. This chapter focused on the conditions of the Soviet Union as narrated in *All That Is Solid Melts into Air* briefly before and after the Chernobyl nuclear meltdown. The focal point was the social, political, environmental and health impact of the event that is considered to be the world's worst nuclear disaster, so far, for its long lasting effects. These impacts can be traced in the novel through the perspectives of several fictional characters whose individual experiences had been given proper space in the book to paint a larger image of the events from different angles.

Following the previous analysis, this chapter comes to the conclusion that McKeon manages to bear witness to the Chernobyl nuclear accident through his implementation of historical context in his fiction. By dedicating multiple portions of his novel to the voices of more than one main character, the author narrates Chernobyl's catastrophe in a manner that emphasizes the multiplicity of perspectives when it comes to history. In order to achieve that

effect, McKeon relies on preexistent historical accounts such as the ones discussed in the first chapter to provide an account of Chernobyl via fictional literary mediums. This dependence on historical context as well as the multiplicity of perspectives will be further scrutinized in the third chapter through the lens of postmodern theories.

Chapter Three:

Examining the Representation of the Chernobyl Incident in *All That Is Solid Melts into Air* Through a Postmodernist Lens

Introduction:

This chapter is concerned with the application of postmodern theory on Darragh McKeons's *All That Is Solid Melts into Air* as an attempt to deconstruct the nuclear disaster of Chernobyl. The postmodern elements of the novel can be understood through the postmodernity of the event itself with reference to the theories of Jean-François Lyotard in his book *The Postmodern Condition: A Report on Knowledge.* As a postmodern notion that is heavily utilized in the novel, the historical Intertextuality employed by McKeon will be discussed by comparing certain testimonies in *Voices from Chernobyl* with their fictitious representation in *All That Is Solid Melts into Air* to explore the effect of their inclusion on the historicity of the novel using Linda Hutcheon's theories among others. Finally, the smaller histories that constitute McKeon's depiction of Chernobyl will be examined in contrast with Soviet metanarratives to investigate the role of these narratives in the deconstruction of the accident.

3.1 The Postmodernity of *All That Is Solid Melts into Air*

As a movement that emphasizes the plurality of meaning and truth, embraces paradox and celebrates the complexity of the world and its influence on all forms of expression, postmodernism should not be expected to acknowledge a clear-cut definition for all of its implications and properties. Should it seek a stable nature and a uniform structure, the entire essence of postmodernism would be reduced into an authoritarian system that resembles the ones targeted by its ideals (Lyotard 66). Therefore, the conception of postmodernism should adhere to its own approach of case-by-case observation in the sense that its flexible standards usually shift in accordance to context. A piece of art can be considered postmodern for its parodic depiction of other works of art, with an air of ridicule, that might imply its distance

from (but still inclusion of) the past in the same manner that another can be equally postmodern for paying homage to previous art works and styles and so on.

In the case of *All That Is Solid Melts into Air,* the understanding of its compatibility with postmodern theory can be observed first through the postmodernity of Chernobyl itself. As stated earlier, the accident is a multifaceted event that has been, and continues to be, subject to various interpretations and ongoing scrutiny. Some believe the meltdown and the consequent dissolution of the Union to be the direct result of Communism as an ideology per se; others contribute it to the corruption and failure of the Soviet regime to successfully implement the ideals of said creed; scientists and physicists tend to reduce the explosion to the technicalities of a design flaw; while Gorbachev himself, as previously mentioned, turns the tables on Chernobyl to declare it the main cause behind his empire's demise. Clearly, the accident can be seen from various angles depending on perspective which echoes what postmodernism calls for. This segment will attempt to examine the event through Lyotard's stance on postmodernism, specifically his theories in *The Postmodern Condition: A Report on Knowledge.*

Jean-François Lyotard seems to be more concerned with the current condition of the world than with the postmodern artistic movement. He focuses on the limitations of the enlightenment philosophy that promises an ideal world which can be attained through science and reason in its quest for "the liberation of all humanity" and "the speculative unity of all knowledge" (ix). These ideals that still govern the modern world can be seen in all its aspects be they social, political, economic, religious, etc. and are enforced by "traditions and myths of legitimation" (Lyotard x). Accordingly, the perception of individuals towards the world tends to be shaped by that of their ancestors, through traditions, and by whatever is legitimized through science and law and other means of legitimation under the influence of those in

power. Lyotard further explains that “legitimation is secured in terms of master-narratives of the two types already described” (x).

These narratives usually hold sentimental values (such is the case with traditions, religion and ancestral heritage) or tend to be enforced by their association with reason and logic or justice (such as science and law for instance) which facilitates their adoption as legit systems and doctrines by the masses. Lyotard argues that this only led to the creation of authoritarianism, deliberately through consensus, whereby “those affected, who as participants in a practical discourse test the validity claims of norms and, to the extent that they accept them with reasons, arrive at the conviction that in the given circumstances the proposed norms are ‘right,’” (x). The process of legitimation of these narratives, then, follows reason and is achieved through the conviction of its subjects rather than oppression and forced compliance. This is somewhat demonstrated in *All That Is Solid Melts into Air* through the sense of comradeship among the farmers who voluntarily endanger their lives during the cleanup without being forced. Their deliberate contribution to the ‘collective effort’ validates their affiliation to Communism in which ideals they genuinely believe.

This legitimation is mirrored in the many metanarratives of the Soviet Union that will be further examined in the research. One major narrative that contributed to the Chernobyl accident is the ‘Soviet Peaceful Atom’ propaganda. Nuclear energy during The Cold War had become a well demanded source of energy for its minimum impact on the environment and efficiency in production. These were the main factors behind its popularity among Soviets besides to the pride and international recognition it would grant their Union amidst the global competition. Fueled by their enmity towards the West and their belief in their system, the Soviets considered themselves the pioneers of atomic energy within a world that became increasingly invested in the nuclear arms race. Thus the salvation of human kind through science became embodied, though on a sub-atomic level, in the Soviet nuclear industry

regardless of its western origins. This was the first step towards the full legitimation of nuclear energy which targeted the popular interest in the environment as well as the international profile of the Soviet Union in contrast to that of the West. The civilians in the novel exhibit these characteristics in their mockery of westerners whom they believe are intimidated by their progress in the industry and their increasing influence.

Another aspect that reflects the enlightenment ideals is the popular trust in the Soviet competence with regard to nuclear physics. Atomic energy was promoted as a harmless source of electrification after the Soviets managed to domesticate it for civilian use. Reactors, forged with 'superior Soviet skill', were compared to tea-kettles in the sense that they could be placed anywhere with no repercussions (Lindsay 22). Soviet officials continuously joked about building power plants in the Red Square to reassure the public opinion and gain support (Alexievich 87). In this case nuclear energy, to Soviets, resembles what Lyotard describes as a "narrative [that] is affirmed not merely as a significant new field of research, but well beyond that as a central instance of the human mind and a mode of thinking fully as legitimate as that of abstract logic" (xi). This blind trust in nuclear energy was not unique to the masses but was shared with scientists and plant operators who were oblivious to the design flaw. McKeon portrays this through the disbelief of villagers and refusal to leave the contaminated homes, the indifferent attitude of officials towards the accident and the passive reactions of civilians upon discovery of what happened in Chernobyl.

Lyotard also discusses the internal limitations of all formal systems including science (43). He argues that all forms of science are accessible through language which itself is a limitation since the rules of language are constantly changing and are, besides to that, the product of consensus among experts which is a subjective process (43). Nuclear physics is one of the sciences that directly deal with nature which Lyotard describes as "indifferent, not deceptive . . . . mute, but as predictable as a die thrown a great number of times" (57). He

further illustrates: “Quantum theory and microphysics” much like nuclear physics “require a far more radical revision of the idea of a continuous and predictable path. The quest for precision is not limited by its cost, but by the very nature of matter” (56). The Soviets apparently failed to realize or acknowledge this, and extremely abused the inefficient knowledge they had by tolerating a fatal defect in their industry. McKeon illustrates this through Grigory and Vigovskiy whose reform suggestions in their workplace were met with ridicule due to their superiors’ overconfidence in the Soviet expertise. The consequences of such neglect manifest in the fates of his characters who are each affected in different ways.

The unpredictability of nature was disregarded in the presence of science that was, by then, still in progress. In the end, Chernobyl proved how unforgiving precise fields like nuclear physics can be when the destructive human urge to tame nature remains uncontrolled. Here is where the design flaw complicates matters considering that some individuals knew about its potential threat while others were completely unaware, which neither makes the accident a natural occurrence nor a result of ignorance but rather something in between. While the explosion had been caused by the design defect, it was also a consequence of the natural accumulation of xenon after the delay. Meaning, had there not been a poisoning in the reactor core, the design flaw might have been as inconsequential as in earlier tests. This partially makes the accident a natural response to the ignorance of plant operators towards the then-new phenomenon of xenon poisoning. The flaw, however, was definitely man made and well preserved through secrecy.

Lyotard discusses how power influences knowledge and, based on that, differentiates between what is true, what is just and what is efficient (46). He argues that science is backed by reality which provides it with concrete evidence and legitimates its argumentation while granting “prescriptions and promises of a juridical, ethical and political nature” (47). On that premise, what is scientifically or politically true and what is ethically just can be easily

determined by whoever masters reality; hence, knowledge becomes power. The Soviet authorities legitimated nuclear energy by presenting the masses with the realities of its eco-friendly properties, its impact on the international profile of their Union and the narrative of human liberation through this new field of science. What they chose to conceal was the reality of their reactor defect which is where efficiency comes into the picture.

The initial shift towards nuclear energy itself was an act of efficiency to Soviet authorities for the financial profits and the enforcement of their global dominance. Moreover, the cheaper materials used to build the power plant, the exclusion of protective equipment and the replacement of boron tips with more affordable graphite were all measures taken to lower the construction cost. Thus, the concealment of the design flaw is highly efficient for the continuation of energy production and profits since otherwise, the reactors would have to be reconstructed in order to ensure safety. After all "It was more the desire for wealth than the desire for knowledge that initially forced upon technology the imperative of performance improvement and product realization" (Lyotard 45.) Following the accident, efficiency required blaming the meltdown on a group of unaware plant operators with the intent to divert public criticism towards numbered individuals instead of the industry as a whole. The abovementioned measure resembles, in *All That Is Solid Melts into Air,* the imprisonment of three police agents on behalf of their superiors even though they were ordered to commit the crime. Had they not murdered the priest, he would have caused more inconveniences to Soviet authorities. Had the latter not blamed the officers, their entire regime would have faced criticism.

Lyotard also includes: "The State and/or company must abandon the idealist and humanist narratives of legitimation in order to justify the new goal: in the discourse of today's financial backers of research, the only credible goal is power" (46). In this respect, he criticizes the ensuing totalitarianism and the constant commoditization of knowledge instead

of keeping information accessible to the public. Lyotard, then, acknowledges how postmodern science, in pursuit of change, "is theorizing its own evolution as discontinuous, catastrophic, nonrectifiable, and paradoxical" (60). This is thoroughly manifest in the disillusionment that prevailed after certain catastrophic events like World War II, the Hiroshima and Nagasaki bombings and by extension, Chernobyl.

Much like postmodern science, the artistic and literary movements in this period portray all of the above in their depictions of the world through various forms of expression. Instead of distancing its content from reality, postmodern literature seeks to present its own take on modern or past conditions while keeping in consideration the impossibility of legit realist representation as well as complete separation from the historical and literary past. In order to achieve this effect, postmodernists usually utilize certain techniques in their depiction of past and present events such as parody and pastiche whereby they mock or pay tribute to their predecessors. The latter are characterized by their intertextual nature which entails their connection to the past but in a more playful, experimental than realist manner. The previously mentioned novels that tackle Chernobyl had all been constructed in a similar fashion that presents multiple versions of the event.

Part of what makes *All That Is Solid Melts into Air* a postmodern novel is its portrayal of the multilayered disaster of Chernobyl in a way that acknowledges the multiplicity of perspectives and the novel's own connection to other literary and non literary works besides to its recognition of our limited knowledge regarding the accident. In this sense, McKeon provides an account of Chernobyl that encompasses smaller fictional accounts each of which illustrates a certain angle using pre-existent real narratives. The author bears witness to the nuclear disaster and its impact through his multiple main and secondary characters by including their smaller narratives recounting the different ways they were all affected by the same event. Some of these fictitious narratives are directly referenced from real witness

accounts and testimonies utilizing intertextuality to counter the Soviet metanarratives with smaller accounts both real and fictional.

3.2 Intertextuality in *All That Is Solid Melts into Air*

The concept of intertextuality revolves around the interdependent relations between all texts and the denial of originality in literature and discourse in general. The very nature of intertextuality deprives it from having a clear origin but its debut as a critical theory can be attributed to the French-Bulgarian philosopher Julia Kristeva who coined it in the late 1960s. Based on Ferdinand De Saussure's language systematization and Mikhail Bakhtin's social context of language, Kristeva argues that all works of art are intertexts that are inevitably linked with other texts, whether intentionally or not, through direct quotation, allusion, parody and various other forms of reference (Zengin 300).

This is not specific to art such as literature since intertextuality draws inspiration from Bakhtin's notion of the social, cultural and ideological influence on language which emphasizes their traces on discourse. In this case, art is not only influenced by other works of art but also by the norms and "codes of a discursive space" (Zengin 324). For this reason, Linda Hutcheon prefers the term "interdiscursivity" which includes the different "collective modes of discourse from which the postmodern parodically draws: literature, visual arts, history, biography, theory, philosophy, psychoanalysis, sociology, and the list could go on" (130).

This interdependence, then, includes all forms of discourse related to casual means of communication like ordinary conversations, to literature, to historical, social and cultural discourse and so on since the beginning of time. Roland Barthes summarizes this inevitability of connection and its untraceable origins as follows: "Intertextuality, the condition of any text whatsoever, cannot, of course, be reduced to a problem of sources or influences; the intertext

is a general field of anonymous formulae whose origin can scarcely ever be located; of unconscious or automatic quotations, given without quotation marks" (qtd. in Keep et al).

The continuity of this relation is more akin to a complex vortex with no beginning or end than to a tree at the roots of which lies one originator of meaning. Bakhtin illustrates: "The speaker is not the biblical Adam, dealing only with virgin and still unnamed objects, giving them names for the first time" (qtd. in Allen 21). Adam, as chronicled in Christian scripts, was given the task of assigning signifiers to his surroundings for the first time, which places him at the roots of the aforementioned tree of meaning. In the Islamic version, on the other hand, even the first man to exist was directly handed all of his worldly knowledge by God who taught him all names. In this context, there can never be original discourse unless it completely separates itself from worldly influence as well as that of other texts in which case it should hold no meaning to readers whose understanding is inevitably shaped by those influences.

This is especially applicable to literature which exists within an "illimitable tissue of connections and associations" (qtd. in Keep et al). On that premise, Roland Barthes declares *The Death of the Author* referring not to content creators but to the concept of 'Author God' who has full authority over the meaning of text. Certainly authors cannot control all possible meanings that can be derived from their writings by all readers whose different experiences and perspectives influence their understanding of text. Accordingly, an author obtains the role of a "scriptor" (Zengin 321) who creates text in relation to other texts without authority over meaning which is dependent on readers and their knowledge concerning those texts as well as the various social, historical, cultural discourses and so forth. On a similar note, Graham Allan further elucidates: "The systems, codes and traditions of other art forms and of culture in general are also crucial to the meaning of a work of literature" (1).

It is, thus, well established that language, discourse and by extension literature do not exist in a vacuum and this interdependence is what makes intertextuality a postmodern approach. What postmodernist literature questions according to Hutcheon “is both any naive realist concept of representation and any equally naive textualist or formalist assertions of the total separation of art from the world” (125). This not only implies that literature is inevitably influenced by the world, present and past, but also that it fails to realistically represent it and its happenings.

Moreover, the postmodernist stance on “history writing as narrativization (rather than representation) of the past” (Hutcheon 128) includes history as well to this failure of realist representation and makes it as unreliable a source of truth as literature since our knowledge of the past is merely textual. “After all,” Hutcheon adds, “we can only "know" (as opposed to "experience") the world through our narratives (past and present) of it, or so postmodernism argues” (128). All narratives, be they literary or historical, provide but “series of versions” instead of absolute truths and the role of postmodern literature is to shed light on the infinite possibilities of versions that can coexist through its intertextuality. This interdependent relationship that exploits both literary and historical intertexts in postmodern literature, especially what Linda Hutcheon labels ‘Historiographic metafiction,’ allows the genre “to situate itself within historical discourse without surrendering its autonomy as fiction” (125). This invalidates the claim of rupture with the past that might be attributed to the ‘post’ in postmodernism. Instead, the interdiscursivity of literature now requires the “appropriation of earlier texts in the present texts by means of the author’s selecting from texts, editing some parts of them, transforming or even distorting them . . .” through such techniques as parody, irony, pastiche and so on (Zengin 323).

Darragh McKeon, as an Irish author, can only obtain the knowledge that enabled him to produce *All That Is Solid Melts into Air* through previous discourses concerning the social,

political, cultural and ideological aspects of Soviet life as well as the existing, arguably conflicting, historical narratives that document the Chernobyl nuclear accident and its impact. The literary and historical intertextuality is inevitable, and manifests in his portrayal of those cultural codes and historical events and consequences that were discussed in the second chapter of this thesis.

Certainly, an analysis of all previous literary and historical intertexts that can possibly be detected in the novel is virtually impossible for their limitless nature and fleeting meaning that even the author of the work wherein they may exist cannot control. Besides, this research is more focused on exploring the historical traces in *All That Is Solid Melts into Air* whereby the Soviet narrative of the accident is to be countered, rather than the aesthetic or literary intertextuality. Thus, this chapter will attempt to investigate certain instances of 'worldly historicity', in the words of Hutcheon, or 'historical intertextuality' as will be referred to in the remainder of the chapter for the sake of concision. The mentioned intertextuality mainly concerns McKeon's implementation of various modified elements of certain testimonies taken from Svetlana Alexievich's *Voices from Chernobyl* in his novel.

Throughout the novel, McKeon utilizes multiple accounts from the testimonies in *Voices from Chernobyl* and tailors them to fit within the fictitious plot which produces a version of past 'Chernobyl' and 'USSR' that is neither entirely factual nor merely fictional. This way, the novel dissociates its content from any claim of authenticity while simultaneously including historical elements for the sake of 'worldly grounding' to create a narrative that is somewhat compatible with the past without claiming *to be* the past. This intertextuality allows the introduction of multiple perspectives, from the testimonies, which accentuates the inevitability of variety—and paradox—in historical accounts and directly rejects the authority of one acknowledged metanarrative. This fusion of literary and historical discourse emphasizes their equally textual nature in the sense that "both real and imagined

worlds come to us through their accounts of them, that is, through their traces, their texts" (Hutcheon 225).

A core quotation in *All That Is Solid Melts into Air* that is not necessarily derived from the testimonies, but rather from any formerly mentioned account of the accident, perfectly captures the corruption of Soviet ideology. The first time Grigory hears about the Chernobyl accident is through an official communiqué that reads: "For your information, there has been a fire reported in Reactor 4 of the Ukrainian nuclear-power plant, Chernobyl. The incident is under control but we have reports that the damage may be significant. However, I can reassure you that this incident will not stop the advance of nuclear energy" (McKeon 49). While the last sentence seems absurdly out of place in such circumstances, McKeon adds it to the statement as a direct reference to the irrational Soviet prioritization of their international reputation and nuclear progress at the expense of public safety. In fact, this passage echoes what Richard F. Mould documents in his included English translation of the Valery Legasov memoirs within *Chernobyl Record*. On the day of the accident, a Local Administration meeting took place wherein Legasov describes: "The speaker stated that: 'they have made some mess, there was an accident, but this would not stop the development of atomic energy"' (Mould 289).

The first part of the communiqué is no less referential as it represents a version of the misleading reports that had been circulated around the USSR shortly after the incident. The evident fallacy within the previous statement lies in the fact that Chernobyl had not witnessed a fire in Reactor 4 but a much more serious nuclear meltdown that was nowhere near 'under control'; this misconception is the result of secrecy and corrupt regime. In *Voices from Chernobyl*, a Russian historian elaborates: "Chernobyl is the catastrophe of the Russian mind-set. Have you considered this? Of course I agree with those who write that it wasn't just the reactor that exploded, but an entire system of values" (Alexievich 171).

Once the accident was exposed by the radioactive cloud detected in Sweden, the propaganda to undermine its impact immediately swarmed media outlets. This is portrayed in the novel through Tanya's description of the T.V commercial which was quoted in the second chapter of this thesis. The description directly paraphrases the testimony of an evacuee in *Voices from Chernobyl* who recounts:

> They suddenly started having these segments on television, like: an old lady milks her cow, pours the milk into a can, the reporter comes over with a military dosimeter, measures it. And the commentator says, See, everything's fine, and the reactor is just ten kilometers away. They show the Pripyat River, there are people swimming in it, tanning themselves. In the distance you see the reactor and plumes of smoke above it. (Alexievich 143)

Mckeon, here, utilizes intertextuality to expose the extent to which Soviet authorities were willing to jeopardize the safety of their people for the sake of propaganda. It is, to this day, morbidly dangerous to swim in the contaminated water of the Exclusion Zone where levels of radiation are fatal. The same can be said about dairy products, meat and vegetables that were exposed to radiation; regardless, people continued to unsuspectingly consume these contaminated products for quite some time before they were made aware of their toxicity.

Liquidators were another group of heavily deceived individuals whose grievances McKeon discusses in his novel through the use of intertextuality. Almost all the decontamination procedures and the consequent health implications to which the farmers in *All That Is Solid Melts into Air* were subjected are borrowed from testimonies of real liquidators or the accounts of their friends and families. In *Voices from Chernobyl* one liquidator details: "We buried the forest. We sawed the trees into meter-and-a-half pieces and packed them in cellophane and threw them into graves" (Alexievich 89). Which were the exact procedures performed by Andrei and his friends in the novel. In another instance the

liquidator shares, “just four days after the catastrophe the red flag was already flying over the fourth reactor. It blazed forth. In a month the radiation had devoured it. So they put up another flag. And in another month they put up another one. I tried to imagine how the soldiers felt going up on the roof to replace that flag” (Alexievich 91). McKeon exaggerates this account by having the flags in his novel ultimately decompose in the span of five days instead. Another one describes: “They [liquidators] slept on the ground, they all tell of how in the beginning they were throwing straw on the ground in the tents-and the straw was coming from stacks near the reactor” (Alexievich 132).

One coping mechanism of these liquidators during the traumatic event was comedy as a cameraman who visited the accident site words it: “The only salvation was in humor” (Alexievich 107). McKeon retells a number of Soviet jokes and humorous remarks through Andrei and his friends during their cleanup. Such referenced statement as “fight the atom with a shovel” (Alexievich 156; McKeon 185) holds a great deal of irony because of its allusion to the primitive equipment with which liquidators were sent and expected to defeat nature. A famous Soviet joke taken from a liquidator testimony goes as follows: “An American robot is on the roof for five minutes, then it breaks down. The Japanese robot is on the roof for five minutes, and then-breaks down. The Russian robot is up there two hours! Then a command comes in over the loudspeaker: "Private Ivanov! In two hours you're welcome to come down and have a cigarette break”’ (Alexievich 187). McKeon includes this joke that mocks the inhumane recruitment of soldiers as ‘biorobots’ in lethally radioactive environments, when the actual robots malfunctioned, to further illustrate the utter disregard for peoples’ health by Soviet authorities.

The graphic description of Andrei’s gradual death in the novel is also referenced from a witness account in *Voices from Chernobyl.* Because of the intensity of his condition, Artyom and his sister are denied entrance to their father’s room; McKeon narrates:

> He [Artyom] didn't get to see him [Andrei] when he was producing a stool thirty times a day, composed mainly of blood and mucus. When his skin started cracking on his arms and legs. When every evening his sheet would be covered in blood and Artyom's mother would give the militiamen directions as to how to move him, and make sure her husband had fresh bedding for the night. . . . At the end she couldn't lie anymore, not when his tongue fell out. Not when she'd hold a bedpan at the side of his bed to catch the blood which ran in rivulets from no particular place in his body. Not when he would cough and spit up pieces of his lungs, his liver, choking on his internal organs. (McKeon 185-186)

The passage is almost identical to the description of Lyudmilla Ignatenko as quoted in the first chapter of this thesis. Her traumatic experience in Hospital Number Six is given to Tanya down to the detail for it is shared with many other individuals whose family members or friends had been unfortunate enough to be around the Chernobyl NPP at the time of the accident. The details of this gradual decay serve as concrete physical proof of intense radiation whose invisible existence can easily be denied.

Grigory himself seems to be a highly intertextual character. In a way, he can be considered as a form of pastiche for his resemblance to three real Soviet individuals whose experiences had arguably been the inspiration for Grigory's. Vasily Nesterenko, a former director of the Institute for Nuclear Energy at the Belarussian Academy of Sciences, had had a similar reaction to that of Grigory, upon hearing about the accident, for which he had also been accused of alarmism. His continuous attempts to warn the Belarusian, Ukrainian, and Russian authorities and spread awareness among locals had all been in vain. And when he actively tried to expose the secrecy and corruption, the response came in the form of severe threats; he recalls: "They can put me in a mental hospital. They threatened to. And they could

make sure I had a car accident-they warned me about that, also. They could drag me to court for anti-Soviet propaganda" (Alexievich 211). All of these threats had been directed at McKeon's protagonist in the novel as well.

Another similar account is that of Valentin Borisevich, former head of the Laboratory of the Institute of Nuclear Energy at the Belarusian Academy of Sciences, whose method of spreading awareness has been the direct inspiration for Grigory. Every single instruction in the following passage as well as people's reaction to them had been included in *All That Is Solid Melts into Air*. Borisevich, in his testimony, recounts:

> I took the city phone directory, and my daughter's address book and my wife's, and began calling everybody one by one. I'd say: I work at the Institute for Nuclear Physics. There is a radioactive cloud over Minsk. And then I'd tell them what they needed to do: Wash their hair, close their windows, take the laundry off the balcony and wash it again, drink iodine, how to drink it correctly. People's reaction was: Thank you. They didn't question me, they didn't get scared. I think they didn't believe me, or maybe they didn't understand the importance of what was taking place. No one became frightened. It was a surprising reaction. (Alexievich 178)

Lastly, the resemblance of Grigory to Valery Legasov cannot be denied, especially towards the end of their lives. They both went to great lengths in their attempts to educate and sensitize locals and authorities at the expense of their health and careers. Both had similar principles and believed in their ability to make a change to defeat corruption but were greatly disappointed by their failure. Besides to that, both of their lives ended in suicide after having documented their experiences which enabled them to posthumously unveil the secrets of Chernobyl.

Darragh McKeon's employment of intertextuality to blend real events and survivor accounts with his fictitious plot and characters created a narrative of Chernobyl that exhibits multiple aspects of the event. The author's depiction of the accident portrayed its impact; the social, cultural, political, and ideological context wherein the event is set; the secrecy and false propaganda of Soviet authorities; and the consequences of such corrupt system. His use of pre-existing content and multiple accounts allowed him to provide a new outlet, through his fiction, for the different perspectives and the smaller narratives surrounding the event so as to refute Soviet metanarratives and other misconceptions.

3.3 Soviet Metanarratives and Small Histories in *All That Is Solid Melts into Air*

One of the well known overarching metanarratives in world history had been Communism with a widespread dominance over fifteen republics covering almost one-seventh of the world's territory. As established in the first chapter, metanarratives are characterized by their globalizing view of the world, one that is created by traditions and certain methods of legitimation (Lyotard x). Their scope includes all forms of doctrines, religions, political systems, scientific codes and juridical regulations, social and cultural norms, among others. These systems usually prescribe a certain world order that gains appeal oftentimes through persuasion. What made Communism as powerful and prevalent in the Soviet Union were its successful methods of legitimizing its ideals so that its supporters become not only followers but believers.

The research is mainly concerned with the ideology more as a Soviet mindset than a regime and is thus directed towards the 'contribution to the collective effort' principle. This quality can be detected in most of the characters in *All That Is Solid Melts into Air* including main and secondary ones as well as 'villains'. It is hard to pinpoint a main antagonist in the novel which somewhat reflects reality. The prevalent collectivism makes every duty a shared

responsibility between the involved parties be they workers or leaders within an industry. This complicates matters during times of difficulty or, in the case of Chernobyl, during a catastrophe for the improbability of successfully identifying one main culprit. On another basis, this principle of selflessness and comradeship could be dangerous for Soviet citizens who were mostly willing to sacrifice their lives for the 'collective effort' which is the case with liquidators and volunteers in the cleanup.

The metanarrative of Communism encompasses a set of ideals and convictions (sometimes myths) that are propagated by its leaders and widely believed by the masses as facts. Such narratives include: the supremacy of Communism over other ideologies; the superiority of Soviet expertise in all fields especially nuclear physics; the global influence of the Union that evokes western envy; the transcendence of Soviet morals and collective solidarity; the salvation of humankind and their environment through the 'Soviet Peaceful Atom'; and the depiction of workers as the most celebrated class in the Union. Shortly after Chernobyl, the blind trust in Soviet authorities imperiled the safety of citizens who believed certain misleading official statements and circulated myths. These can be considered as smaller narratives within the master narrative of Communism since they are mostly derived from the abovementioned ones. Some of these include the televised propaganda to deny then undermine the impact of the meltdown, the official statistics that are still acknowledged, and the myths of vodka and milk as remedies for radiation exposure to trivialize its risks.

It is the role of postmodern literature to expose the limited and limiting view of metanarratives and instead draw attention toward the plurality of truth and meaning and the diversity of human experience. McKeon recounts Chernobyl in a format that comprises more than one point of view as he dedicates each chapter to a main character through whom readers experience the events. This way, the perspective is not limited to one protagonist but expands to include multiple voices. The smaller histories of main and secondary characters are all

represented in the novel without validating one over the others and the different experiences are described in a neutral tone. By providing space for little narratives in his novel, McKeon contributes to the postmodern wave of disillusionment and exposes the limitations of metanarratives in their pursuit of universal truths and world order.

3.3.1 The Small Histories of Main Characters in *All That Is Solid Melts into Air*

The events in the novel are mainly recounted from the perspective of four characters: Grigory, Maria, Artyom, and Yevgeni for which they will be treated as main characters in this research. This does not exclude the others from having their own voices since McKeon oftentimes manages to merge their consciousness into that of the aforementioned characters which subjects his narration to a mild sense of fragmentation. The four main characters experience Chernobyl in very different ways and only one of them survives the event without suffering a major loss. And because Artyom's entire experience revolves around the loss of his father, Andrei will also be included in this analysis.

The most detrimental impact of a nuclear meltdown on humans would have to be the health complications that result from radiation; any other damage will mostly be secondary compared to the loss of one's life. By that logic, Grigory and Andrei are the most affected characters in the novel. However, their deaths are severely different given that the latter suffers a gradual physical decay whereas the former experiences a psychological deterioration that leads to suicide. In the case of Artyom whose health is also impacted by radiation, the damage is reparable through thyroid surgery. McKeon's careful selection of characters, their fate, as well as gender and age sheds light on his intentions to include as many possible variations without abandoning the 'worldly grounding' or historical accuracy. It is statistically proven that most liquidators who suffered physical injury were adult males, save for the ones that already worked at the power plant, while women and adolescents were indirectly affected for the most part.

Unlike Andrei, Grigory represents the minority of liquidators whose exposure had not resulted in acute radiation syndrome. Around two percent of those who initially survive the decontamination procedures undergo severe psychological damage that ends in suicide (Mould 88). His characteristics resemble a tragic hero: his outstanding skills as a surgeon place him within the highest ranks of his profession; his integrity and devotion make him a role model for his peers and grant him the compassion of readers, yet his major flow leads him to an eventual downfall. Grigory's hamartia stems from his overconfidence in his ability to singlehandedly defeat corruption. As previously described, the surgeon volunteers in the cleanup despite his initial contribution with medical services which he, then, chooses to extend regardless of health risks. Upon discovering the ongoing secrecy, he jeopardizes his career and freedom to inform the authorities and civilians about the accident. And when his plans fail, he resorts to media as an outlet to expose the corrupt system. His failure to realize the impossible standards he set for himself ultimately lead to his breakdown. Had McKeon chosen to make him survive, the tragedy of liquidators would not have been well transmitted. By extension, Grigory's suicide makes the novel more inclusive of Chernobyl traumas than having him die of acute radiation for instance.

In contrast to Grigory, Yevgeni is largely unaffected by the accident. McKeon exemplifies the multiplicity of human experience by including a positive small narrative within a predominantly cataclysmic event. Maria's prodigious nephew survives the catastrophe with new prospects for a brighter future. He represents the Soviet population outside of Ukraine and Belarus whose distance from the accident site spares them the tragedy. It is common within Ukrainian, Russian, and Belarusian depictions of Chernobyl to emphasize the positive aspects of the accident as a new chance for rebirth (Lindbladh). Yevgeni, as a Russian character, manages to rekindle his passion for music after the uprising that follows the accident. His act of rebellion during the city blackout liberates him and

solidifies his desire to become a world-renowned pianist. A decade after the catastrophe, Yevgeni manages to realize his dream despite Chernobyl's impact on the Union.

Maria is also a character who survives the accident but in a less fortunate development. She represents the minority of Soviet population who face the repercussions of Chernobyl despite their great distance from its site. As a Russian woman, she has a lower probability of being recruited as a liquidator which decreases her chances of becoming physically impaired. Her many losses are primarily related to her involvement in Soviet politics and liberation movements. Maria surrenders her marriage and carrier to political pressure from her superiors. She jeopardizes the future of her nephew for a failed attempt to defeat corruption and ultimately loses her husband to Chernobyl. McKeon's selection of character and gender, again, adds variety to the novel considering that similar depictions of an individual that is fearless, immune to political pressure, and willing to sacrifice freedom and relatives for a greater cause are usually attributed to male characters.

Using fiction as a medium to recount Chernobyl, McKeon manages to expose the Soviet metanarratives through his inclusion of smaller accounts that counter them in various ways. Andrei is physical proof of the intentionally undermined health effects of the accident. Maria represents the grievances of Soviet population regardless of their position in the vast empire; her political struggles directly reject the metanarrative of communist supremacy. Grigory's entire experience, as concluded in the second chapter, exposes the political corruption and scientific incompetence both in the field of nuclear physics and medicine. Yevgeni provides a single positive perspective due to his location in the center, Moscow; while Artyom and his family convey the misery of those who live in the periphery.

3.3.2 Centre and Periphery in *All That Is Solid Melts into Air*

The Soviet Union as a vast empire with political dominance over a large territory must have a main region that assumes the position of centre while the other subordinate republics

remain in the periphery. The union is politically ruled by what became modern-day Russia with Moscow as a capital exerting dominance over fifteen republics. Ukraine as part of the periphery is more inclined to submit to the Soviet project of nuclear advancement and offer part of its territory for experimentation in the field. The profits of such lucrative industry will most likely be monopolized by the authorities in the center more so than in Ukraine itself especially in terms of international recognition.

On the other hand, the chosen site for the construction of Ukrainian 'atomgrads' in Chernobyl becomes a centre of electrification and the provider of atomic energy. The production of electricity and its consequent affluence exclusively benefit the Pripyat atomic city as well as the capital Kiev while other Ukrainian regions maintain their impoverished conditions. The imbalance in this centre/periphery relation is further augmented following the meltdown of Chernobyl. Even though the Russian elites besides to the residents of Pripyat and Kiev profit the most from nuclear energy, they are not nearly as affected by the disaster as the peripheral regions in Ukraine and Belarus.

McKeon displays this contrast across his Ukrainian and Russian characters. In the case of Maria and Grigory, their struggles result from their meddling with the Chernobyl issue; had they resorted to staying neutral, their distance from Ukraine could have shielded them from repercussions. As for the other Russian characters such as Alina, Yevgeni, and Maxim, their daily lives remain unchanged excluding the dissolution of their union five years after the accident. In contrast, the Ukrainian characters including Artyom and his family as well as the evacuees in the resettlement camp are the main victims.

In *All That Is Solid Melts into Air,* McKeon describes a village in the Gomel region whose residents suffer poverty and neglect despite its ten-kilometer distance from the Chernobyl atomgrad. The origins of the village are ambiguous as it shelters a group of marginalized people who fled political, economic, and social repressions. The author narrates:

"In this village, they're a collection of people from nowhere. They came here, one after another, when the war ended, when records were lost or destroyed . . . ." (McKeon 73). The inhabitants dwell in primitive cottages and send their kids to a "school of two rooms" they share with four other villages. In a way, they can be regarded as a periphery within the periphery; this double oppression is compounded by the catastrophe that takes place in the vicinity. The Gomel region is arguably one of the most affected areas besides to Belarus and all of its residents had been evacuated because of their dangerous proximity to the power plant. Artyom and his family endure multiple losses following the event starting with Andrei, their home and possessions, their relatives who disown them for their contamination, and finally their freedom to leave the resettlement camp.

Because of their peripheral roles in the novel, the secondary characters will also be analyzed in this segment. McKeon includes a variety of secondary narratives featuring male and female characters of Russian and Ukrainian nationalities and different backgrounds for the sake of variety and inclusivity. The women in *All That Is Solid Melts into Air* are interestingly diverse in the sense that they face the consequences in different ways. As formerly established, Artyom's mother, Tanya witnesses the gradual death of her husband and the displacement of her family; in contrast, Yevgeni's mother, Alina, celebrates the success of her son as he begins his journey towards international fame. Another interesting juxtaposition between female characters is visible in the political pressure against Zinaida compared to Margarita. The protests in the factory where Maria works occur under the instructions of Zinaida who leads the workers' union. Her powerful status and ferocious personality distinguish her from other female characters such as Margarita who experiences a breakdown due to pressure from the KGB. Perhaps the reason behind such contrast is the fact that Zinaida's involvement in political affairs, much like Maria, is voluntary whereas Margarita unwillingly faces the repercussions of her husband's contribution to the cleanup.

The male characters of *All That Is Solid Melts into Air* range from victims, sympathetic bystanders, and what can be considered as 'villains'. Mr. Leibniz serves a ten-year sentence in the Gulag without concrete evidence of treason or felony. A similar punishment arguably befalls Maria's father despite his affiliation to the system as a member of the KGB which emphasizes that no one is safe from Soviet bureaucracy. The addition of these instances accentuates the political corruption in the USSR long before Chernobyl took place.

McKeon also recounts the story of Maxim who crosses paths with Artyom and his family after their evacuation. His compassion and generosity towards them contradict the initial hostility with which they are treated and their rejection by relatives. He represents the true ideals of comradeship that Communism honors, in the perspective of Soviets. On the other side of the spectrum, some characters can be certainly described as evil such as Maria's superiors who expose her to different forms of pressure; While others do not exactly fall under the category of 'villain' despite their immorality. When Vygovskiy conforms to the Kremlin orders of secrecy he justifies his immediate compliance by listing the consequences of disobedience in such circumstances. Regardless of the damage these orders may inflict on the population, Vygovskiy is merely following commands from much more powerful individuals who have the authority to end his career. One of the party officials describes in a testimony the immense strain he had experienced from his superiors during the accident. He explains the confusion that accompanied them throughout all procedures and the complexity of the event then concludes: "I'm a product of my time. I'm not a criminal" (Alexievich 200). Similarly, Vasily is not to be blamed for abandoning Grigory during his plan to alert citizens, or afterwards, when his reputation becomes questionable. The friend simply prioritizes the safety of his family over companionship which is reasonable in such circumstances. This gray portrayal of what is evil or immoral supports the postmodern multiplicity of perspective and provides another dimension to the event.

Within the fictitious depiction of Chernobyl in *All That Is Solid Melts into Air* the periphery is no longer as marginalized in terms of representation and is, perhaps, more emphasized than the centre. Similarly, the secondary characters are given proper space and diversity including the ones with antagonistic qualities. Through the smaller narratives of these characters, McKeon displays multiple aspects of the event that directly or indirectly counter the fabricated Soviet documentation of Chernobyl and contributes to the disillusionment of his readership.

Conclusion:

The postmodern characteristics of *All That Is Solid Melts into Air* are deeply rooted in those of Chernobyl as an accident caused by a complex web of interrelated factors. Through Lyotard's theories of postmodern condition, this research came to the conclusion that the communist meatanarratives of Soviet supremacy in terms of political ideology as well as scientific development are debatably the direct cause behind Chernobyl's nuclear meltdown. In his literary depiction of the event, McKeon manages to bear witness to Chernobyl using intertextuality as a technique through which he blends real witness accounts within his fictitious work of literature to achieve 'worldly grounding' in his historical representation of the accident. The inclusivity of the novel and its implementation of the postmodern multiplicity of perspectives are evident in the author's portrayal of many small narratives of main and secondary characters within both centre and periphery in the event. McKeon manages to counter the previously mentioned Soviet Metanarratives by means of postmodern theories and techniques to successfully contribute in the wave of disillusionment through postmodern literature.

General Conclusion

The word Chernobyl, through time, has undergone an unfortunate evolution that rendered it more associated to dystopia than its original vision of nuclear utopia as an atomic city. From a peaceful medieval town to an affluent 'atomgrad' within a withering empire, Chernobyl after 1986 became the ruins of what it once was. The nuclear meltdown of Reactor Number Four has resulted in irreversible repercussions to the area, its surroundings, and inhabitants for the upcoming millennia. This apocalyptic event has arguably been the result of Soviet corruption and the product of Communism for the most part. In addition to that, the incident had been denied full acknowledgement of its cataclysmic details and true impact due to secrecy and continuous falsification. After the dissolution of the USSR, multiple sources of information surrounding its specifics emerged including postmodern depictions of the event.

The present study attempted to investigate the Chernobyl nuclear accident using postmodern theory on one of its literary representations entitled *All That Is Solid Melts into Air* By the Irish author Darragh McKeon. The first theoretical chapter provided background information about the Chernobyl incident relying on the official Soviet documents as well as the emerging historical accounts then some of the literary representations of the event. The Second chapter analyzed the historical context related to the Chernobyl incident and its impact within *All That Is Solid Melts into Air* through a descriptive analytical approach. In the third chapter, postmodern theory was applied on the novel using the concepts of intertextuality and Lyotard's metanarrative legitimation and small histories to examine McKeon's inclusive representation of the Chernobyl accident.

This study attempted to answer the research question relying on the aforementioned postmodern notions. The analysis of the Soviet documentation of Chernobyl's accident in contrast with other historical accounts revealed the corruption of Soviet authorities and their false account of the incident. Relying on the findings of the first chapter, the descriptive analytical approach of the second chapter emphasized Darragh McKeon's attempt to

invalidate the abovementioned Soviet narratives through his Literature by bearing witness to the true impact of the Chernobyl nuclear accident. Lyotard's postmodern theories of metanarratives were applied on the Chernobyl accident and its representation in *All That Is Solid Melts into Air* to highlight the measures of legitimation taken by the Soviet government to garner the masses' support of nuclear energy which accentuated the compatibility of both narratives with postmodernism. As an answer to the research question, this study came to the conclusion that McKeon indeed manages to bear witness to the accident of Chernobyl and invalidate the claims and metanarratives of the authoritarian communist government through his highly intertextual and versatile representation of the event in a manner that supports the postmodern emphasis on the plurality of human experience.

By means of literature as a medium of expression, McKeon attempts to refute the Soviet metanarratives that led to the nuclear meltdown of Chernobyl, and portray the event from multiple perspectives. His emphasis on the health impact as well as the social, political, and environmental repercussions depicts the accident as a severely more serious event than documented by Soviet officials. Having successfully integrated the abovementioned elements in his novel, McKeon contributes to the postmodern shift towards disillusionment by raising awareness about the accident with emphasis on the consequences of authoritarianism and bureaucracy that still govern the world.

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