THE REPUBLIC OF TURKEY

ANKARA UNIVERSITY

GRADUATE SCHOOL OF SOCIAL SCIENCES

DEPARTMENT OF WESTERN LANGUAGES AND LITERATURES

(ENGLISH LANGUAGE AND LITERATURE)

AFFECT, MATERIALITY AND EMBODIMENT IN CLIMATE CHANGE FICTION: JOHN BRUNNER'S *THE SHEEP LOOK UP*, RUTH OZEKI'S *MY YEAR OF MEATS*, AND J.M. LEDGARD'S *SUBMERGENCE*

PhD Dissertation

Yağmur KIZILAY

Ankara, 2023

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Examination Committee Members

Name and Surname	**Signature**
1- Prof. Dr. Nazan TUTAŞ	……
2- Prof. Dr. Aytül ÖZÜM	……
3- Prof. Dr. Mine ÖZYURT KILIÇ	……
4- Assoc. Prof. Dr. Şenol BEZCİ	……
5- Assoc. Prof. Dr. Zeynep Zeren ATAYURT FENGE (Supervisor)	……

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TO THE REPUBLIC OF TURKEY

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GRADUATE SCHOOL OF SOCIAL SCIENCES

I hereby declare that in the PhD dissertation entitled "Affect, Materiality and Embodiment in Climate Change Fiction: John Brunner's *The Sheep Look Up*, Ruth Ozeki's *My Year of Meats,* and J.M. Ledgard's *Submergence*" (Ankara-2023) prepared under the supervision of Assoc. Prof. Dr. Zeynep Zeren ATAYURT FENGE, all information has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work. I also acknowledge that if any of these prerequisites are not met in this study, I will bear all legal consequences.

Yağmur KIZILAY

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INTRODUCTION

Climate change has long become one of the fundamental realities of the Anthropocene age which has been characterized by the huge impacts of human activities on shaping and affecting the biosphere to an unparalleled extent since at least the eighteenth century. In the Anthropocene age in which humans have been proved to be the primary geological agents, it is imperative to recognize the dimensions and far-reaching effects of human activities in the context of the natural world, environment and material bodies, both human and nonhuman, and thereby the complex intricacies and entanglements of the human and nonhuman world. In the contemporary world in which humanity is faced with the impending threat of extinction on the planet in the amidst of environmental catastrophes and climate change, literature has correspondingly responded to these serious environmental issues. Climate change fiction has emerged and developed as the new literary genre of the age of the Anthropocene both as a response to climatic changes in the contemporary world and as an attempt to capture the complexities and implications of climate change in terms of corporeality, human life and nonhuman world. By taking climate change and environmental concerns as its subject matter, climate change fiction not only tackles environmental issues of today's world by examining the various ways in which human and nonhuman world are confronted with the diverse impacts of these ecological issues but also it functions to warn and raise awareness about the further ecological catastrophes that lie in store for humanity through the imagined worlds which envision environmentally destroyed societies.

The aim of this dissertation is to demonstrate how the selected climate change fiction novels, John Brunner's *The Sheep Look Up* (1972), Ruth Ozeki's *My Year of Meats* (1998) and J.M. Ledgard's *Submergence* (2011), epitomize the various implications of climate change and environmental catastrophes for different types of

human bodies, various bodily natures and the material world in terms of materiality, corporeality and affectivity. Through its portrayal of a dystopic world in which climate change and a myriad of environmental issues specifically in the USA ultimately lead to the environmental, social, political and economic collapse of the American society, Brunner's *The Sheep Look Up* presents a valuable understanding of how ecological problems need to be understood and tackled in relation to the multiple discursive systems that both engender and are impacted by these problems. With its emphasis on the far-reaching calamitous effects of the meat industry from corporeal bodies to the environmental health of the planet, Ozeki's *My Year of Meats* provides a critique of the global meat production as a damaging industry that not only exploits human and nonhuman bodies through its detrimental practices but also as one of the leading causes of global warming in the contemporary world. J.M. Ledgard's *Submergence* delves into the impacts of global warming on the planet in relation to marine ecosystems and puts emphasis on the indispensability of the preservation of the oceans for the survival of the human and nonhuman life on the planet through its exploration of the intricacies between the amazingly rich and complex microbial life in the deep ocean and evolutionary, biochemical, and climatological processes on the biosphere.

Commonly abbreviated as "cli-fi" and coined by the freelance writer and climate activist Dan Bloom in 2007, climate change fiction refers to "an already significant body of narrative work broadly defined by its thematic focus on climate change and the political, social, psychological and ethical issues associated with it" (Goodbody and Johns-Putra 2). In their 2011 article "Climate change and in literature and literary criticism", environmental scholars Adeline Johns-Putra and Adam Trexler state that although "[it is] the past two decades that have seen an increasing amount of fiction dealing with anthropocentric climate change, the immediate phenomenon of climate change and its representation in fiction possesses a prehistory of literary portrayals of

worldwide environmental change" (186). Johns-Putra and Trexler mainly focus on the examples of climate change novels written in science fiction genre by affirming the suitability of science fiction in cli-fi literature: "[S]cience fiction specializes in constructions of other-worlds, or what Suvin has called 'novums' and such worlds are often depicted as being caused by or subjected to extreme environmental change" (186). Accordingly, "the extensive history of the genre" could be traced back to the representations of "human altered climates" through terraforming, i.e., "intentionally making planets habitable by changing their climate", in science fiction classics such as Arthur C. Clarke's *The Sand of Mars* (1951) and Frank Herbert's *Dune*" (1965) (Trexler 8; Johns-Putra and Trexler 186).

Among the earliest examples of science fiction narratives with ecological themes that are "set on Earth rather than other planets" are Brian Aldiss' *Hothouse* (1962) and J.G. Ballard's *The Drowned World (*1962). However, in both of these novels ecological changes occur due to natural causes instead of having been anthropogenically induced (Johns-Putra and Trexler 186). While Aldiss' *Hothouse* speculates on how Earth's climate would affect human evolution when Earth has stopped rotating, Ballard's *Drowned World* portrays a world which is destroyed as a result of a "series of violent and prolonged solar storms", causing "solar radiation to heat the Earth by a few degrees each year" (Trexler 8, 87; Ballard 22).

It was during the 1970s when the environmental awareness related to threat of nuclear war, ozone depletion, greenhouse effect and acid rain heightened, the first novels that explore anthropogenic climate change were produced (Johns-Putra and Trexler 186). Ursula K. Le Guin's *The Lathe of Heaven* (1971) and Arthur Herzog's *Heat* (1977) are widely accepted to be the first climate change novels that are directly concerned with anthropogenic climate change (Trexler 8; Johns-Putra 4).

The number of climate change novels published in the late 1980s and the 1990s rose significantly. Among the environmental narratives that engage with anthropogenic climate change during this period are the Australian critic and science fiction author George Turner's *The Sea and Summer* (1987) and Morgan Llywelyn's fantasy *The Elementals* (1993), "both of which depict rising sea levels" (Johns-Putra and Trexler 187). Many other significant climate change novels were published around the turn of the millennium including Maggie Gee's *The Ice People* (1998), Norman Spinrad's *Greenhouse Summer* (1999), T. C. Boyle's *A Friend of the Earth* (2000) and Doris Lessing's *Mara and Dann* (2000).

With Margaret Atwood's *Oryx and Crake* (2003), Kim Stanley Robinson's *Science in the Capital* trilogy (2004, 2005, 2007), and Michael Crichton's *State of Fear* (2004), in addition to Jeanette Winterson's *The Stone Gods* (2007), Sarah Hall's *The Carhullan* Army (2007), Marcel Theroux's *Far North* (2009) and Paolo Bacigalupi's *The Windup Girl (*2009), cli-fi took off in the first decade of the new century (Goodbody and Johns-Putra 4-5). More recent cli-fi narratives that have appeared since 2010 include Ian McEwan's *Solar* (2010), Barbara Kingsolver's *Flight Behavior* (2012), Nathanial Rich's *Odds Against Tomorrow* (2013), and Alexa Wright's *The Swan Book* (2013), David Mitchell's *The Bone Clocks* (2014), Jeff VanderMeer's *Annihilation* (2014), Clare Vaye Watkins's *Gold Fame Citrus* (2015), and James Bradley's *Clade* (2015) (Johns-Putra 4; Goodbody and Johns-Putra 5-6).

Due to its distinguished place with its future insights into the issue of climate change among the first novels of the 1970s that deal with climate change as an anthropogenically caused phenomenon, John Brunner's 1972 *The Sheep Look Up* has been selected as the first novel of this study. As one of the most prominent forerunners of the genre, Brunner successfully imagines the future of an environmentally destroyed American society and addresses the far-reaching repercussions of climate change on both

individual and societal level in *The Sheep Look Up*. Accordingly, the analysis of *The Sheep Look Up* becomes functional for this study to examine climate change as the most serious environmental issue in the contemporary era in its multi-dimensionality. In a 2007 interview William Gibson, a well-known contemporary American science-fiction writer praises Brunner's vision of future ecological catastrophes, saying, "no one except possibly the late John Brunner, in his brilliant novel, *The Sheep Look Up*, has ever described anything in science fiction that is remotely like the reality of 2007 as we know it" ("New Romancer"). Similarly, in the introduction of the 2010 publication of *The Sheep Look Up*, Kim Stanley Robinson, one the most prominent contemporary writers of climate change fiction, declares that "there are lots of Brunners now, but Brunner was the first […] And so *The Sheep Look Up* still dares us to read it" (10-11). Thus, by starting its analysis with one of the first examples of climate change fiction, this dissertation will be able to provide a valuable understanding of how the origins of climate change fiction could be traced back to Brunner's 1972 science fiction novel *The Sheep Look Up* and how Brunner's novel is able to explore the possible consequences of environmental issues ranging from the corporeality of human and nonhuman bodies to the social, political and economic conditions of the society.

With its focus on the exploitative and destructive practices of the global meat industry in terms of its wide-ranging effects which are immensely felt on the environmental degradation, climate change and the corporeality of human and nonhuman bodies, Ruth Ozeki's *My Year of Meats* (1998) has been selected as the second novel of this study. Ozeki's novel is a significant cli-fi narrative that epitomizes the fact that "the intensification of animal agriculture since the beginning of the twentieth century is a major contributor to our current moment of mass extinctions and climate crisis" (McCorry and Miller 1). Therefore, through the analysis of *My Year of Meats*, this dissertation will be able to showcase that climate change fiction has continued to "deepen understanding

of environmental issues" (Irr 16) since the 1970s by demonstrating how industrial food systems like the meat industry have led to large-scale environmental decline and climate collapse in the age of the Anthropocene.

Because of its emphasis on one of the most serious and significant environmental issues in the contemporary world, the centrality and vitality of bodies of water, and its exploration of the human and nonhuman dimensions of the oceanic life, J. M. Ledgard's *Submergence* (2011) has been selected as the third novel of this study. As a modern-day environmental narrative written in the contemporary era marked by "the exponential increase of global ecological exigencies –from Hurricane Katrina to the Fukushima nuclear crisis – that could not be contained within purely localist or national parameters", Ledgard's *Submergence* could be situated within the framework of "transnationalization of ecocriticism" (Oppermann "Transnationalization" 401). The transnational turn that "literature and culture has taken in the last three decades" is most notably recognized in the emerging field of oceanic studies since, as Mentz contends, "the new millennium is bringing humanities scholarship back to the sea" (Vermeulen, "The Sea" 181; 997). By exploring the interconnected systems of the marine life, the survival of the planet and its many species along with the entanglements between the ocean and the ecological, biological, evolutionary, cultural, and psychological dimensions of human life, *Submergence* "invites dialogue with the environmental humanities and critical ocean studies" (Vermeulen, *Literature* 55). The analysis of *Submergence* within the scope of this study, therefore, will be useful in presenting a planetary understanding of the reverberations of the endangerment of the global ocean as interwoven with the impacts of global warming in the contemporary era.

By selecting three climate change novels written in different time periods, namely, John Brunner's 1972 *The Sheep Look Up*, Ruth Ozeki's 1998 *My Year of Meats*, and J. M. Ledgard's 2011 *Submergence*, this dissertation aims to demonstrate how climate

change fiction has emerged and developed as a response to climate crisis and environmental degradation that have gradually worsened from the 1970s onwards. Through the analysis of the selected climate change novels on a chronological basis, this dissertation will be instrumental in revealing that climate change fiction that has emerged with the science fiction novels of the 1970s which imagine the effects of dire climatological changes on the material life has continued to become a functional literary medium to address climate crisis in the age of the Anthropocene by adopting diverse narrative styles and subject matter in order to be able to explore the complex and multi-layered reality of climate change.

Furthermore, by providing an in-depth analysis of the imagined worlds of the selected climate change novels in which environmental problems and climate change could be tackled from various aspects ranging from the effects of these ecological catastrophes on the embodiment of humans and nonhuman others to the political, social, economic dimensions of these environmental issues, this dissertation aims to reveal the complex entanglements of the material environment, human world, corporeality and nonhuman natures in the age of the Anthropocene. In doing so, this dissertation seeks to examine the representation of these interconnections within the framework of material ecocriticism and affect theory in order to draw attention to the agentic, transformative, narrative and affective capabilities of the material world and the interactive ways in which humans and nonhuman elements are involved in ecological relationships. Therefore, while calling attention to the necessity to embrace material ecocritical, affective ecocritical and non-anthropocentric approaches in examining, understanding and proposing solutions to the issue of climate change, this dissertation also aims to contribute to overthrowing the anthropocentric worldview as the main reason for the ecological disasters and climate change that we face in today's world by emphasizing that as humans

are enmeshed within the nonhuman world and the environment, they cannot be thought as separated from or superior to nature or other nonhuman elements.

In order to explore the complex entanglements among the material environment, human bodies and nonhuman natures, this dissertation will analyse the selected climate change novels within the theoretical framework of material ecocriticism and affect theory. Material ecocriticism as a theoretical development of ecocriticism proposed by Serpil Oppermann and Serenella Iovino will be employed in the discussion of the selected climate change novels in order to delve into the fluid and porous interactions among the environmental, political, social and economic systems and various bodies, both human and nonhuman, in the material world. Besides, by taking matter "as a text" within the framework of material ecocriticism, this dissertation will explore how material beings and political, social and economic systems constitute composites of natural and cultural in their complex and intricate relationships, presenting themselves as stories to be read and interpreted to comprehend these material-discursive forces and practices.

Moreover, the analysis of the selected climate change novels within the framework of affect theory will be functional to recognize how these climate change novels become effective in responding to environmental problems and climate change within the context of environment, corporeality and affective states. The significance of affect theory for the aims of this dissertation stems from its emphasis on how "transpersonal or prepersonal intensities emerge as bodies affect one another" (Bladow and Ladino 5). In other words, affect theory, which underlines "the dynamic interactions between and within bodies" aligns with material ecocriticism that entails the recognition of "the trans-corporeal encounters" among environment, human bodies and nonhuman others, which are "intricate and dynamic" (Bladow and Ladino 8). In the discussion of the selected novels, affect theory will be employed in relation to the understanding of affect proposed by Baruch Spinoza and followed by Gilles Deleuze. While Spinoza's

notion of affect refers to the capacities of bodies to affect and be affected by one another, "Deleuze's Spinozan route locates affect in the midst of things and relations (in immanence) and, then, in the complex assemblages that come to compose bodies and worlds simultaneously" (Gregg and Seigworth 6). Such an understanding of affect provides a very effective tool for this dissertation to explore the world as a complex network of interconnections, interchanges and assemblages of things and beings in alignment with material ecocritical discourse

Consequently, via the alignment of material ecocriticism and affect theory in the discussion of the selected climate change novels, this dissertation aims to provide a valuable contribution to environmental humanities by offering a planetary approach to the issue of climate change. The analysis of the selected climate change novels with their unique representations of different human experiences entwined with the nonhuman world, ecological changes and environmental catastrophes in environmentally collapsed societies within the scope of this study will illustrate how climate change fiction provides the possibility to underscore the agential, transformative, narrative and affective power of all the forces and elements in the natural and material world with their capacity to affect humans and be affected by them profoundly in various ways through the lens of material ecocriticism and affect theory.

To this end, this dissertation will first draw attention to climate change fiction as an effective literary medium in environmental humanities by illustrating how the selected climate change novels make use of the thematic and formal possibilities of the novel in order to delve into the multi-faceted dimensions of climate change in the context of material world, human embodiment and nonhuman natures and reflect the complexity of human experience in the age of the Anthropocene through the interlacements of material ecocritical discourse and affect theory.

CHAPTER I

MATERIAL AND AFFECTIVE ECOCRITICAL REFLECTIONS IN CLIMATE CHANGE FICTION

1. 1. Climate Change and the Novel

To begin with, it is necessary to comprehend that climate change is a complex issue with its wide-ranging effects on corporeal bodies and nonhuman natures as well as its social, political and economic implications in the context of human life, as it "possesses an immensity of scale both spatially (as a global event) and temporally (as an unprecedented crisis in human history)" (Johns-Putra and Trexler 185). That is why, "climate change occupies a primary position not just on political and scientific agendas but in the wider cultural imagination" as underlined by environmental scholars Johns-Putra and Trexler (185). In an attempt to explore "the concept of climate change as a cultural phenomenon", there has been a noticeable increase in literary works engaging with climate change in the recent years (Johns-Putra 266). This reflects the prominence of fictional representations in tackling climate change with its cultural and social implications and thus in transforming this serious issue from an abstract and mere scientific fact into a tangible and relatable concept for general public. According to Schneider-Mayerson, literature that takes on climate change is a significant "endeavour to represent social and political challenges presented by the transnational, transgenerational problem of climate change" (309). Therefore, climate change fiction is affirmed as a crucial means of addressing the imminency and criticality of climate change as a global issue that transcends borders.

What makes the novel a well-suited literary medium to probe into climate change in its complexity is essentially its capacity to engage in the dimensions and ramifications of climate change by making use of various and diverse settings, plots, characters and

narrative styles. With its "focus on a narrow locale and set of characters [which] compresses distributed, global events", climate change novel "struggles to understand the devastating potential of climatic disaster" (Trexler 233). Therefore, climate change fiction plays an essential role in addressing climate change as a fundamental and decisive force in the age of the Anthropocene, understanding its various implications in the context of material world and human life and consequently taking action against this serious threat. As journalist Rebecca Tuhus-Dubrow expresses, "climate change [that] once had seemed too large scale, or too abstract, for the minutely human landscape of fiction" has now become "too pressing to ignore and less abstract" (par. 7). How fiction has addressed environmental degradation and climate change since the 1960s is explored in Adam Trexler's *Anthropocene Fictions* (2015), which presents a comprehensive analysis of more than 150 climate change novels written in the age of the Anthropocene. According to Trexler, the central question in *Anthropocene Fictions* is "how climate change and all its things have changed the capacities of recent literature" (13). Hence, how climate change can be delineated in diverse aspects and styles primarily thanks to the possibilities the novel accommodates could be recognized in climate change novels of the contemporary era.

In a similar vein, Johns-Putra highlights the increase in the literary works that take climate change "as a dominant theme" and presents an overview of climate change literature that has grown substantially in the last decades (266). Johns-Putra, who allocates a large part of her overview to climate change novels, states that "it should come as no surprise […] that climate change fiction far outstrips poetic and dramatic engagements with climate change", since "the novel is ubiquitous literary form and the dominant one of our age" (266-7). Furthermore, Johns-Putra underlines the fact that "climate change fiction has been labelled cli-fi and identified as a genre of fiction in its own right" (267) and hence points to fiction as the normative genre of climate change

literature. Like Johns-Putra, Schneider-Mayerson underlines why the novel is a well-suited genre to engage with climate change by defining it as "a medium that demands and rewards sustained engagement" and it is through this medium "the staggeringly complex problems of the Anthropocene are appropriately represented, deconstructed, and understood" (312). Likewise, Tuhus-Dubrow asserts that as an "unprecedented and extraordinary" fact of the contemporary world, climate change "forc[es] us to rethink our place in the world"; accordingly, "all novels must both grapple with the particulars of their setting and use these particulars to illuminate enduring truths of the human condition" (par. 23). In other words, climate change that has become an integral part of human condition in the age of the Anthropocene requires the novel to address this global issue with its representation of climatic changes and challenges posed by climate crisis as experienced by different kinds of people and communities in various settings in the fictional worlds. In doing so, novels that explore climate change are able to underscore that climate change is a commonly shared problem influencing and endangering all nonhuman others and humans irrespective of their racial, cultural or individual differences.

What permits the novel to represent the complexities of living in the age of the Anthropocene derives from its thematic and formal qualities. As Trexler emphasizes, "by its nature, the novel assembles heterogeneous characters and things into a narrative sequence" (14). Thus, the heterogeneous quality of the novel with its possibilities of incorporating various characters and events makes it suitable to capture the multi-faceted dimensions of climate change in the context of material world, human embodiment and nonhuman natures. Trexler's emphasis on the heterogeneity of the novel resonates with the Russian literary critic Mikhail Bakhtin's theory of novel, according to which, the novel is "multiform in style and variform in speech and voice" (262). Bakhtin focuses on the distinctive qualities of the novel that separate it from all the other genres:

> The novel orchestrates all its themes, the totality of the world of objects and ideas depicted and expressed in it, by means of the social speech types and by the different individual voices that flourish under such conditions. Authorial speech, the speech of the narrators, inserted genres, the speech of characters are merely those fundamental compositional unities with whose help heteroglossia can enter the novel; each of them permits a multiplicity of social voices and a wide variety of their links and interrelationships (always more or less dialogized). (263)

Bakhtin's definition of the novel shows that the novel is a genre that consolidates multiple themes, various characters and their distinct discourses, all of which are interconnected through the use of complex plots, various voices and speech styles. Hence, the multiplicity of plots, characters and voices render the novel an effective tool to represent the multi-layered experience of living in the age of the Anthropocene by "conceptualiz[ing] complex, heterogeneous systems" (Clark 179). From a Bakhtinian point of view, Trexler also draws attention to the diversity of characters, plots and voices in climate change fiction by expressing that the novel can bring together "not just 'solitary souls' but scientists, consumers, politicians, insurers, drivers, zookeepers, children, punk musicians, and bureaucrats [who] are yoked with cars, factories, big box stores, thermostats, oil wells, butterflies, mountains, and glaciers" (14). It is this complexity of the novel that enables writers "to explore diverse human responses to peak oil, alternative energy, carbon sequestration, carbon trading, consumption […] in ways that are difficult for nonfiction or other art forms to portray" (Trexler 14). Namely, by allowing writers to explore climate change within possible scenarios that illustrate the interchanges and intermeshed relations among the environment, humans, and nonhuman others, the novel helps readers perceive the material world they live in as a complex web of entanglements.

Another distinctive quality of the novel that makes it a useful literary medium to scrutinize climate change is its potential to be able to use various genres with their own formal traits thanks to its heterogeneous structure. Bakhtin defines the novel "as the sole genre that continues to develop, that is as yet uncompleted" (3). In conformity with Bakhtin's delineation of the novel as "the only developing genre" (4), Johns-Putra also states that "in considering cli-fi as a genre, one must consider the slippery character of literature" as "many texts straddle generic boundaries and genres themselves over time" (267). In a similar vein, Trexler expresses that "in contemporary literature, melting ice caps, global climate models, rising sea levels, and tipping points have altered the formal possibilities of the novel" due to the fact that "climate change necessarily transforms generic conventions" (13, 14). Thus, it is of paramount importance to recognize that in order to capture the complexity and multi-dimensionality of climate change, climate change fiction utilizes narrative possibilities and diverse narrative techniques offered by the novel, which is fluid in nature and heterogeneous in structure. Trexler explains how climate change novels require examining the reality of climate change through making use of various genres:

> In the face of […] challenges [such as weather disasters, atmospheric effects, global warming], climate novels must change the parameters of storytelling, even to draw on the tropes of recognizable narratives. More often than not, the narrative difficulties of the Anthropocene threaten to rupture the defining features of genre: literary novels bleed into science fiction; suspense novels have surprising elements of realism; realist depictions of everyday life involuntarily become biting satire. For these reasons, novels about the Anthropocene cannot be easily placed into discrete generic pigeonholes. (14)

In other words, the complex experience of living in the Anthropocene makes it imperative to utilize new possibilities of storytelling through the use of different genres, styles and

forms. Similar to Trexler, Sylvia Mayer also underlines the various narrative techniques climate change novels employ:

> Climate change novels as risk narratives insist that identities and subjectivities in late modernity, in the world risk society, are crucially inflected […] by the openness, uncertainties and obstructions of our self-created future. To articulate this experience in a meaningful and more accessible way, climate change novels develop narrative structures that often draw on existing formal conventions and shape them in ways that fit their particular purposes. (35-36)

As the literary works seeking to explore climate change and its multiple dimensions in terms of the human and nonhuman world, climate change novels diverge from established narrative patterns and make use of the capacities of the novel in their use of innovative techniques and styles.

Climate change novel owes its flexibility to employing different types of narrative techniques and styles to the polyphonic quality of the novel, which, by its nature, "welcomes the diversity of the other genres" (Madran 214). Bakhtin posits the novel as a unique literary form for its capability to merge distinct genres:

> The novel permits the incorporation of various genres, both artistic (inserted short stories, lyrical songs, poems, dramatic scenes, etc.) and extra artistic/everyday, rhetorical, scholarly, religious genres and others). In principle, any genre could be included in the construction of the novel […] Such incorporated genres usually preserve within the novel their own structural integrity and independence, as well as their own linguistic and stylistic peculiarities […] (320-321)

The novel, which is suitable to accommodate an amalgamation of different genres, therefore, enables novelists to employ diverse genres and styles "for their own intentions in a variety of ways" (Madran 214) in their climate change novels in order to be able to reflect the complex intricacies of the human and nonhuman world and environmental changes. Accordingly, Johns-Putra states that "it is probably more accurate to identify climate change as a topic found in many genres, for example, science fiction, dystopia, fantasy, thriller […]" (267). Likewise, Schneider-Mayerson indicates that "though many early examples of climate change fiction could be characterized as science fiction, narrative engagement with climate change has moved far beyond this origin, permeating every medium form, and style currently in practice" (311).

1. 2. From the Heterogeneity of the Novel to the Climate Change Novel

The thematic and formal analysis of the selected climate change novels will demonstrate how each of these novels deals with climate change and its multi-faceted dimensions with their distinct plotlines and diverse narrative styles and techniques. Firstly, through an overview of the thematic focus of John Brunner's *The Sheep Look Up*, Ruth Ozeki's *My Year of Meats* and J.M. Ledgard's *Submergence* as climate change novels, it will be underlined how these cli-fi narratives draw on the heterogeneity of the novel. An analysis of the complex plots of these novels in which various characters are brought into confrontation with climatic disasters will be functional to examine the effects of these disasters not only on individual lives but also on the society and to tackle the inseparability of human life from nonhuman world and environmental changes from a material ecocritical perspective.

Set in the USA in an unspecified time, Brunner's *The Sheep Look Up* (1972) depicts the catastrophic ecological problems such as heavy contamination of air, water and soil, which is largely caused by industrial and capitalist practices of global North

countries. The effects of these ecological problems are felt on every aspect of life in the American society. Accordingly**,** in an attempt to protect themselves against pollution and toxicity, people have to live dependent on filter masks, water purifiers and buy synthetically produced food due to the failing of crops and scarcity of naturally produced food as a result of pollution and insecticide-resistant earthworms. *The Sheep Look Up* also underlines the fact that corporations which have ruined the planet with their environmentally destructive businesses for the sake of their profit-seeking and capitalist aims continue their exploitative and capitalist practices even after ecological disasters. These corporations try to come up with new ways in order to make money by exploiting people's hopeless efforts to survive in an environmentally destroyed society as exemplified in the profitable business of selling water-purifiers.

Brunner's novel, therefore, exemplifies how functional climate change fiction is in the representation and perception of various political and social aspects of climate change as Mehnert emphasizes:

> [Climate change fiction] gives insight into the ethical and social ramifications of this unparalleled environmental crisis, reflects on current political conditions that impede action on climate change, explores how risk materializes and affects society, and finally plays an active part in shaping our conception of climate change. (4)

Thus, it can be stated that Brunner's climate change novel underlines that social, political and economic systems of the environmentally collapsed societies cause and are influenced by climate change and environmental degradation. Such an understanding is helpful to showcase that ecological decline cannot be thought separately from social and political decline as represented in the social unrest, environmental and social injustice, state violence and terrorist attacks in the American society Brunner portrays.

Ruth Ozeki's *My Year of Meats* (1998) focuses on the harmful and disastrous effects of the meat industry on humans, animals and the environment due to its use of damaging growth enhancing drugs and hormones such as DES in the animals and the transmission of these dangerous chemicals to humans who consume these meat products. Ozeki's novel provides a representation of diverse characters ranging from those victimized due to the detrimental impacts of growth hormones and drugs benefited in the meat industry to those making huge profits from the meat industry. Therefore, Ozeki's novel displays the usefulness of the climate change novel to present a broader perspective and insight into the realities of the meat industry. Besides, *My Year of Meats* not only points out the dangers of the industrial meat production as an industry based on the victimization and exploitation of both human and nonhuman bodies but also as one of the great contributors to global warming in today's world, especially due to its large amounts of methane gas emissions. The meat industry as represented in Ozeki's climate change novel hence becomes emblematic to showcase the interrelatedness of bodily, public and environmental health and proves to be "a complex network of things and effects" just like "climate change itself" (Trexler 15).

As a recently written climate change novel, J.M. Ledgard's *Submergence* (2011) draws attention to one of the most serious and significant environmental issues in the contemporary world, the centrality and vitality of water for all life. The novel mainly focuses on the bodies of water like seas and oceans as irreplaceable sources to sustain life on Earth. Robert Macfarlane indicates that one of the special abilities of literature is "to help us connect present action with future consequence" (par. 8). Accordingly, in the contemporary world which is suffering from the scarcity of water resources and is threatened with the aggravation of the water crises in the near future, *Submergence* as a climate change novel underlines the fact that apart from being an indispensable source for the creation and continuation of life for all life forms, water is also central to human

corporeality due to its watery constitution. In doing so, Ledgard's novel makes it possible to realize that the endangerment of water sources in the contemporary world will have dire consequences for both human and nonhuman bodies on the planet.

Furthermore, the formal analysis of the selected climate change novels will exemplify how the multifariousness of the themes and formal techniques employed in the selected climate change novels becomes influential in evoking various affects not only in the characters of these novels but also in readers. The affective dimension of the selected novels, therefore, will be instrumental in raising awareness of the pervasiveness and seriousness of the contemporary environmental issues like climate change and in urging people to respond to these ecological crises by adopting environmentally-conscious attitudes and behaviours.

Widely accepted as one of the early examples of climate change novel, Brunner's *The Sheep Look Up* "predates cli-fi" in its presentation of "climate change as a causal force in environmental decline" (O'Neill 1). In the novel, the ramifications of climate change and environmental decline are conveyed not only through "a complex variety of causes and their interactions- long range air pollution, pesticides, famine, unrest, state violence, terrorist attacks, biological invasions, water pollution, treatment-resistant diseases" but also by making use of a variety of narrative styles and techniques (O'Neill 1). In Brunner's *The Sheep Look Up*, there are various types of texts incorporated into the main narrative of the novel: The warning signs for public health and safety such as "This Beach Not Safe For Swimming", "Unfit For Human Consumption"; commercials advertising the products and services needed in the fictional world of environmentally destroyed American society such as synthetically produced food commercials: "Special this week at your Puritan Health Supermarket!" or pest control services like "Farm & Gardening Inc. Landscaping Pest Control Experts"; short pieces of information exposing the human-induced environmental destruction as observed in the list of contaminants and

gases accounted for severely polluting the air, among which are "sewage, industrial effluents, detergents, oil derived insecticides, defoliants and herbicides, fumes from garbage incinerators burning plastics, lead, arsenic, fly ash, asbestos" (5, 18, 135, 385-6).

The heterogeneous structure of Brunner's climate change novel with the inclusion of advertisements, notices and informational sections perfectly exemplifies the multiplicity of different narrative styles and techniques the genre provides. As Bukeavich notes, "Brunner draws attention to the heterogeneous qualities of environmental problems, which resist linear explanations and conventional narrative structure" (57). This dialogic style Brunner employs is significant in order to underscore that the complexities of environmental decline and experience of living in the Anthropocene can only be communicated "within a matrix of economic, scientific and cultural practices" (Bukeavich 56). Additionally, Heather Houser asserts that "fiction is a laboratory for perceptual and affective changes that can catalyse ethical and political projects" (19). To put it simply, environmental narratives draw on affect in an effort to bring readers to environmental consciousness. Therefore, from an affective ecocritical perspective, Brunner's employment of dystopian elements in his portrayal of an environmentally, socially, politically and economically collapsed society created by ecological catastrophes has the potential to function as a cautionary tale and to arouse affective responses to prompt readers to adopt effective environmental actions.

In its representation of the intricacies among the meat industry, toxic growth hormones, corporeal and environmental health, Ozeki's *My Year of Meats* utilizes different narrative styles and techniques. The employment of various narrative possibilities of climate change fiction within the narrative makes it possible for Ozeki's novel to highlight the fact that the bodies of nonhuman animals and those of women, children, and economically and socially disadvantaged people are victimized through patriarchal, capitalist and speciesist ideologies as observed in the practices of the global

meat industry. As one of its prominent narrative strategies, Ozeki's novel juxtaposes the tragic stories of her fictional characters with factual information on the meat industry and its many calamitous practices to underline how individual lives are closely interlinked with material-discursive forces. Besides, the depictions of torture and mistreatment of animals used in the meat production through the employment of effective sensory imagery in the novel become effective in urging readers to question the practices of the meat industry. By doing so, the novel invites readers to recognize it as an industry that not only victimizes and exploits both human and nonhuman bodies but also harms the environment as one of the main sources of environmental pollution and climate change. As Houser accentuates, the narrative patterns of contemporary environmental texts "carry an affective charge that can activate environmental care when empirical studies alone cannot" (15). In line with this, drawing on the juxtaposition of facts with sentimental stories and the use of striking sensory images, Ozeki's novel invites readers to feel with those who are violated by the detrimental practices of the meat industry. In so doing, the novel manages to evoke affective responses that can ultimately lead to possible regulations in the meat industry in favour of animals, humans and the environment.

Similar to *The Sheep Look Up* and *My Year of Meats*, J.M. Ledgard's *Submergence* also makes use of different narrative techniques and styles in its tackling climate change as a complex and multi-layered reality of the Anthropocene age. In an attempt to reveal the complexity of climate change experienced by everyone, albeit, at different extent and in various geographical locations, *Submergence* employs a fragmented narrative mode in which the separate narratives of two protagonists, Danielle Flinders and James More, are connected by their romantic encounter in France. The quest of Danielle Flinders in the Hadal deep, the darkest layer of the ocean as a biomathematician, and that of James More, a British spy working in hostile and harsh circumstances on land in Somalia is bridged through the idea that the existence of human

life on the planet is threatened by extinction due to global warming and destruction of the oceans as the root of all life on Earth. The distinctly developed but planetarily connected narratives of two main characters, thus, become useful in "foster[ing] a planetary understanding of the world, which is vital for action against climate change" (Mehnert 13). Further, Weik von Mossner states that through their use of narrative techniques environmental narratives "aim to engage readers sensually and emotionally and thereby move them to action" (*Affective* 8). Accordingly, the novel's modern-day references to contemporary environmental issues like the endangerment of the oceans as well as anthropogenic climate change and its incorporation of scientific and factual accounts of global warming, acidification and overfishing of the oceans into its fictional narrative hint at the contemporariness of the threat of climate crisis. Consequently, *Submergence* holds the potential to evoke affective responses such as the increased sense of responsibility in readers, which can hopefully lead to an awareness of the necessity to take efficient steps against environmental collapse.

1. 3. Material and Affective Ecocritical Concepts

Within the framework of material ecocriticism and affect theory and through the employment of related concepts and terms with regard to these theoretical approaches, this dissertation will analyse how various bodily natures including human bodies and nonhuman natures in the material world are involved in interactive, agentic, generative and affective relationships in a complex web of entanglements through which they act upon each other and they are acted upon reciprocally as exemplified in John Brunner's *The Sheep Look Up*, Ruth Ozeki's *My Year of Meats* and J.M. Ledgard's *Submergence*.

Having emerged in alignment with new materialism, material ecocriticism is an impactful "theoretical development of ecocriticism" in environmental humanities proposed by Serpil Oppermann and Serenella Iovino in order to point out the intricate

relations among matter, materiality, narrativity and text (Iovino, "(Material) Ecocriticism" 113). As Oppermann asserts, "material ecocriticism posits that, endowed with meanings and thick with stories, matter is a site of creative becomings and dynamic expressions" ("Material" 89); hence the narrative and agentic power of matter is affirmed. In their introduction to *Material Ecocriticism* (2014), Iovino and Oppermann define material ecocriticism as

> […] the study of the way material forms—bodies, things, elements, toxic substances, chemicals, organic and inorganic matter, landscapes, and biological entities—intra- act with each other and with the human dimension, producing configurations of meanings and discourses that we can interpret as stories. ("Stories" 7)

To clarify, in line with new material discourse, material ecocriticism acknowledges matter not as an inert object but as a site of meanings through which it is possible to recognize how nonhuman life, natural systems and environment and human life along with human-created political, social and economic systems are in a constant interaction, shaping and being shaped by one another in multiple ways. According to Iovino, "material ecocriticism heeds materiality as the constitutive element of ecological relationships, exploring the entanglements between material configurations and the emergence of meanings" (Iovino, "Material" 56). Thus, material ecocritical discourse adopts a new materialist approach in underscoring the centrality of matter in recognizing the intertwined relations among matter, material bodies and discursive systems. In their proposal for material ecocritical thought in environmental humanities, Iovino and Oppermann maintain that material ecocriticism can be grasped by "situating it in the conceptual horizons of the new materialisms" ("Materiality" 75). Therefore, an overview of these "conceptual horizons" that material ecocriticism and new materialism share will be functional to grasp the alignment between new materialist and material ecocritical

discourses and understand the relevance and significance of material ecocriticism in environmental humanities.

New materialism is based on the conception of "matter as an agentic entity with an effective and transformative power over human and nonhuman environments" (Oppermann, "Material" 89). Therefore, adopting a new materialist approach is crucial to discern the agency and centrality of matter in order to be able to perceive the complex ways in which humans interact with matter and the physical environment they live in as one of the basic tenets of material ecocritical thought. From a new materialist perspective, all kinds of physical matter ranging from rocks, waters, organisms to waste, garbage and toxins have their own agency with their capacity to affect and to be affected by all the other material agencies. By proposing an all-embracing understanding of reciprocal relationships between humans and nonhuman elements, new materialism subverts the traditional anthropocentric worldview that advocates the dominance and superiority of humans over the nonhuman, and leads to anthropocentric and exploitative practices that result in the destruction of nature and environmental catastrophes. Thus, with their suggestion of a more "inclusive" and "non-anthropocentric humanism", which is "'posthuman' in the sense that it refers to a sphere of existence which does not belong solely to humans" (Iovino, "Ecocriticism" 38), new materialist and material ecocritical approaches are essential in overthrowing the Western dualistic thinking that divides the human world from its physical environments via established binary oppositions like culture/nature or human/nonhuman. Consequently, new materialism and material ecocriticism offer new ways of thinking about the conceptual frameworks within which human subjectivity, agency, identity have been defined by "acknowledging the permeable boundaries of species in the natural-cultural continuum, and recognizing the profound interconnections between different forms of life in the composite world where previously we had seen separations" (Oppermann, "From Material" 275).

This return to the centrality and vitality of matter to understand the complex web of entanglements among humans, material environment and nonhuman elements has been brought about by a "material turn", which started in the 1990s in the environmental humanities and ecocriticism. What the material turn basically signifies is "absolv[ing] matter of the scientific figures of fixed, passive, and inert substance and agency from its historical and philosophical associations with human intentionality, will, and intelligence" (Oppermann, "Material" 90). Iovino indicates that the material turn has emerged as a response to "the twentieth-century developments in the natural sciences and with the radical changes that have affected our material environments in the last decades, such as globalization processes, the ecological crisis, and the revolution in technological and communication systems" ("Material" 51). The material turn, therefore, is critical in recognizing the interconnectedness of corporeality, materiality and environmental and discursive systems amidst the ecological disasters and climate change in the age of the Anthropocene. Iovino explains that

> […] one of the key points of the 'material turn' is in fact its reaction against some radical trends of postmodern and poststructuralist thinking, which it regards as "dematerializing" the world into linguistic and social constructions. In these fields the new attention paid to matter has, therefore, emphasized the need of recalling the concreteness of existential fields, with regard to both the bodily dimension and to non-binary epistemological object-subject structures. ("Material" 51)

As Iovino underlines, in contrast to the post-structuralist thinking that seeks to explain the complexities of the world via cultural, social or linguistic abstractions without taking the materiality and corporeality of human and nonhuman bodies into consideration, the material turn has conveniently urged to address the imbrications of corporeality and human-created systems with the material environment they exist within and interact with.

In a similar sense, in her seminal work *Meeting the Universe Half Way* (2007), Karen Barad, a key new materialist thinker, quantum-physicist and feminist theorist, criticizes the prominence given to language and disregard of matter in the conception of the material world:

> Language has been granted too much power. The linguistic turn, the semiotic turn, the interpretative turn, the cultural turn: it seems that at every turn lately every "thing" -even materiality-is turned into a matter of language or some other form of cultural representation […] Language matters. Discourse matters. Culture matters. There is an important sense in which the only thing that does not seem to matter anymore is matter. (132)

As a challenge against this restrictive understanding of the material world within the confines of language, discourse, and culture as proposed by "the linguistic turn", what Barad calls for is an innovative way of perceiving matter as an "active participant in the world's becoming, in its ongoing intra-activity", which signifies "mutual constitution of entangled agencies" (136, 33). Barad's term of 'intra-action' is different from 'interaction' in the sense that in contrast to the 'interaction', "which assumes that there are separate individual agencies that precede their interaction", the 'intra-action' "recognizes that distinct agencies do not precede but rather emerge through their intra-action" (33). Barad, thus, defines universe as "phenomena" by highlighting "the ontological inseparability of agentially intra-acting components" (33). In other words, the world is in a perpetual state of intra-activity in which all matter and material bodies are in an ongoing process of becoming and transforming all the other material agencies through their intra-active interchanges with each other.

Likewise, in their *New Materialisms* (2010) Diane Coole and Samantha Frost maintain that "matter is always something more than "mere" matter: an excess, force,

vitality, relationality or difference that renders matter active, self-creative, productive, unpredictable" (9). Such an understanding is also essential in subverting the Cartesian view of matter as "passive, unmoving in itself and subject to the mechanistic laws of physical cause and effect when compelled to move by an external force" (Frost 71). The Cartesian conception of matter not only renders matter dependent on an external force to come into being but also becomes "central to [Descartes'] notorious metaphysical dualism and his claim that the thinking self is an immaterial substance ontologically distinct from the embodied, material self" (Frost 71). Within the framework of the Cartesian mind-body dualism, the immaterial mind and the material body are set against each other, privileging the mind as the locus of rationality and intellect over the corporeality and materiality of the body. This dualism has also become the core of the modern understanding of humans as the only beings with the capabilities of rational thinking and agency, rendering them unique and separate from all the other beings.

Having situated humans as the centre and superior to all the other beings in the universe due to the intellectual and rational capabilities associated exclusively with humans, the Cartesian mind-body dualism has resulted in the human exploitation and destruction of nature and the environment. As Alaimo and Hekman assert, this nature-culture dualism has become "so injurious—not only to nonhuman nature but to various women, Third World peoples, indigenous peoples, people of color, and other marked groups" that are identified with nature, passivity, inefficiency and irrationality (4). In other words, "Cartesian understanding of the passivity of matter was figured in racialized, gendered, and class terms that in turn were used to justify racial, gender, and class inequities" (Frost 72). New materialist and material ecocritical approaches, by contrast, present a reconceptualization of nature and offer to see nature not as "the inert ground for the exploits of man" (Alaimo and Hekman 4-5), but as an agentive actor that has the capacity to impact both the human and nonhuman world. Therefore, new materialist and

material ecocritical discourses are of central significance to pinpoint the underlying oppressive mechanisms behind the masculinist, sexist, speciesist, racist, and classist ideologies, which are based on the binary oppositions and hierarchical power relations that are also responsible for the destruction of nature and the environment.

Interpreted in this context, new materialist emphasis on the connectivity of all material things in their intra-active relationships that involve transforming and exerting effects on each other resonates with Donna Haraway's term "natureculture". The term "natureculture" signifies the inseparability of nature and culture "in ecological relationships that are both biophysically and socially transformed" (Malone and Ovenden 1). In her *Companion Species Manifesto* (2003), Haraway outlines the implications of her term "natureculture", which she views as a synthesis bringing together "the human and the non-human, the organic and technological, carbon and silicon, freedom and structure, history and myth, the rich and the poor, the state and the subject, diversity and depletion, […] and nature and culture in unexpected ways" (4). Challenging the culture and nature dichotomy embedded in Western thinking, Haraway attempts to outdate this binary understanding by pointing out the intricate relations between the natural world and discursive practices and the impossibility of separating the human world from the nonhuman one. The entwinement of nature and culture could be best observed in the poisoned and sickened bodies as a result of their exposure to detrimental chemical substances used in different industries and fields. Gaard underlines that, "from pesticides and plastics to paint and pajamas, synthetic chemicals are linked to the feminization of male reproductive systems in frogs and other wildlife and associated with breast cancer in women" ("Ecofeminism" 25). This shows that "the forces of global capitalism" that are effective in the widespread use of poisonous chemicals for profit-seeking aims "create trajectories of environmental pollution extending into every metabolic system" (Oppermann, "Toxic Bodies" 413). The toxification of corporeal bodies of both humans

and nonhuman others through naturalcultural processes, thus, becomes emblematic of how our "internal ecosystems of health" (Langston 2) are closely interrelated with environmental forces, discursive systems and various nonhuman elements like chemical substances.

The togetherness of nature and culture also becomes functional to understand that while the discursive systems of society, culture and economy engender natural phenomena and environmental disasters, human life is directly and immensely affected by ecological phenomena. This interwoven relationship between the natural and human world can be easily observed in Nancy Tuana's analysis of hurricane Katrina in her "Viscous Porosity: Witnessing Katrina" (2008). In her analysis of hurricane Katrina that occurred in the USA in 2005, Tuana coins the term 'viscous porosity", which she thinks as a useful "conceptual metaphor" in order to "help us to understand an interactionist attention to the processes of becoming in which unity is dynamic and always interactive and agency is diffusely enacted in complex networks of relations" (188-9). Tuana describes Katrina as "a natural phenomenon" which is induced by "human activities such as fossil fuel combustion and deforestation", making it impossible to make a "hard-and-fast divide between natural and social" (192, 193).

Lastly, feminist ecocritic and prominent new materialist thinker Stacy Alaimo's concept of 'trans-corporeality' encompasses not only the intra-active relations between the human and non-human world as presented by Tuana's concept of "viscous porosity" but also the material relationships among various bodies. In her *Bodily Natures* (2010), Alaimo focuses on "the possibilities for more robust and complex conceptions of the materiality of human bodies and the more-than-human world" (2). Alaimo imagines "human corporeality as trans-corporeality, in which the human is always intermeshed with the more-than-human world, underlines the extent to which the substance of the human is ultimately inseparable from 'the environment'" (*Bodily* 2). In her investigation

of "the interconnections, interchanges, and transits between human bodies and nonhuman natures" (*Bodily* 2), Alaimo underlines that human corporeality cannot be thought separately from the material environment and ecological phenomena. Accordingly, the body becomes the site on which both human and non-human natures put their mark by affecting and changing it in discernible ways. To illustrate, as Alaimo states, many people who are exposed to "twenty-first century environments and substances" suffer from a condition called "multiple chemical sensitivity (MCS) or environmental illness" (*Bodily* 114). This condition leads to "a range of reactions including rashes, tremors, convulsions, breathing difficulties, headaches, dizziness, nausea, joint pain, brain fog, and extreme fatigue" (Alaimo, *Bodily* 114). This health condition with which modern people are afflicted illustrates how human bodies are toxified as a result of interchanges between these hazardous chemicals and substances and their material bodies. Thus, as Alaimo points out, "the 'treatment' for MCS, which entails avoiding all offending substances, suggests how this condition epitomizes a trans-corporeal conception of the human" (*Bodily* 114).

Consequently, Alaimo puts forward her new materialist standpoint by emphasizing the agency of matter and hence disrupting the established hierarchal relationship between human and nature. Alaimo stresses that "thinking across bodies may catalyze the recognition that the environment, which is too often imagined as inert, empty space or as a resource for human use, is, in fact, a world of fleshy beings with their own needs, claims, and actions" (*Bodily* 2). The agentic and transformative power of the environment could be observed in the formation of toxic bodies owing to widespread environmental pollution and the emergence of socio-economic and political turmoils associated with environmental collapse in the age of the Anthropocene characterized by climate crisis. Such a new materialist approach, therefore, serves to affirm that humans, non-human natures and the environment are not to be separated in our understanding of

the material and physical world we live in, emphasizing the ways in which human bodies are in a constant intra-action with the nonhuman bodies and natures by changing and by being changed by them.

1. 3. i. The Body

Drawing upon Alaimo's concept of trans-corporeality, Iovino and Oppermann highlight the centrality and vitality of the body in material ecocriticism by defining the body "as a privileged subject for material ecocriticism" ("Materiality" 84). The concept of trans-corporeality functions to propose an alternative to the understanding of the body in much of cultural studies and feminist theory that "exclusively focuses on how various bodies have been discursively produced, which casts the body as passive, plastic matter" (*Bodily* 3). Alaimo argues that such an understanding "sever[s] the body from "its evolutionary, historical, and ongoing interconnections with the material world" (*Bodily* 3) by disregarding its corporeality and thus by reducing it to a cultural and discursive construction. The materiality of the body, however, makes it imperative to address the body as a trans-corporeal site, which allows to include "lived experience, corporeal practice and biological substance" and create a rich site of discursive and ideological discussions across interdisciplinary areas (Alaimo and Hekman 4). Accordingly, trans-corporeality is positioned as a "theoretical site"

> […] where corporeal theories, environmental theories, and science studies meet and mingle in productive ways. Furthermore, the movement across human corporeality and nonhuman nature necessitates rich, complex modes of analysis that travel through the entangled territories of material and discursive, natural and cultural, biological and textual. (Alaimo, *Bodily* 3)

This view correlates with what Barad calls "material-discursive practices" (230) that signify the entanglements of discourse and materiality and what "Bruno Latour calls a

'new settlement', a new way of understanding the relationship between discourse and matter that does not privilege the former to the exclusion of the latter" (Alaimo and Hekman 6). These approaches entail "new ways of understanding the agency, significance, and ongoing transformative power of the world—ways that account for myriad intra-actions (Karen Barad's term) between phenomena that are material, discursive, human, more-than-human, corporeal, and technological" (Alaimo and Hekman 5). The conception of human corporeality as inextricably connected to the environment and nonhuman nature posits the body as a crucial subject for material ecocriticism. It is through this corporeal matter the interplay between the human and the nonhuman agencies can be observed via "the reciprocal interferences of organisms, ecosystems, and humanly made substances" (Iovino and Oppermann, "Materiality" 84).

According to Iovino and Oppermann, "corporeal matter opens the patterns of agency to the structural interplay between the human and the nonhuman, and is central to overcome the idea of "inert" matter positioned as antithetical to free human agency" ("Materiality" 84). Namely, material ecocritical discourse offers to see human embodiment as a cobweb of complex agencies which cannot be thought as "an independent, 'encapsulated' and circumscribed reality", since "the material self is always intermingled with alien presences" (Iovino and Oppermann, "Materiality" 84). Viewed in this context, human embodiment is intermeshed with nonhuman elements like waste, garbage, toxic materials and chemicals to which humans are exposed on a daily basis, creating what is conceptualized as "toxic bodies".

From material ecocritical perspective, Alaimo's concept of trans-corporeality, which highlights "interconnected agencies", is crucial in recognizing how material bodies are intertwined with discursive practices (*Bodily* 21). According to Iovino and Oppermann, Alaimo's concept of trans-corporeality "not only complements the conventional ecological vision according to which everything is connected with

everything else" but also "provides a more complete interpretive insight […] into the narratives of environmental health and risk" ("Materiality" 85). Iovino points to how toxic bodies are a product of the materiality of matter:

> [M]atter is everything but a conceptual abstraction. From the standpoints of environmental thought, 'materiality' is the condition through which bodies act with and relate with each other, shaping other bodies; it is the condition whereby the health of living beings is mirrored and mutually determined by the ecological balances or imbalances of their environments or, in other words, the condition by which a toxic place determines toxic bodies and toxic life-styles determine toxic places. ("Material" 51)

Positioning the body as a site of material exchanges between human and the environment, material ecocriticism reveals the fact that human embodiment is constituted by material agencies with which it is in a constant interaction.

Toxic bodies as the most concrete indicator of intermeshed relations among embodiment, the environment and material-discursive practices, therefore, become a "trans-corporeal space", which showcases that human health is intricately bound with environmental and discursive systems. Alaimo underlines the fact that "all bodies, human and otherwise, are, to greater or lesser degrees, toxic at this point in history" ("Trans-corporeal" 260). This becomes emblematic of the scale of the destructive and hazardous practices of humans and their repercussions on the physical health of material bodies in the age of the Anthropocene. The residues of toxic substances can be found in "even those humans and animals who reside far from the most polluted zones", since a chemical substance may affect wide-ranging people and environments from "the workers who produce it, the neighborhood in which it is produced, and the plants and animals who end up consuming it" (Alaimo, "Trans-corporeal" 260). These interchanges among various

material forces, chemical substances and bodies emphasize the trans-corporeality and materiality of the toxic substances. Therefore, as Alaimo explicitly expresses, "the traffic in toxins may, in fact, render it nearly impossible for humans to imagine that their own health and welfare is disconnected from that of the rest of the planet" ("Trans-corporeal" 260) because of the fact that human corporeality is inseparably intertwined with nature and its larger environment.

1. 3. ii. Storied Matter

The agency of matter as one of the basic features of matter in new materialist discourse is also central to material ecocriticism. Material ecocriticism emphasizes that as matter has agency, it also has the generative power of creating and telling its own stories without being dependent on human subjects. Iovino and Oppermann maintain that

> [m]aterial ecocriticism proposes basically two ways of interpreting the agency of matter. The first one focuses on the way matter's (or nature's) nonhuman agentic capacities are described and represented in narrative texts (literary, cultural, visual); the second way focuses on matter's "narrative" power of creating configurations of meanings and substances, which enter with human lives into a field of co-emerging interactions. ("Materiality" 79)

In other words, material ecocriticism takes matter "as a text", which "encompasses both human material-discursive constructions and nonhuman things: water, soil, stones, metals, minerals, bacteria, toxins, food, electricity, cells, atoms, all cultural objects and places" (Iovino and Oppermann, "Materiality" 83). These nonhuman beings cannot be considered as inert and passive objects that exist outside human corporeality and human life; on the contrary, "in their agentic capacity they are inextricably connected to our lives, and in most cases (as atoms, molecules, bacteria, toxins, etc.) they are part of our bodies, of our 'material self'", producing and conveying their own stories (Iovino and

Oppermann, "Materiality" 83). To illustrate, toxic substances which make material bodies sick communicate their stories of how they are detrimental to corporeality by poisoning the bodies with which they interact. From a material ecocritical perspective, the narrative agency of these toxic substances can be interpreted in two ways: Firstly, these toxic substances become "texts" that convey trans-corporeal transits between material bodies and xenobiotic chemicals. Secondly, the representation of these toxic substances and their catastrophic effects on material bodies in environmental texts or through other mediums like media productions transmits the agentic capacity of these substances.

Accordingly, the conception of matter as a text is formulated as "storied matter" in material ecocritical discourse as one of its most fundamental conceptual tools. Iovino and Oppermann explain how matter has the power and agency to create its own stories:

> […] the world's material phenomena are knots in a vast network of agencies, which can be "read" and interpreted as forming narratives, stories. Developing in bodily forms and in discursive formulations, and arising in coevolutionary landscapes of natures and signs, the stories of matter are everywhere: in the air we breathe, the food we eat, in the things and beings of this world, within and beyond the human realm. All matter, in other words, is a "storied matter." It is a material "mesh" of meanings, properties, and processes, in which human and nonhuman players are interlocked in networks that produce undeniable signifying forces. ("Stories" 1-2)

Such an approach makes it imperative to recognize the narrative agency of matter because matter is a "site of narrativity" in Iovino and Oppermann's words ("Materiality" 83). Perceiving matter as a site of narrativity can enable humans to detach themselves from the anthropocentric stories that exclude a significant amount of stories matter has to tell, i.e., the stories of intra-active and complex relations among human and nonhuman bodies

and the environment, which are valuable in adopting a planetary understanding of the material world that bears the potential to acknowledge and value all material beings—human or nonhuman.

According to Iovino, material ecocritical thinking requires comprehending reality "as a material, text, *as a site of narrativity*, a storied matter", since "if discourse and meaning are co-extensive in the constitution of matter, reality can be discovered as an array of stories" ("Material" 57-58, emphasis in original). Therefore, material ecocritical discourse is positioned as the reversal of deconstructionist discourse in that deconstructionism affirms, in Derridean terms, that "there is nothing outside the text", situating reality within language and text, outside the material world (52). By contrast, material ecocriticism proposes to "interpret 'there is no outside of language' as 'there is no outside of nature'" as Kirby asserts, which is an understanding that compels us to see "matter-nature as a process of embodied dynamical emergences in which a field of meaning is entailed" (qtd in Iovino "Material" 58; Iovino, "Material" 58). Therefore, it is through the narrative agency of matter, we could recognize how humans are created through the material agencies such as bacteria and cells as the constituents of human corporeality or waste, garbage or chemicals which transform human bodies into toxic bodies by poisoning or making them sick.

Material ecocritical entails realizing that the planet itself can be interpreted as "a site of narrativity" which tells its diverse stories of intra-active relations with humans. Namely, everything that exists in the universe "tells evolutionary stories of coexistence, interdependence, adaptation and hybridization, extinctions and survivals" (Iovino and Oppermann, "Stories" 7). Accordingly, the stories that matter tell lead to an understanding of how different kinds of matter are active and participant in shaping the world and affecting its human and nonhuman inhabitants. As Oppermann illustrates,

> [t]he fossils, for example, tell stories of extinct beings captured in time. Volcanoes tell stories about the earth's turbulent past. Tree rings yield stories of long years of droughts and rains, while retreating glaciers transmit stories of changing ecosystems and climate, blending global warming with political anxieties and social changes. (Oppermann, "Storied Matter" 413)

Such an understanding becomes instrumental in recognizing the interlocking connections between humans and the universe they exist in. It is because of the fact that "storied matter" underscores the idea that "the universe is not simply a place but a story—a story in which we are immersed, to which we belong, and out of which we arose" as cosmologists Brian Swimme and Mary Evelyn Tucker put forward (qtd in Oppermann, "Storied Matter" 411-2). In this sense, material ecocriticism calls for the recognition of these enmeshed and mutually constitutive relations communicated by "narrative agencies, like bodies, stones, mountains, tornadoes, toxins, butterflies, bacteria, plastic bags, garbage, spiders—in the material world" (Opperman, "How the material" 113). Through the stories conveyed by these narrative agencies, humans can grasp the fact that their existence in the universe is inseparably embroiled with the climatological, evolutionary, biological and chemical systems of Earth and the social, political and economic structures of the societies.

Within the framework of material ecocritical discourse, the second chapter will focus on how the bodily effects of the pervasive and extreme pollution are materialized in the toxic bodies of human and nonhuman bodies in *The Sheep Look Up*. The concept of trans-corporeality will be exemplified in the embodiment of dirt and toxicity observed in the cough, watery eyes and slimy hands of people and their sick bodies suffering from at least one ailment due to water, air and soil pollution and in the toxicity observed in nonhuman bodies like animals and plants resulting from the excessive use of pesticides and insecticides in the novel. Moreover, the polluted air, contaminated water resources

and food crops will be tackled as "storied matter" in the sense that they are "texts" which tell their stories of how they have ended up being heavily poisoned by destructive anthropocentric practices.

The third chapter will discuss how the employment of Alaimo's concept of trans-corporeality and toxic bodies in *My Year of Meats* demonstrates that the use of harmful growth hormones in the meat industry transforms human bodies into toxic bodies by poisoning them and devastating their central bodily functions through "transit across human bodies and the environment" (*Bodily* 53). Accordingly, the toxic bodies of humans and animals created by calamitous chemicals used in the meat industry as a result of capitalist, speciesist, racist and patriarchal ideologies will be analysed as "living texts" that epitomize "a congealing of biological and discursive processes through which toxic agencies and discourses transit" (Oppermann, "Toxic Bodies" 417)

The fourth chapter will elaborate on "the permeable boundaries" (Iovino and Oppermann, "Materiality" 81) between the oceans, human and nonhuman bodies in relation to the ways in which the watery embodiment of material bodies makes them an inseparable part of the nonhuman bodies of water. Besides, the ocean will be explored "as a site of narrativity" which articulates not only its agentic and material power due to its imbrication with the biochemical processes on Earth but also its destruction through discursive and exploitative practices of overfishing, trawling and oil drilling with innumerable detrimental repercussions for the life on the planet.

1. 3. iii. Affect Theory

As a multi-faceted and complex concept, affect has taken various different interpretations and approaches. Thus, as Gregg and Seigworth in *The Affect Theory Reader* (2010) have expressed, "there is no single generalizable theory of affect: not yet, and (thankfully) there never will be" (2). The turn to affect and the proliferation of the theoretical discussions related to affect started in the mid-1990s and marked a period what

Patricia T. Clough calls "the affective turn" (1). According to Clough, cultural theorists and critics turned to affect as a reaction to "the limitations of post-structuralism and deconstruction" with their claim of "the death of the subject" and thereby ignoring the subject's affects and emotions (1). The turn to affect and theoretical studies on affect have been most notably indicated in Eve Sedgwick and Adam Frank's "Shame in the Cybernetic Fold" (1995), which explores the American psychologist Silvan Tomkins's theory of innate human affects, and Brian Massumi's "The Autonomy of Affect" (1995), which draws upon the works of Spinoza and Deleuze and puts forward the theory of autonomous affect, i.e., the "*openness"*, "vitality" and "potential for interaction" of affect (96; emphasis in original). These two essays have become influential in giving shape to two leading but separate directions in the studies of affect in the humanities.

While Silvan Tomkins's theory of affect is based on his assertion of the existence of the primary innate affects that are "hardwired into the human biological system" (Sedgwick and Frank 497), Deleuze's understanding of affect based on Spinoza's theory of affect that conceptualizes "affect as an entire, vital, and modulating field of myriad becomings across human and nonhuman" (Gregg and Seigworth 6). For the aims of this dissertation, the understanding of affect proposed by Spinoza and followed by Deleuze will be employed with its diverse implications in the analysis of the selected novels. The reason why this dissertation bases its discussion of affect on Spinozan and Deleuzean understanding of affect but not Tomkins' theory of affect is that Tomkins' theory "interprets the affects as non-intentional and bodily reactions" and therefore posits that "affect and cognition are two separate systems" (Leys 437). By contrast, in Spinoza and Deleuze's view, affect is an intensive force that entails "the change, or variation that occurs when bodies collide, or come into contact" (Colman 11). Such an understanding of affect affirms the interconnectedness of cognitive and bodily experiences in the emergence of affective intensities among various bodies– human and nonhuman– as they

affect and are affected by each other as a result of interactions, interferences and transits created by material forces. As Massumi puts forward, "something happening out of mind in a body directly absorbing its outside cannot exactly said to be experienced" ("Autonomy" 90). Thus, the analysis of the selected novels within the context of Spinozan and Deleuzean notion of affect will be useful to recognize the permeable and intermeshed relationships in which humans and nonhuman others constitute each other through their intra-active and affective complexities in alignment with material ecocriticism. The employment of Spinozan and Deleuzean understanding of affect as the basis of its discussion of affect in this dissertation will also make it possible to analyse the various ways the selected texts deploy affect through diverse affective registers such as textual, environmental and corporeal and thus manage to arouse affective responses in readers by triggering the complex and interrelated cognitive, bodily, and psychological processes.

The first direction in affect theory studies is based on Tomkins's theory of affect, which he defines as an "innate biological motivating mechanism, more urgent than drive deprivation and pleasure, and more urgent even than physical pain" (Tomkins 619). According to Tomkins, there are nine primary innate affects: interest-excitement, enjoyment-joy, surprise-startle, distress-anguish, fear-terror, anger-rage, shame humiliation, disgust, and dissmell (Tomkins 726). These innate affects are "viewed as genetically hard-wired, reflex-like responses, each of which manifests itself in distinct physiological-autonomic and behavioral patterns of response" (Leys 438). Thus, Tomkins' theory of affect differs from Freud's understanding of affect in that affects are not different from biological drives that "constitute the primary motivational system" in Freud's view (Tomkins 4). In an attempt to demonstrate the difference between drives and affects, Tomkins focuses on two affects– terror and panic and lists different situations that can trigger these affects, such as "the possibility of losing [one's] job, of developing cancer, or of losing [one's] beloved" (620). According to Tomkins, fear or terror are "no

way a part of the drive mechanism"; on the contrary, "fear or terror is an innate affect which can be triggered by a wide variety of circumstances" (620). Hence, in Tomkins's view, it is the affects that intensify drives but not vice versa, "which explains why one must be excited (affect) to be sexually aroused (drive), but need not be sexually aroused to be excited" (Ott 4).

Another major idea related to Tomkins's affect theory is that "affect, even when activated, is not always an essential part of the feedback assembly in human beings", which is an idea that highlights "the independence of the affect system" from human consciousness (63). Tomkins gives the example of an infant in order to illustrate how affects do not need to be triggered by conscious actions or situations:

> The infant passively enjoys or suffers the experience of his own affective responses long before he is capable of employing affect as part of a feedback mechanism in instrumental behaviour. He does not know "why" he is crying, that it might be stopped or how to stop it. (63)

The infant experiences and manifests certain affective states without being aware or conscious of the causes of these affects. This points to the distinction between the affects that one experiences and his/her knowledge of why these affects are triggered. Tomkins further explains that there is "a radical dichotomy between the 'real' causes of affect and the individual's own interpretations of these causes" (137).

In a similar vein, in his *Shame and Pride: Affect, Self and The Birth of the Self* (1992) Donald Nathanson, one of the supporters of Tomkins's affect theory, draws attention to this dichotomy in relation to the meaning-making processes of affects:

> […] the affects are […] completely free of inherent meaning or association to their triggering source. There is nothing about sobbing that tells us anything about the steady-state stimulus that has triggered it; sobbing itself has nothing

> to do with hunger or cold or loneliness. Only the fact that we grow up with an increasing experience of sobbing lets us form some ideas about its meaning. (66)

It can be deduced that humans do not consciously determine the meanings of the affects by being fully aware of their sources and causes. It is through their affective experiences people form certain ideas about the meaning of these affects. Therefore, human cognitive learning and meaning-making processes are formed and developed through people's attempts to derive meaning and gain understanding of the affects they experience since their birth. Namely, learning to give meaning to affects by misjudging or without being completely aware of their real sources and outcomes is what facilitates cognitive learning (Tomkins 64). This approach is also reiterated in Sedgwick and Frank's analysis of Tomkins's affect theory in their "Shame in the Cybernetic Fold" in their suggestion that it is this "inefficiency of the fit between the affect system and the cognitive system […] that enables learning, development, continuity and differentiation" (511). All in all, Tomkins and his followers view affects as "a set of innate, automatically triggered brain-body behaviours and expressions operating outside the domain of consciousness and intentional action" (Leys 465).

The second direction in affect theory studies is based on Spinoza's affect theory, followed by Deleuze and later taken on by Brian Massumi in his theory of autonomous affect. Before delving into Deleuze's theory of affect, it is important to trace Spinoza's ideas on affect to comprehend his influence on Deleuze and Massumi. In *The Ethics*, Spinoza presents his understanding of affect and indicates that "by affect, I understand the affections of the body, by which the power of acting of the body itself is increased, diminished, helped, or hindered, together with the ideas of these affections" (154). By focusing on the "affectivity expressed in ideas and bodily experience", "Spinoza's turn to the affective nature of experience means that he moves away decisively from Descartes'

solution, which famously involves a dualistic approach to understanding the world and maintaining a strict separation between the mind and the body" (Pethick 21, 28). In his understanding of affect and affectivity, Spinoza underlines the complex interactions between the human mind and the body and states that while different people can be affected by one and same object or situation in different ways, the same person can be affected by one and same object or situation in different ways at different times (164). To illustrate this, Spinoza gives the example of how eating something that we enjoy is a very pleasurable activity when we are hungry whereas eating the same food can disgust us when we are full or eat it too much (187). Hence, the food that we have longed for prior to our satiation with it can turn into an odious object when it is overeaten. This underscores that the same object can result in opposing affects in the same person in different circumstances and therefore reveals the complex affective relations between the mind and the body. This same example can also be thought in terms of the affectivity of the food in the sense that "the consumption of food increases a malnourished body's ability to affect and be affected, whereas the same activity decreases this ability in an over-nourished body" (Pethick 43-44). Such an understanding makes it possible to realize that the capacity for an affect to increase or diminish the potential of a person to act in a certain way does not depend on the object or situation itself but on the way we perceive or experience this certain object or situation.

Another important aspect of Spinoza's affect theory, which is also crucial for the basis of Deleuze's affect theory, is Spinoza's differentiation between two dimensions of affect as "affectio" and "affectus". Spinoza's "affectio" and "affectus" point to the key distinction between "the state of a body as it affects or is affected by another body (affectio)" and "a body's continuous, intensive variation (as increase-diminution) in its capacity for acting" (affectus)" (Seigworth 184). It is the "affectus" dimension of affect from which Deleuze derives its formulation of affect, which Massumi defines as "a

prepersonal intensity corresponding to the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act" (Seigworth 162; Massumi, *A Thousand* "Notes" xvi). For Deleuze, affects do not correspond to basic feelings or emotions; rather, they are accountable for determining the certain state of bodies at a certain moment, signalling the capacity of these bodies to affect and be affected by other bodies and transforming them from one state to another (Ott 9). What is essential to recognize in Deleuze's understanding of affect is that bodies derive their abilities to affect and be affected by other bodies from material forces, which constantly enforce their power and effects upon them. In Deleuze's view, it is through these affective encounters engendered by material forces that bodies can take upon multiple identities and experience various possibilities of interaction and connections among each other. Deleuze's approach to affect, thus, presents a novel understanding of the body as opposed to its traditional understanding as a closed system but rather as an "assemblage", in Deleuzean terms, which is fluid and open to engage in various interactions and transformations with its potential to impact and to be impacted in return.

Deleuze's innovative approach to the body is formulated as "body without organs" in *A Thousand Plateaus* (1987), a book he wrote in collaboration with Felix Guattari. Deleuze and Guattari define "the body without organs" as "permeated by unformed, unstable matters, by flows in all directions, by free intensities or nomadic singularities, by mad or transitory particles" (40). In Deleuze and Guattari's view, "the body without organs is opposed not to the organs but to that organization of the organs called the organism" because "stay[ing] locked into the organism, into a stratum that blocks the flows" anchors people in their singular and restricted world (158). That is why, dismantling the organism means "opening the body to connections that presuppose an entire assemblage, circuits, conjunctions, levels and thresholds, passages and distributions of intensity" (Deleuze and Guattari 160). From this perspective, Deleuze and

Guattari's "the body without organs" must be understood not as a physical body but rather as a state of being which allows people to free themselves from a singular, stable identity and to involve in relations with other bodies, making it possible to adopt new identities and states through their affective potentialities. In other words, the freedom of "the body without organs" stems from its capacity to detach itself via various encounters and interactions with all the other bodies from all the limitations and structures designed to restrict it to a certain and established identity, which makes it easy to control, oppress and prevent it from constructing fluid and multiple identities. All in all, Deleuze's notion of affect accentuates "the ways affective attachments and exchanges infuse a lively material world in which we are deeply embedded alongside other beings", positioning all material bodies assemblages, which are "in constant variation and constantly subject to transformations" (Bladow and Ladino 8; Deleuze and Guattari 82). Deleuzean idea of bodies as "assemblages" relates to material ecocritical perspective in the sense that bodies as "assemblages" point to intra-active relations and transitions among various material bodies.

Drawing upon Spinoza and Deleuze's theory of affect and taking Spinoza's famous definition of affect — "the power to affect and be affected"—as the basis of his discussion, Brian Massumi, a cultural theorist and the chief translator of Deleuze and Guattari's work, asserts that "to affect and to be affected is to be open to the world, to be active in it and to be patient for its return activity" (*Politics* ix). Similar to Deleuze's understanding of affect, Massumi also emphasizes the requirement of the existence of the constant flux of encounters across bodies through interactions, events or relations for an affect to be realized. Moreover, Massumi's understanding of affect posits affect as an "intensity", which is not "semantically or semiotically ordered" but "embodied in purely autonomic reactions most directly manifested in the skin-at the surface of the body, at its interface with things" (*Parables* 25). From this perspective, affect is not constructed

through language or consciousness but triggered automatically. In Massumi's view, if you affect something, you are at the same time opening yourself to be affected in return, which engenders a transition (*Politics* 3). Inspired by Spinoza's understanding of the body, which he defines, "a body is […] what it can do as it goes along", Massumi defines the body by "what capacities it carries from step to step" and considers a body's ability to affect and to be affected fluid and perpetual (*Politics* 3).

More importantly, Massumi's approach to affect, which he describes as an openness that enables various bodies to involve in a myriad of connections and transitions with each other, presents a viewpoint that enables to relate the concept of affect to material ecocritical thinking. What Massumi emphasizes regarding the implications of affect is essential to denote the material ecocritical dimension of affect:

> […] [Affect] is not just about us, in isolation. In affect, we are never alone. That's because affects in Spinoza's definition are basically ways of connecting, to others and to other situations. They are our angle of participation in processes larger than ourselves. With intensified affect comes a stronger sense of embeddedness in a larger field of life - a heightened sense of belonging, with other people and to other places. (*Politics* 6)

In line with new materialist and material ecocritical discourses that interpret the world as phenomena in which all bodies and agencies are engaged in intra-activity, shaping and transforming each other, affect points to the autonomy of bodily forces to connect to the material world through various interchanges and transmissions.

A new materialist approach to affect can also be recognized in Jane Bennett's new materialist concepts of "vital materiality" and "impersonal affect", both of which are based on the idea that all material entities possess vibrancy and vitality through their capacities to affect and be affected. In *Vibrant Matter* (2010), Bennett highlights that by

her terms of "vital and "vibrant materiality", she means "the capacity of things edibles, commodities, storms, metals—not only to impede or block the will and designs of humans but also to act as quasi agents or forces with trajectories, propensities, or tendencies of their own" (vii). Therefore, in Bennett's view, not only humans but also nonhuman elements are "actants", a term she borrowed from Bruno Latour, and actants "are a source of action that can be either human or nonhuman; it is that which has efficacy, can do things, has sufficient coherence to make a difference, produce effects, alter the course of events" (viii). Bennett maintains that affect is of central importance for humans to realize the affective capacities of impersonal and nonhuman bodies other than themselves and to be more attentive to the interactive ways in which humans and nonhuman elements involve in ecological relationships. Bennett further notes that she "equate[s] affect with materiality", since all material entities including organic and inorganic bodies, natural and cultural objects are affective and therefore have the potential for activity and responsiveness (xii, xiii).

Consequently, the relevance of affect theory in environmental humanities is rooted in its emphasis on the intensities that arise as a result of interactions and entanglements among various bodies, environments and texts. Simply put, "affect is ecological 'by nature' since it operates at the confluence of environments, texts, and bodies- including nonhuman and inanimate bodies" (Bladow and Ladino 8). As "affect arises in the midst of inbetween-ness: in the capacities to act and be acted upon", "the manifold and complex interactions, exchanges, and circulations between narratives, bodies, and environments is echoed within affect theory" (Gregg and Seigworth 1; Weik von Mossner, *Affective* 11). Affect theory also functions to equip us to comprehend how environmental narratives and texts engage readers on a perceptual and emotional level and how these narratives become effective in driving them to environmental actions. Accordingly, climate change novels as environmental narratives illustrate how "the novel

is not only an imagined world but is also an apparatus for reconfiguring the world beyond its pages" and "the mechanism of this apparatus is affect" (Houser 28).

This dissertation will draw on the affinities between material ecocriticism and affect theory and take the understanding of affect proposed by Spinoza and followed by Deleuze as its basis to explore the diverse implications of affect and to recognize the effectiveness of affective responses created through fictional representations of climatic changes in the selected climate change novels. In doing so, this dissertation will argue that the selected novels could make people pay attention to the precarious state of our planet in the age of the Anthropocene and prompt them to take ethical and political actions, since it is affects that "can carry us from the micro-scale of the individual to the macro-scale of institutions, nations and the planet" (Houser 223).

Within the framework of affect theory, the second chapter will analyse the diverse affective states observed in various characters in the face of environmental catastrophes in *The Sheep Look Up* in relation to Jane Bennett's theories of "affective bodies" and "impersonal affect", which are based on Spinozan idea of "conative bodies" and Deleuze and Guattari's concept of "assemblage". The third chapter will examine how various narrative strategies employed in *My Year of Meats* could manage to trigger affective responses and thereby focus on vegetarianism and empathy from an affective ecocritical perspective. The fourth chapter will draw attention to how Lawrence Buell's concept of "ecoglobalist affect" could be an effective tool to arouse affective sensibilities beyond national and regional borders in order to make people realize the necessity of protecting the oceans for the continuation of life on Earth.

CHAPTER II

TOXICITY IN JOHN BRUNNER'S *THE SHEEP LOOK UP*

The significance of British science fiction writer John Kilian Houston Brunner's (1934-1995) *The Sheep Look Up* (1972) in the tradition of science fiction with ecological themes stems from its position as a novel widely accepted as one of the earliest examples of climate change fiction with its portrayal of a planet threatened with extinction due to anthropogenic climate change. As a keen observer of the critical global issues of his time, Brunner took actively part in the organizations and campaigns, specifically against the threats of nuclear arms both as "a member of the National Council for the Abolition of Nuclear Tests and a leading member of the Hampstead group from which the national Campaign for Nuclear Disarmament was formed" (Barratt par. 5). In addition to his fictional works, Brunner also wrote "unpaid writing for fanzines" and articles in magazines such as "New Society and New Scientist on topics ranging from the possible link between population growth and urban violence to the role of heredity in disease" (Smith, ch.2). In his article "The educational relevance of science fiction" in 1971, Brunner elaborated on how science fiction could be useful for the general public in understanding "the impact of our technical ingenuity on our environment and the quality of our lives" (389). Therefore, Brunner's ecological consciousness as observed in his activism against nuclear arms and in his non-fiction works is successfully expressed through the fictional accounts of his environmental concerns during the 1960s and 1970s.

Among the most highly regarded fictional works of Brunner was the Hugo Award-winning *Stand on Zanzibar* (1968), which were followed by *The Jagged Orbit* (1969), *The Sheep Look Up* (1972), *The Shockwave Rider* (1975). These four novels that have later been called "the Club of Rome" quartet tackle "respectively, overpopulation, violence, pollution and the rise of computing age" (O'Neill 2). "The Club of Rome" quartet are the products of the environmental and global issues of the 1960s and the 1970s

concerning the future of humanity such as environmental degradation, overpopulation, nuclear arms and emerging trends in industrial and communication networks (O'Neill 2). As Neal Bukeavich underscores, specifically Brunner's eco-disaster novels, *Stand on Zanzibar* and *The Sheep Look Up* are "the first major science fiction novels to map complex networks of science, global society, politics and ecology", positioning Brunner as one of the most successful forerunners of climate change fiction (53-54).

The first novel of this study, *The Sheep Look Up* depicts a dystopic future through its depiction of the apocalyptic consequences of climate change and diverse environmental catastrophes ranging from excessive air and water pollution to treatment-resistant diseases due to the widespread toxicity abound in food and water supplies. This environmentally collapsed society depicted in the novel is created as a result of anthropogenic climate change brought about primarily by the anthropocentric and capitalist ideologies and practices of the Western countries. The novel is set in an unspecified time in the USA; however, ecological problems are not restricted to the USA as there are many references to other countries that are faced with environmental problems. For instance, Canada is suffering from air pollution due to the high amount of noxious gases emitted by the USA and drifted to Canada through winds. The novel also points out that Mekong Delta in Vietnam has turned into Mekong Desert and just like the Mediterranean, the Baltic, Great Lakes, and Caspian have ended up being heavily poisoned and therefore have become unsuitable to host any sea life. Besides, the weird weather events around the globe like the dust storms in Oklahoma and Camargue and snow in August in Paris are pointed out as the effects of "climatic change" in the novel (126).

Because of the widespread and excessive air and water pollution in most US cities people have to wear filter masks before going out and use water purifiers as it is not safe to drink water without purifying it. Among all these problems, people suffer from a

number of antibiotic-resistant diseases such as typhus and brucellosis while children are born with defects. Not surprisingly, the infant mortality is high and the life expectancy in the USA is officially declining. Besides, due to the excessive use of pesticides, earthworms such as lice, flea, roaches and mosquitoes have grown "immune to insecticides", which is presented in the novel as the underlying reason behind scarcity of edible food both in the USA and in other countries like Honduras and Africa (371). Owing to the immunity of insecticides, worms that have increased in number attack food plants and cause the failing of crops, resulting in the scarcity of naturally produced food. The shortage of edible and uncontaminated food forces people, if they can afford, to purchase "Puritan Foods", a company which sells allegedly "pure food" at extremely high prices (373). "Puritan Foods" overcharges people for the food they claim to grow naturally while it is not possible, since "if you divide the amount of home-grown produce Puritan sells per year into the amount of ground you'd need to grow it on, there literally isn't enough uncontaminated land left in North America" as stated in the novel (273). Similarly, the wealthy and well-established industrialist Roland Bamberley has now invested in water-purifying filters. While these businesses are mainly responsible for the contamination and toxification of water resources by having dumped their poisonous industrial waste for years, they still try to take advantage of the widespread water pollution, which is harshly criticized in the novel: "[…] they shit in the water until it's dangerous to drink, then make a fucking fortune out of selling us gadgets to purify it again" (247). It is clear that these greedy corporations make profit by exploiting people's desperate needs to survive amidst ecological disasters rather than taking action against it (Hermann 121).

In Brunner's novel, the political and social decline along with civil unrest in relation to ecological collapse are mainly presented through Austin Train and his followers in the novel. As an environmentalist and former professor and author, Austin Train becomes the spokesperson of the environmental movement and is followed by a

growing number of environmentally-conscious activists who call themselves “Trainites”. Trainites protest against the environmental damage; however, some extremist Trainites resort to the ways that Train does not advocate, including blocking the traffic, drawing skull and crossbones, a symbol that have come to be a Trainite symbol, on the cars and buildings that are known to give harm to environment, and some other drastic and violent acts like kidnapping and bombing. For instance, the extremist Trainites kidnap Hector Bamberley, whose father Roland Bamberley gains profit from ecological collapse by selling water-purifiers to people in California. These extremist Trainites demand “twenty thousand water-purifiers installed free of charge” from Roland Bamberley as ransom for his son Hector (306). The public believes that the installation of a large number of free water-purifiers through the ransom the Trainites demand could be helpful especially for the economically disadvantaged who cannot afford to drink clean water, which highlights the widespread social and environmental injustice in the polluted environment in the American society.

In his exploration of environmental degradation and its far-reaching impacts in *The Sheep Look Up*, Brunner is thought to have been influenced by the environmental issues and publications in the late 1960s and the early 1970s that gave rise to modern environmental movements. Brunner wrote *The Sheep Look Up* in a period during which the fears of ecological catastrophes grew substantially. Following the nuclear fallout of the Castle Bravo hydrogen bomb test in the Pacific in 1954, which resulted in the accidental contamination of several hundred people and death of a Japanese fisherman, a general awareness of the potential dangers of nuclear testing for civilians and the environment was developed (Hermann 105). It was the threats of the nuclear age that initially became effective in the birth of the environmental movement known as “New Environmentalism” that started in the USA and influenced Britain and the whole world between the late 1960s and the mid-1970s (Hermann 105). In *Reclaiming Paradise*

(1989), the political scientist John McCormick addresses New Environmentalism as an "activist and political movement", which was the product of the socio-political factors that emerged before and during the 1960s such as atomic testing, the publication of Rachel Carson's *Silent Spring* and a series of environmental disasters (48-49). Roderick Nash states that it was the fear for the future of humanity that became influential in the growth of environmental concerns and the rise of New Environmentalism, most notably in America in the 1960s and 1970s (269). R. Nash emphasizes that during this period people recognized the fact that the survival of humanity depends on "the survival of the ecosystem and on the health of the total environment" (269). This ecological perspective entails the recognition that humans are inseparably connected to the biosphere and their survival on Earth is inevitably bound up with the conservation of the environment. Therefore, New Environmentalism which emerged in response to the rising environmental concerns proved to be "a new force for social and political change" with its message that "the environmental catastrophe could be avoided only by fundamental changes in the values and institutions of industrial societies" (McCormick 48, 49).

The publication of *Silent Spring* in 1962 by the American biologist Rachel Carson immensely contributed to the environmental protection movement in the United States by emphasising man-made ecological disasters and giving a striking account of the catastrophic effects of the reckless and excessive use of chemical pesticides and herbicides. Robert Downs in *Books That Changed America* (1970) expresses that *Silent Spring* is the book that launched the modern environmental movement (265). Likewise, Carson's editor and biographer Paul Brooks in *The House of Life* (1972) indicates that "*Silent Spring* has been recognized throughout the world as one of those rare books that change the course of history not through incitement to war or violent revolution, but by altering the direction of man's thinking" thanks to its emphasis on how natural life is directly and irreversibly harmed by human made substances and practices (227). The

impact of *Silent Spring* with its focus on the harmful effects of chemical pesticides and insecticides for human, animal and environmental health is clearly observed in the context of Brunner's criticism of DDT in *The Sheep Look Up*.

Furthermore, the wide media coverage of the environmental issues and the disastrous consequences of these disasters played a central role in the formation and success of environmental campaigns, most notably, Friends of the Earth (1969) and Greenpeace (1971) (Hermann 108). The support and popularity these campaigns received paved the way for memorial days and international conferences that became influential in raising ecological awareness and prompting environmental actions. On April 22, 1970, the first Earth Day, which is known as "the largest environmental demonstration in history", took place and "over 20 million people peacefully demonstrated in the US against the deterioration of the environment" (Hermann 108; McCormick 47). Consequently, "the 1970s saw the implementation of various significant changes in environmental US law"; likewise, "in Britain the Deposit of Poisonous Waste was introduced in 1972 and the Pollution Act became law in 1972" (Hermann 108). Among the developments that occurred with the environmental awareness gained during the 1960s and 1970s were "the UNESCO Biosphere Conference in Paris in 1968" and "the UN Conference on the Human Environment in Stockholm in 1972", which is defined by McCormick as the "single most influential event in the evolution of the international environmental movement" (Hermann 109; 104). The Stockholm Conference contributed to "the introduction of an international convention on marine dumping, the installation of a global environmental monitoring system (Earthwatch) and the creation of the UN Environment Programme" (Hermann 109).

Following "the height of this phase of environmental awareness and anxiety from the mid-1960s to the mid-1970s", however, "Western culture adopted a more moderate perspective on environmental issues" (Hermann 111). The environmental awareness of

the public and the media coverage of ecological issues "dropped dramatically after 1975, during the era of economic recession, rising unemployment, and severe labor unrest" (Veldman 300). This decreasing public and media interest in environmentalism is also addressed in *The Sheep Look Up* with its emphasis on the fact that "concern about environmental deterioration was a fad" (315). Brunner explicitly criticizes the ineffectiveness of the Environmental Acts and the environmental negligence of the profit-seeking businesses of capitalist corporations by stating that "companies which would have their profits shaved by complying with the new regulations use every possible means to evade them" (35). Moreover, the fact that the short period of environmental awareness and anxiety during the 1960s was gradually abandoned at the beginning of the 1970s is reiterated in the novel: "There was a brief flurry of anxiety a few years ago, and the Environment Acts were introduced, […] and ever since then we've been sitting back assuming the situation was being taken care of, although in fact it isn't" (35). Reflecting the ecological concerns and environmental movements of the 1960s and the 1970s, *The Sheep Look Up* is one of the most significant precursors of climate change fiction that enables us to explore the anthropogenic climate change from the 1970s to the modern era.

Within the framework of material ecocritical and affect theory, this chapter will underscore that *The Sheep Look Up* as an effective climate change novel makes it possible to recognize the interrelatedness of natural and human systems and various aspects of ecological disasters in terms of human and nonhuman corporeality, the more-than-human world, the environment and affective responses aroused in humans. To this end, the concepts of "toxic bodies", "storied matter" and "impersonal affect" will be employed in the analysis of *The Sheep Look Up*. The term "toxic bodies" will be instrumental to reveal how various human and nonhuman bodies in Brunner's novel are transformed into sick, contaminated and poisoned bodies as a result of pervasive pollution and toxicity in their environmentally collapsed society. The examination of toxic embodiment of humans and

nonhuman others in the novel, therefore, will be of critical importance to grasp the trans-corporeal entanglements among embodiment, environment, and the socio-political and economic dynamics in the creation of toxic bodies. The concept of "storied matter", a key concept in material ecocritical discourse, will be significant to underline that polluted air, soil and water resources in the novel function as agentic material forces and thus articulate their stories of formation and transformation as well as their active and agentic power in affecting every aspect of human life. It will be discussed how air, water and soil as natural elements are "generative, always becoming, always in flux, going through inevitable stages of metamorphosis" (Iovino and Oppermann, "Wandering" 310) through intra-actions among humans, nonhumans, environmental systems and discursive practices in the material world and hence exemplify, as Oppermann underlines, "all agencies, biotic or not, are storied subjects of an ever-unfolding earthly tale" ("How the material" 112). Lastly, Jane Bennett's concept of "impersonal affect", which is based on Spinozan idea of "conative bodies" and Deleuze and Guattari's concept of "assemblages", will be employed in order to analyse the diverse affective states observed in various characters in the novel in the face of environmental catastrophes. In line with Bennett's understanding of affect, environmental catastrophes in the *Sheep Look Up* will be analysed as an assemblage with intense affective force that has the potential to arouse a variety of affective responses in different types of people, including sorrow, anxiety, despair and resistance, revealing how these affects strengthen people's capacities to act against environmental disasters as can be observed in environmentally-conscious activists called Trainites in the novel.

2. 1. Toxic Embodiment of Humans and Nonhuman Others

Within the framework of material ecocriticism, the widespread toxicity and its bodily impacts observed on human and nonhuman others in *The Sheep Look Up* demonstrate the fact that human systems, environmental degradation, various

contaminants that material bodies are exposed to on a daily basis are not only intertwined with but also shape these physical bodies to the extent that they end up being sick or even toxic. In this regard, it is imperative to see toxic bodies as the embodiment of the constant fluxes and interactions between corporeality and human-created structures and environmental systems that are formed through diverse human activities. Therefore, toxic bodies showcase, as Iovino points out, "the matter of the world is embodied in human experience" ("Material Ecocriticism" 52). In the novel, Austin Train defines himself as a "commensalist", which, as he explains, means:

> you and your dog, and the flea on the dog's back, and the cow and the horse and the jackrabbit and the gopher and the nematode and the paramecium and the spirochete all sit down to the same table in the end. (25-26)

From a material ecocritical standpoint, Austin views the material world as a complex network of interplays and interconnections between humans and other life forms from bacteria to microbes. Viewed in this perspective, Alaimo's new materialist term of "trans-corporeality", which explores "the material interchanges across human bodies, animal bodies, and the wider material world" ("Oceanic" 112), will be employed as a central conceptual tool in the examination of toxic bodies of both humans and nonhuman others in Brunner's novel.

Firstly, in the novel's imagined environment where it is impossible for people to go out without a filter mask due to widespread and extreme levels of air pollution, the embodiment of dirt and toxicity is reflected in the cough, watery eyes and "slimy" hands of people "with the airborne nastiness" whenever they go out even with a mask (9, 11). For instance, Philip Mason, an executive who works for Angel City insurance company, comes to L.A. from Denver on a business trip in order to increase premiums due to the declining life expectancy in the country. During his stay in L.A., which is declared to be

one of the most polluted US cities, Mason finds it very difficult to speak due to the immediate impacts of the suffocating pollution: "[…] He got that much said before he doubled over in another fit of coughing. The acrid air ate at the back of his throat; he could imagine the tissues becoming horny, dense, impermeable" (9). In addition to the human bodies, the nonhuman bodies of animals transform into sick bodies due to heavy air pollution. The farmer Phelan Murphy explains that the cattle in his farm fall victim to abnormal weather conditions and ruined pastures due to toxic air pollution: "More cows had died in the night, bellies bloated, blood leaking from their mouths and nostrils, frozen smears of blood under their tails" (118). Experiencing the polluted air at an intensely corporeal level, both human and animal bodies in the novel epitomize "the movement across different sites [like] human bodies, nonhuman creatures, ecological systems, chemical agents and other actors" (Alaimo, *Bodily* 2).

Additionally, the whole population in the USA is reported to be stricken at least with one ailment due to the spread of epidemic diseases because of poor sanitation of water and food resources, "brucellosis" being "the main one" and also many others, "infectious hepatitis, dysentery, measles, rubella, scarlet fever and something [that] may be typhus" (331). Moreover, the odds for a baby to be born with some kind of abnormality or disease such as "cystic fibrosis, phenylketonuria, hemophilia, hypothyroidism, mongolism, Tetralogy of Fallot, alexia, dichromatism" are very high (71). Parents-to-be who are warned of this list of abnormalities and diseases that their babies could be born with feel "as though it were a miracle anyone at all became a normal adult" (71). Underscoring the fact that illnesses are the substantial manifestations of the humans' enmeshment with the larger material world and the society they are an integral part of, Wheeler asserts that "our essential social being is written on our bodies in terms of flourishing or (its opposite) illness" (12). Therefore, trans-corporeality observed in the prevalent toxicity and sickness in human bodies as a result of the contaminated water, air

and soil pollution in the novel demonstrates, as Alaimo underlines, "the new materialist and posthumanist sense of the human as perpetually interconnected with the flow of substances and the agencies of environments" ("Oceanic" 112).

Further examples of trans-corporeality underscoring the transits between environmental degradation, toxic substances and human corporeality can be observed in Brunner's novel. For instance, the high infant mortality rate is strikingly expressed in the fact that "there is a sudden upswing in orders for very small coffins, the right size to take a baby dead from acute infantile enteritis", which is a disease caused by the consumption of the contaminated water (105). This resonates with Nancy Tuana's conception of "viscous porosity":

> While that porosity is what allows us to flourish—as we breathe in the oxygen we need to survive and metabolize the nutrients out of which our flesh emerges—this porosity often does not discriminate against that which can kill us. We cannot survive without water and food, but their viscous porosity often binds itself to strange and toxic bedfellows. (198)

As Tuana emphasizes, due to the porous interactions between corporeal bodies and other material agents, not only beneficial components of water and food sources but also the poisonous and toxic substances easily permeate our flesh and thus makes it susceptible to sickness. Among these diseases that afflict children in the novel through porosity between material-discursive practices and corporeality are congenital syphilis resulting in blindness as well as asthma, bone cancer and leukemia, all of which emerge as a result of exposure to high levels of pollution and toxicity in the US society (144). Moreover, children are born subnormal mainly due to lead poisoning, the source of which is elaborated in one of the pieces of scientific reports incorporated into the main narrative: "Common sources are paint, antiknock gas where still in use, and wildfowl from marshes

etc. contaminated over generations by lead shot in the water" (17). Hence, lead as a toxic substance found in high amounts in soil, water and other products that humans are exposed to alter human bodies in negative ways and result in sickness and death, exemplifying the material ecocritical conception of the body as "the concrete entanglements of plural 'natures'" (Iovino and Oppermann, "Materiality" 76) as observed in the enmeshment of human body with the toxic nonhuman materials such as lead.

Besides being the carrier of various diseases, human body is also proved to be toxic in the novel, which is exemplified by a young girl who is diagnosed with "blood poisoning" caused by her walking over a "broken bottle" (152). This situation brings to mind vibrant materiality of matter as proposed by Jane Bennett, who offers to comprehend and recognize matter as "vibrant, vital, energetic, lively, quivering, vibratory, evanescent, and efflorescent", since "materiality is a rubric that tends to horizontalize the relations between humans, biota, and abiota" (112). The broken bottle contaminated by the continuous dumping of garbage over the years is proved to be vibrant with its agentic capacity; thus, in line with Bennett's conception of vibrant materialism, it can be argued that the body of the little child is actually a "material configuration" with which the contaminated bottle is entangled (112).

The little girl whose "great toe had been totally severed" and who is faced with serious blood poisoning just because she stepped on a broken bottle becomes emblematic of the times "when a child can't even play safely in a field" in this society marked by environmental collapse (153). Therefore, trans-corporeality, which illustrates how the human induced pollution has resulted in the toxic embodiment of this little child, also requires realizing that "individuals and collectives must contend not only with the materiality of their very selves but with the often invisibly hazardous landscapes of risk society" (Alaimo, *Bodily* 17). In *Risk Society* (1992) Ulrich Beck maintains that "the risks of civilization today typically escape perception and are localized in the sphere of physical

and chemical formulas (e.g. toxins in foodstuffs or the nuclear threat)" (21). In this sense, in the risk societies in the Anthropocene era, we cannot even designate the environmental risks and hazards that can harm us as they have come to be an integral part of our daily lives, i.e. in the water we drink, in the food we consume or in the neighbourhood we live or play. Accordingly, the little child who was unaware of the risk she was exposed to while playing in a polluted and poisoned area in Brunner's novel characterizes what it means to exist in a risk society without even knowing when and where one will be the victim of an environmental hazard.

Another incident that demonstrates the toxic embodiment of humans in the environmentally destroyed society in the novel can be seen in the toxic body of Nancy Thorne, the wife of Gerry Thorne, an executive at Bamberley Trust, which manufactures a hydroponically-grown food product called Nutripon. Nancy is poisoned after she is exposed to a chemical substance while swimming in the sea near her house on the US Virgin Islands. This example of toxic body is a reflection of the disastrous oil spills that caused huge environmental destruction during the late 1960s including the leakage of 120 million tonnes of oil into the English Channel as a result of the sinking of the Torrey Canyon super tanker, making it "the biggest oil spill ever" and Santa Barbara oil spill of 1969, causing 4 million gallons of oil to pollute the west coast of the USA (Barkham par.3). It is estimated that about "10,000 spills of oil and other hazardous material annually polluted the navigable waters of the United States during the late 1960s" (McCormick 58). Thus, the toxic body of Nancy in the novel becomes the representation of the catastrophic effects of these historical oil spills on the human embodiment. The transformation of her body into a toxic one is described with horrific details in the novel: "Nancy choked […] Her eyes were swelling, puffing out almost literally as he watched, turning the whole upper part of her face into a hideous bloated mass. Also, her lips were dotted with pustules, her shoulders, her breasts" (189). The reason behind the poisoning

and eventual death of Nancy Thorne turns out to be the "poison gas", "an arsenical compound invented in the First World War" and "dumped into the ocean" by the US military at the end of the war (190). The effects of the US military's disastrous and negligent act of dumping tons of poison gas into the ocean several decades ago are still felt in the contemporary fictional world of the novel both in the destruction of the sea life and in the toxic embodiment of human body, showcasing how "as a particularly vivid example of trans-corporeal space, toxic bodies insist that environmentalism, human health, and social justice cannot be severed" (Alaimo, *Bodily* 22).

That is why, the body is posited as a crucial site to perceive the material and discursive entanglements in material ecocritical thinking since, as underlined by Iovino and Oppermann, "human agents co-exist and co-act with biological organisms that exhibit agentic capacities" ("Materiality" 84). Nancy's body in the novel, therefore, epitomizes that the body is situated within a complex web of relations in which materiality of the world and discursive practices are interwoven. Namely, Nancy's body is inseparably entangled with the discursive practices of humans including the First World War, the involvement of US army in this war and their use and subsequent disposal of poison gas into the sea. Moreover, the agency of the poison gas as can be discerned in the toxic embodiment of Nancy Thorne reveals that just like the discursive practices of humans, nonhuman actors are effective in constituting and affecting the material world through trans-corporeal connections. Andrew Pickering calls this mesh of human and nonhuman "mangle", which is also "a posthumanist space in which the human actors are still there but inextricably entangled with the nonhuman, no longer at the center of the action and calling the shots" (26). According to Oppermann, Pickering's concept of 'mangle' "explains the continuum between culture and nature, between bodies, organisms, things, cells, bacteria, life systems, and between the textual, technological, and the biological";

in a word, "the mangle represents a convergence of natural and cultural processes", in Haraway's terms 'naturecultures' ("Lateral" 466).

Among the harmful chemical substances that lead to the toxic embodiment of both human and nonhuman bodies such as animals and plants in the novel are revealed to be pesticides and insecticides, most notably DDT. As environments" and "bodies" are intra-actively co-constituted" (Barad 170), the excessive use of DDT with profit-seeking aims is pointed out as one of disastrous discursive practices that are responsible for the toxification of human and animal bodies in the novel. The far-reaching disastrous impacts of pesticides and insecticides on the wider material world are addressed by the American biologist Rachel Carson's ground-breaking work *Silent Spring*[1] (1962). By revealing how the whole world is continuously contaminated by toxins and harmful chemicals and indicating the complex entanglements among environment, human bodies, natural life, socio-political and economic dimensions as observed in the use of hazardous pesticides and insecticides, Carson's *Silent Spring* is widely accepted to introduce the toxic discourse into modern environmental studies.

The information on the discovery of DDT and its uses is significant to understand its widespread use in Carson's time and its representation in Brunner's novel:

> DDT (short for dichloro-diphenyl-trichloro-ethane) was first synthesized by a German chemist in 1874, but its properties as an insecticide were not discovered until 1939. Almost immediately DDT was hailed as a means of stamping out insect borne disease and winning the farmers' war against crop destroyers overnight […] DDT is now so universally used that in most minds

[1]Carson's *Silent Spring* is "frequently credited as signifying the beginning of the environmental revolution" (McCormick 56). Lawrence Buell asserts that *Silent Spring* is the work that "effectively starts contemporary toxic discourse" which "insists on the interdependence of ecocentric and anthropocentric values" ("Toxic Discourse" 645, 639). Buell maintains that the image of "a world without refuge from toxic penetration" as acknowledged by the toxic discourse is widely recognized with Carson's *Silent Spring* ("Toxic" 648).

> the product takes on the harmless aspect of the familiar. Perhaps the myth of the harmlessness of DDT rests on the fact that one of its first uses was the wartime dusting of many thousands of soldiers, refugees, and prisoners, to combat lice. (Carson 15)

In Carson's time, because of its uses as an insecticide for farmers and as a drug to get rid of lice in the military, DDT was commonly used without any awareness of its harmful effects. However, Carson states the fact that DDT is highly toxic for humans, as "once it entered the body, it is stored in organs rich in fatty substances such as the adrenals, testes, thyroid, liver, kidneys" (15). What Carson also indicates by highlighting the trans-corporeal encounters among human corporeality, nonhumans and chemicals is that "one of the most sinister features of DDT and related chemicals is the way they are passed on from one organism to another through all the links of the food chains" (16). Through animals such as hens and cows that are exposed to DDT on the fields they pasture, DDT is also transmitted to people who consume these animals' meat or eggs. To illustrate, in the dystopic world of the novel, the shortage of edible and uncontaminated food due to excessive use of pesticides forces people, if they can afford, to purchase "Puritan Foods". Puritan Foods advertises one of its products, "penguin egg" as being "low on DDT", underlying both the extent of contamination in foods swamped with pesticides and the transits between poisonous chemicals, food chains and human corporeality (135).

The transmission of DDT is not restricted to from animals to humans since it is also transmitted to from person to person through breast milk. Carson explains, "the poison [DDT] may also be passed on from mother to offspring […] This means that the breast-fed human infant is receiving small but regular additions to the load of toxic chemicals building up in his body" (16). The transmission of DDT from the mother to her baby is best exemplified in the novel by Jeannine, a pregnant woman, who feels "so dirty inside […] like all [her] bones need to be taken out and washed" due to all the hazardous

chemicals she has been exposed to through the food she has been consuming for years (340). Jeannine is very anxious about her soon-to-be born baby as the doctors say that no mother can breastfeed their babies anymore because of "too much DDT in their milk" (340). As the transmission of DDT from animals to humans and from humans to humans through the mother's milk illustrates, the human body is the site of various chemical substances through intra-active transitions, highlighting the material ecocritical idea that "no human body is purely human" as Oppermann indicates ("Toxic Bodies" 416).

Rachel Carson in *Silent Spring* also gives an account of how in "over increasingly large areas of the United States, spring now comes unheralded by the return of the birds, and the early mornings are strangely silent where once they were filled with the beauty of bird song" (59). In an attempt to explain this reduction in the bird population, Carson indicates that "the reproductive capacity of the birds has been so lowered by some environmental agent there are now almost no annual additions of young to maintain the race" (70). Carson argues that this "environmental agent" causing the decline in bird population like in the robins is the extensive use of pesticides and insecticides. In parallel with Carson's account of the reduction of birds in number, it is also stated in the novel that "everybody knew there were no more birds" (438). Moreover, the effect of DDT on birds' reproductive capacity is also mentioned in one of the many passages informing the facts related to environmental hazards in Brunner's novel: "Pelican, brown: failed to breed in California where formerly common, 1969 onward, owing to estrogenic effect of DDT on shell secretion. Eggs collapsed when hen birds tried to brood them" (18).

The same passage also elaborates on how pig and chicken breeders insist on using feeds that contained antibiotics:

> […] they held that the more of the stuff you scattered around the better. So developing new drugs to replace those wasted in cake for cattle, pap for pigs and pellets for pullets has become like the race between guns and armor! (18)

Brunner's analogy of "the race between guns and armor", in which "guns" corresponds to the harmful chemicals given to animals whereas "armor" refers to the new solutions needed to repair the damage caused by these dangerous chemicals, presents a striking new materialist perspective to understand the interconnectedness of materiality, environmental agents and human and nonhuman corporeality within their entanglements in the material world they all exist. To clarify, the analogy of "the race between guns and armor" underscores the pointlessness of the insistence of using harmful chemicals to gain more profit from animals since the use of these drugs leads to new problems to be addressed. Therefore, using disastrous chemicals, pesticides and insecticides for animals eventually turn against humans because these harmful drugs containing antibiotics and dangerous chemical substances do not only result in the detrimental and unwanted results like infertility and death in animals but also cause antibiotic-resistant and untreatable diseases in humans when they consume these animal products containing these harmful drugs. Apart from DDT, other harmful chemical substances like "polychlorinated biphenyls: waste products of the plastics, lubrication and cosmetics industries" are also reported to be toxic in the novel (18). All these chemicals which are "known to kill birds" (18) highlight how animal bodies can also be transformed into toxic bodies just like human bodies due to the vast use of chemical substances in various industries.

Consequently, Brunner "use[s] chemical substances as a trope for the blurring of boundaries between body and environment, public and domestic space, and harmful and beneficial technologies" (Heise, "Toxins" 748) and hence underlines how the embodiment of humans and nonhuman others are intertwined in intricate ways with the larger natural and human world in line with material ecocritical discourse.

2. 2. Widespread Contamination as "Storied Matter"

In *The Sheep Look Up*, it is underlined that "every plant, every animal, every fish-one might safely say every humble micro-organism, too-has a discernible influence on the world" (86). This idea accentuates both the agentic capability and narrative capacity of matter, since, as Oppermann puts forward, "if matter is agentic, it must also be capable of expressing itself, and if it can express itself, then it is capable of producing narratives" ("How the material" 111). Viewed in this perspective, it is through the medium of the stories of extreme pollution and toxification that material agencies such as water, soil, and air convey that it becomes possible to perceive how the environmentally collapsed society in Brunner's novel came into being. These stories urge us to realize that we are all surrounded by natural elements communicating their own stories of becoming, transforming and being destroyed mainly by anthropocentric activities.

To start with, poisoned water resources as observed in the heavy poisoning of the Mediterranean, the Baltic, Great Lakes and Caspian, along with weather aberrations signalling climate change like the change of prairies into dustbowls in Oklahoma, the transformation of Mekong Delta into Mekong Desert, dust storms in Camargue, and snow in August in Paris are the notable examples of storied matter in the novel. All these instances of pollution, toxification and abnormalities depicted in the novel articulate the stories of ecological problems on a global scale and of "our ever-increasing degree of intimacy with the new natures we are constantly creating" (Latour). Among these new contaminated natures formed by destructive human activities, polluted bodies of water in particular have serious impacts on corporeal, social and political levels in the material world as represented in the novel. The novel takes issue with the ways in which poisoned and polluted water resources are mainly created by disastrous and profit-seeking anthropocentric activities. For example, the Mediterranean has been "destroyed by the filthy wastes from European countries" and the Californian coast has been "contaminated

over generations by lead shot in the water" (74, 17). Likewise, while the Atlantic Ocean has been "made foul by a hundred and eighty thousand tons of oil" after the collision of a tanker and a ship, there is a report of an American "plastics company, daily pouring half a million gallons of hot and poisoned water into a river that served eleven cities before it reached the ocean" (176, 100). All these contaminated water resources point out the fact that, as Bachelard notes, "the story of water is the human tale of a dying water" (47).

This "human tale of a dying water" is articulated by many water sources in various scenes in Brunner's novel. For instance, as water resources are completely contaminated or poisoned, people are continuously warned with "do not drink" notices in their houses and workplaces; accordingly, water purifiers have become daily necessities in order to be able drink tap water in the dystopic world of the novel. Further, "the seas [which] had become too filthy to be tolerable" (70) for both sea creatures and humans reveal the extent of intense toxification. In the scene which depicts the drifting of a boat "on the vast circulation of the Pacific" (163), it is possible to catch a glimpse of the poisoned sea and the non-existent life in it:

> The sea moved lazily, its embryo waves aborted before cresting by the layer of oily residue surrounding the hull, impermeable as sheet plastic. A mixture of detergents, sewage, industrial chemicals and the microscopic cellulose fibers due to toilet paper and newsprint. There was no sound of fish breaking surface. (163)

The description of the sea which has been excessively polluted by all kinds of human waste shows that no fish can live in this highly polluted sea as it is unable to sustain life. Moreover, due to extreme sea pollution, people either are afraid of eating fish because "it comes from the sea" or they have to pay a good amount of money to eat edible fish:

"Surface fish nowadays were either so rare as to be prohibitively expensive, like cod and herring, or hopelessly high in dangerous substances such as organic mercury" (146, 187).

Apart from water pollution, the excessive air pollution in the novel functions as storied matter that conveys how air transforms from a sustaining life force into a lethal element for all material beings. The significance of air as a life force that moves in many forms and encircles and gives life to all material beings is emphasized by Iovino and Oppermann: "[…] swirling and flowing in multifaceted forms, as sky, wind, and breath, air is the primordial abode of life" ("Wandering" 311). In line with the material ecocritical approach to air, David Macauley also declares that air "as the source of all things" is "linked intimately with life and life processes" (26-27). Accordingly, one of the stories that widespread air pollution in the fictional world of Brunner's novel tells is that toxic and poisonous gases and smoke emitted by cars, buses, household appliances, factories and various industries over the years have eventually resulted in the extreme air pollution, making it impossible to even "breathe straight air without choking" without a filter mask outdoors or air-conditioning systems indoors (9). It is also stated that "the air is so full of exhaust fumes from other planes, passengers get airsick even on a dead calm day-especially on a dead calm day, because it takes longer for the fumes to disperse" (34). These stories narrated by the widespread air pollution show that humans are responsible for intensely contaminated air because of their activities, lifestyles and industries generating high amounts of hazardous emissions and that their corporeality, ways of life and experiences in this environmentally collapsed society are, in turn, immensely affected by the polluted air. Put differently, these stories "reflect the dynamics of increasingly hazardous naturecultures that surround and penetrate [humans], disclosing patterns of permeability and vulnerability to material substances that flow through every corporeal site" (Oppermann, "Material" 99).

The novel also states that the "noxious gases" are the "biggest export" of the USA as it "produce[s] less than sixty per cent of the amount of the oxygen they consume" (34). These "noxious gases" exported by the USA as storied matter become emblematic of the issue of environmental justice in that the position of the USA as one of the countries with highest greenhouse emissions discloses the fact that environmental problems are closely related to the inequalities linked to socio-political and economic dynamics and power structures. Greta Gaard points to "the North/First World's alarming overconsumption of the planet's resources" and adds that "20% [of the world population] (the global North) is responsible for 80% of the accumulated GHG emissions in our atmosphere" ("Ecofeminism" 25). For instance, the USA as a global North country is revealed to be hugely responsible for the extensive air pollution in Canada in the novel:

> [T]he Canadians, cramped into a narrow band to the north of their more powerful neighbors, growing daily angrier about the dirt that drifted to them on the wind, spoiling crops, causing chest diseases and soiling laundry hung out to dry. (256)

Even Canada as a global North country is subjected to environmental injustice as the country that shares border with the USA; consequently, the polluted air in the USA impairs every aspect of the lives of its inhabitants including their bodily health, hygiene and agricultural activities.

Another story communicated by air pollution in the novel is our enmeshment with natural elements in various ways due to the fact that contaminated air is experienced in the form of winds, dust storms and acid rain. To illustrate, weather aberrations in the form of dust storms in the climatically changed world of the novel are brought about by the flow of polluted air through winds as seen in the example of Dominica: "Dust storms blow off it all the time, reach as far as Trinidad" after "they cut down all those trees" on

the island (168-9). Besides, the agentic power of the wind as the carrier of dust and waste can be recognized in Brunner's novel: "[N]ear Balpenny, when the wind blows from the direction of the industrial estate around Shannon Airport, you go out for a deep first-thing-in-the-morning breath and find yourself choking" (279). Similarly, the wind transports rubbish from one place to the other and creates polluted spaces as seen in the examples of how "the wind was blowing of the miles-wide garbage pile that blocked the Bay" or "the lawn is covered with wind-blown rubbish" (302, 404). Circulating dust and garbage across different places, the wind as storied matter, thus, not only expresses its mobility but also reminds us of the ubiquity of waste and dirt in the material world. Formulated as "dirt theory" by Heather Sullivan, this material ecocritical idea affirms that dirt cannot be contained or isolated from the wider material world. Sullivan argues that, "the small-scale earth-forms of dirt, dust, and sand are highly mobile aspects of our material surroundings […] Rather than concentrating solely on "place," then, dirt theory acknowledges ongoing processes through time and across space" (516). Therefore, as Brunner's novel reveals, the waste dumped into certain areas or fumes and smoke emitted in specific locations do not remain fixed; on the contrary, they are continuously on the move, polluting and affecting the materiality of humans, nonhuman others and the environment, since, as Sullivan points out, "dirty nature is always with us as part of ongoing interactions among all kinds of material agents" (515).

Among the "distinct flows and movements" of the air through which the impacts of the air pollution are intensely felt in the novel is acid rain, which is engendered by "wind-borne defoliants or industrial contaminants" (Macauley 27; 47). Described as "sour", "filthy", making the surface "opaque with dirty water", acid rain is reported to "eat into clothing, brickwork, concrete", "melt stockings and panty-hose into holes" and "smear the paint" of the cars (439, 123, 325, 455, 200, 151). Due to the high amount and frequency of acid rain in the USA "as a result of atmospheric action on smoke containing

sulphur" leads people to protect themselves against its destructiveness (446). As a result, they wear plastic coats since "plastic [is] the best armor against New York rain" or carry umbrellas even in the most unexpected situations as exemplified in the scene in which two men "astonishingly were belaboring each other with umbrellas" in New York rain (260, 232). It is also indicated in the novel that rain which once cleared the air now "merely moisten[s] the dirt" and which once nourished plants now kills crops with the poison in it (351, 226). In this sense, as storied matter, rain communicates its story of how its lifegiving qualities mainly as a source of renewal and fertility for natural life has transformed into a cataclysmic force giving harm to both humans and nonhuman others.

The fumes emitted by factories, workplaces and houses and the calamitous chemicals used in the wars such as "the tons upon thousands of tons of herbicides, defoliants, riot gases, toxic agents [used in] Vietnam disaster" have resulted in the heavy air pollution in the contemporary USA in the novel. As the novel underlines, air pollution influences every aspect of human life from their corporeality to the material of the coat they wear (101). Thus, in Brunner's novel, experienced in the form of winds, dust storms and rain, air pollution "'speak[s]' in a world of multiple interacting processes, such as climate change or the systems of production and consumption of global capitalism, entailing geopolitical and economic practices" (Iovino and Oppermann, "Materiality" 83), underlying how natural systems interact with discursive systems in complex ways.

In addition to water and air, soil also functions as storied matter in Brunner's novel in that it speaks its story of how abusive agricultural practices and contamination of soil by capitalist and industrial businesses have turned another life sustaining natural element into a toxic dumpsite. According to Macauley, the generative power of earth for human civilization can be discerned in the use of the word "earth": "we speak not only of earth as ground but as planetary whole- the Earth—our life-supporting home" (15). In a similar vein, Chris Maser indicates, "[s]oil is the placenta that nurtures all of life—the membrane

that unites the non-living components of the system [with the living]" (1; 14). Thus, it is beyond doubt that soil is both a creative force and central for the nourishment of all material beings. Moreover, "earth is confoundingly complex", since "it is encountered and conceived in a vast variety of ways: as dirt, humus, soil, compost, stone, land, silt, mud, clay, loam, dust, sand, mineral, and excrement, among others" (Macauley 15). Therefore, soil is not only the essence of the whole material life and the home of humans and nonhumans alike but also a heterogeneous composite made up of biotic and abiotic substances, "like bacteria, fungi, mites, nematodes, yeasts, molds, rotifers, beetles, worms, and ants, as well as minerals and, all too often, industrial by-products" (Sullivan 516). In this context, functioning as a text, the soil contamination portrayed in the novel conveys not only the significance of soil as a life-giving force for all material life but also its failure to provide sustenance for material beings due to its pollution and toxification.

One of the reasons for the toxification of soil as indicated in the novel is the excessive and reckless use of pesticides and insecticides. The adverse effects of insecticides are expressed in many instances in the novel. For instance, houses and buildings are infested with fleas, mosquitoes, rats and roaches and now it is impossible to get rid of them as they have grown immune to insecticides: "There were fleas the exterminator couldn't kill and rats that scrabbled in the walls and mice who left droppings like a cocked snook and roaches that thrived on insecticide, even the illegal kinds" (99). More importantly, bees have gone extinct as a result of excessive use of insecticides. Therefore, in order to produce food, these "anchors of agricultural systems" have to be imported, making the importing of bees and earthworms a profitable business in the dystopic world of the novel, which can be noticed in the adverts incorporated into the text: "Grade-A MEXICAN HONEYBEES $165.75/gallon! Grade-A EUROPEAN BEES only $220/gallon! Best quality IRISH EARTHWORMS $67.50/quart! GUARANTEED live on delivery!" (O'Neill 2; 130).

However, most of the crops in the USA were ruined when jigras, local worms in Honduras, were imported to the country by a cheating insect importer who made "slightly bluish and a bit differently shaped" jigras look ordinary worms by dying them pink and "palmed off thousands of gallons of these damned pests" (274). It is stated that jigras have been made resistant to a wide range of pesticides such as "DDT, heptachlor, dieldrin, pyrethrum", since most of the agricultural lands have been "sprayed and soaked and saturated with insecticides" (33). The immunity of worms against insecticides is also addressed by Carson, who states that "destructive insects often undergo a 'flareback', or resurgence, after spraying, in numbers greater than before. Thus, the chemical war is never worn, and all life is caught in its violent crossfire" (8). As Carson underlines, earthworms such as jigras exemplify how "they simply learned the technique of biological adaptation" (461). The novel clearly highlights that the mindless and extreme use of insecticides and pesticides over the years is the main reason for the population bomb in fleas, mosquitos, roaches, rats and unbridled increase in agricultural worms, which lead to crop failures. Although the use of these harmful chemicals has been forbidden, there are several instances of breaking the ban in the novel. For example, while "a chemical company [was reported to be] caught by the ban on 'strong' insecticides", police arrested "five or six people home-brewing illegal chemicals: not just insecticides, but defoliants, too" (259, 340). Moreover, when their crops fail over and over again, farmers demand "to be allowed to turn loose all the old poisons, like DDT", highlighting the impossibility of winning this "chemical war" in Carson's words (247). To clarify, going back to using these catastrophic chemicals would be useless or even more dangerous as these resistant insects "have already taken the worst we could offer and come back jeering" (223). This hints at the fact that it was the widespread and uncontrolled use of pesticides and insecticides in agricultural activities that caused their immunity against these chemicals and eventual crop failures in the first place.

Since people cannot protect food plants against the worms like jigras, the collapse of agriculture becomes inevitable in the US society in the novel. Due to the inability to grow food naturally, food scarcity and famine strike not only the USA but also other countries like Honduras and Africa, which eventually leads to wars, civil disorder, protests and riots in these countries. David R. Montgomery maintains the idea that the fertility of soil is an integral part of the continuation of civilizations and societies. Montgomery states that although there is an "interplay among economic, environmental, and cultural forces" in the rise and fall of civilizations throughout history, "any society's relationship to its land—how people treat the dirt beneath their feet—is fundamental" (3). Thus, the correlation between the productivity of the soil of a country, its capability of sustaining its people and its welfare and prosperity is a valuable story for all humanity told by the soil degradation portrayed in the novel.

Furthermore, the profound inequalities between the poor and the rich in terms of access to edible food in a society afflicted with food shortage is another significant story narrated by the soil degradation in terms of environmental justice. Whereas rich people in the US society are able to buy supposedly pure and highly expensive food from "Puritan Health Supermarkets", a vast majority of public experience difficulties in reaching and consuming edible food since "proper food costs too much" (340). Further, more and more foods are becoming scarce; for example, in Idaho, farmers are only able to "bring in about a quarter of the potato crop this year. The rest's been spoiled by jigras" (340). This suggests that socio-economically disadvantaged people do not have the chance to feed themselves even with the most basic crops like potatoes. It is underlined in the novel that communities especially in the poor areas of the country are hit much harder by food shortage:

> From the direction of the village, walking very slowly, a straggling line of men, women and children had emerged. All were thin, all were ragged and

> barefoot, and several of the children had the belly-bloat characteristic of pellagra […] (32-33)

The description of these lower-class people who obviously suffer from poverty and malnourishment highlights both trans-corporeality and environmental justice with regard to "the material interconnections between specific bodies and specific places" by "locating 'the environment' not in some distant place, but within homes, schools, workplaces, and neighbourhoods" (Alaimo, *Bodily* 28; Alaimo and Hekman 9). Simply put, as disadvantaged groups and the places they live and work in are more exposed to environmental risks and hazards, they are more prone to be victimized by the impacts of environmental problems such as toxicity and access to clean and healthy water and food resources. Thus, as depicted in the novel, people who live in low-income neighbourhoods suffer much more severely from food shortage and related nutritional deprivation.

Apart from the poor, the racial and ethnic communities as represented in Brunner's novel also suffer from soil degradation and famine disproportionately. The novel states that aiming to alleviate the famines especially in global South countries like San Pablo in Honduras and Noshri in Africa, "the Bamberley Hydroponics Plant", which manufactures hydroponically produced food called Nutripon, grants a consignment of Nutripon to Globe Relief, "the world's largest relief organization" (42). It is emphasized that the famine in Noshri began when many people had to "starve on the African coast" after the Mediterranean was poisoned by the wastes from European countries (74). Famine-stricken people who are dying of starvation in Noshri in the novel, therefore, demonstrate the fact that global South countries are made to be susceptible to the environmental risks by the environmentally destructive actions of the global North countries, "where most of the planet's economic wealth and political power are concentrated" (Heise, "Globality" 639). Moreover, while trying to survive under these terrible living conditions, Noshri in Africa and San Pablo in Honduras are also made to

bear the burden of the disastrous outcomes of the consumption of Nutripon, which turns out to have been poisoned by ergot-based nerve gas whose "contents leaked into the water-table serving the wells at the Bamberley Hydroponics Plant" (461). The consumption of the poisoned Nutripon has induced a kind of mania in Noshri and San Pablo, causing people to go insane and murder each other, and eventually leading to mass riots and public upheavals. Consequently, soil degradation resulting ultimately in the outbreak of famine, political and social turmoils in these global South countries functions as storied matter in that it manifests that "material and discursive practices are mutually constituted in a network of rhizomic formations" (Oppermann "Lateral" 467). Namely, the materiality of negative environmental factors in these countries are closely imbricated with the social, economic and political outcomes of ultimate ecological collapse such as starvation, toxification and civil disorders they experience as represented in the novel.

Through all these "naturalcultural stories" articulated by the polluted air, water and soil manifesting themselves in different forms and with diverse impacts in the novel we get familiar with "the often unheard voices" of the material world and thus gain insight into "fragile ecosystems, polluted landscapes, acidifying oceans, changing climate, species extinctions, and consequently social crises", all of which signify a web of relations among the corporeal, social, political, economic and environmental (Iovino and Oppermann, "Stories" 6; Iovino, *Ecocriticism* 48; Oppermann "How the material" 114).

2. 3. Polluted Environment as an Assemblage and Impersonal Affect

Material conditions, environmental systems and corporeality cannot be separated from one another in line with material ecocritical perspective. Therefore, the evocation of affects in readers via their perception of the fictional environment and of the characters' experiences in this environment within the narrative can help them gain an environmental

awareness of how ecological health is directly related to our bodily health and affective experiences.

The affective responses aroused in many of the characters in *The Sheep Look Up* and transferred to readers can be examined as the emotional and corporeal responses to a number of factors intertwined with natural forces, environmental disasters, social, economic and political decline, environmental and social injustices and the bodily impacts of the environmental disasters as observed in the toxic and sick bodies of humans and nonhuman others. As Iovino underlines, "the web of relations that constitute the "intra-actions" of things, bodies, assemblages, natures, directly affects the totality of our social, political, and ecological relations" ("Stories" 456). Thus, the interlacements between humans and nonhuman elements along with their physical environments as represented in Brunner's novel also become effective in the arousal of affective responses in various characters. This understanding of affect within the context of new materialism and material ecocriticism is reformulated as "impersonal affect" by the new materialist thinker Jane Bennett. According to Bennett, impersonal affect is an affect "not specific to human bodies" but "intrinsic to forms that cannot be imagined (even ideally) as persons" (xii). Bennett also argues that "impersonal affect" works in two directions:

> […] the first toward the humans who feel [affect] and whose agentic capacities may be thereby strengthened, and the second toward the agency of the things that produce (helpful, harmful) effects in human and other bodies. Organic and inorganic bodies, natural and cultural objects […] all are affective. (xii)

Therefore, impersonal affect not only involves the agentic and performative force of nonhuman elements in triggering affective responses in various bodies but also is characterized by the affective transformation of these bodies in terms of their enhanced agency and power of action.

In her formulation of "impersonal affect", Bennett draws upon two philosophical concepts, "Spinoza's 'affective' or 'conative' bodies and Gilles Deleuze and Felix Guattari's assemblage" (21). Spinoza's term of conative bodies refers to capacity of all bodies, human or nonhuman, "to be continuously affecting or being affected by other bodies" (Bennett 21). In *The Ethics*, Spinoza contends that, "[e]ach thing, as far as it can by its own power, strives to persevere in its own being" (159). This statement, in which the word "strive" is translated from "conatus" in Latin, generally is referred to as the "conatus doctrine", pointing to a force which "requires not merely that things strive for self-preservation, but also they strive to increase their power of action" as explained by Edwin Curley (xxx). In accordance with this view, Bennett explains that "*conatus* names a power present in every body", namely, "every nonhuman body shares with every human body a conative nature" (2). Bennett's concept of "thing-power" is, therefore, directly related to Spinoza's "affective" or "conative" bodies, since "thing-power gestures toward the strange ability of ordinary, man-made item to exceed their status as objects and to manifest traces of independence or aliveness, constituting the outside of our own experience" (xvi). In other words, every human or nonhuman element in the material world has a "thing-power" because they are not only conative in nature but also have agency with their abilities to create an effect on different bodies. According to Bennett, this "conative substance turns itself into confederate bodies, that is, complex bodies that in turn congregate with each other in the pursuit of the enhancement of their power", which is termed as "assemblages" by Deleuze and Guattari. Bennett elaborates on why the term "assemblage" is vital in capturing the vital materiality of conative bodies and explains that Spinoza's "conative bodies" requires the recognition that

> […] bodies enhance their power *in* or *as* a *heterogeneous assemblage*. What this suggests for the concept of *agency* is that the efficacy or effectivity to which that term has traditionally referred becomes distributed across an

> ontologically heterogeneous field, rather than being a capacity localized in a human body or in a collective produced (only) by human efforts. (23; emphasis in original)

Such an understanding makes it possible to grasp the material world in "a great sense of the extent to which all bodies are kin in the sense of inextricably enmeshed in a dense network of relations" (Bennett 13). The mesh of human and nonhuman bodies in assemblages mean that all the material things, human or nonhuman, have their own agentic capabilities and power to exert force on the material world within this assemblage.

This composite of human and nonhuman bodies, namely, "assemblage", is central to our understanding of the material world as a complex web of entanglements between human and nonhuman bodies and between human-created systems and nonhuman elements. Bennett defines assemblages as "ad hoc groupings of diverse elements, of vibrant materials of all sorts" (24). Thus, an assemblage describes the togetherness of various elements and bodies, forming a collective power. An assemblage has both agency and a vital force, since "while the smallest or simplest body […] may indeed express a vital impetus, conatus […], an actant never really acts alone. Its efficacy or agency always depends on the collaboration, cooperation, or interactive interference of many bodies and forces" (Bennett 21, 23). In accordance with this new materialist approach to affect, the polluted environment portrayed in *The Sheep Look Up* can be explored as an "assemblage", containing many affective agents including extreme weather events, heavily contaminated seas, oceans, air and soil, the toxic bodies of humans and nonhumans, socio-political systems, capitalist and industrialist businesses, civil disorder and public upheavals. All these agents in the assemblage intertwined in their complexity act together and create a "vital force", what Bennett calls "agency of the assemblage" (24), in their far-reaching impacts on the material world as well as on the affective and emotional states of the characters in the novel. In Brunner's novel, the polluted

environment as an assemblage has impersonal affect in two directions as outlined by Bennett: firstly, the polluted environment as an assemblage is an affective agent that exercises power over the characters within the narrative, arousing a myriad of affective responses in them; secondly, it acts as an operator in strengthening the characters' agentic capabilities in the face of environmental disasters as can be observed in the drastic actions and protests of the environmental activist group Trainites.

The first direction of the impersonal affect aroused by the polluted environment as an assemblage in the novel can be discerned in the various affective responses evoked in the characters, leading them to adopt various approaches towards environmental catastrophes. In the ecologically devastated US society in the novel, affective responses such as despair, grief, anxiety and fear are common among people due to their "emotional attachment" (Weik von Mossner, "From Nostalgic" 51) to their home environment which has been altered as a result of anthropogenic climate change and other human-induced environmental catastrophes. Antonio Damasio states that "mental phenomena can be fully understood only in the context of an organism's interacting in an environment" (xvii). Accordingly, as our environment plays a major role "not only in how we feel but also in our cognitive understanding of how we feel about that environment" (Weik von Mossner "From Nostalgic" 52), when the environment we live in changes drastically in the age of the Anthropocene, our affective states also change. The environmental philosopher Glenn Albrecht suggests the term "psychoterratic diseases" in order to establish a relationship between "humans, their built and natural environment and their psychological states", especially in today's world characterized by climate change and other environmental issues ("Tipping"). "Eco-anxiety" and "solastalgia" are the two of these "psychoterratic diseases", namely, "earth-related mental health issues" with which the characters in Brunner's novel are afflicted (Albrecht, "Tipping").

To illustrate, several characters in the novel feel anxious and mournful in the face of their irreversibly altered and heavily polluted environment and thus suffer from "eco-anxiety", a "psychoterratic disease" that occurs when we are filled with anxiety about "the stressors that are happening to our natural environment and loved built environments" (Albrecht, "Tipping"). For example, a pregnant woman, Jeannie is one of the characters who is overwhelmed with profound distress because of her changed environment. Therefore, she is worried about bringing a child to this world, as she says:

> […] "Think of all the things he'll never be able to do, Pete! Swim in a river, or even row a boat on it-pick fruit right off the tree and eat it-take off his shoes to walk in wet grass, all squelchy and thick!" […] You know, I'd half like to catch this brucellosis that's going around, so there wouldn't have to be a baby." (340-1)

The polluted environment depicted as an assemblage of contaminated bodies of water, toxic food crops, poisoned soil, and common environmental diseases horrifies Jeanine because she is aware of the fact that her altered environment as a result of various environmental calamities will not allow her child to do even the most basic daily activities like swimming, walking or eating without being seriously harmed. Besides, the impersonal affect of the polluted environment is observed in Jeanine's worries about her future child to the extent that she wishes she would be infected by the endemic brucellosis and her pregnancy would terminate so that her child would not have to live in such a horrible environment.

Another character who feels anxious about the polluted environment in the USA is the Irish doctor Michael Advowson. Brought to the USA by the U.N. to investigate the incident of poisoned Nutripon, Advowson notices, to his dismay, that the American public in general fail to take action against their increasingly negatively changing and

polluted environment. That is why, he "feels like a sick child aware of terrible wrongness" of Americans' belief that "their way of life was the best in the world" (138). Instead of trying to prevent further deterioration of their environment, they insistently continue their consumerist lifestyles and socio-economic practices based on economic growth and expansion, which is fatal to the ecological health of the whole planet. Brunner explicitly criticizes the USA's blind belief in the capitalist economic system and its abusive treatment of the planet as the leading Western nation during the 1970s (Hermann 122). Moreover, the polluted environment in the novel is not only an assemblage of the contaminated natural elements as depicted by Jeanine but it is also an assemblage of toxic bodies inflicted by "bruises, racking coughs, weeping sores" caused by the widespread environmental diseases and "stab wounds", referring to civil unrest and state violence among the cumulative impacts of environmental disasters as Advowson stresses (278). Hence, Advowson clearly epitomizes the impersonal affect of the polluted environment in the USA through his bodily and emotional experiences he goes through during his stay there: "It [the USA] stinks, and I mean that literally. I've never been so sick in my life. I've never had so many sore throats or so much diarrhoea. And I've never before been blown up in a bomb outrage" (236).

Consequently, Advowson's affective experiences in the polluted environment of the USA which he feels both at a corporeal and emotional level arouse within an "eco-affective entanglement", namely, an intertwinement of the environment, the body and emotion (Ladino, "Mountains" 155). According to Ladino, 'eco-affective entanglement' "functions at several affective registers: the *textual*, as represented emotion; the *corporeal*, as affect and/or emotion felt in my own body; and the *environmental*, as affect emanating from [natural] landscapes […]" ("Mountains" 133). To clarify, Advowson's physical ailments caused by the unhealthy environmental conditions of the USA which he experiences at a corporeal level also lead him to feel the intense feelings of rage against

this large-scale environmental destruction. The representation of the felt emotion in the narrative, which functions at a textual level helps readers to "respond to the words that refer to a character's perception or affective state", making them go through "a sensual experience" (Weik von Mossner, *Affective* 25). Simply put, the reflection of Advowson's sensations that he undergoes in his immediate environment allows readers to affectively perceive and experience this particular environment portrayed in the narrative and to relate to the character on an emotional level as they feel with him what it feels like to live in such a horrid environment, exemplifying the idea that "the embodied and the cognitive mingle in affect" (Houser 3).

Another psychoterratic disease that can be discerned in the novel is "solastalgia", which is defined by Albrecht "as a form of homesickness one gets when one is still at home" ("Solastalgia"). Albrecht elaborates on his coinage of "solastalgia":

> […] the concept [solastalgia] has been constructed such that it has a ghost reference or structural similarity to nostalgia so that a place reference is imbedded. Hence, literally, solastalgia is the pain or sickness caused by the loss or lack of solace and the sense of isolation connected to the present state of one's home and territory. ("Solastalgia" 45)

Therefore, different from "nostalgia", "solastalgia" does not result from longing to go back to one's home but from homesickness people experience for their destroyed or transformed home or environment when they are still in this particular environment. For instance, Hugh Bamberley, one of the many characters who suffer from "solastalgia", sadly remembers his home environment during his childhood before it was terribly destroyed by intense pollution:

> Leaning on the wall overlooking the Pacific, he wondered what this beach had been like when he was a kid. Scattered with pretty girls, maybe. Strong

> young men showing off their muscles to impress. Now… The water looked more like oil. It was dark gray and barely moved to the breeze. Along the edge of the sand was a rough demarcation line composed of garbage, mainly plastic. Big signs read: THIS BEACH UNSAFE FOR SWIMMING. (242)

It is obvious that Hugh is afflicted by "solastalgia" as he longs for his previous environment in which the oceans were still clean and suitable to swim in stark contrast to his present environment where the bodies of water are all heavily contaminated. Thus, the pain Hugh experiences stems from the "recognition that the place where [he] resides and loves is under immediate assault (physical desolation)"; accordingly, he is distraught with "a feeling of distress (psychological desolation) about its transformation" (Albrecht, "Solastalgia" 45).

Similar to Hugh Bamberley, Sylvia Young, the American girl Advowson spends the night with, starts to cry on his shoulder when she realizes the fact that they cannot "live somewhere clean" or "raise a son with a chance of being healthy" in their present environment (279). Upon witnessing Sylvia's agony for her disastrously transformed environment, Advowson attempts to visualize once pure and liveable environment in the USA, saying:

> […] let me show you lakes that are not foul with the leavings of man. Let me reap you crops grown on animal dung and pure clean rain. Let me feed you apples from trees that were never sprayed with arsenic. Let me cut you bread from a cob loaf, that greets your hands with the affectionate warmth of the oven. Let me give you children that need fear nothing worse than a bottle dropped by a drunk, straight-limbed, smiling, clear of speech. And would you care if that speech were full of the echoes of a tongue that spoke civilization a thousand years ago? (279)

In this passage, “a similar melancholia as that caused by nostalgia” is evoked because the residents of the USA like Sylvia “lack solace or comfort derived from their present relationship to ‘home’” (Albrect, “Solastalgia” 44). In this sense, solastalgia experienced by Hugh and Sylvia among many other characters in the novel can direct readers towards an empathetic affective response in the form of what Ladino calls “anticipatory nostalgia”, a “future-oriented form of eco-nostalgia which is based on the anticipation of loss and regret” (*Reclaiming* 103). According to Weik von Mossner, readers can experience “anticipatory nostalgia” when they “come to understand that the environment that, for the fictional [characters], is located in an irrecoverable past actually lies somewhere right outside their doorstep, waiting to be saved from destruction” (“From Nostalgic” 60). Consequently, as Ladino points out, nostalgic longing “can be a mechanism for social change, a model for ethical relationships, and a motivating force for social and environmental justice” (*Reclaiming* 8). Through “anticipatory nostalgia” readers can be motivated to adopt environmentally-conscious attitudes and behaviours and to protect their current environment from ecological collapse in order not to experience the same “solastalgic distress” that torments the fictional characters in the novel (Weik von Mossner, “From Nostalgic” 60).

Apart from exerting its agency by arousing various affective responses in the characters in the novel, the impersonal affect of the polluted environment also functions to heighten the agentic capacities of the characters, prompting them to be actively involved in the social and political environment of their country with their demand of environmental reforms as can be observed in the Trainites. Inspired by the former professor and well-known author Austin Train, this environmental activist group adopted him as their idol and called themselves Trainites. However, although the Trainites were originally inspired by Austin’s environmentalist views, there has been a considerable amount of friction within the group in time, resulting in divergences in terms of the

measures and actions they take against the ecological collapse within their environment. It can be argued that the Trainites who also suffer from solastalgia because of their radically altered and damaged environment due to environmental disasters induced by capitalist and industrialist businesses choose different ways in order to alleviate their solastalgic distress.

Glenn Albrecht states that "the attempt to relieve solastalgia by those affected by it can be manifest in negative or positive ways" ("Solastalgia" 54) and these different attitudes can be recognized in different members within the group of the Trainites. For instance, the pacifist Trainites who adopt an environmentally-conscious lifestyle in their Colorado wat exemplifies "an alternative positive response" to solastalgia with their "involvement in the protection, restoration, and rehabilitation of their home/place/bioregion/country" (Albrecht, "Solastalgia" 54). The pacifist Trainites at the Colorado wat try hard to create a sustainable community with their efforts to grow their own food, weave their own cloth, ride bicycles or use only one vehicle for "the entire community of sixty-some" in order not to contribute to pollution (47, 96). Thus, in their struggle to deal with solastalgia, the pacifist Trainites endeavour to protect and restore their environment by avoiding consumerist or environmentally-harmful practices.

However, a terrorist cell among the Trainites led by Ossie has been formed and the extremist Trainites in this cell resort to terrorist attacks with their conviction that drastic actions could bring about environmental change and reform. Among their violent actions are gas stations bombings with their slogan "STOP, YOU'RE KILLING ME!, attacks on the industries and cars that are notorious for emitting high amount of noxious gases, blowing up a new highway interchange in Alabama, sabotaging a paper mill in Georgia, and with their slogan "FOR EVERY TREE YOU KILL ONE OF YOU WILL DIE TOO", the murder of loggers who have been trying to cut down California's remaining redwood trees (16, 304, 300). Hence, it can be contended that the drastic

actions of the extremist Trainites showcase how solastalgic distress can also drive people to extreme and radical activities. Austin Train expresses his resentment about how his persona is exploited by some of the extremist Trainites and how the symbol of "skull and crossbones", which was originally designed for his book, has been turned into a symbol of violence in these terrorist attacks. Disturbed by the violent attacks of the extremist Trainites, who also impersonate him and "take advantage of his persona for their own purposes", Austin Train decides to disappear from public view and starts "working incognito as a garbage collector" (Hermann 116).

Nevertheless, although Austin does not advocate the Trainites' violent actions, he is convinced of their "righteous anger" (379). As Bennett puts forward, the impersonal affect can strengthen humans' agentic capacities (xii); therefore, the various agents in the assemblage of the polluted environment can be thought to have increased the Trainites' capacity to act, since affect "refers broadly to the capacity of any body for activity and responsiveness" (Bennett xii). Accordingly, as Austin states, the Trainites' anger is "against the enemies of his species", feeling for "the man who's being poisoned by the additives Universal Mills put in his food", "a stranger, starving in Africa because a foolish war has destroyed his field of mealies", and "the man who has to waste half his income on treatment for a child who was born deformed" (186). Thus, contaminated foods that poison people, babies who are born deformed, environmental disasters that result in the destruction of agriculture in different regions of the world are among the various operators of the polluted environment as an assemblage in the novel. The agency and impersonal affect of this assemblage, therefore, becomes effective in arousing excessive anger in the Trainites and leading to their violent actions.

Furthermore, the Trainites' environmental activism and ever-increasing sympathy they gain from the public throughout the novel is important to emphasize the social dimension of affect, which is formulated as "the transmission of affect" by Teresa

Brennan (2004). Brennan states that the reason why any person has "felt the atmosphere" in a room they enter or a certain situation they encounter is that this person "can feel another's affects" (1). According to Brennan, "the transmission of affect, whether it is grief, anxiety, or anger is social or psychological in origin. But the transmission is also responsible for bodily changes" (1). Brennan's concept of transmission of affect can function as a useful tool in understanding how the assemblage of the polluted environment proves to be an affective agent in the formation of the Trainites as well as the general public's growing support for them. The scene where Austin contemplates on the conditions that led to the formation of the Trainites is illuminating to comprehend the social aspect of affect:

> He [Austin] hadn't expected to leave behind, in that world he'd abandoned, such a surprising legacy: the Trainites, who had no formal organization, not even a newspaper, yet now and then manifested themselves-one might almost believe as the result of some telepathic trigger, some upsurge of the collective unconscious to put a brand on some company or enterprise that was endangering mankind. Obviously, he had not created them. They must have been there, waiting […] (101)

Austin ascribes the creation of the Trainites to a force that connects them to each other subconsciously through their shared experiences and feelings. This impetus that has become effective in connecting people and leading them to be a unified force can be explained by Brennan's term of "transmission of affect", a term which she uses "to capture a process that is social in origin but biological and physical in effect" (3). To Brennan, the transmission of affect is a process that enables "emotion or affects of one person, and the enhancing or depressing energies these affects entail" to "enter into one another" (3). Brennan also puts forward that affects are "the carriers of energy" and that "the transmission of affect means that we are not self-contained in terms of our energies"

(34, 6). In line with Brennan's definition of the transmission of affect, it is possible to analyse the social, psychological and physical dimensions of the transmitted affects as materialized in the formation of the Trainites.

Firstly, Austin Train's influential environmental works and ideas that have had great impact on bringing a certain number of people within the environmentally impoverished American society together illustrates the social dimension of the transmitted affect. By communicating with each other and interacting with the environment they live in, these people who share the same environmental concerns and anxieties have come together with the ideal of creating an environmentally sustainable society. Besides, worries and anxieties Austin feels about the ecological collapse they experience in the American society have been transmitted to other people who are also afflicted with the same feelings of uneasiness and misery for their increasingly and irreversibly destroyed environment. The intense energy of these affects as experienced by Austin is also experienced by other environmentally-conscious people in their bodies as felt emotions, which showcases the corporeal and physical dimension of the transmission of affect. Therefore, affect is aroused at the junction of social, environmental and bodily processes within their environment and then transmitted to others as observed in the establishment of the environmental activist group— the Trainites. Brennan expresses that the transmission of affect functions as "a vehicle connecting individuals to one another and the environment, and for that matter connecting the mind or cognition to bodily processes" (19). As "'affect' designates body-based feelings that arise in response to elicitors as varied as interpersonal and institutional relations, […] ideas, sensations, and material conditions in one's environment" (Houser 3), the characters' perceptions of the changes in their environment and their social interactions with one another in Brunner's novel propel them to experience the affects of each other within their polluted environment on a deeply corporeal and visceral level.

A significant example of the transmitted affect is observed in the reporter Peg Mankiewicz, who admits that she "sympathize[s]" with the Trainites in this toxic and polluted environment they all live, where "beaches fouled with oil and sewage, air so bad you can't go out without a mask, the water at your sink reeking of chlorine" (121). It is obvious that Peg's sympathetic feelings for the Trainites who take various actions against the environmental deterioration originate from the polluted environment she shares and experiences with the Trainites. That is why, the transmission of the Trainites' affects such as anger, misery, sense of responsibility and the urge to take action to Peg undermines "the dichotomy between the individual and the environment" (Brennan 7). This reveals how environment is effective in producing affects and transferring these affects to different individuals. After Peg quits her job at the newspaper, she goes to the Colorado wat where the Trainites live and works on the land with them for a while. However, she eventually realizes that as a reporter she has to do something substantial "to change the course of the world, instead of preparing to survive while the world does its worst" (111). Peg's despair she feels about the polluted environment come to the fore as she poses the following questions amid while crying:

> "What kind of future do we have, Zena? A few thousand of us living underground in airconditioned caves, fed from hydroponics plants like Bamberley's? While the rest of our descendants grub around on the poisoned surface, their kids sickly and crippled, worse off than Bushmen after centuries of proud civilization?" (227).

Peg's solastalgic distress which is heightened with the awareness of pervasive social and environmental injustice demonstrates that negatively altered environments arouse intense affective responses, motivating people to take action as can be noticed in Peg's decision to be more useful to the society and the planet as a reporter. In this way, Peg is resolved to write news items on the environment in order to inform the public about corporations'

environmentally destructive practices and industries, knowing that "she had only one talent, and right now the logical use to put it to seemed to be muckraking" (256).

Similar to Peg's decision to be more involved in the affairs of the state and draw attention to the environmental issues through her news items, Austin Train who also wants to contribute to his society returns to public life towards the end of the novel, believing that "he may be able to save the world" with his power on the Trainites and the general public (356). His deep connection to the planet he is a part of and every human and nonhuman that exists in it makes him feel that he can be influential in raising environmental consciousness and awareness related to the environmental decline and the destruction of the planet:

> […] the conviction had come on him: I matter. I count. I have an insight. I think a thing no one else thinks. I believe with the certainty of faith. I must make others hear and understand [...] At night, when he lay down to sleep, he felt that his brain was resonating with the heartbeat of the planet. (102)

From an affective and material ecocritical perspective, it can be stated that Austin Train feels united with the whole planet, which gives him a sense of responsibility to protect it by directing people to act against the impending threat of extinction of the humankind. As an "embodied person in the macro processes" of his material environment, Austin feels responsibility for saving the planet at a corporeal and emotional level (Houser 7). In other words, his felt emotions in his body that make him sense the reverberation of the planet on his brain are invoked as a result of his affective attachment to his environment. Therefore, Austin's affects aroused through corporeal and emotional registers function as "the sources for ethical stances and political actions" (Houser 7).

Austin's strengthened capacity to act through the impersonal affect of the polluted environment can also be observed in his attempt to make public statement in one of the most popular TV shows of the country, Petronella Page Show, in order to reach a large

audience to warn them against the climate collapse. However, before he has the chance to appear on the show, he is arrested on the false accusation of having kidnapped Hector Bamberley. After having been proven innocent in the courtroom, "Austin seizes the opportunity to speak in front of a nationwide TV audience" (Hermann 117):

> Although it's already too late for us, it may not be too late for the rest of the planet! We owe it to those who come after that there never be another Mekong Desert! There must never be another Oklahoma dustbowl! There must never be another dead sea! I beg you, I plead with you to take a solemn oath: though your children will be twisted, and dull-witted, and slow of speech, there will remain somewhere, for long enough, a place where children grow up healthy, bright and sane! (462)

His "passionate appeal for treating the environment more carefully and with more respect" (Hermann 117) deeply affects people in the courtroom including Petronella Page, the host of the televised trial and the cameraman Christ, who is "shaking, shaking from head to foot! In a moment he's going to weep like Petronella did!" (460). As Brennan underscores, "the energetic affects of others enter the person, and the person's affects, in turn, are transmitted to the environment" (8). Thus, Austin's deeply felt agony in the face of their dying planet and his pleading for a nation-wide awakening for taking urgent environmental action are transmitted to the others in the courtroom. Moreover, Johns-Putra asserts that "climate change novels align our concerns for the planet with our obligations to children and thence to future generations" ("Borrowing 12). Accordingly, Austin Train attempts to drive people into action to save the planet by urging them to think about posterity and his emphasis on saving the planet especially for the future generations hence could easily evoke affective responses within the public.

However, Austin's speech is cut off on TV on the orders of the US President Prexy and he is not able to make himself heard. After a short while, the extremist Trainite Ossie,

who blames Austin for "tamely let[ing] himself be arrested-and worse yet was now meekly going to stand trial! -by the lackeys of the establishment he'd had it in his power to overthrow" (452), detonates a bomb, blowing up the courtroom and killing everybody in it including the Bamberleys and Austin Train. Albrecht states that "the sublimating or diluting of solastalgic distress can occur in the form of a range of social, physical and mental health problems ranging from substance abuse to serious psychiatric disorders and suicide" ("Solastalgia" 54). Therefore, Ossie's extremist and brutal act of blowing up the courtroom can be interpreted as a very striking instance of how solastalgic distress contributes to his deteriorating mental health and cumulates in his terrorist attack. This attack results in the death of a great many people including Austin Train, who could have initiated a positive change and raised environmental awareness in the American society as "he seemed to be about the only person who might lead [them] out of this mess" (271).

The public's tremendous rage against the American government that is held responsible for the ecological, political and social collapse in the country because of its oppressive, environmentally destructive and inefficient policies can be interpreted as another affective response adopted by the public in their struggle to deal with solastalgic distress in the fictional world of the novel. In the novel, the American society is represented as "a community in a stressed landscape where stressed people experience the deep distress of solastalgia while others [the government and corporations] profit at their expense" (Albrecht "Solastalgia" 54). This turns the whole country into "a battlefield between a fascist establishment and an ever-growing discontented radical public" (Hermann 121). The "straw dummy [US President] Prexy and his cabinet of mediocrities" have provided big corporations with every opportunity to gain profit even from the ecological disasters with their capitalist companies like "Puritan Foods" or Roland Bamberley's water-purifier business (317). Moreover, the government's oppressive and restrictive policies have resulted in the elimination of those who protest or raise their

voice against the establishment. As a result, while Austin Train's ecological concerns and critiques have turned him into the enemy of those in power, environmentalist campaigners Professor Quarrey and Gerry Thorne are killed towards the end of the novel, possibly on behalf of the "corporate-military ruling elites" because of their criticism of the government's environmental policies and laws (Rasulis 113). Austin Train's wrongful imprisonment for the kidnap of Hector Bamberley on the basis of the wealthy industrialist Roland Bamberley's accusations or the termination of Austin's anti-establishment speech at the trial by President Prexy are among the other examples that reveal how counter-establishment opinions are not accepted in this authoritarian political environment in the novel (Hermann 121).

Further, among the "rich industrial countries [that] were ruining the planet", the USA is presented as the most liable country because of its destructive and exploitative policies and industries costing the survival of the whole planet (36). Towards the end of the novel, Dr Grey on a TV show claims that "we can just about restore the balance of the ecology, the biosphere […]-if we exterminate the two hundred million most extravagant and wasteful of our species" (473). "The figure of two hundred million" that Dr. Grey utters "is not coincidental" since "it is approximately the number of American citizens at the time *The Sheep Look Up* was written" (Hermann 120). This suggests that Brunner believes that "humanity could be saved if it was not for American ill-treatment of the environment" caused mainly by its capitalist and imperialist goals (Hermann 120). Likewise, during the conversation between Professor Quarrey and Gerry Thorne, they point out the fact that "the most awful warnings are staring us in the face- the stagnant Mediterranean above all, dead like the Great Lakes- yet we're so proud of being the richest, the most powerful, the whatever, that we won't face facts" (271). Thus, the USA's capitalist economic system and the government's policies for economic growth are accountable for the ecological degradation and other serious environmental problems

such as famine, drought and the depletion of natural resources both in their country and the world. Albrecht points out that, "a counter to solastalgia in the political context is resistance to the power and arrogance of both government and corporate bodies to silence" and oppress people in their negatively altered environment ("Solastalgia" 54). An example of such reaction can be observed in Austin's call to the public in his speech in the courtroom to resist against the governmental oppression: "[…] at all costs, to me, to anyone, at all costs if the human race is to survive, the forcible exportation of the way of life invented by these stupid men must…be…stopped" (460). The resistance of public against corporate and governmental power is clearly seen in the public upheaval in the last section of the novel as reflected in the fact that "[t]here had never before been so many people so absolutely angry with the system, and striking back against it" (465).

At the end of the novel, the careless disposal and subsequent leakage of "a military psychotomimetic based on the ergot that infects rye" by the US government that has poisoned both the Nutripon produced at the Bamberley Hydroponics Plant and the water supply in Denver result in widespread rebellion, martial law, mass riots, and large-scale violence (460). In "Affective Atmospheres" (2009), Ben Anderson states that affective qualities of the atmospheres "emanate from the assembling of the human bodies, discursive bodies, non-human bodies, and all the other bodies" (80). Thus, from a material ecocritical perspective, the affective atmosphere that emerges from the assemblage of the polluted environment and its many agents in the novel including the corrupt political system, pervasive social and environmental injustice and contamination that is detrimental to bodily and public health create a restless and agitated atmosphere. In line with Jane Bennett's concept of the "impersonal affect" that draws attention to the vitality and agency of all matter to arouse affect, Anderson asserts that atmospheres are "impersonal in that they belong to collective situations and yet can be felt as intensely personal. On this account, atmospheres are spatially discharged affective qualities that

are autonomous from the bodies that they emerge from, enable and perish with" (80). Accordingly, in Brunner's novel, the insecure, violent and unrestful atmosphere in the American society brought about by environmental collapse not only has an autonomous affective force but also is experienced by all citizens in the country both collectively as a society and individually at a personal level. In response to this collectively shared but individually experienced troubled atmosphere in the American society, people react against the government due to its major role in the ecological devastation in the country through mass riots and demonstrations. These public reactions become a manifestation of how "the 'atmosphere' literally gets into the individual" (Brennan 1), revealing the impact of the transmitted affect among individuals within a certain environment.

In the last section of the novel entitled "The Smoke of that Great Burning", it is stated that people in Ireland can smell the smoke of "a tremendous fire" blowing over the Atlantic from America with the implication of a civil war that has broken out in the USA (473). Although the novel does not explicitly come to a conclusion with regard to whether humanity is saved or not, it ends on a bleak note with a quotation from Milton's "Lycidas", which offers a link to the title of the novel:

> The hungry sheep look up, and are not fed,
> But swoln with wind, and the rank mist they draw,
> Rot inwardly, and foul contagion spread. (478)

In *The Sheep Look Up,* each chapter depicts a month of a year, which points to the fact that all these environmental catastrophes the novel dwells on have occurred over the course of a single year. Therefore, it is notable and meaningful that the quotation from Milton's "Lycidas" is given in the last chapter of the novel, entitled "Next Year". With its dreary image of unfed and inwardly rotten hungry sheep as the contagion continues to spread, the quotation from Milton's "Lycidas" calls attention to the fact that with people behaving like "the sheep" without raising their voice or taking any action against all the

environmental disasters happening around them, the future of humanity seems nightmarish and catastrophic with all the calamities lying in store.

In conclusion, from a material ecocritical standpoint, in its extrapolation of a future society destroyed by environmental disasters, Brunner's *The Sheep Look Up* draws attention to the trans-corporeal interconnections among ecological collapse, the environmentally destructive practices of capitalist-industrial corporations, the problems of environmentally-collapsed societies such as toxicity, sickness, poverty, famine and civil wars, and class and race inequalities in terms of exposure to environmental hazards. From an affective ecocritical perspective, *The Sheep Look Up* provides its readers with the chance to gain a highly realistic sense of what it feels like to live in a climatically changed and environmentally collapsed world and thus it manages to stimulate readers to respond empathetically to the characters' feelings of misery and despair in a world which is beyond saving. Brunner indicates that "the mere fact of publishing such a book [*The Sheep Look Up*] […] may possibly cause people to mend their ways" (Interview with Stephen L. Goldstein). As such, the affective power of Brunner's novel on readers is exemplified by James John Bell in his afterword to the 2003 edition of *The Sheep Look Up*. Bell states that *The Sheep Look Up* became an "ecodefense manual" for radical environmentalists in the 1970s, being influential in the formation of "such groups as Earth First! and Rainforest Action Network" (571). Bell also shares his own real-life experience about a time when a group of students including himself on their campus decided to protest against "McDonald's for their involvement in rainforest destruction, exploitation of children through advertising" (572). Among the protestors, Bell encountered "a fiery young woman [from Earth First! group] who called herself Austin", the idol of the environmentalists in *The Sheep Look Up* (Bell 572). This anecdote is a very striking and significant example that showcases the affective force of Brunner's novel on readers to prompt them to be environmentally active to be able to contribute to the ecological health

of the planet. Hence, grounded on the environmental realities of the time in which he lived and wrote, Brunner's vision of a future world on the verge of extinction due to climate collapse and environmental degradation in *The Sheep Look Up* echoes the contemporary ecological crises we face, urging us to adopt environmentally responsible behaviours to avoid the dire future consequences of these crises.

CHAPTER III

THE BODY IN RUTH OZEKI'S *MY YEAR OF MEATS*

As discussed in the previous chapter in detail, utilizing the narrative possibilities of science fiction and adopting a dystopian mode of writing, John Brunner's *The Sheep Look Up* exemplifies how the narrative strategies offered by climate change novel become effective in contemplating the complex conditions under which such dystopic environmental outcomes arise, triggering affects that can be fruitful in increasing environmental awareness, and warning against serious environmental catastrophes that await humanity. In a similar vein, interpreted through the interlacements of material ecocritical discourse and affect theory, Ruth L. Ozeki's *My Year of Meats* (1998) epitomizes how climate change novel can serve to provide readers with both factual and scientific information and fictional stories that present probable scenarios that can occur as a result of environmental hazards and climate change. Thus, as an environmental narrative that juxtaposes ecological issues with sentimental stories, *My Year of Meats* could hopefully lead people to gain awareness and take action against the global meat industry with its many serious environmental and bodily harms that have widespread impacts from the toxic meat they consume to their ability to reproduce as exemplified in the novel.

The American-Canadian writer of Japanese descent, Ruth Lounsbury Ozeki (b. 1956) is an award-winning author, "whose novels have garnered international critical acclaim for their ability to weave together science, technology, environment, religion, politics and global popular culture in unique and compelling hybrid narrative forms" ("About Ruth"). Ozeki's highly regarded novels, *My Year of Meats* (1998), *All Over Creation* (2003), *A Tale for the Time Being* (2013), draw on her biracial identity in the exploration of "what she calls 'hybridity'- the juxtapositions of different races, cultures and customs" within the larger contexts of transnational and multicultural politics in the

globalized and post-industrial world (Palmer). Apart from novels, Ozeki's diverse works include her personal non-fiction piece and autobiographical sketch, *The Face: A Time Code* (2015); short stories, "Ships in the Night" (2004), and "The Anthropologist's Kid" (2006) and two award-winning films, *Body of Correspondence* (1994) and *Halving the Bones* (1995) (Fusco 1; "Other Writing"; Palumbo-Liu "Where We").

The impact of Ozeki's career in the media industry as a filmmaker is recognized in the employment of documentary narrative mode in *My Year of Meats* as its major stylistic feature. In her interview, Ozeki states that "I don't think I could have written a novel had I not been a filmmaker first" ("A Conversation with Ruth Ozeki" 203). Ozeki further explains that the reason why readers call *My Year of Meats* "cinematic" could be about her writing process, saying: "When I write, I feel like a virtual camera, moving into a location, panning around, choosing a frame, then starting to record" ("A Conversation with Ruth Ozeki" 203). Accordingly, analysing *My Year of Meats* in relation to Ozeki's 1995 film *Halving the Bones*, Michael Zryd calls Ozeki's text a "docu-novel" since "the novel is shot through with documentarian textures" ("Ironic Identity"). Likewise, Summer Harrison focuses on the documentary narrative mode in *My Year of Meats*, which she defines as an unusual style of "juxtaposition of sentimental stories with relevant environmental facts" in order "both to depict environmental injustices linked to the global meat industry and to interrogate how commercial representations of human/nonhuman bodies legitimize their violent exploitation" (458). Thus, the employment of documentary narrative mode in *My Year of Meats* becomes a useful tool to reflect Ozeki's environmental consciousness in her exploration of how global systems of food production are closely intertwined with environmental health, environmental justice and the materiality of diverse bodies, among which are racial, gendered, sexualized human bodies and non-human bodies such as animals and plants from a material ecocritical perspective.

"Set in the early 1990s during the rapid global expansion of the meat industry" (Xu 75), Ozeki's *My Year of Meats* takes the meat industry into the centre of its narrative and tackles the meat production and consumption from various aspects ranging from its damaging effects on the environmental, bodily and public health to the economic, social and multicultural dimensions of the corporate meat business. Ozeki's exploration of the multifaceted global meat industry demonstrates her "interdisciplinary approach to novel writing" in her own words, since her novel delves into varied issues within a web of entanglements of industrial and capitalist systems, globalized food production, multicultural and transnational politics and environmental systems (Palumbo-Liu "Where We"). In her 2013 interview with Eleanor Ty, Ozeki indicates that all the different topics she explores in her novels stem from her perception of these elements within the intricacy of their "interconnectedness and interdependence" as "the planet is really small, and we are all radically interconnected" (161-2). Thus, from a material ecocritical perspective, Ozeki's planetary approach in *My Year of Meats* provides a very useful basis for exploring how global systems are intertwined with the environmental health, various aspects of human life, and the materiality of diverse bodies, including racial, gendered, sexualized human bodies and nonhuman bodies such as animals and natural bodies of air, soil and distinct ecosystems.

Within the framework of material ecocritical discourse, this chapter will examine how the material-discursivity of the bodies in Ozeki's novel position them as "storied landscapes" (Oppermann "Toxic Bodies" 417) and thus how various human and nonhuman bodies as represented in Ozeki's novel function as material-discursive sites to articulate their stories of contamination, toxification, exploitation and oppression through the interlocking discursive systems of patriarchy, capitalism, speciesism, racism and classism incorporated by the practices of the global meat industry. This chapter will discuss that the complex and multi-layered narrative style of *My Year of Meats* is

instrumental in the effective portrayal of the stories of toxic bodies, alien agencies, degraded environment, changing climate and diverse forms of injustices articulated by the material agencies within the complex cultural, economic and social systems and in doing so, it could potentially achieve to raise political and ethical awareness. The novel's narrative strategies, hence, play a crucial role in "enhanc[ing] moral and environmental imagination" in readers by arousing affective responses and prompting them to move ethically and responsibly against the detrimental practices of the global meat industry (Iovino and Oppermann, "Materiality" 87). To this end, the concepts of "absent referent", "alien agencies" and "affected ignorance" will be employed in the analysis of Ozeki's *My Year of Meats*. The concept of "absent referent" put forward by the feminist-vegan advocate Carol J. Adams will be instrumental to comprehend the similarities between the mistreatment and slaughter of animals for their nonhuman bodies in the meat industry and the female bodies which are treated as pieces of meat by being exposed to physical and sexual violence in the novel. The term of "alien agencies", a material ecocritical conception proposed by Serpil Oppermann, will be used in relation to the material ecocritical understanding of bodies as "living texts" in an effort to grasp how diverse bodies represented in the novel convey the stories of the trans-corporeal transitions between the hazardous chemicals and human and animal bodies within the meat industry. The analysis of calamitous chemicals and hormones used in the meat industry such as DES (diethylstilbestrol) and Lutalyse as "alien agencies", therefore, will be effective to reveal how discursive systems of capitalism, patriarchy, speciesism and racism have become influential in the popularization and widespread use of these chemicals and hormones in female bodies for the control and manipulation of their reproductive system and in animals for the exploitation of their nonhuman bodies. Lastly, the concept of "affected ignorance" proposed by Nancy L. Williams will be employed within the framework of affect theory in order to demonstrate how the wilful ignorance of people

about their part in the animal suffering within the global meat industry could be counteracted by enactive and embodied bodily feelings aroused through narrative affects employed in the novel and could ultimately prompt people to empathize with the suffering of all human and nonhuman bodies victimized by the practices of the global meat industry and be part of the affective community in taking efficient actions against this industry.

3. 1. Meat as a Metaphor and the Body as a Material Discursive Site

My Year of Meats gives an account of the story of one year in the life of Jane Tagaki-Little, an American-Japanese documentarian who is hired to coordinate a TV show called *My American Wife!*. Sponsored by the BEEF-EX, an American corporate beef exporting company, this show serves the company's purpose of enlarging its market to Japan. Jane underlines that her hybrid identity as an American-Japanese documentarian makes her useful for the show "as a go-between, a cultural pimp, selling off the vast illusion of America to a cramped population on that small string of Pacific Islands" (9), underlying the economic and transnational networks in the global media and intercultural marketing between America and Japan during the 1990s. *My American Wife!* features an American housewife who cooks "delicious meat recipe" each week in an effort "to foster among Japanese housewives a proper understanding of the wholesomeness of U.S. meats" with the aim of increasing meat consumption in Japan (12, 10). Thus, by mapping "the transpacific routes that American meat travels [within] a massive network of ranchers, feedlots, grain companies, pharmaceutical conglomerates, slaughterhouses, meatpackers, lobbyists, and media outlets"**,** the novel explores "how thoroughly enmeshed food is with post-industrial systems of media, marketing, data management and commerce" (Carruth 118).

From a material ecocritical standpoint, in *My Year of Meats* the body, human and nonhuman, on which a myriad of oppressive systems exerts their force and violence in various ways is mainly explored through the element of meat and its diverse cultural,

social and discursive meanings. Emily Cheng relates this to the novel's political and ethical agenda, stating, "Meat in the novel serves multiple functions: a metaphor for womanhood, the locus of anticapitalist politics, an object through which the violence of capital upon the body is played out, and a subject of public health and environmental concern" (192). Meat as the central symbol and motif in the novel, therefore, becomes a medium through which diverse bodies ranging from nonhuman bodies such as animals and natural bodies to the human bodies, especially those of the sexed, gendered, racialized and socially disadvantaged are victimized and damaged. Gaard asserts that "the production, transport, consumption and waste of animals used in industrial food systems" are intertwined with "that industry's many assaults on human and environmental health" ("Ecofeminism" 26). Accordingly, the scrutiny of various bodies in Ozeki's novel as material-discursive sites is critical to "sharpen our vision and perception of what we call 'nature' and what we call 'culture', showing the multiplicity of players involved in this big pattern of material-discursive agencies" within the global meat industry (Iovino and Oppermann, "Materiality" 87).

To begin with, as Ozeki's novel underlines, the detrimental impacts of the global meat industry are first and foremost felt on natural bodies like soil, air and ecosystems, all of which seriously affect the ecological health of the planet. Consistent with the UN Food and Agricultural Organization's 2006 report, which defines "the livestock sector" as "by far the single largest anthropogenic user of land", the huge role the livestock grazing plays in the deterioration of the soil is elaborated in the novel (Steinfeld xxi). During their journey to Colorado, Denver for the shooting of an episode for *My American Wife!*, Jane and her crew observe the degraded and eroded soil, particularly in the areas which are "compromised by a tradition of irresponsible cattle production" (Ladino, "New Frontiers" 138). Dave Schultz, a former agriculture student who accompanies Jane's crew on their journey, states that "in 1988, more than 1.5 million acres in Colorado alone were

damaged by wind erosion" (248). Dave further explains that "the United States has lost one-third of its topsoil since colonial times" and that "six to seven billion tons of eroded soil, about 85 percent, are directly attributable to livestock grazing and unsustainable methods of farming feed crops for cattle" (248). As the novel emphasizes, the widespread livestock grazing specifically in the U.S. Western rangeland is responsible for the huge amount of degraded soil and erosion as its direct result.

In addition to soil degradation, the loss of biodiversity and desertification are listed among the calamitous impacts of livestock grazing in the novel. It is stated that "every McDonald's Quarter Pounder represents fifty-five square feet of South American rain forest, destroyed forever, which of course affects global warming as well" (250). This environmental fact is also affirmed by the UN Food and Agricultural Organization's 2006 report, which points out that "ranching-induced deforestation is one of the main causes of loss of unique plant and animal species in the tropical rainforests of Central America and South America" (Steinfeld 66). Thus, the degraded and eroded soil, the replacement of forests with rangelands and substantial harm given to biological life and diverse ecosystems as a result of livestock grazing underscore the "naturalcultural processes" created by the interconnected systems of the industrial practices of meat production and environmental decline (Iovino and Oppermann, "Materiality" 78). Put differently, the meat industry's discursive practice of livestock grazing driven by its capitalist and profit-seeking aims inevitably brings about severe damage to the ecological health and natural bodies of soil where livestock grazing is common.

All of these environmental harms caused by the meat production and consumption culminate in climate change and global warming as the most threatening effects that endanger the planetary health. The fact that the livestock sector is a huge contributor to global warming is clearly manifested in the novel:

> Scientists estimate that some sixty million tons of methane gas are emitted as belches and flatulence by the world's one point three billion cattle and other ruminant livestock each year. Methane is one of the four global warming gases, each molecule trapping twenty-five times as much solar heat as a molecule of carbon dioxide. (250)

With all these harmful gases emitted by cattle used in the meat production, the livestock sector is "responsible for 18 percent of greenhouse gas emissions measured in CO2 equivalent" (Steinfeld xxi). Moreover, the novel states that it takes "the equivalent of one gallon of gas to make one pound of grain-fed U.S. beef […] with all the tractors and machinery" utilized in the meat production; accordingly, "the average American family of four [that] eats more than two hundred sixty pounds of meat in a year" means two hundred sixty gallons of fuel, accounting for "two point five tons of carbon dioxide going into the atmosphere and adding to global warming" (250). Hence, global warming induced by meat production and consumption is emblematic of, as Tuana points out, "the viscous porosity between humans and our environment and between social practices and natural phenomena" (193).

The impacts of climate change and global warming for which the meat industry plays a major role are presented in several accounts of weather aberrations in the novel. To illustrate, it is reported that the soil degradation caused by feed crops and grazing activities is accompanied by extreme weather conditions in the form of "droughts and heat waves" especially in Colorado, Denver (248). Likewise, the public in New York is warned of "a record-breaking blizzard, another 'Storm of the Century'", highlighting how these weather aberrations are experienced frequently in the age of the Anthropocene (360). Also, during one of the episode shootings of *My American Wife!*, Jane is highly disturbed by "the blistering heat", which, she describes, "was odd for October" (263, 258). The sweltering heat in an autumn month showcases the extent of global warming,

which is increasingly getting worse. Consequently, as material-discursive sites, the natural bodies of air, soil and various ecosystems that are detrimentally affected by the industrial and capitalist practices of the meat industry indicate that "the livestock biomass, wildlife, humans and other life forms are tangled in a common trans-corporeal destiny" as indicated by Oppermann ("Toxic Bodies" 415). Simply put, the environmentally degrading livestock grazing activities of the meat industry are intimately bound with the exploitation of animal bodies for meat production and the destruction of varied life forms and ecosystems.

Apart from the catastrophic effects of the meat industry on natural bodies, the similar ways of oppression and exploitation via patriarchal and speciesist discourses that victimize and subjugate the bodies of both women and animals are explored through the symbolic, social and cultural associations of meat in Ozeki's novel. The "clear symbolic equivalence of women and meat" (Rodríguez 68) as represented in Ozeki's novel is rooted in the deep-seated cultural and social beliefs and the hierarchical power relations related to meat consumption throughout history. In *The Sexual Politics of Meat* (1990), Carol J. Adams argues that "the sexism in meat eating recapitulates the class distinctions with an added twist: a mythology permeates all classes that meat is a masculine food and meat eating a male activity" (48). Accordingly, "women, second-class citizens are more likely to eat what are considered to be second-class foods in a patriarchal culture: vegetables, fruits, and grains rather than meat" (Adams, *Sexual* 48). The cultural acceptance of the superior status of meat is illustrated in Ozeki's novel. Akiko, the wife of Joichi Ueno, the Japanese executive of *My American Wife!*, struggles to get pregnant; however, her eating disorder described as bulimia causes her periods to stop coming. In order to make his wife "fertile", Joichi urges Akiko to "put some meat on her bones" and imposes a carnivore diet on her by giving her "a stack of cookbooks" such as "*Meats Made Easy* and *Refined Meat for the Japanese Palate*", manifesting his strong conviction in the capability of meat

in boosting fertility (20). These examples showcase how "meat eating measures individual and societal virility", an idea which is reiterated by Joichi who quotes from the book he reads in the novel: "a liberal meat supply […] has always been associated with a happy and virile people […]" (Adams, *Sexual* 48; 20).

Moreover, the historically and culturally accepted position of men as the "controllers, hunters, providers, and also primary consumers of meat" leads to the association of meat with virility and male dominance as exemplified in the novel (Fiddes 146). With his unshakeable belief in meat, Joichi Ueno praises the sexual potency of John Dunn, the husband of Bunny Dunn, one of the American wives on the show, for having "fathered a child at the age of seventy-two […] because he eats red meat every day" (226). The underlying patriarchal and speciesist ideologies linked with meat-eating habits and practices inevitably bring about gender and interspecies inequalities, since "meat is almost ubiquitously put to use as a medium through which men express their 'natural' control, of women as well as of animals" (Fiddes 146). From a material ecocritical standpoint, the patriarchal and speciesist discourses that are culpable for the formation of exploited animal and female bodies expose "matter and corporeality not as prior to discourse as a site of origination, but as ontologically concurrent with discursive practices" (Iovino, "Toxic" 42). Thus, linking meat-eating with manhood through oppressive discourses results in the abuse of the bodies of women and animals as the objects to be controlled, hunted and devoured via various forms of violence as explored in Ozeki's novel.

The analogy between meat and the female body is primarily emphasized with the guidelines of *My American Wife!*, which require "the wife of the week" be "attractive, appetizing, and all-American. She is the Meat Made Manifest: ample, robust, yet never tough or hard to digest" (8). It is clear that the show exploits female bodies as the embodiment of meat with its imperative of choosing physically attractive and

"appetizing" women similar to the meat products they are supposed to advertise on the show. With its final target of "the celebration of a featured meat, climaxing in its glorious consumption", *My American Wife!* can be described as a "gastropornographic" show in its suggestion of, as in L. Williams' words, "the gastronomic and sexualized consumption of the attractive wife: Woman is rendered meat, and vice versa" (8; 255). In her interview on *My Year of Meats*, Ozeki emphasizes the fact that in her narrative "meat took on a variety of metaphorical resonance" as "[she] was thinking of women as cows; wives as chattel (a word related to cattle); and the body as meat, fleshy, sexual, the irreducible element of human identity", highlighting the similar associations of meat for the bodies of women and animals ("Conversation" 373). In the novel, the symbolic connection between female bodies and nonhuman bodies of animals is explicitly observed in the description of the office of the slaughterhouse employee Wilson at the Dunn & Son feedlot: "a wood-paneled panopticon decorated with a large poster of a young blond Amazon in jungle bikini, who overlooked the meat-cutting operations below" (280). The objectification of the female body through her sexualized body parts on the poster links "women not only to meat but to capital-as objects for (male) sexual consumption" (Cornyetz 219). Moreover, the image of the sexualized woman on the poster that supervises the violent butchery of the nonhuman animals in the slaughterhouse points to the connection between the brutal slaughter of animals for the meat industry and the sexual and physical violence women are exposed to in the patriarchal culture, hence, "the collusion of patriarchy and the global meat industry" (Xu 76).

Carol J. Adams' term of "absent referent" is central in the understanding of the underlying mechanisms that subject both women and animals to patriarchal violence in its many forms. According to Adams, "through butchering, animals become absent referents. Animals in name and body are made absent as animals for meat to exist" (*Sexual* 66). In other words, by being slaughtered and transformed into meat, animals are

made absent with the aim of separating the meat people consume from the idea that this very meat was once an animal. Adams asserts that "absent referent" basically functions to make people eat their meat comfortably without having to "experience uncomfortable feelings about violence, butchering, suffering", as it serves "to keep something (like hamburger) from being seen as having been someone (a cow, a lamb, a once-alive being, a subject) (*Pornography* 23). The main tool to transform animals into "absent referents" is language, and therefore, as Adams affirms, "our culture further mystifies the term 'meat' with gastronomic language, so we do not conjure dead, butchered animals, but cuisine" (*Sexual* 66). The use of language through which animals are rendered "absent referents" is also demonstrated in Ozeki's novel. When Jane is asked whether she has ever been to a feedlot, she inquiries, "What, you mean for cows?" and she is replied with rolling eyes, "No, cattle. Meat" (60). The replacement of the word "cow" with "meat" functions here as an "absent referent" in order to lead Jane into thinking of feedlots not as the slaughterhouses of cows but the production sites of meat for human consumption.

The status of animals as "absent referents" is functional to realize how women are also made "absent referents" in similar ways within the patriarchal system. By positing a link between violence against women and animals, Adams emphasizes that "in regard to rape victims and battered women, the death experience of animals acts to illustrate the lived experience of women" (*Sexual* 67). Accordingly, the accounts of women who state that they "feel like a piece of meat" after they are raped expose the similarity between the mistreatment and slaughter of animals for their nonhuman bodies and the sexual and physical violence women are subjected to for their female bodies (Gaard, "Vegetarian" 120). In Ozeki's novel, Joichi Ueno becomes the medium through which the patriarchal violence acts upon female bodies. Joichi inflicts physical and sexual violence on two female bodies within the narrative as observed in his victimization of Jane via his attempted rape on their business trip in Memphis and in his abusive treatment of his wife

Akiko. Throughout the novel, Joichi harshly beats Akiko even for petty reasons, such as serving him Australian lamb instead of American beef (253). In the rape scene in the novel, the extent of the physical and sexual violence Akiko is exposed to is strikingly manifested:

> […] [Joichi] swung back a stockinged foot and kicked [Akiko] as hard as he could in the stomach. She gasped but continued to lie there, as limp as a dead cat. […] he punched her squarely in the jaw. Her head flew back as his knuckle split her lip, and a thin dribble of blood ran down her jaw. He flipped her over onto her stomach so he wouldn't have to look at it. […] "So, I guess it doesn't matter where I put it, does it?" he muttered, as he unzipped his pants. "In the front or in the back, it's all the same! It doesn't matter where, because you are a sterile, useless woman." He lifted her up by the hips and forced his penis into her anus. […] he whispered, inserting his penis into her vagina now […]. (238)

This passage shows how Joichi literally treats Akiko's body as "a piece of meat" to be possessed and devoured as he beats and rapes her brutally. Therefore, the objectification of Akiko's body through sexual and physical violence underlines that the dominance and oppressive power of men over women within the patriarchal system are corporeally and materially carved onto female bodies, revealing "how the discursive and the material interact in the constitution of bodies" from a material ecocritical perspective (Alaimo and Hekman 7).

Rendering both animals and women "a piece of meat", in other words, treating them "like an inert object when one is (or was) in fact a living, feeling being" (Adams, *Sexual* 82) becomes a common thread that connects the similar forms of oppression and violence inflicted on both female and animal bodies through sexist and speciesist discourses and practices in Ozeki's novel. Adams points out that, "if you are a piece of

meat, you are subject to a knife, to implemental violence. Rape, too, is implemental violence in which the penis is the implement of violation" (*Sexual* 82). Thus, whether it is through a knife or a penis, the implementation of violence on female and animal bodies reveals that "just as the slaughterhouse treats animals […] as inert, unthinking, unfeeling objects, so too in rape are women treated as inert objects, with no attention paid to their feelings or needs" as depicted in Ozeki's novel (Adams, *Sexual* 82). Similar to the body of Akiko that is exposed to brutal rape and violence by Joichi without any consideration of her feelings or desires, the bodies of cattle in slaughterhouses are violated and butchered ruthlessly as if they are commodities to be mass-produced. To exemplify, the mechanical execution of "various operations on the hanging carcasses-lopping off hooves, decapitating, eviscerating" in the feedlots are described as equivalent to "process[ing] animals on an assembly line, like cars or computer chips" (282, 125). In other words, as Jane explains, all these procedures carried out in animal butchery "with precision and an eye to slaughter" are "antithetical to the randomness of living things" (256), since the existence of animals is reduced to their physical bodies with complete disregard of their emotions or needs. However, animals are actually capable of experiencing emotions as observed in the intense fear and distress they feel during the slaughtering process in the novel:

> […] a cow was herded into the pen by a worker wielding an electric prod. The cow balked, minced, then slammed her bulk against the sides of the pen. She had just watched the cow before her being killed, and the cow before that, and she was terrified. (283)

Despite being treated as "a piece of meat" in the meat industry, animals "have emotional lives that include the capacity to suffer" (Weik von Mossner, *Affective* 109). As opposed to the deeply ingrained cultural acceptance of animals as mere bodies to serve for humans' desires and interests, it is now widely recognized that despite their differences, both

humans and nonhuman animals "are relevantly similar in that they are both sentient; they are perceptually aware and able to experience pain and pleasure" as observed in the example of the terrified cow in the face of her imminent death in the novel (Francione 7).

Additionally, in Ozeki's novel the nonhuman bodies of cattle are represented as the material-discursive sites on which the meat industry not only exerts violence and inhumane treatment during the processes of their slaughter but also carries out its capitalist and profit-seeking practices in unimaginably horrific ways. The description of the Dunn & Son feedlot as "an island, an enormous patchwork comprising neatly squared and concentrated beef-to-be" becomes emblematic of the extremely unhealthy and alienating environment of the feedlots where "cattle are crammed into pens, standing knee-deep in urine, feces, and mud, with no place to move" for the cattle feeders' aims of increasing their commercial profit (256, 205). Besides, feeding cattle with various growth enhancing hormones such as "Synovex", and "DES", along with all kinds of unhealthy feed are among the profitable ways of gaining as much meat as possible from the nonhuman bodies of cattle. Gale Dunn, who is in charge of the Dunn & Son feedlot, expresses that "without the drugs we'd be finished", underscoring the fact that gaining profit in the business of feedlot rests on the harmful chemicals and drugs given to cattle for "bringing more head to slaughter" (263). Gale Dunn also takes pride in their "exotic feed program" and explains how they use all kinds of products which are not in fact suitable for cattle feeding (258). For instance, the cattle in the Dunn & Son feedlot are fed on "recycled cardboard and newspaper, by-products from potato chips, breweries, liquor distillers, sawdust, wood chips", as well as "plastic pellets", which help them save "about eleven cents a day per head", and "cattle shit" since using "formulated feed is real expensive" (258, 259). Their profit-based business even makes these cattle feeders "recycle cattle right into cattle", which is reported to have resulted in "mad cow disease", a disease that "ate the cows' brains and made them crazy" (258). In this context, the

exploitation and victimization of the nonhuman bodies of cattle in the processes of their feeding, manipulation of their bodies through medical and chemical interventions and eventually their slaughtering via "discursively formed practices" of capitalist and speciecist discourses interwoven with the meat industry manifest that "nonhuman bodies, too, incontestably suffer, perhaps even more intensely, the effects of unpredictable material agencies, and of human exploitative practices" (Iovino, "Toxic" 41; Oppermann "Toxic Bodies" 415).

Apart from the bodies of nonhuman animals and women, those of the racialized and socially disadvantaged are also oppressed and victimized by the meat industry in the novel, underscoring the fact that "many forms of subjugation and otherness" based on ethnicity and nationality "are scripted onto material bodies" (Oppermann, "Toxic Bodies" 417; Alaimo and Hekman 8) through discriminative discursive practices. This brings the issue of environmental justice to the fore in that the novel gives instances of how material bodies especially those of the disadvantaged are exposed to and constituted by what Alaimo calls "deviant agencies of xenobiotic chemicals", since "exposure to toxins correlates most directly with race, and then with the class" (*Bodily* 139, 117). To exemplify, when Jane goes to inspect the Purcell family for one of the episodes of *My American Wife!*, she learns that Mr. Purcell, a poor black man who lives with his family in Harmony, Mississippi, is adversely affected by the estrogen poisoning caused by the consumption of chicken necks, leading him to "sound like a woman" and grow breasts (117). The Purcell family, who have to feed on cheap chicken necks as "red meat's too costly with so many mouths to feed", displays the fact that poor communities are more prone to be victimized by environmental and public health hazards (117). As Cheryl J. Fish maintains, Ozeki's novel demonstrates that there is "a direct and insidious relationship between meat production and environmental and public health issues, especially for women, children, persons of color, and the poor" (43). Accordingly, the

poisoned body of Mr. Purcell is, as Oppermann underscores, "a specific instance of the coextensivity of material agencies, biological systems, and discriminatory practices" ("Toxic Bodies" 415).

Another example that epitomizes how discriminative practices driven by the intersecting oppressive systems of racism and sexism are materially carved onto biological bodies is observed in the toxic body of Jane's mother formed within "the interconnected systems of meat and medicine" in the novel (Carruth 137). When she was pregnant with Jane, Jane's mother was prescribed DES, "a synthetic estrogen", which was given to "10 to 15 million women and babies between 1938 and 1971"; however, DES was later proved to be fatal when it resulted in numerous cancers and deaths (Palumbo-Liu, "Pacific" 167). Investigating the origins of her inability to get pregnant, Jane eventually finds out that she is a DES daughter because of having been exposed to DES in her mother's womb. Jane explains that the old Doc Ingvortsen, the family doctor in Quam, who "was used to treating large-bodied Swedes and sturdy Danes with ample, childbearing hips" prescribed DES to Jane's Japanese mother, who had already lost four babies before Jane, with his conviction that DES would help her "keep [Jane] in place, floating between her delicate hips" (156). It is clear that the body of Jane's mother was gendered and racialized by her doctor because of his racial prejudice that her frail Japanese body is not strong or productive enough to keep her baby; as a result, she was put in danger with her baby by being given a deadly hormone. Doc Ingvortsen's classifying of her mother's race as "yellow" in Jane's birth certificate indicates "the objectification of her body as a result of these racial stereotypes that embed her deeply within the biopolitical 'care' of the doctor" (156; L. Williams 259).

All in all, the representation of the various bodies that are oppressed, raped, sickened, poisoned, contaminated and slaughtered as material-discursive sites in Ozeki's novel showcases that the material substance of the body is entangled with a network of

diverse discursive systems of patriarchy, capitalism, speciesism, racism and classism integrated by the practices of the global meat industry.

3. 2. Alien Agencies and Bodies as Living Texts

Material ecocriticism allows us to see how corporeality and "discursive forces of politics, society, technology, biology" are inextricably embedded with the meanings conveyed through their tales of "natures and cultures, and stories and ecologies" (Iovino and Oppermann "Stories" 6; Oppermann, "Toxic Bodies" 417). Within this material-ecocritical context, the conception of toxic bodies in Ozeki's novel as "living texts that recount naturalcultural stories" (Iovino and Oppermann, "Stories" 6) of political, social and economic networks linked with medical and chemical interventions on corporeal bodies is functional to take heed of how people in the age of the Anthropocene are closely enmeshed with toxic substances. Thus, several hazardous chemicals used in the meat industry as presented in Ozeki's novel will be examined as "alien agencies", a term Oppermann uses to define how "synthetic chemicals created by science and technology act upon bodies in unpredictable ways" in order to grasp the agentic and transformative power of these dangerous material agencies in the emergence of toxic bodies as "living texts" ("Toxic Bodies" 415, 413).

In *My Year of Meats*, DES or diethylstilbestrol, which is defined as "a man-made estrogen that was first synthesized in 1938" is reported to have been used as a growth enhancement hormone, firstly in poultry and then in cattle production (124). On the documentary interlude on DES, Jane provides a historical account of DES and states that in 1954 when it was discovered that "if you feed DES to beef cattle, they get fat quicker", this meant that "the DES-enhanced" cattle could be 'finished' (brought to slaughter weight) more than a month sooner than unenhanced animals" (124). That is why, "DES was trumpeted as a 'miracle' and 'a revolution in the cattle history' and "by the early 1960s, DES was used by more than 95 percent of U.S. cattle feeders to speed up

production" (124). However, despite the "accounts of farmers who accidentally breathed or ingested DES powder and started showing symptoms such as impotence, infertility, gynecomastia (enlarged and tender breasts), and changes in their voice register", DES as a very profitable growth hormone was continued to be commonly used in the cattle production (124). Thus, the DES-exposed bodies of the farmers in the meat industry function as the living texts that articulate the stories of "interchanges and interconnections" between the environmental systems, toxic substances and biological bodies, underscoring the widespread use of DES for the profit-seeking and capitalist goals of the cattle feeders at the expense of individual and public health (Alaimo, *Bodily* 2).

Besides, although "in 1979, the government banned DES for use in livestock production, in 1980 half a million cattle from one hundred fifty-six feedlots in eighteen states were found with illegal DES implants" as stated in the novel (126). When Jane confronts Gale Dunn about his illegal use of DES in his feedlot, Gale defends himself with utter confidence of acceptability of his illegitimate act by saying that, "This here's ranch country, girl, and we do what we want, when we want, without no government's say-so [...] We got our own kinda justice, frontier justice […]" (279). This attitude shows that people like Gale Dunn "take the law into [their] own hands" knowing that they would not be "prosecuted" but only be "given a reprimand" even if they are caught using DES in their feedlots (126). Accordingly, the huge profits gained via the use of DES by cattle feeders and the government's lax attitude towards the feedlots' breaking the ban of DES manifest that it is through corporeal bodies that the stories of harmful discursive practices and decisions carried out "by government, corporations, and marketing agencies" are conveyed (Harrison 464). The detrimental effects of DES on corporeal bodies are highlighted by the environmental historian Nancy Langston in her *Toxic Bodies* (2010). Langston asserts that "the internal ecosystems" of human bodies are substantially disrupted by their exposure to "the metabolic byproducts of DES", especially through

"chemical residues in food supply" (x). In line with Langston's argument, it is stated in the novel that "today, although DES is illegal, 95 percent of feedlot cattle in the U.S. still receive some form of growth-promoting hormone or pharmaceutical in feed supplements" and "the residues are present in the finished cuts of beef sold in the local supermarket or hanging off your plate" (126). Hence, all the material bodies that are sickened and poisoned by these hazardous growth hormones and drugs used in the meat industry "tell a sad story of [their] own metabolism interacting with the xenobiotic substances that are daily consumed through manufactured food" as Oppermann puts forward ("How the material" 113).

Another striking detail about the history of DES as explored in the novel is that DES was not only used in the cattle industry but also in pregnant women with the false belief that "DES would prevent miscarriages and premature births" (125). On the documentary interlude Jane indicates that

> [t]he pharmaceutical companies ran ads in professional medical publications, like *the Journal of Obstetrics and Gynecology*, recommending the drug [DES] for all women to produce "bigger and stronger babies". Many doctors prescribed it as casually as a vitamin, to an estimated five million women around the world. *Five million!* This was despite evidence, right from the start, that hormone manipulation during pregnancy was dangerous. (125; emphasis in original)

The use of DES in pregnant women for the purpose of controlling their reproductive system highlights, as Julie Sze affirms, "how female identity itself was defined medically and socially through hormones" (797). Therefore, Ozeki's novel demonstrates that "the power of alien agencies" like DES "is compounded by political decisions" (Oppermann, "Toxic Bodies" 419) as exemplified in the prescription of DES both to nonhuman animals in cattle industry and pregnant women due to "medico-scientific discourses regulating

women's bodies on a continuum close to those regulating the bodies of livestock" (L. Williams 258). In 1971, studies showed that "DES caused a rare form of cancer, called clear cell adenocarcinoma, in the vaginas of young women whose mothers had taken the drug during pregnancy" (125). As a DES daughter, Jane experiences this serious health issue in the form of "an in situ carcinoma consisting of malignant cancer cells growing in the tissue of [her] cervix", resulting in her inability to conceive (152). Ozeki points out that during her process of writing *My Year of Meats*, when she found out that "DES had a history of misuse, not only as a pregnancy drug for women, but as a growth stimulant for cattle", she realized that the metaphor of meat used for women was "no longer simply a literary conceit. It was frighteningly real: women weren't just like cows; women and cattle were being given the identical drug, with equal disregard for safety" ("Conversation" 375). Therefore, from a material ecocritical perspective, DES in the novel is used as the common alien agency through which female bodies are aligned with the bodies of livestock in the meat industry within the interlocking discursive systems of technology, medicine, capitalism, sexism and speciesism.

Further, the novel displays that "knowing no boundaries, alien agencies travel on complex pathways of trans-corporeality, within and across bodies" (Oppermann, "Toxic Bodies" 419) as demonstrated in the detrimentally affected bodies of those who have been exposed to DES in utero:

> DES-exposed daughters were suffering from irregular menstrual cycles, difficult pregnancies, and structural mutations of the vagina, uterus, and cervix. DES sons developed congenital malformations including un-descended and atrophied testicles, abnormally undersize penises, defective sperm production, and low sperm count, all of which increased the risk of testicular cancer and infertility. (126)

DES daughters and sons prove to be the living texts that recount the agentic power of DES as a "xenobiotic force" to "reshape bodies" and disrupt their bodily functions in utero through trans-corporeal interactions (Oppermann, "Toxic Bodies" 419). Besides, the transmission of DES to the baby in the mother's womb is a salient example of what Julie Sze calls "technologically polluted body" (792). Sze argues that the babies in the age of the Anthropocene are "born in and of the toxic soup that comprises the post-World War II landscape of pesticides, chemicals, and plastics" (791), underscoring the fact that even bodies in utero are entangled with the alien agencies like DES. Accordingly, these "technologically polluted" babies "collapse the boundaries of the bodily and the natural with the technological, the man-made and the synthetic" (Sze 791). Sze's argument resonates with Jane Bennett's new materialist conception of the body in her idea that "it is futile to seek a pure nature unpolluted by humanity, and it is foolish to define the self as something purely human" (116) in the contemporary risk societies we live in which "the very substance of the self is interconnected with vast biological, economic, and industrial systems" (Alaimo, *Bodily* 23). Viewed in this context, the polluted and poisoned bodies of DES daughters and sons even before they are born through their exposure to DES in utero characterize them as the hybrids of "human and nonhuman agencies, displaying the stark reality of alien kinships" as Oppermann contends ("Toxic Bodies" 419).

Jane as a DES daughter, whose "uterus and cervix" were severely damaged due to DES her mother was prescribed when she was pregnant with her, embodies the disastrous impacts of DES in the novel (312). Jane's multiple attempts to get pregnant that have resulted in miscarriages because of her DES-exposed body pinpoint DES as an example of "the dangerous material agencies (such as toxins, chemicals, and pharmaceuticals) that infiltrate bodies and make them permeable and vulnerable" (Oppermann, "Toxic Bodies" 412). Moreover, as Hekman points out, since women have

always been defined by their bodies, most significantly, by "their bodies that reproduce", "the social, political, technological, biological are inseparable in the constitution of women" as exemplified in the prescription of DES to millions of women from the 1930s to the 1970s (25). Countless women like Jane's mother who were prescribed DES expose the patriarchal discourse related to femininity, which identifies female identity with "successful fertility, childbirth, and ultimately motherhood" (Sze 798). The gendered use of DES as a scientifically and technologically developed alien agency based on social and cultural imperatives of femininity, therefore, positions the bodies of women as living texts, since they convey their stories of how their bodies, as Rachel Stein argues, "have been placed at risk, stolen from [them], and even killed due to social or physical harms that may be exacerbated due to [their] gender and sexuality" (2).

Furthermore, the endangerment of lives of millions of women and babies through the prescription of DES explicitly exhibits profit-seeking practices of pharmaceutical companies without the slightest regard for human health. The misuse of DES in pregnant women has been suggested by various research: "pharmaceutical companies never did studies about the possible long-term effects on pregnant women and the fetus or controlled studies on the efficacy of the drug before or after the 1947 FDA approval for the use of DES during pregnancy" (qtd in Plevin 229). Ozeki's novel also states that "DES was finally exposed as a complete sham" when multiple studies in the early 1970s showed "a significant increase not only in miscarriages but also premature births and infant deaths due to DES"; however, "ironically, it was even used as a morning-after pill to terminate pregnancy" (125-6). Thus, the efforts of the capitalist and profit-based pharmaceutical industry to make the most of DES even after the fatal effects of DES were discovered illustrate the fact that the bodies of women victimized by DES are "fraught sites" which "bear the disproportionate effects of global capitalism" (Ladino, "New Frontiers" 134). Accordingly, "the bludgeoning [Jane's] uterus received […] when [she] was still only a

little shrimp, floating in the warm embryonic fluid of Ma" reveals that the material body of Jane has been shaped by damaging discursive practices since it was in her mother's womb (156). The material-discursive dynamics that have resulted in the destruction of Jane's reproductive system becomes central to realize that enmeshed with "a multitude of xenobiotic, humanly made substances", our corporeal bodies are, as Alaimo underlines, "permeable beings in a political/material world they cannot avoid" (*Bodily* 24, 119). This material-ecocritical perspective adopted in the novel is expressed by Ozeki herself:

> I see our lives as being a part of an enormous web of interconnected spheres, where the workings of the larger social, political, and corporate machinery impact something as private and intimate as the descent of an egg through a woman's fallopian tube. ("Conversation" 376)

Thus, DES-poisoned bodies like Jane's in Ozeki's novel communicate their stories of how "the dangerous circulation of alien agencies" across material bodies are deeply entwined with political, economic and medical systems and practices (Oppermann, "Toxic Bodies" 417).

In addition to DES, a multitude of other alien agencies used in the meat industry unveils, as Oppermann points out, "how we all dwell in a world crisscrossed by deviant agencies that now populate the Earth" ("Toxic Bodies" 419). As stated in the novel, "in America, 95 percent of cattle routinely receive estradiol, testosterone, progesterone, and anabolic steroids, not to mention the huge doses of antibiotics needed to control disease in feedlots" (205). It is also underlined that "these drugs and hormones, chemicals, and poisons are being blamed for a host of modern human health crises, including dropping sperm counts and fertility rates, cancers, and our rising resistance to antibiotics" (205). These modern health problems people suffer from because of their exposure to dangerous chemicals through consumption of meat serve as "the quintessential example of trans-

corporeality" due to the fact that people, as Alaimo underscores, "experience their selves as coextensive with the material world-an ever-emergent world of risky knowledges, mangled practices, and disturbing, potentially deviant material agencies" (*Bodily* 116). To illustrate, in the novel Oda, the former director of *My American Wife!*, almost dies from an "anaphylactic shock" because of "the residue of the antibiotics" in the meat he has consumed (60). Further, as the novel highlights, "all these surplus antibiotics [found in the meat products] are raising people's tolerances, and it won't be long before the stuff just doesn't work anymore", since "there's all sorts of virulent bacteria that are already resistant", causing modern people to "head backward in time, toward a pre-antibiotic age" (60). Therefore, all these corporeal bodies whose bodily functions are severely impaired due to harmful substances found in great amount in meat products function as living texts, articulating their tales of how the material bodies in the age of the Anthropocene are "both dependent on its environmental context and exceedingly vulnerable to contaminants" (L. Nash 212).

Further, among the alien agencies used in the meat industry that afflict various material bodies with toxification and diverse forms of bodily harms in Ozeki's novel is Lutalyse. Defined as "a prostaglandin, a chemical that functions similarly to a hormone, affecting almost everything that a body does, including respiration, digestion, nerve response, and reproduction", Lutalyse exhibits its deviant agency in many instances in the novel (205). For instance, the potential harmful effects of Lutalyse for the material bodies of humans are stated on the empty bottle of the drug that Jane finds in the garbage bin in the Dunn & Son feedlot:

> WARNING:
>
> Not for human use.
>
> Women of childbearing age, asthmatics, and persons with bronchial and other respiratory problems should exercise extreme caution when handling this

> product. In the early stages, women may be unaware of their pregnancies. Dinoprost tromethamine is readily absorbed through the skin and can cause abortion and/or bronchospasms. (263)

As understood from this instruction, Lutalyse is not only a "xenobiotic chemical" causing adverse "effects on living, fleshy creatures" with which it is entangled but also "deviates in destructive ways, from [its] intended uses" by making corporeal bodies severely sick or poisoned when they accidentally interact with it (Alaimo, *Bodily* 138). Moreover, Lutalyse, which is mainly used for the purposes of "artificial insemination" and "controlled calving" in the cattle production, gives serious bodily harm to the material bodies of nonhuman animals (205). Gaard argues that, "industrial food production is a failure of reproductive and environmental justice" ("Ecofeminism" 26), as exemplified in the use of Lutalyse for the control and manipulation of the reproductive systems of the female bodies of nonhuman animals in the novel. Gale Dunn explains that Lutalyse is an "example of modern science comin' up with a way to kill two birds with one stone. We ain't breedin' here, but we use that same Lutalyse to abort our heifers when they get accidental bred" (263). The chemical intervention through Lutalyse to terminate pregnancy in heifers shows that "the control of female fertility for food production and human reproduction alike uses invasive technologies to manipulate female bodies across the species" as Gaard asserts ("Ecofeminism" 26).

The brutal violation of the female bodies of nonhuman animals via chemical interventions on their reproductive system is shown in the disturbing scene where Jane's crew films a discarded fetus through the injection of Lutalyse in the Dunn & Son feedlot:

> […] In the dust lay a slimy, half-dried puddle containing a misshapen tangle of glistening calf-like parts […] It was an aborted fetus, almost fully grown, with matted fur, a delicate skull, and grotesquely bulging eyes, […] alive with newly hatched maggots. (267)

Exerting its force on the material bodies of nonhuman animals subversively, Lutalyse as an alien agency manifests how "poisonous material agencies and exploitative human practices have created horrific interactions" as embodied in the aborted fetus (Oppermann, "Toxic Bodies" 416). Besides, the agentic power of Lutalyse is also observed on Jane when she dreams later at night that she gives birth to a stillborn calf, a "misshapen tangle […] with a delicate hoof, a twisted tail, the oversize skull, […] alive with maggots" (277). Commenting on Jane's dream, Harrison states that "this scene connects the toxic bodies of the feedlot with [Jane's] own 'misshapen' uterus, also the result of hormonal toxins, linking the horrors arising from the commodification of meat animals and women's bodies" (467).

In this respect, both DES-affected female bodies of humans and Lutalyse-affected female bodies of nonhuman animals serve as "embodied narratives" (Oppermann, "Creativity" 59) in which the stories of their exploitation and victimization through the use of invasive technologies and hazardous chemical substances within a vast network of industrial meat production and medical practices are conveyed.

3. 3. The Body and Narrative Affect

As material ecocriticism advocates, one of the influential ways of "interpreting the agency of matter" is through focusing "on the way matter's (or nature's) nonhuman agentic capacities are described and represented in narrative texts (literary, cultural, visual)" (Iovino and Oppermann, "Materiality" 79). This material ecocritical insight helps to view matter "not only 'storied' but also deeply affective", underlying the fact that affects can be generated not only through the stories communicated by physical environments and bodily natures in the material world but also through the representation of these stories in narratives by "impact[ing] other bodies viscerally" (Ladino, "Mountains" 154, 133). Viewed in this perspective, the way Ozeki's novel as an influential environmental text "shape[s] 'narratives of matter'" is of critical importance

for the novel's "strategic effectuality" in ensuring that "ethical meanings become as part of a complex of material and discursive elements" and thus in "implementing an ethically constructive relationship between the reader and the world" (Iovino, "Material" 52, 64). Incorporating a motley of stylistic and narrative devices within its narrative, Ozeki's novel is built around an assemblage of faxes, scrap paper, poems, journal entries, quotes from textbooks, documentary interludes, written proposals for the show's episodes, alongside the novel's main story (Wallis 840; Ladino, "New Frontiers" 129). This stylistic diversity of the novel becomes the medium through which narrative affect is achieved because various narrative techniques employed in the novel guide readers to become attentive to the "emotional attunement" created through the interactions between "the lived body" and its particular environment, which, in turn, could produce affective responses such as empathy and sense of responsibility to take ethical and political actions against the meat industry (Maiese 235).

The "ecological ethics" of Ozeki's novel mainly arises from its focus on "the interconnectedness of mind and body, text and life, man and the nonhuman world as a necessary context of human responsibility" (Zapf 853). As a result, in an effort to lead to ethical and political affect, *My Year of Meats* draws on effective narrative strategies to engage readers emotionally, corporeally and cognitively with the material-discursive mechanisms intertwined with the global meat industry. As the most prominent narrative strategy of the novel, the employment of documentary narrative mode that functions to display the interrelatedness of the political systems, toxic bodies and environmental degradation is "affect-producing […] for encouraging the critical awareness that enables political action" (Harrison 473). Through documentary interludes, the narrative juxtaposes the fictional and sentimental stories of the characters with the environmental facts that shed light on the painful experiences these characters go through as the victims of social and environmental injustice caused by the meat industry. To exemplify, in the

scene where Jane learns about the sad story of Mr. Purcell whose body has been poisoned and adversely transformed by DES is followed by the documentary interlude in which Jane gives a factual account of historical and scientific facts about DES. This "combination of contextual knowledge and fictional stories that give them a "face" (or a "body" as it were), makes both more rhetorically effective than either would be on their own" as Harrison asserts (466). It is also crucial to note that Jane's research into the widespread use of DES in the meat industry paves the way for her exposé that documents the atrocities and environmental and health hazards of the meat industry during the course of the narrative. Consequently, prompting Jane into direct political and ethical action, this documentary interlude on DES proves to be a "critical moment for the novel's rhetorical project that illustrates both the affective power of sentiment and the corresponding need for empirical knowledge to contextualize sad stories" (Harrison 463).

In addition to strengthening the affective power of the narrative, the documentary narrative mode in the novel also serves as a useful tool to arouse empathetic responses in readers. From a cognitive affective approach, the affective and empathic responses of readers are formed via their engagement with the imagined world of the narrative and it is mainly made possible through the vivid imagery employed by the writer. Weik von Mossner points out that, "it is the skilful use of sensory imagery that activates the sensorimotor cortices in readers' brains and thus ensures vivid imagined perception, as a result, a distinctive affective experience of the evoked environment" (*Affective* 48). In Ozeki's novel, the vivid sensory imagery is achieved predominantly through the documentary narrative mode which makes effective use of striking visual images, specifically in the scenes of the shootings of *My American Wife!* episodes and the filming of Jane's exposé on the meat industry. Thus, the novel offers a highly cinematographic experience to readers since they are able to imaginatively go through the corporeal and visceral processes experienced by various human characters and nonhuman animals

within the narrative, creating "an affect of connection to diverse human, animal and ecological others" (Gaard, "Climate Change" 109).

The affective power of media images in Ozeki's novel in triggering the feelings of empathy for those who are victimized by the practices of the meat industry is demonstrated in the scene where Jane and her crew film the body of Rose Dunn, the five-year-old daughter of the Dunn's family. The abnormalities in Rose Dunn's body, which is distinctively plumb for her age, are noticed by the crew during their shooting of the Dunn & Son feedlot in Colorado (134). It is discovered that Rose suffers from "precocious puberty" (270) due to estrogen poisoning caused by "inhaling airborne chemicals", especially DES in her father's feedlot and "by ingesting them through the popsicles that [her step brother] Gale offers her as daily treats" (Chiu 111). The vivid description of the hormonally altered body of the five-year-old Rose through the camera lens of the crew is affectively-charged in terms of the powerful feelings it stimulates both on the characters and readers:

> Rose's skin was still a baby's, milky white and downy […] Naked, Rose was not plump at all. The plumpness was an illusion created by two shockingly full and beautiful breasts, each tipped with a perfect pink nipple […] Bunny stood over her and raised her small hips and drew the underpants down around her thighs. The baby skin continued, smooth and uninterrupted, down over the swell of her belly to her pubic bone, where suddenly, like grotesque graffiti, her skin was defaced by a wiry tangle of hair […]. (275)

The unsettling visual documentation of Rose's fully developed breasts and pubic hair although she is only five years old has the power to create sentiment for those who witness this embodied evidence of the extent of the harm caused by the toxic chemicals and hormones used in the meat industry. Namely, it is through affect that "the material and conceptual relays between the embodied individual and large-scale environmental forces"

can be apprehended effectively by readers as Houser underscores (3). The "intense corporeal responses" to the toxic body of Rose created by the deviant agency of DES are observed both in Jane's cameraman Suzuki who "shuddered" and Jane whose "hand was shaking" during the filming of Rose (Ladino, "Mountains" 141; 276). From a cognitive affective approach, "a particular bodily condition is lived through in the very process of evaluating one's environment"; accordingly, the bodily feelings of Suzuki and Jane are produced through their enactive interaction with Rose's situation, leading them to manifest "a bodily sensitivity to what is significant" (Maiese 235). Put differently, the "embodied feelings" of Suzuki and Jane are stimulated through their affective and empathetic engagement with the little girl's grotesque and abnormally transformed body (Houser 30).

Moreover, by revealing the fact that even children as young as five-year-old fall victim to the calamitous practices of the meat industry, the footage of Rose Dunn as a critical component of Jane's exposé holds the capacity to create political and ethical affect in the public. By visualising Rose's poisoned body in this documentary scene through striking visual images combined with the factual knowledge regarding the use of DES in the feedlots, readers can feel deeply on an emotional and cognitive level what it is like to be poisoned by DES and take a stand against the meat industry. The affective force of this footage in taking effective action is exemplified in the novel in the change of perspective of Bunny Dunn, Rose Dunn's mother. The footage of the precocious body of her daughter induces Bunny, who was first in denial about her daughter's unhealthy body, to eventually raise her voice against the illegal use of growth hormones in her husband's feedlot. Bunny expresses that seeing her daughter from an outsider's perspective becomes operative in her decision to take a step: "[…] you just get used to it. Until something happens, that is, that wakes you up and makes you see different. That's what happened when you all showed up. I saw her with your eyes, and everything looked different. Wrong." (294).

Palumbo-Liu argues that this change of perspective observed in Bunny comes about because "the mediated narrative has allowed the subject to achieve an exterior point of view" ("Rational 59). In other words, being able to observe the poisoned body of her daughter through the camera lens of Jane's crew, "Bunny Dunn is transformed from a silent victim to a witness" (Palumbo-Liu "Rational" 59). Affectively immersed with her daughter's serious health condition, Bunny eventually discloses how Rose's precocious puberty is resulted from her husband and her stepson's feedlot business and the dangerous chemicals used there. Agreeing to "make public this very private tragedy" (Cornyetz 218) through Jane's exposé, Bunny "take[s] part in an affective community, one that is constituted precisely by a common experience of viewing both events and mediated images" (Palumbo-Liu "Rational" 59). As a result, through the striking sensory visual images in the documentary scenes in Ozeki's novel, the affective power of the medium of media combined with storytelling to drive people "to act ethically and with a sense of being together" (Palumbo-Liu, "Rational" 52) is emphasized as observed in Bunny's decision to "take a stand" and contribute significantly to Jane's exposé in order to battle against the global meat industry (294).

More importantly, Jane's exposé with its potential to inform the public and raise awareness about the ugly realities behind the meat industry is a proactive attempt to counteract the wilful ignorance of people about the environmental destruction and suffering of humans and nonhuman animals caused by the meat industry. Jane acknowledges her own chosen ignorance about the "unsavory side" of the meat industry with its destructive practices harming material bodies, public health and the ecological health of the planet (210). The novel underlines that "due to the influences of Buddhism, meat was more than likely thought to be unclean" in Japan and thus, the Japanese diet was exempt from meat for a long period of time (14). Historically, it was after the Second World War that red meat gained popularity and prominence in Japanese culture,

especially when "the U.S. occupation government of 1945-52 began promoting a grain-and-beef-centered diet in Japan" (Carruth 143). Japan's position as the largest export market for the U.S. beef in the post-war period is also closely related with the harmful and toxic chemicals, most notably DES, used in the American feedlots during that period. The novel highlights the fact that the practice of using DES in America played an important role in its trade diplomacy regarding meat exportation:

> In 1989, Europe banned the import of U.S. meat because of the use of hormones in production. BEEF-EX started looking for a new market. In 1990, as a result of pressure by the U.S. government, the New Beef Agreement was signed with Japan, relaxing import quotas and increasing the American share of Japan's red-meat market. In 1991, we started production on *My American Wife!* (126-7).

As indicated in the novel, the widespread use of DES in American feedlots and Europe's ban on the import of U.S meat made Japan a convenient market for the U.S. beef. Thus, in her novel Ozeki incorporates the factual New Beef Agreement signed between the USA and Japan with the fictional TV show, *My American Wife!*, which is presented as a marketing strategy to promote meat-eating in Japan.

Within this historical context, it is also crucial to underline the ways in which the show is shaped by socio-political and cultural motives – i.e. the exportation of U.S. beef goes hand in hand with "the exportation of U.S. values" as represented in *My American Wife!*'s featuring American housewives "as a consumption tool to achieve an imaginary ideal of femininity and heteronormative homely bliss" (Cheng 192; Rodríguez 68-69). The impact of "U.S. hegemony in East Asia in the occupation and reconstruction of 1950s postwar Japan" is clearly seen in positioning the stereotypical American housewife as a role model for Japanese women (Cheng 203). Accordingly, it is stated in the novel that Jane's job as the coordinator of *My American Wife!* requires "catch[ing] up healthy

American wives with most delicious meats" and showing "desirable things" like middle-class American wives with the qualities of "attractiveness, wholesomeness, warm personality" along with their "attractive docile husbands", "obedient children" and "clean houses" (10, 11, 12). It is clear that the producers of *My American Wife!* give utmost importance to "accessing and representing U.S. hegemonic culture" (Cheng 196), namely, U.S. family values and the glorification of femininity embodied in the idealized American housewife for gaining profit from selling more meat in Japan. In this sense, the show serves as a political tool to reinforce patriarchal hegemony and consumption by reinforcing American middle-class family values, among which meat eating has a prominent place as a symbol of wealth and high social status.

However, during the course of the novel, as Jane discovers the numerous serious health and environmental hazards related to meat production and consumption, her "filmic aspirations shift from cultural guide of regional US foodways to muckraking investigative documentarian uncovering the truths about the nature of industrialized slaughterhouse practices" (L. Williams 246). Moreover, in contrast to the BEEF-EX's insistence on featuring white, middle-class and normative American housewives and their families as the embodiment of "all-American values", Jane endeavours to integrate non-normative families with different economic and social backgrounds and diverse racial, ethnic and sexual identities into *My American Wife!* (13). For instance, through Jane's portrayal of the Martinez, a Mexican immigrant family, the Beaudrox, a multiracial family consisting of ten children who come from various ethnic backgrounds, and the biracial and lesbian couple Lara and Dyann on the show, racial, cultural, and sexual plurality is celebrated by transcending the confines of race, gender, and heteronormativity imposed by the producers of the show.

Therefore, Jane's initial choice to ignore what she knew about the meat industry and its many forms of oppression and violence on bodily and environmental health

because she needed the job offered by *My American Wife!* reveals how "ignorance is an act of will, a choice that one makes over and over again, especially when information overwhelms and knowledge has become synonymous with impotence" in Jane's words (334). Nancy L. Williams defines this type of wilful ignorance as "affected ignorance", which is "a phenomenon of people choosing not to investigate whether some practice in which they participate might be immoral or rife with controversy" (371). Discussing the concept of "affected ignorance" within the context of factory farming systems and animal suffering, N. Williams declares that "knowledge about factory farming systems and animal suffering is knowledge most people do not want to have" since most of us fear that "asking questions […] might reveal an uncomfortable moral truth with respect to our role in perpetrating animal suffering; therefore, we choose not to ask questions and to remain uninformed about possible moral complexities" (378). In Ozeki's novel, this "moral complexity" regarding the industrial meat production can be evidently observed in Jane's concerns about her job: "I did care, and at the same time I couldn't afford to care, and these two contrary states lived side by side like twins" (176). Clearly, Jane is torn between her need for the job as the director for *My American Wife!* to make a living and her guilty conscience for contributing to the meat industry with this show. That is why, Jane who "knew enough" about the "toxicity in meat, the unwholesome-ness of large-scale factory farming, the deforestation of the rain forests to make grazing land for hamburgers" when she first started working for *My American Wife!* perfectly demonstrates "the essence of affected ignorance", which is "a kind of ignorance generated by what one already knows" as Nancy Williams maintains (334; 378).

Nevertheless, Jane's initial affected ignorance is radically transformed into combative efforts against the meat industry as she delves into its brutalities. Apart from her personal tragedy of not being able to conceive due to her exposure to DES in utero, the animal suffering that she witnesses in the feedlots and slaughterhouses propels Jane

to "progress toward a political intervention" through her exposé (Cornyetz 218). For instance, in the scene where Jane and her crew document the processes of killing cows in the Dunn & Son feedlot, Jane describes the horrible climate of the slaughterhouse:

> Stepping into the slaughterhouse was like walking through an invisible wall into hell. Sight, sound, smell—every sense I thought I owned, that was mine, the slaughterhouse stripped from me, overpowered and assaulted. Steam hissed, metal screeched against metal, clanging and clamoring, splitting the ear, relentless […] Blood was everywhere: bright red, brick red, shades of brown and black; flowing, splattering, encrusting the walls, the men […] As we walked through the processing area, we passed cows being sorted by parts—brains, tongues, livers, intestines, kidneys—all scooped or severed, then tossed into separate steel carts. (282)

The hellish atmosphere of the slaughterhouse with cows processed brutally not only exerts control over Jane's corporeality by dominating her senses but also affects her immensely on an emotional level due to the horrible images of brutal violence and dismemberment implemented on the nonhuman animals. Through what Suzanne Keen calls "authorial strategic empathizing", which is "the author's attempt to direct an emotional transaction through a fictional work" ("Narrative Empathy" 83) in an effort to influence the political ideas of the readers, Ozeki "aligns the narrative viewpoint" with Jane as the narrator "who learns to care for those experiencing the injustice" (Gaard, "Climate Change" 106). In this way, Jane's "sensory and emotional entanglement" with the slaughtered cows directs readers to "feel along with" her and her "concerns and active engagement" for these nonhuman animals (Gaard, "Climate Change" 106; *Affective* 91). It is because of the fact that "if we see the events from a certain character's perspective, we are aligned with that character" through accessing his/her "consciousness and feelings" as Weik von Mossner stresses (*Affective* 45). Moreover, as Keen highlights,

"empathy, a vicarious, spontaneous sharing of affect, can be provoked by witnessing another's emotional state, by hearing about another's condition or even by reading" (*Empathy* 4). Thus, the representation of animal suffering with effective sensory images from Jane's viewpoint as the narrator could prompt readers "'to slip into animals' shoes' and to imagine the feelings of terror and pain they must be feeling" (Weik von Mossner, *Affective* 118).

The affective power of these "shared feelings" to pave the way for ethical and political actions against the meat industry is illustrated in the novel with Lara and Dyann, the vegetarian couple Jane features on *My American Wife!* (Keen, *Empathy* 4). Empathizing with the animal suffering used in the meat business becomes effective in the couple's decision to become vegetarians: "[…] we're vegetarians by default. I mean, we like meat, like the taste of it, but we would just never eat it the way it's produced here in America. It's unhealthy. Not to mention corrupt, inhumane, and out of control" […] (177). Manifesting how powerfully people can empathize with the nonhuman others, Lara and Dyann's choice of vegetarianism proves to be a political and ethical stance against the depraved and brutal conditions under which animals are treated and slaughtered in the industrial meat production. Therefore, Lara and Dyann represent "people who are able to translate their compassion and sympathy for the suffering of nonhuman animals into their own dietary choices" in line with Gaard's definition of vegetarians ("Vegetarian" 118). Furthermore, Gaard underlines that "only by forestalling our sympathies for other animals are humans able to overlook the enormity of animal suffering" ("Vegetarian" 118). To exemplify, in the novel while Jane edits the footage of the brutal processing of a cow for her exposé, the police come to her apartment because of a neighbour's complaint about the dreadful noise coming from the video. Upon being asked "How can you watch that stuff?" by the police officer, Jane answers, "How can you eat it?", making readers question their own ethical sensibilities with regard to the suffering of the animals used in

the meat industry (326). In this sense, "Jane's footage, and by extension, Ozeki's text interrupts the mechanism of unknowing, forgetting, avoiding" and forces readers "to envision the living, breathing, and feeling animal behind the meat" (L. Williams 268; Weik von Mossner, *Affective* 108).

In her *Entangled Empathy* (2015), Lori Gruen also points to the necessity "for more conscientious ethical reflection and engagement" with all sorts of life forms in the material world (66). Adopting a material ecocritical perspective, Gruen maintains that

> since we necessarily exist in relation with other organisms, and since our perceptions, attitudes, and even our identities are entangled with them and our actions make their experiences go better or worse (which in turn affects our own experiences), we should attend to this social/natural entanglement. (66)

In other words, being aware of the trans-corporeal relations between the material world, corporeal bodies and our affective experiences within the complex material-discursive networks of the meat industry is the key to be more empathetic for the nonhuman animals tortured and savagely slaughtered in this industry. As Gruen accentuates, since "being in ethical relation involves, in part, being able to understand and respond to another's needs, interests, desires, vulnerabilities, hopes, perspectives", humans must empathize with the needs, feelings and suffering of the animals in the industrial meat production for the relationship between humans and animals to be ethical ("Entangled" 224). Such a relationship can be useful to "reorient our ethical sensibilities and overcome the limitations that standard humanist responses" that reduce animals to mere objects to be served for human needs and pleasures (Gruen, "Navigating" 229). For instance, in the novel, having witnessed the brutal processing of a slaughtered cow and been affectively moved by it, Jane explains how she dreamed about the slaughtered cow which "was dreaming of an endless green pasture at the edge of death, where she could gallop away and graze forever" (297). Jane's dream becomes emblematic of how a human could

respond empathetically to the misery of the animals slaughtered brutally and understand their needs and desires to be freed from all the pain brought about by the capitalist and speciesist practices of the meat industry effected by anthropocentric discourses.

In line with this perspective, Gruen's concept of "entangled empathy" can be considered as a useful conceptual tool to construct an ethical relationship between humans and animals. As "empathy is a way of connecting to specific others in their particular circumstances" (Gruen, "Entangled" 226), humans can adopt ethical attitudes towards animals because they are already intra-actively involved with animals in various ways in the material world. In Gruen's view, "entangled empathy" is both an affective and cognitive response in that "the development and exercise of empathy involve both affective empathy (emotional contagion, imitation) and cognitive empathy (reflective engagement with the feeling of the other, perspective taking)", which makes empathy to gain a "motivational" quality ("Entangled" 227). Drawing upon the theory of "4EA cognition", which puts forward the idea that cognition is embodied, embedded, extended, enactive and affective, the cognitive and affective aspects of empathy could be better understood. Based on the work of phenomenological thinkers such as Edmund Husserl, Martin Heidegger, and Maurice Merleau-Ponty, "which focuses on our physical dwelling in place and claims that it is only as spatially and temporally embodied beings that perception and understanding can take place" (Weik von Mossner, *Affective* 9-10), the theory of 4EA cognition refers to a collection of views agreeing upon the idea that "the mind is not a thing separable from the body and the world, but a feature of the body and world" (Paine 89). This enactivist discourse that "goes back to the publication of Francisco Varela, Evan Thompson, and Eleanor Rosch's *The Embodied Mind* in 1991" and "challenge[s] the Cartesian division between body and mind" could also be recognized in material ecocritical discourse (Weik von Mossner, *Affective* 197, 10). Iovino and Oppermann state that

> [t]he emerging dynamics of matter and meaning, body and identity, being and knowing, nature and culture, bios and society are therefore to be examined and thought not in isolation from each other, but through one another, matter being an ongoing process of embodiment that involves and mutually determines cognitions, social constructions, scientific practices, and ethical attitudes. ("Stories" 5)

Focusing on the enmeshment of the body and mind, material ecocriticism also urges to understand how cognition is shaped and constituted by both bodily experiences and interactions with the physical, cultural and social environment. Within this cognitive-affective framework informed by the theory of 4EA cognition and material ecocritical discourse, empathy could be perceived as an ethical attitude driven by one's affective involvement with someone or something through his/her bodily feelings and cognitive understanding of this particular situation. Michelle Maiese argues that what makes people "care" about someone or something is related to "the modes of emotional consciousness", which are "essentially enactive and embodied appraisals" (231). According to Maiese, "the bodily changes and affectivity that emotions involve (their feeling component) cannot be separated from their element of appraisal (their evaluative component)" (231). It can be inferred that our emotional experiences are dependent on our living bodies and it is through emotions that we generate meaning and make sense of the world we live in. Thus, as affectivity is connected to a creature's "bodily feelings or felt needs, whether real or merely imagined, and those felt needs help constitute 'what-it-is-like-to-be' that creature", it is possible to experience empathy on both affective and cognitive levels (Maiese 232).

In parallel with Gruen's conception of empathy as an affective and cognitive response, Weik von Mossner also indicates that the processes of both cognitive and affective empathy are "crucial for our emotional understanding of others", since while

"cognitive empathy allows us to make logical inferences about [the human or nonhuman other's] situation, thoughts and emotions, affective empathy allows us to understand [their] feelings on a more visceral level" (*Affective* 80). For example, during the shooting of the slaughterhouse in the Dunn & Son feedlot, it is demonstrated how Jane's crew member Oh goes through the processes of both affective and cognitive empathy:

> The cow was breathing hard, raspy breaths through the foam and the spittle, and from time to time she let out a strangled cry. Oh stood just behind Suzuki, trembling and bloodless, holding the boom. His headphones looked like goofy plastic ears, feeding the amplified cries of the animal directly into his brain. His face was all screwed up, leaking tears, like a little kid trying hard not to cry out loud. (283)

The brutal slaughter of the cow compels Oh to develop an empathetic response to the torment and agony inflicted on the cow both affectively and cognitively. On an affective level, Oh feels the extreme pain and fear that the cow feels at the moment of its slaughter viscerally and emotionally, causing him to burst into tears. On a cognitive level, Oh's bodily reaction to the tortured animal is observed in his "trembling and bloodless" body, since, as Gallese and Wojciehowski affirm, "empathy is rooted in embodied simulation [and] marked by our bodily involvement with the actions, emotions and sensations acted and expressed by others" (16). Thus, just like Oh in Ozeki's novel, readers who witness the brutal and inhumane treatment of cows in slaughterhouses can feel their suffering through the arousal of empathetic feelings. The representation of the felt emotion in the narrative helps readers to "respond to the words that refer to a character's perception or affective state", making them go through "a sensual experience" via embodied simulation during the process of reading (Weik von Mossner, *Affective* 25).

Ozeki's employment of narrative affects through these effective sensory visual images to produce empathy, thus, serves "a scrupulously visible political interest" (Keen,

"Narrative Empathy" 83). As "entangled empathy involves paying critical attention to the broader conditions that undermine the well-being or flourishing of those with whom one is empathizing", it "requires gaining wisdom and perspective and, importantly, motivates the empathizer to act ethically" (Gruen, "Navigating" 229-30). To illustrate, Jane, who "wanted to tell the truth, to effect change, to make a difference" (360) through the release of her exposé, is driven by entangled empathy that she feels for both the humans and nonhuman others victimized by the meat industry. Jane's "eventual assumption of responsibility" in her decision to make a documentary that exposes the atrocities of the meat industry, hence, as Cornyetz points out, "exhorts the reader to also come to terms with his/her choice of ignorance and non-action" (218). In this sense, empathy serves to generate ethical and political affect and holds the potential to bring about positive changes as observed in the possibility of new regulations for the meat industry as a result of the public interest Jane's documentary has managed to get.

The global success that Jane's exposé has achieved with impressive media attention ends the novel on a hopeful note about the reforms on the meat industry, which starts with the cancellation of *My American Wife!* (359). Further, although there is a chance that Jane might "develop fatal adenocarcinoma" because of the effects of DES, she emphasizes that "as a DES daughter [she] need[s] hope for [her] outcome" (360). Jane also states that, "I do not think I can change my future simply by writing a happy ending [but] I will do my best to imagine one" (361). Regarding the happy ending of her novel, Ozeki states that, "you cannot make a better world unless you can imagine it so, and the first step toward change depends on the imagination's ability to perform this radical act of faith" ("A Conversation with Ruth Ozeki" 381-2). Such optimism achieved through imagining the changes in the meat industry for the better could guide readers to realise the value of every single step taken against the destructive practices of the meat industry in the real world they live in. That is why, Ozeki's choice for a happy ending for her novel

serves a clear political purpose: "[…] happy endings satisfy the emotions, and I wanted to provide that type of satisfying narrative closure in the hope that it would free the intellect to continue its trajectory beyond the story line, pondering the issues the book raises" ("A Conversation with Ruth Ozeki" 381). With its affective power on the readers, the happy ending of the novel as a narrative strategy, therefore, puts emphasis on "self-consciousness that invites readers to 'open up' their imagination to the world outside the novel and thereby combat environmental ignorance" and work towards accomplishing positive regulations for the meat industry (Harrison 473).

Consequently, Ozeki indicates that Jane's remarks on the happy ending of the novel have also affective power on the basis of its mode of narration: "In essence, I point an authorial finger at the very thing that I am writing, and poke a hole in the seamlessness of the happy ending by making it self-referential and reflexive" ("A Conversation with Ruth Ozeki" 381). By "providing hopeful closure while acknowledging that in real life such hope is contingent on our continued political action" (Harrison 473), the novel's self-reflexive ending functions as an efficient tool to propel readers to take significant political and ethical steps against the many assaults of the meat industry on the material world, corporeal bodies and the environment. Ozeki's self-reflexive ending that aims for political action is also supported by "the inclusion of a bibliography with an author's note directing readers to sources that have informed her fictional book", such as the texts on the meat industry, factory farming, and the calamitous effects of DES (L. Williams 267). As Harrison advocates, Ozeki's "uncommon ending seeks not only to inspire her readers, but also to explicitly point them to resources for continued understanding and action" (473), encouraging them to be more conscious of their own individual choices so as not to contribute to the environmental damage, serious health problems and various forms of injustice caused by the meat industry.

To conclude, the analysis of the body as represented in Ozeki's novel within the framework of material ecocriticism and affect theory makes it possible to realize that the body functions not only as a material-discursive site on which its materiality is shaped by and enmeshed with the complex and interconnected political, social and economic discursive systems but also as a medium through which emotional consciousness and cognitive understanding of one's own living body, environment, others' feelings and suffering is actualized. Thus, via the employment of various narrative strategies including the incorporation of factual information into the emotional stories of characters, the use of striking sensory images through the novel's documentary mode and the employment of what Suzanne Keen calls "authorial strategic empathizing" by making readers see the events from the viewpoint of the main character, *My Year of Meats* affectively engages readers with the issues of environmental degradation, climate change, toxic bodies and animal suffering brought about by the industrial meat production. In doing so, Ozeki's novel calls for awareness and action in favour of planetary and public health as exemplified in the political and ethical decisions that several characters have made in the novel when they are enlightened about the brutal realities of the global meat industry.

CHAPTER IV

OCEANIC KINSHIPS IN J.M. LEDGARD'S *SUBMERGENCE*

As scrutinized in the previous chapters, Brunner's *The Sheep Look Up* draws our attention both to the terrible outcomes of the heavy contamination of water, air and soil for human bodies, nonhuman natures, the political and economic stability of the society, and to the affective states and responses triggered by serious environmental issues. In a similar vein, Ozeki's *My Year of Meats* explores the hazards of the industrial meat production not only as an industry based on the victimization and exploitation of both human and nonhuman bodies, specifically due to its use of damaging growth enhancing drugs and hormones but also as one of the great contributors to global warming in today's world, leading people to take effective ethical and political actions against the meat industry. With the particular importance it places on the endangerment of the oceans as the root of all life on Earth, the third novel of this study, J.M. Ledgard's *Submergence* (2011) focuses on the oceans as a world of their own with their agency and independence from humans and yet closely connected with the survival of the whole planet. *Submergence* lays emphasis on the profound ramifications of the devastation of the oceans for both the human and nonhuman world; in doing so, the novel encourages an understanding of planetary interconnectedness accompanied by the feelings of anxiety and caring about the world's oceans and thus prompts people across nations and countries to protect the oceans with a globally shared responsibility.

Born in Scotland's Shetland Islands, the British author Jonathan M. Ledgard (b.1968) "uses the novel as a means to probe rather than report, to ask existential questions that cannot be answered but must be explored" in his scrutiny of various issues within the intricacies of the complex material-discursive systems in the contemporary world (Narozny 89). Ledgard's debut novel, *Giraffe* (2006) is "closely based on the true story of 49 giraffes slaughtered at a zoo in Communist Czechoslovakia", positioning it a

prominent work of animal rights movement. His non-fiction work, *Terra Firma Triptych: When Robots Fly* (2015) consists of "triptych of stories about Africa, hunting and technological futures" (Skloot, par.1; Derry 165). Ledgard's second novel, *Submergence* exemplifies his distinct literary style as an influential environmental narrative that delves into the entanglements between the life on Earth's surface with a myriad of environmental crises and the chemosynthetic life forms in the deepest reaches of the ocean. Both *Submergence* and *Terra Firma Triptych* "are thematically complex, draw on different forms of disciplinary expertise, and deploy multiple genres and formats" (Vermuelen, *Literature* 43). In other words, both these works reflect Ledgard's ecological consciousness in their examination of how the Anthropocene "brings the ecological study of literature into the remit of what Ursula Heise has called 'the transdisciplinary matrix' of the environmental humanities" (Vermuelen, *Literature* 43). Accordingly, the analysis of Ledgard's *Submergence* within the scope of this study will be instrumental in perceiving the connectivity of the human world, diverse species, and environmental forces and thus in grasping the complexity of living in the age of the Anthropocene.

Based on Ledgard's first-hand experiences "as a reporter in East Africa who has worked a lot in and around Somalia" and who has been to "a science expedition to the North Pole", gaining insight into oceanography and "the scale of life on our world" in his own words, *Submergence* tackles various themes from Islamic fanaticism to oceanic exploration ("A Conversation with J.M. Ledgard"). In *Submergence*, the distinct storylines of two protagonists, Danielle Flinders, referred to as Danny in the novel, a biomathematician, "one of the world's leading researchers on population dynamics of microbial life in the oceans" and James More, a British spy working for the British government in Africa, are entwined through their flashbacks from the three-day-love affair they had when they met at a hotel in France (114). As Gourevitch points out, "running separately and together, their stories become dramatic explorations of

conditions far larger than their individual destinies– a meditation on our species and our planet at a time heavily shadowed by the prospect of extinction" mainly due to alarming environmental problems, the destruction of the global ocean and climate crisis as the most threatening ones ("A Conversation with J.M. Ledgard").

Set in the contemporary era when "humanity has driven the global ocean to the brink of collapse, jeopardizing its ability to adapt to and recover from the impacts of climate change", Ledgard's novel tackles the imperilment of the global ocean and climate crisis as "one of the most important ways of imagining global connectedness" (*Future*; Heise, *Sense* 11). Thus, through his juxtaposition of Danny's journey into Hadal deep in the Greenland Sea with James' being taken captive by jihadi fighters in Somalia, Ledgard attempts at, what he calls, "planetary writing" with his aim to alter our perception of Earth by showing how humans are transient and "fragile by comparison as a species" considering the stable and archaic microbial life in the oceans ("A Conversation with J.M. Ledgard"). Moreover, the planetary interconnectedness of all material beings is conveyed through the global ocean and its embeddedness with human life in Ledgard's novel. The novel manifests the expanse materiality of the ocean into which human life has always been immersed through its use of the ocean as a material force that has a decisive effect on the course of both characters' quests. Apart from the memories of the romance Danny and James hold onto in their distinct quests, what mainly connects Danielle and James' stories is the global ocean with which they are both intertwined: while James is connected with the Indian Ocean during his captivity in drought-afflicted Somalia, Danny is diving into the Greenland Sea in search of the hydrothermal vents beneath the North Atlantic.

By presenting an analysis of "the terraqueous entanglements of human and marine life in material and discursive contexts through an aquatic practice of material ecocritical theory" (Oppermann, "Storied Seas" 445), this chapter will underscore the interconnectivity of marine ecosystems, the survival of the planet and its many species

along with the imbrications between the human embodiment and its oceanic origins, and the biological, evolutionary and cultural aspects of human life in relation to the ocean. Hence, drawing upon the affinities between material ecocritical discourse and affect theory, this chapter will draw attention to the storied, agentic and affective dimensions of the oceans on a planetary scale both as the indispensable bodies of water for the formation and continuation of life for all living beings in the material world and as the host of innumerable marine life forms with their qualities of resilience, diversity and significance for biochemical life processes both at the bottom and on the surface of the ocean. In doing so, this study aims to read *Submergence* as a blue ecocritical text immersed within the framework of material ecocriticism in its attempt "to expand ecocritical lens" to oceanic kinships among diverse aspects of human life from biological to evolutionary, nonhuman life forms and marine ecology and in its positioning the ocean as a material-discursive site with its life-giving materiality and vital role "in global ecologies and environmental crises" induced by "global economic impulse of overexploitation and destruction of marine life" (Dobrin 228, 8; Oppermann, "Storied Seas" 446). Therefore, Ledgard's novel holds the potential to guide readers towards "an ethical immersion" in Oppermann's words ("Storied Seas" 461), inviting them to recognize the necessity of abandoning destructive anthropocentric discourses and practices that are detrimental to the survival of the oceans, thereby of the whole planet and its many human and nonhuman inhabitants. To this end, the concepts of "the ocean as the body", "the ocean as a site of narrativity" and "ecoglobalist affect" will be employed in the analysis of Ledgard's *Submergence* to underscore the novel's emphasis on the interconnectedness of life processes of both humans and nonhuman others as interlaced with the continuation of the life on the planet.

The understanding of "the ocean as the body" —both as the aquatic body out of which all the material world has come into existence and in terms of the watery embodiment of humans—will provide an insight into the trans-corporeal relations and

kinships between human bodies, the nonhuman bodies of water and the discursive systems embedded in capitalist and exploitative practices in the oceans that harm these intermeshed relationships in irreversible ways. The exploration of the ocean as "a site of narrativity" within the material ecocritical discourse will be instrumental to reveal the narrative agency of oceanic ecosystems and diverse marine species. It will be discussed that taking heed of these stories communicated by aquatic ecosystems and marine life forms could play a central role in understanding how these material agencies intra-act with both the human and nonhuman world and how they are intricately intertwined with environmental crises in today's world. Lastly, Lawrence Buell's term of "ecoglobalist affect" will be employed in order to highlight how the protection of the oceans considering their vital importance for all life on the planet is a "global environmentalist" issue in the sense that the protection of the oceans is a responsibility that has to be shared by all countries in the world "across borders of culture and time" (Buell, *Writing* 29). Thus, examining the ways in which ecoglobalist affect is evoked in *Submergence* could lead to thinking beyond national borders and adopting a planetary perspective to be aware of the fact that it is imperative to take environmental actions on a global scale to protect the world's oceans for the preservation of life on Earth.

4. 1. The Ocean as the Body

The conception of the ocean as the body as represented in Ledgard's *Submergence* will be examined in terms of not only the primeval and immutable oceanic body out of which all the marine and terrestrial life have emerged and flourished thanks to the life-sustaining qualities of the ocean but also of the aquatic/oceanic constitution of the human embodiment. As Iovino maintains, "material ecocriticism considers the ocean as a porous body, a congealing of agencies and representations, of capital flows, life forms" and also of "geopolitical forces, such as migration fluxes, or environmental phenomena, such as pollution and climate changes" ("Stories" 457). Therefore, the analysis of the ocean as

the body as explored in Ledgard's novel will accentuate the materiality of the ocean as a generative source of life for both human and nonhuman bodies and as closely entwined with environmental systems, climate change and the alarming consequences of the exploitation and destruction of bodies of water. Such an understanding informed by material ecocritical discourse will not only endorse Alaimo's trans-corporeal conception of how "'body' and 'nature' are comprised of the same material" ("Trans-corporeal" 257) but also showcase that the very survival of the material world on the planet is imbued with these oceanic trans-corporeal connections.

First of all, the perception of the ocean as the body is essentially related to the fact that the ocean is the planet's "life-support system" as accentuated by the highly regarded marine biologist and oceanographer Sylvia Earle (*The World* 12):

> The ocean drives climate and weather, regulates temperature, absorbs much of the carbon dioxide from the atmosphere, holds 97 percent of Earth's water, and embraces 97 percent of the biosphere. Far and away the greatest abundance and diversity of life occurs in the ocean, occupying liquid space from the sunlit surface to the greatest depths […] The sea governs planetary chemistry, yielding water back to the atmosphere that returns to land and sea as rain, sleet, and snow, continuously restoring rivers, lakes, and groundwater. (*The World* 12)

The centrality of the oceans for regulating ecosystems, weather events, climate and microbial life, in short, the whole material life both in the depths and surface of the water manifests Barad's new materialist understanding of the world as "a dynamic process of intra-activity" from which material "agencies emerge from, rather than precede, the intra-action that produces them" (140, 128). Accordingly, the ocean could be posited as the body that both materializes the complex and intra-active kinships between the ecosystems

of marine habitats and the biosphere and structures Earth's chemical, biological and climatological systems in tandem for stable and sustainable environmental conditions as elaborated in Ledgard's novel.

Viewed in this new materialist perspective, the ocean is represented as the huge aquatic body with its expansiveness and centrality in terms of the planet's biological and chemical processes in the novel. The detailed information Danny provides about the oceans is enlightening in grasping their magnitude and depth:

> The oceans cover 70 percent of the planet surface […] It has five layers. The first is epipelagic […] It contains all the plant life and coral reefs and all the shipwrecks that can be dived with aqualungs […] The next layer is the mesopelagic. This is the twilight zone, into which blue and all the other colors and light vanish […] Everything under the mesopelagic is night. First the bathypelagic zone, then the abyssopelagic, finally the hadopelagic. (53)

The ocean with its several zones proves both its dimensionality and the scale of the rich microbial life that exists in its deepest layers with "hydrothermal vents thick with mats and carpets of microbial life" (72). Moreover, Danny points to the fact that "understanding of microbial life in the deep was necessary for human survival on the planet" (114) and proceeds:

> Without that knowledge, we will not be able to comprehend the scale of life on Earth, or its ability to regenerate. The fact that life can exist in the darkness, on chemicals, changes our understanding about life everywhere else in the universe. (114)

As microbial life in the deepest zones of the ocean presents a valuable understanding of life processes in every other part of the planet, "a flux of ongoing intermeshed dynamics" (Oppermann, "Enchanted" 107) between microbial life in the ocean and the life in the

biosphere can be easily recognized, highlighting how the material life in the depths of the ocean is intra-actively connected with the complex ecosystems and life forms that exist on its surface.

Further, the ocean "as the major heat, carbon and water reservoirs of the world" is "the single most important driver of Earth systems and one of our great allies in the fight against climate change" (Laffoley and Baxter 17; *Future* 16). This fact is indicated in the novel with the information that "there could be no serious work on climate change without understanding marine living systems", underscoring the necessity to perceive climate change as a complex system driven by many vital interactions between the atmosphere, biosphere and marine ecosystems (124). These intricate entanglements between oceanic ecosystems and global warming are also expressed by Laffoley and Baxter in their *Explaining Ocean Warming* (2016):

> […] [By] absorbing a disproportionate amount of heat from global warming and by taking up the rapidly increasing emissions of carbon dioxide, the ocean has shielded the world from even more rapid changes in climate. […] This regulating function, however, happens at the cost of profound alterations to the ocean's physics and chemistry that lead especially to ocean warming and acidification, and consequently sea-level rise. (40, 10)

Clearly, the critical role the oceans have played in regulating the world's climate for a long time has resulted in alarmingly negative changes for their own ecosystems, which could give rise to serious environmental issues. This reveals the fact that, as Alaimo highlights, "trans-corporeality specifically can extend through the seas" with "the connections and interchanges between bodies and environments […] across the wide expanses of aquatic habitats" ("States" 480). To put it simply, the ecosystem sustainability of the planet can only be maintained as long as the oceans are protected;

therefore, the complex issue of climate change needs to be addressed with regard to the preservation of these life-giving bodies of water.

What is more, the life-sustaining body of the ocean is not only affirmed by its generative qualities but also by the fact that life originated in the ocean. The conception of the ocean as the primordial body out of which the life on Earth arose is primarily related to how the chemosynthetic life in the ocean's deepest zones has led to the photosynthetic life in the biosphere. In the novel, Danny explains this process, saying:

> […] Until the discovery of hydrothermal vents off the Galapagos Islands in 1977, scientists assumed that life on Earth was photo-synthetic and belonged to the surface. It was the other way around: photosynthetic life came later, when cells strayed to the top where they were cooked for millions of years before evolving a way to absorb the light, and all the while the chemosynthetic life in the abyss was evolving a stability we cannot hope for […]. (128)

The chemosynthetic life produced by organisms with "no need of the sun" and "liv[ing] off hydrogen, carbon dioxide, or iron" in the depths of the ocean has evolved into the photosynthetic life on its surface that has transformed in a way to depend on sunlight to exist (128). The chemosynthetic theory of origin of life is a widely accepted theory put forward separately by the Russian biochemist A.I Oparin and the British biochemist and geneticist J. B. S. Haldane in the 1920s (Lazcano 2011). Oparin's "proposal that life was the outcome of prebiotic chemistry" and "the evolution of precellular systems" in the early oceans was also supported by Haldane, who held the idea that "the absence of oxygen in a CO2-rich primitive atmosphere led to the synthesis of organic compounds and their accumulation in the primitive waters of the Earth, which he wrote, had 'the consistency of hot dilute soup'" (Lazcano 2011). The term "primordial soup" defines "the

aqueous solution of organic compounds that accumulated in primitive water bodies of the early Earth as a result of endogenous abiotic syntheses […] and from which some have assumed that the first living systems evolved" (Lazcano 2010). In the novel, the chemosynthetic theory of origin of life, namely, the "primordial soup" from which the biological life on the planet has arisen, is advocated with the term "chemical soup" to present the idea that "we were raised up from chemosynthetic life in the deep ocean to become photosynthetic life at the top" (151, 82). Hence, the novel affirms not only "the aquatic reality of nature" (Bachelard 5) but also the fact that, as Iovino and Oppermann declare, "in the material fabric of emerging forms, water is the foremost component" ("Wandering" 311).

Contemplating on the origin of life on Earth, Danny describes the ocean as the original home where humans came from, stating, "[m]illions and millions of years ago we lived in the ocean", since "nearly all the biosphere was in the ocean" (82, 54). The novel's emphasis on the biological and evolutionary origins of life in the ocean is also supported by Earle, who maintains that, "life began in the sea 3.5 million years ago and has prospered on land less than half that long" (*Sea Change* xv). Therefore, "a trans-corporeal sense of connection between the sea and all living creatures" (Alaimo, "States" 482) could be construed as observed in Rachel Carson's account of the origin of life in her *The Sea Around Us* (1961). Carson states that, "the sea's first children lived on the organic substances then present in the ocean waters, or like the iron and sulphur bacteria that exist today, lived directly on inorganic food" (*The Sea* 8). Reiterating the chemosynthetic theory of origin of life, Carson posits the ocean as the "all-providing, all embracing" primordial body out of which its "first children" originated (*The Sea* 8):

> […] when they went ashore the animals that took up a land life carried with them a part of the sea in their bodies, a heritage which they passed on to their children and which even today links each land animal with its origin in the

> ancient sea. Fish, amphibian, and reptile, warm-blooded bird and mammal—each of us carries in our veins a salty stream in which the elements sodium, potassium, and calcium are combined in almost the same proportions as in sea water […] Even the protoplasm that streams within each cell of our bodies has the chemical structure impressed upon all living matter when the first simple creatures were brought forth in the ancient sea. (*The Sea* 13-14)

Carson's stress on the watery constitution of the bodies of humans and those of all marine and terrestrial animals reinforces the idea that the oceanic origins of all living things are materialized in their corporeal bodies. Thus, as Haraway underlines, sharing "a common 'flesh'", "all earthlings are kin" (*Staying* 103). This resonates with Barad's new materialist idea that "all bodies, including but not limited to human bodies come to matter" within the world's "dynamic process of intra-activity and materialization" as recognized in the formation of diverse life forms through complex intra-actions between the marine and terrestrial life over "the vast expanses of evolutionary time and space" (392, 140; Alaimo, "States" 482).

Consequently, as Iovino contends, "the material presence of oceanic life is the very condition (both evolutionary and ecological) of our mode of existence as living beings" ("Stories" 457). Interpreted from this material ecocritical perspective, the ocean literally flows through the human body, signifying that the ocean can be conceptualized as the body in the context of the watery embodiment of humans as represented in Ledgard's novel. The oceanic embodiment of humans is underscored in the novel when James asks Danny what she thinks of "the bodies buried at sea", a question to which Danny replies by saying, "it's not dust to dust, that's for sure, it's water to water" (97), further explaining:

> [w]e're made of water, it's the most obvious thing, still we don't get it, we think we're solid, we're not, we're pockets of moisture. We bleed. Our mouths, our eyes, our every opening to the air are filled with saliva, mucus, or wax. If we were too long in the sun we should soon dry up. (97)

As Danny points out, the fact that water constitutes human body is most easily perceived in the biological processes of the human body: "our wet matters are in constant process of intake, transformation, and exchange- drinking, peeing, sweating, sponging, weeping" (Neimanis 2). That humans are corporeally connected to the ocean is also accentuated by Earle: "our origins are there [in the ocean], reflected in the briny solution coursing through our veins and in the underlying chemistry that links us to all other life" (*Sea Change* 15). Hence, the watery embodiment of humans exemplifies Tuana's notion of "viscous porosity of flesh—my flesh and the flesh of the world" and how "this porosity is a hinge through which we are of and in the world" (199), leading us to recognize how humans are not only comprised of the ocean but also dependent on the global ocean's survival for their own existence. Similar to Tuana's new materialist perspective, Astrida Neimanis in her *Bodies of Water* (2017) calls attention to the inseparability of the human embodiment from the nonhuman bodies of water:

> Blood, bile, intracellular fluid; a small ocean swallowed, a wild wetland in our gut; rivulets forsaken making their way from our insides to out, from watery womb to watery world: we are bodies of water […] Given the various interconnected and anthropogenically exacerbated water crises that our planet currently faces – from drought and freshwater shortage to wild weather, floods, and chronic contamination – this meaningful mattering of our bodies is also an urgent question of worldly survival. (1)

Our watery embodiment inevitably "makes us feel part of the watery world" (Oppermann, "Storied Seas" 446), connecting us to the nonhuman bodies of water; therefore, by destroying natural water resources, we actually give harm to our own material bodies and chances of survival on the planet. Viewed in the context of Barad's new materialist perspective, water resources and the watery constitution of the material bodies, therefore, epitomize "the ontological inseparability/entanglement of intra-acting agencies" (139) in the sense that our corporeal bodies of water are in an ongoing process of becoming through their intra-active connections with the world's bodies of water.

In Ledgard's novel, the entanglements between the oceanic origins of embodiment and the vitality of bodies of water for the survival of all living things in the material world are mainly explored through water crises in Africa, which is immensely afflicted by global warming and droughts. Published in 2011, the year which, according to Tom Cohen, "will mark in future retrospect, the rough date at which the irreversible nature of global warming was widely recognized", Ledgard's *Submergence* exemplifies the severe impacts of global warming specifically in African countries and "the world's poorest communities" in those countries (Clark 2; Vidal, par. 16). In his 2011 "climate crisis review" in *The Guardian*, John Vidal reports that "the worst drought in 60 years gripped more than 10 million people and led to the death of thousands of people and millions of animals in Somalia and the Horn of Africa" (par.16). In this respect, it is noteworthy to mention that in the acknowledgement section of *Submergence*, Ledgard remembers "the tens of thousands of victims of the 2011-2012 Somali famine, presaged in the book" (154), highlighting how his novel predicted this humanitarian crisis in Somalia. Therefore, the novel responds to the troubles experienced in Africa, offering a postcolonial ecocritical insight into the plight of Africans.

In their comprehensive report on the famine crisis in Somalia in 2011-12, Darcy, Bonard, and Dini state that "the drought that hit between late 2010 and mid 2011 was the

trigger for the crisis" in the Horn of Africa, which is aggravated by several other factors, including "cumulative effects of conflict, successive droughts, eroded livelihoods, resource scarcity, the absence of essential services and effective governance" (11). Ledgard's estimation of mass deaths in Africa mainly due to the shortage of water and climate change showcases that *Submergence* as an environmental narrative could "extrapolate atrocious global futures from some very present and real situations" (Otto 11). Thus, the novel reveals that ecological disasters with their far-reaching impacts as could be noticed in the 2011-12 Somali famine prove "the very precariousness of […] the condition of mankind" in the age of the Anthropocene marked by climate crisis (126).

The novel points to "environmental injustices in postcolonial cultures" (Oppermann, "Toxic Bodies" 412) by focusing on the disastrous effects of global warming and water scarcity in drought-stricken Somalia on every aspect of life from the impaired bodies of humans and animals to climate change-induced hunger and destroyed livelihoods. Somalia, therefore, becomes emblematic of how socioeconomic and power inequities in postcolonial environments exacerbate the impacts of climate crisis. Greta Gaard underlines that although it is the world's most developed countries such as China, the U.S., Russia that deteriorate the effects of climate change with the highest emissions they are responsible for, "75–80% of the effects of climate change will be felt by the global South/Two-Thirds world" ("Ecofeminism" 23). Ledgard's novel touches upon this fact in its account of the environmental risks expected for African countries in the near future: "A recent top-secret United States Army report predicts mass death for Africans in the coming years […] death by famine, new epidemics, climate change, infestations of insects, methane gas bubbles, or even by meteors" (116). This anticipation of the coming troubles as represented in the novel is a postcolonial ecocritical reflection of the fact that global South countries' "material poverty means weaker infrastructures of support for housing, clean water, food security, health care, and disaster preparedness/response"

(Gaard, "Ecofeminism" 23). In the novel, while discussing the serious issue of scarcity of water in Somalia with James, Doctor Abdul Aziz, "who traveled to Somalia to give medical care to the poor", describes the terrible conditions in which the majority of Somalis live (62):

> […] "Hardly a day goes by without a baby […] dying of some curable sickness. The people have no work. They have not enough food. […] Three families share a shack," […] "there is terror of fire, especially on hot days. A spark flies on the wind and lights the palm thatch and paper. People are burned alive. It is worse when it rains. Then the mud mixes in with the waste from the latrines […]. (65)

Thus, Somalia as a global South country faced with serious humanitarian crises is highly vulnerable to environmental disasters due to its economic, social and political instability.

Furthermore, the poor communities who are deprived of safe and affordable drinkable water in Somalia because of social and economic inequities in the novel demonstrate the water crisis as a global risk in that, as *The 2020 edition of the UN World Water Development Report* anticipates, "climate change will affect the availability, quality and quantity of water for basic human needs, threatening the effective enjoyment of the human rights to water and sanitation for potentially billions of people" (11). This issue is addressed in the novel through James who, having gained knowledge with regard to the unjust social structure and political turmoils such as the Civil War in Somalia as a spy working in Africa for years, points to the huge gap between the poor and the rich: "Somalia was irregular […] There was internet in one neighborhood, in the next the people were dying of thirst. You could receive money through a wire transfer, but you could not keep your child alive" (64). Accordingly, achieving access to drinkable water is simply a matter of survival for the Somalis in impoverished areas as it is a well-known fact that "in the slums, it [water] may be contaminated by sewage" (65). Besides, "the

water is too expensive for the poor" with "the water profiteers" who control and obtain money from insufficient water resources (64, 65). The poor Somalis who cannot reach drinkable water due to its high price and the lawless control of water sources manifest that, as Oppermann indicates, "environmental challenges in postcolonial contexts are more often than not embroiled within political, social, and economic disputes over unequal distribution of resources" (64, 65; "Toxic Bodies" 414). Thus, viewed from a postcolonial ecocritical perspective, in Ledgard's novel the poor communities in Somalia demonstrate "the social divide between rich and poor and between those who are protected from environmental risks and those who are fully exposed to them" (Heise, "Globality" 639).

Interpreted through these affinities between postcolonial and material ecocritical discourses, the exploration of widespread material-discursive repercussions of global warming and droughts in Somalia in Ledgard's novel could pave the way for generating "a concern about our immersed existence" in the bodies of water and thereby the indispensability of their preservation ("Oppermann, "Storied Seas" 446). To illustrate, during his journey to Kismayo, a province in Somalia, for his mission to spy on jihadi fighters, James observes from the window of the propeller plane that "the land below looked ravaged, like a drained sea […] There was dry bush as far as the eye could see", showing the extent of aridity in the country (27). Further, when James is taken captive by jihadi fighters, the reason why he is left alive is that they believe he is "Mr. Water", since he has introduced himself as a "water engineer" who has come to Somalia to help solve the water crisis there (57, 58). From a material ecocritical standpoint, the material-discursive intricacies between humans' watery embodiment, the shortage of drinkable water in Somalia and the dependence of James' life on the assurance that he will help Somalis find water are discerned in the novel:

> Somalia was dried up. The rains had failed. The people were dying of thirst, and he knew better than any real engineer that he was alive only on the promise of water. He was grateful to live on as Mr. Water. (59)

Similar to the barren land of Somalia, the materiality of the human bodies is damaged by the lack of water considering their aquatic constitution. Moreover, James' false promise of finding water in dry Somalia, which is interpreted as "merciful" work in an Islamic framework by jihadist fighters keeps him from being killed (58), epitomizing how the discursivity of political and religious systems and decisions is bound up with life-threatening ecological issues.

Additionally, in various scenes within the narrative where James is moved by his captors from place to place in Somalian badlands in an effort to hide from the US military forces, the extent of drought and its far-reaching social and economic ramifications are noticed. For instance, the description of the land where James and his captors pass through is significant to show the massive changes in the Somalian environment induced by global warming:

> […] They passed an Italian plantation that had grown tomatoes and bananas for export. That was in the 1960s, when the seaside restaurants in Kismayo, Marka, and Mogadishu were full of customers, the waiters in uniforms, the bands playing, the sea azure, streaked with foamy white […] The gates into the plantation were broken now and the earth was split and ruined and the Italians were long gone. (87)

Global warming accompanied by low rainfall in Somalia since the 1960s has drained all fertility out of this fruitful land which was once a plantation, changing it into a barren area with no possibility of life. The stark contrast between the area in the 1960s when it was a lively place of agricultural and commercial activities thanks to the abundance and

exuberance the sea provided and the same area which is desolate now due to the impacts of climate change and depletion of water resources serves to pinpoint bodies of water as the sources of productivity.

The desperate search for water in Somalian badlands in the novel also affirms the irreplaceability of water as a life-sustaining element. James explains that as they could not find any water during their constant move in the badlands, they had to survive either on the scarce water which "was from a hole they had dug in the riverbed" or ribbons, "tufted aquatic plant[s] [...] with stout round tuberous edible roots" which grow in "shallow water of exposed mud in fresh or brackish situations" (93; "Water"). It is stated in the novel that at the wadi "which was a crack in the earth made by water and abandoned by water", James "drank from the greasy ribbons and became more ill" (101). Accordingly, the extreme thirst James is afflicted with is quite injurious to his corporeality due to the aquatic origins of human embodiment:

> […] Somewhere along the way the land just died. It was bleached out and the cracks that were in the soil in the old Italian plantation had here become deep enough to fall into […] He was thirsty. He longed for water […] His face hurt and his skin tasted salty. It had not rained. (90)

The dry weather and shortage of water in this barren environment causes James to grapple with intense physical discomfort because of the effects of dehydration as observed in his facial pain and salty skin. Therefore, "embodiment from the perspective of our bodies' wet constitution" (Neimanis 1) is closely linked to the critical ecological issues of climate change, drought and lack of drinkable water as exemplified by the corporeal bodies who suffer greatly in the drought-stricken Somalia in Ledgard's novel.

In addition to human bodies, the nonhuman bodies of animals also fall victim to thirst and lack of water in Somalia. For instance, James reports that "one night when they

were walking, they came across a cormorant too weak to fly […] If it rained the cormorant would survive, but there was no sign of more rain" (102). The centrality of water for the survival of living things is illustrated in another scene when James and his captors arrive at "a plain of volcanic clinker", which seems like "Greenlandic whiteness" with "pack ice, with those same veins of green" (104). However, as James reveals, "it was not the life-giving ice of the north that melts and freezes, under which the beluga whale swims" but "it was a salt flat" with "no birds in the sky" and which "was littered with the bones of animals that had strayed here and died and been covered in salt" (104). By comparing this salty and lifeless land that provides no chance of survival for animals to the vast and life-nurturing body of the Arctic Ocean hosting various sea creatures like the beluga whale, James celebrates the global ocean as "the immense, life-creating and biosphere-sustaining body of salt water" (Brayton 18).

4. 2. The Ocean as a Site of Narrativity

With its dynamism and life-sustaining qualities enabling the life on Earth to exist, the ocean as represented in Ledgard's novel also proves its agentic power in communicating its stories of "self-constructive forces" and of "its meaningfully articulate inhabitants" through its intra-active involvements with human and nonhuman agencies (Iovino and Oppermann, "Materiality" 83; Oppermann, "Storied Seas" 452). As Oppermann states, "material ecocriticism reads the ecology of the planet's protean seas by way of their storied dimension" ("Storied Seas" 443); therefore, the analysis of the ocean as a site of narrativity within the framework of material ecocritical discourse in Ledgard's novel will make it possible to recognize the narrative agency of the ocean through which the intricate networks between its materiality as the body hosting countless and diverse marine creatures and life forms, its embeddedness with human imagination and cultural memory and its endangerment through the destructive practices of

"consumption, waste and pollution" (Alaimo, "Oceanic" 113) in marine habitats, putting the very existence of the planet at risk could be perceived.

Firstly, the ocean articulates its, what Oppermann calls, "twofold condition" as "a physical geographical site and a vast domain of imagination that can never be conclusively charted" ("Storied Seas" 446) as discerned in the novel's incorporation of various ocean-themed myths and stories from several cultural productions into its narrative. To exemplify, when Danny gives information about her field of study focused on the hadopelagic layer, the deepest zone in the ocean, she explains the etymological origin of the word "hadopelagic" by alluding to the Greek god of the underworld and his abode: "Hadal from the Greek *hades*, meaning unseen" (53). The allusions to Hades, "the staying place of the spirits of the dead" in the depths of the ocean and "the River Lethe, swallowing water to erase all memory" from Greek mythology in the novel serve to underline "the image of water as the border between life and death"[2] as the basis of the human condition (146; Şahingil 247). Further, the novel's inclusion of the myths of "Okeanos, the ocean about the equator shown on the shield of Achilles, which kept the known world afloat" in Greek mythology and of "the Midgard serpent, which lived so enormously in the ocean the Norsemen believed it encircled the world" in Norse mythology showcases how ancient narratives traced the origins of the world to primordial waters (55), displaying "how nature is emergent in culture" (Oppermann, "Enchanted" 103). Hence, these ocean-based myths and images in different cultural narratives are instrumental to perceive the naturalcultural character of the ocean due to both its materiality as a life-creating force and its "eco-cultural significance […] in the role it plays in shaping human identity" (Oppermann, "Enchanted" 109). In brief, the ocean's immense and immutable body that both has made the life on the planet possible and

[2] This quote was translated by the writer of this dissertation.

sparked human imagination as revealed in ocean-based myths in various cultural productions has always become a medium through which human societies throughout history have attempted to give meaning to their selves and the world they live in.

Moreover, the ocean is positioned as a rich aquatic site of meanings in that it is not only "a regulatory ecosystem as a 'science making world' [in Haraway's words]", as represented by Danny's search in the Hadal deep but also "a story-making world with a powerful hydrogeological agency that has, for centuries, inspired countless stories" (Oppermann, "Storied Seas" 451) as underlined in the Sumerians' creation myth recounted in the novel:

> Six millennia ago, the air god Enlil and the sea god Enki settled themselves in the pantheon of Sumerian deities. […] Behind the firmament was a deep sea, and Enki's house was on the sea floor—a place called Abzu […] In this house Enki created a man. He mixed clay over the volcanic furnace, shaped it with heavy water, and swam it to the world. He breathed air into it there […]. (31)

The Abzu, "the cosmic underground body of water [which] played a key role in the creation of humankind" in Sumerian mythology is the very field of study in which Danny endeavours to understand the scale of "life that exceeded all chronologies, that had never been studied before, and that had yet to be named" in her own words (Brisch 24; 27). To clarify, on a very important summer cruise for the research on "the extent of life in the fissures of the rock underlaying the Hadal deep", Danny and her team discovered "the northernmost hydrothermal vent field yet discovered, with some of the largest recorded sulphide deposits" (105, 129). Been asked to name it, Danny called it "the Enki field", referring to the Sumerian god of sea Enki due to her fascination with the Sumerians who were "so diverted by the Hadal deep" (105, 31). Danny's mythological allusion signifies

the parallelism between Enki's "watery abyss", the Abzu, which is characterized by its "enormous reservoir of water" and the "extraordinarily large and ancient" hydrothermal vent discovered by Danny's team (Kramer 65; Bottêro 220; 129). The novel's imbrication of Danny's scientific search of microbial life in the ocean with the ocean-centred myths of the Sumerians, thus, manifests the storied dimension of the ocean as a locus both for scientific knowledge and cultural imagination. That is, the ocean communicates "the ways in which human life understands itself" (Vermeulen, "The Sea" 190) as symbolized in the shared interest in the ocean by the modern-day biomathematician Danny and the ancient Sumerian civilization in a common effort to make sense of the existence of life on Earth.

The ocean as a site of narrativity as explored at the juncture of material, scientific and cultural entanglements through ocean-centred origin stories in cultural productions and Danny's exploration of the Hadal deep in Ledgard's novel is also affirmed by the entirely complex and rich microbial life with an abundance of diverse marine creatures in the oceans. Put differently, the ocean is not only "the home medium for marine mammals, fishes, and seaweeds" but also "a realm inhabited, maintained and modulated by an extraordinary mix of microbes, many of which live at astonishing extremes of light, temperature, pressure, and chemistry" (Helmreich ix). Therefore, the ocean exemplifies its "narrative agency", "a material ecocritical conceptualization of matter's expressive capacity", in Oppermann's words, ("Creativity" 55) as the host of a profuse microbial life and with its intricate connectedness to the human life on Earth. Recognizing the narrative agency of the ocean is fundamental to expanding our conceptual horizons and perceiving the many stories communicated by the ocean and its countless inhabitants as Oppermann argues:

> […] This is a material ecocritical exercise to dive into the ocean to unveil the messages hidden among agentic entities, but also to make a difference in our

> cognitive responses to the ocean's realities by questioning the common belief that storytelling is exclusively human, or even telluric. ("Storied Seas" 454)

Immersing into the stories told by numerous microbes, bacteria, organisms and marine creatures in the ocean could help deconstruct the fixed patterns of anthropocentric thinking that excludes the agency of the nonhuman world and reach an understanding of the scale of life in planetary terms, which entails realizing how "human life is inescapably connected to and implicated in nonhuman forms of life" in marine habitats (Vermeulen, "The Sea" 184).

Accordingly, Danny calls attention to how microbial life of the deep ocean is deeply intertwined with human corporeality, proving the expressive capacity of the ocean as a "trans-corporeal site", allowing to trace "the interchanges and flows between the human and more-than-human-worlds" (Alaimo, *Bodily* 111):

> […] In the fissures, crevices, clefts, and cracks; in the volcanic pus, in all the amazing lattices of the deep, are heat-loving or hyperthermophile protists, archaea, fungi, and especially bacteria […] If you dwell on them, they change the way we see ourselves. They are the factory workers: […] the base […], they are a part of you. You carry a weight of them in your belly and on your skin. (128-9)

From a material ecocritical standpoint, the ocean conveys its storied existence that materializes the entangled relations between the microbes, bacteria, fungus in the oceans, the life on the surface and human embodiment, namely, "a marine assemblage in which humans are just one component" (Steinberg 164). Similar to Bennett's emphasis "on bacteria colonies in human elbows to show how human subjects are themselves nonhuman, alien, outside, vital materiality" (120), the ocean as a narrative agency in the novel articulates the "co-constitutive materiality of human corporeality and nonhuman

natures" (Alaimo and Hekman 9) by showing how microbial life that exists in the ocean's deepest zones are embodied in our very corporeal bodies.

Viewed in this material ecocritical context, Danny, who studies "the chemosynthetic life and […] the refractory molecules of anoxygenic photoheterophotic bacteria" in the deep ocean is actually "opening up another world in the world" as the novel emphasizes (111). The significance of this "another world" in the ocean's abyssal depths is underlined by Earle: "Without the legions of minuscule organisms that have preceded us over the ages and whose descendants surround us and support us still, life as we know it could not exist" (56; *The World* 11). The novel's situating the highly intricate and compound microbial life in the oceans as "the other living world", hence, goes completely against the long-held faulty assumption of the deep sea "as a lifeless zone […] due to the formidable darkness, pressure and cold" (56; Alaimo, "Anthropocene" 153). The novel opposes the belief that the hadopelagic layer in the ocean "has no life and therefore no possibility of reanimation and so is without scientific interest" (54). The vitality and agential power of the deep ocean is proved by Danny's studies showing that "the fissures on the sea floor into the mantle are filled with microbial life", and that "the abiotic mantle is several hundred times thicker" compared to the biosphere (54). Danny elaborates on this amazingly rich marine life in the oceans, saying: "91 percent of the planet's living space, 90 percent of the living creatures. For every flea; nine sea fleas. No dogs, no cats, but so many other creations with eyes and thoughts, moving in three dimensions" (60). Thus, "refus[ing] to become an object of human consciousness" (Vermeulen, "The Sea" 189), the deep ocean articulates a completely agential world with its own peculiar qualities and living systems as an "intact home to sea creatures who live at a slower pace, within the cold, dark, and heavy waters" mostly beyond human knowledge and awareness (Alaimo, "Your Shell" 161).

Accordingly, it is only through paying attention to the stories oceanic creatures have to tell, we can, as Bennett puts forward, "discern nonhuman vitality, to become perceptually open to it" (15). Being attentive to the narrative agency of marine creatures is crucial in shattering the perception of the ocean as "an immense imagined void or abyss" (Alaimo, "Unmoor" 409) that does not extend to human understanding or concern and recognizing the ocean as "the soup that contained the magnitude of species" with their own agentic and vital characteristics as explored in the novel (130). To illustrate, marine creatures, as Oppermann maintains, "tirelessly project a storied existence conveyed in signs, colors, sounds, signaling, and codes we may or may not yet fully understand" ("Storied Seas" 453). One of these unique ways through which marine creatures convey their storied existence is discerned by the fact that "even space and time are relative to each creature" in marine habitats (Alaimo, "Unmoor" 411). To exemplify, sea creatures are characterized by their "constant movement", collapsing "the space between places", as Danny explains with the example of "the Cuvier's beaked whale [that] dives, touches the ligament of the sea's throat, and rises again" (142, 110). In addition, the existence of "deliberately rare" microbes which were "waiting a million years […] for conditions to change so they could become abundant" positions the ocean as a site of narrativity in which, as Alaimo underscores, "the deep oceans dwarf terrestrial environments and lure us with the illusion that time could be heavy and durable, rather than evanescent, preserving species instead of vanishing them" (125; "Unmoor" 415). By "recalibrating –even annihilating– the gauges of time and space", these peculiar oceanic creatures as narrative agencies, hence, express their autonomy from the constraints of "terrestrial knowledge structures" (Blum 26; Jue 85). That is why, finding out about these astonishing microbes that persist through time "changed her [Danny's] idea of what a lifespan meant" with her realization that sea creatures "exist in their own time" (125; Alaimo, "Unmoor" 415).

Moreover, during her dive into the Greenland Sea for her research "for the largest uncharted hydrothermal vent field in the world, far below the plunging icebergs and the blue-black top, in a part of the Hadal deep", Danny observes that "the only light is the bioluminescence of fish that move under the weight of a thousand atmospheres" in the ocean's darkest zones (53). Bioluminescence, "the incredible 'light show' of floating, swirling, zooming flashes of light', is "a chemical reaction in a microbe or animal body that creates light without heat" ("The Deep Sea"). As Danny sinks into the bottom of the ocean in the submersible called the *Nautile*, she describes amazing scenes of bioluminescence: "The water was alive with bioluminescent fish and eels" and "the salp and jellyfish gave themselves in disco lights when the *Nautile* brushed them" (144). Therefore, bioluminescence becomes, what Oppermann calls, "a marine sign language, which has the potential to assume a narrative voice", since, as Danny states, "down there everything spoke in light: it was the most common form of communication on the planet" ("Storied Seas" 458; 144). Enabling diverse marine creatures to communicate in the ocean's deepest and darkest zones, bioluminescence functions as one of the distinct ways for "abyssal creatures" to express their storied existence, which "may entail thinking with darkness, attempting to feel what it would mean to exist within waters that are only momentarily lit up by bioluminescence" (Alaimo, "Unmoor" 412).

Having a world of their own with their agentic power and storied existence, the oceans, therefore, are "certainly independent from nonetheless interlaced with the destiny of the human" considering the central role they play in Earth ecosystems (Iovino and Oppermann, "Materiality" 81). The novel underlines the fact that the development of the ocean research with "manned submersibles" both "provided the necessary leap of imagination, the human connection to the deep" and brought about a "biological revolution" (124) since

> it was possible to see creatures that had never been noticed before, the living matter of minestrone, of which only one recently discovered species of picophytoplankton in the upper layers of the ocean was reckoned to have a biomass equivalent to the insect life in the Congo River basin. (124-5)

The discovery of these "fabulously creaturely lives" (Alaimo, "Unmoor" 412) in the deep ocean not only emphasizes how "the diversity was overwhelming" in Danny's words but also requires being attentive to the expressive existence of these marine life forms to understand their imbrication with Earth systems and human life (125). The agential power of the marine life forms in the oceans, and thereby their centrality in creating and regulating life on the planet could be mainly recognized by the fact that these marine entities are, as Helmreich demonstrates, "the potential ancestors of all life, helpful monitors of climate control, raw material for new life-saving drugs" (x, xi). The novel reinforces this fact with the information that "protists, archaea, fungi, and especially bacteria […] together constitute the earliest life on our planet", and that "the cold-water corals and sponges that were there before there was an English language […] contain in them the most powerful antibiotics and chemicals, which might be used for the cancer treatment" (128, 56). As such, "the ocean as a web of microbial life joining the sunniest surface waters to the dimmest depths of the sea floor" as an all-encompassing ecosystem proves its narrative agency in making it possible to "conceptualize the ocean as a site in which […] life materializes as a networked phenomenon linking the microscopic to the macrocosmic, bacteria to the biosphere, genes to globe" (Helmreich ix). In other words, through its vibrant microbial life and diverse creatures that are vital to governing the chemical, biological and climatological composition of the planet, the ocean, as Danny explains in the novel, "goes down and joins worlds" by "bridg[ing] a microbe to the ecosystem" as perfectly exemplified in the fact that the origin of life on the whole planet could be traced back to microbial life of the deep ocean (54, 130).

Taking into account all of these pivotal oceanic interactions between marine ecology and the material life on the planet, the ocean as a site of narrativity urges us to grasp how the life-nurturing and dynamic microbial life of the ocean with countless sea creatures and oceanic life forms is threatened by the exploitation of the marine resources and climate crisis that act upon its materiality in damaging ways as explored in the novel. To illustrate, underscoring the centrality of the marine living systems in order to understand the extent of the climate change, Danny shares her dire findings on ocean warming:

> […] The change was real, she was certain of that. The water under the ship, carried through the Fram Strait on the East Greenland Current, had warmed by 1.9 degrees Celsius since 1910. That was 1.4 degrees Celsius more than the increase during the tenth-to thirteenth-century Medieval Warm Period. (124)

Due to the fundamental function of the oceans as "the lungs" of the planet, in Danny's words, in regulating the world's climate and weather patterns, the ocean warming poses serious risks to the planetary health (124). It is because of the fact that ocean warming not only "alters the structures of ecosystems such as coral reefs, changes the very essence of environmental conditions, or indeed influences weather" but also "it impacts on everyone to some degree as we are an ocean planet" (Laffoley and Baxter 8) when considering the ocean's centrality for ensuring the viability of the biosphere as well as our oceanic origins and aquatic embodiment.

Apart from human-induced climate change, the extent of the damage given to the oceans with exploitative practices and industries is illustrated in the novel with the fact that "the ocean was being fished out, poisoned and suffering acidification", each of which impairs marine ecosystems in frighteningly negative ways (124). The novel's emphasis

on the depletion of the fish stocks and the destruction of deep-sea habitats strikingly reveals that although human knowledge and understanding of the deep seas and its many inhabitants is very limited, the deep seas, as Alaimo puts forward, "are certainly not "alien" to industrial fishing operations or the companies planning to mine deep-sea zones" ("Unmoor" 416). That is why, Danny considers herself "lucky to be working at a depth beyond the reach of industry", since "they want the manganese nodules, gold, and fuels that are in the deep, but it's too expensive to get at now" (56). However, several marine habitats within the reach of rapacious human hands have already been transformed into or run the risk of becoming "transparent hunting grounds" (Yaeger 528), as Danny states: "Tens of thousands of seamounts have been destroyed in our lifetime. Any seamount is sure to be demolished the moment it is located" (56).

The destruction of marine ecosystems with capitalist industries could be best expressed by Patricia Yaeger's coinage of the term 'ecocriticism$', whose "prosthetic dollar sign" "remind[s] us that the ocean as oikos or home rolls under, beneath, and inside the edicts of state and free market capitalism" (538, 529). To clarify, the ocean as an immense and uncontrolled environment has been turned into a polluted, poisoned and depleted aquatic site due to reckless and greedy industrial practices of trawling, oil drilling and overfishing. For instance, the novel stresses that "the chains of those bottom trawlers will break into powder" numerous marine life forms and organisms including "the cold-water corals and sponges", and that a specific type of whale, the Cuvier's "were at one time rendered for watch oil, causing the seconds to tick on Swiss watches", showcasing how oceanic creatures that are central to the natural balance of the marine ecosystems fall victim to exploitative industries (190, 50). In addition, whales communicate their stories of, in Neimans' words, "becoming-the-detritus-of-late-capitalism", since their navigation systems which they use at "a depth of two thousand meters, using sonar to hunt for squid there", as Danny informs, are disrupted by the

"background noise in the ocean [that] doubles every decade mostly from commercial shipping traffic" (150; 49). As "these animals depend on sound to navigate, feed, and communicate in the low-light conditions below the ocean's surface", the disorientation of these sea mammals through "sonar arrays and other electronics" used by commercial vessels is detrimental to their survival (De Bruyn 219; 124). Thus, as Danny points out, the decimation of the ocean and its many creatures is "obscured by the money someone is making off it" (56), showcasing how materialistic and profit-seeking commercial practices in the oceans inflict irreversible harm on marine ecology.

Additionally, the plastic pollution in the ocean articulates the high levels of contamination in marine habitats caused by destructive anthropogenic activities. The novel encapsulates the pervasiveness of the plastic pollution from the trees which "were festooned in plastic bags of different colors, carried by the wind and snagged on branches" to the depths of the oceans with this definition: "the Anthropocene: a geological age marked by plastic" (87; 124). The novel emphasizes the fact that plastic will be "easily identifiable to future geologists" and traceable to the human species even long after they go extinct, since "plastic, which is made from petroleum, is a material that the Earth cannot digest. Every bit of plastic that has ever been created still exists" (124; "The Great"). The amount of the plastic waste that makes its way into the ocean is epitomized in the Pacific gyres, known as the Great Pacific Garbage Patch, which "are dense amalgams of thrown-away plastic that form an aggregate twice the size of Texas" (Yaeger 527). Thus, ocean plastic is "a quasi-object once filled with human agency that exceeds this agency in its afterlife" in that the act of throwing plastic away recklessly results in uncontrollable and unpredictable adverse impacts on marine habitats (Yaeger 537). It is due to the fact that thrown-away plastic materials, as Oppermann accentuates, "contribute to the pollution of marine environments and to the demise of countless fish, penguins, dolphins and other oceanic creatures" ("From Material" 280).

Furthermore, termed as “climate change’s evil twin”, acidification, which occurs when “CO2 reacts with seawater to form carbonic acid” as a result of increasing CO2 concentrations in the oceans, is considered as the most disastrous ecological harm the oceans suffer from (Ogden 322). The marine scientist J.E.N. Veron addresses acidification as the “most serious (if least well understood) of all predicted environmental changes on earth” with the alarming possibility that “CO2 production will ultimately result in destruction of marine life on a colossal scale” (219, 220). Therefore, as opposed to the commonly held flawed perception that “deep-sea creatures exist beyond the reach of anthropogenic harms”, as Alaimo indicates, “these marine species and even the as-of-yet undiscovered must live in Anthropocene waters that are warming, acidifying, and ravaged by industrialized fishing and mining” (“Unmoor” 408). That is, “no species is safe, removed, or protected from the biological, chemical and physical alterations of the planet” (Alaimo, “Anthropocene” 156) as elaborated in the novel through the impacts of the large-scale marine habitat destruction and climate change on marine ecosystems. In this respect, the stories of exploitation, depletion and destruction communicated by oceanic creatures require attention, since, as Oppermann maintains, “whether they live in the pelagic or benthic zone (where no sunlight penetrates), they want their voices heard, their stories recognized, and their attempts to stay alive understood” (“Storied Seas” 453).

4. 3. Ocean Connectivity and Ecoglobalist Affect

Situating the ocean as a site of narrativity, Ledgard’s novel exemplifies how material ecocritical discourse, as Opperman points out, “brings aquatic voices into a sharper focus and insists that we respond well to the storied sea and its narrative agencies” (“Storied Seas” 461). Simply put, inviting us to be attentive to the multiple stories the ocean and its diverse marine creatures communicate about their fundamental role in the sustainability of the planet, the preservation of life for all human and nonhuman bodies as well as their imperilment through destructive exploitative practices in marine habitats,

Ledgard's novel opens up new ways of thinking about not only our embeddedness with the planet's oceans and its numerous life forms but also ethical implications of such entanglements between the human and more-than-human world. Thus, ocean connectivity that encompasses corporeal, biological and ecological interlinkages between marine ecosystems, oceanic species, and the human world as explored in the novel will be discussed with regard to Lawrence Buell's concept of "ecoglobalist affect", which entails, as Buell underlines, "a whole-earth way of thinking and feeling about environmentality" ("Ecoglobalist" 227). Through the analysis of the ways the notion of ocean connectivity and ecoglobalist affect are endorsed within the narrative, it will be argued that Ledgard's novel could enhance affective ties with the planet as a whole and thus prompt readers to develop ethical attitudes and a strong sense of responsibility with respect to the protection of the global ocean and deep-sea species for a viable future for all life on the planet.

To start with, Buell's term of "ecoglobalist affect" functions as a useful conceptual tool to recognize how ocean connectivity could extend our affective sensibilities from the local to the global and thereby lead to environmentalist awareness and actions on a global scale as observed in Ledgard's novel. Bridging affect theory and global environmental responsibility, Buell defines ecoglobalist affect "in broadest terms, an emotion-laden preoccupation with a finite, near-at-hand physical environment defined, at least in part, by an imagined inextricable linkage of some sort between that specific site and a context of planetary reach" ("Ecoglobalist" 232). To exemplify, in Ledgard's novel, the drought-afflicted Somalia, where there are "feuds over water" and half of its population relies on "food aid to stay alive" due to severe aridity, is described as "the future" of humanity, namely, "the canary singing for the world to hear" as the novel puts it (29). Through the representation of the devastating drought in Somalia with its repercussions on a global scale, the novel makes it possible to, as Weik von Mossner asserts, "move [readers]

beyond the fiction, make connection to [their] own existence and even to the future of all humanity on the actual planet Earth" (*Affective* 9). Thus, by proposing to adopt a planetary vision, the novel manages to arouse ecoglobalist affect and invites readers to think beyond national and cultural borders, which could lead them to acquire an emotional consciousness embracing planetary interconnectedness. Interpreted in this ecoglobalist perspective, *Submergence* exemplifies that critical global environmental issues such as the endangerment of the world's oceans must be understood and addressed in terms of their repercussions in planetary terms (Oppermann, "Transnationalization" 402).

To illustrate, when James asks Danny if it is "true that every third breath we take is from oxygen stored in the sea", she answers the question by touching upon the issue of the world's dwindling natural resources (75):

> "[…] it does speak to a larger point […] We're entering an age when everything will be quantified. What we have thought of as abundant we will understand to be limited […] Oxygen will be a proven reserve. It will have to be managed, just as we manage water and minerals and fuels." (75-76)

Leading readers to grasp the link between the ocean's vital role in producing a significant amount of the world's oxygen and the endangerment of this life-giving aquatic environment with its far-reaching impacts globally, Ledgard's novel presents "an increased emphasis on a sense of planet, a cognitive understanding and affective attachment to the global" (Heise, *Sense* 59). In other words, by drawing attention to how even the oxygen as one of the basic human needs to survive will be limited in the near future due to the rapid destruction of the oceans as the sources of oxygen, the novel attempts to "make the potential future catastrophes tangible" for readers and help them understand their implications on a global scale (Weik von Mossner, *Affective* 142). From a cognitive affective approach, as Paul Slovic and Scott Slovic maintain, "we as a species think best when we allow numbers and narratives, abstract information and experiential

discourse, to interact, to work together" (4). Accordingly, the novel's incorporation of factual information related to the amount of the ocean's oxygen production for the global biosphere into its fictional narrative appeals to readers' both "logical and evidence-based rational system", functioning for them to "apprehend reality" and "experiential system", "which encodes reality in images, metaphors and narratives associated with feelings, with affect" (Slovic and Slovic 5). Guiding readers to perceive the alarming issue of the destruction of the oceans both cognitively and emotionally, the novel, thus, becomes effective in generating "a tendency to think of environmental belonging and citizenship in planetary terms" (Buell, "Ecoglobalist" 227) through evoking ecoglobalist affect as it demands a recognition of how the oceans are inextricably linked to the planet's sustainable supply of fundamental natural resources such as water and oxygen for all human and nonhuman inhabitants of the world.

Besides, Ledgard's novel situates the world's oceans at the core of ecoglobalist affect with its focus on ocean connectivity, which basically signifies that "in the marine realm, movement between ecosystems is largely unobstructed by obvious physical boundaries" (*Connectivity* 2). As Buell points out, "oceans are the closest thing on earth to a landscape of global scope" (*Writing* 199); hence, the novel's emphasis on the connectivity of the global ocean appeals to affective sensibilities that go beyond national and regional borders with an ecoglobalist vision because of the fact that covering "nearly three-quarters of the earth's surface", oceans are "by far the more anciently recognized global commons" (Buell, *Writing* 199).

As Rachel Price indicates, United Nations' Law of the Sea recognizes "the seabed, ocean floor, subsoil, and these areas' resources" as "the common heritage of mankind beyond the limits of national jurisdiction" (46). The interconnectedness of all parts of the global ocean can be best epitomized by "migratory connectivity", which refers to the movement of marine species such as "marine mammals, seabirds, turtles and fish [that]

can travel great distances to reach specific feeding or breeding areas, […] spend[ing] some part of their lives in the open ocean beyond national jurisdiction" (*Connectivity* 2). This mobility in the ocean can help us gain an understanding of "the sea fauna as nonlocal agencies in a boundless space" in Oppermann's words ("Enchanted" 110). Oppermann asserts that, "in their geographical mobility and in extending their locality beyond the immediate geographical area", the fish can be interpreted as "translocal entities" ("Enchanted" 110). An example of "translocal entity" could also be noticed in Ledgard's novel: "A tuna tagged off Martinique recently was caught fifty days later in Breisundet in Norway, near the fishing town of Ålesund" (142). As the example in the novel underlines, the fish as "transnational migrants" are "'naturally' above and beyond all national, cultural, and social boundaries" (Oppermann, "Enchanted" 111). By highlighting the geographical mobility of the marine species and compelling readers to realize how the marine realm knows no boundaries, Ledgard's novel presents a vision of environmentality as ecoglobalist affect urges to adopt, which is "inherently border crossing in nature and planetary in ultimate scope" (Buell, "Ecoglobalist" 228). Put differently, the novel's representation of the oceans as immense aquatic sites that cannot be contained within certain borders could shift readers' perspective from "a sense of place to a less territorial and more systemic sense of planet" (Heise, *Sense* 56) and induce them to recognize the value of the oceans as one of the most precious common resources of both the human and nonhuman world.

However, the expanse and commonality of the oceans unfortunately expose them to many forms of destruction, bringing about what Garret Hardin calls "tragedy of the commons". Hardin elaborates on how commonly shared environments are destined to be destroyed with damaging impacts on the whole world: "Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the

freedom of the commons. Freedom in a commons brings ruin to all" (1244). Addressing the oceans as a typical example of "tragedy of commons", Hardin goes on to explain that

> […] the oceans of the world continue to suffer from the survival of the philosophy of the commons. Maritime nations still respond automatically to the shibboleth of the "freedom of the seas". Professing to believe in the "inexhaustible resources of the oceans," they bring species after species of fish and whales closer to extinction. (1245)

Apparently, the world's oceans and its countless species are decimated ruthlessly as a result of the exploitation of the freedom of the seas globally. As Earle maintains, "deeply rooted in human culture is the attitude that the ocean is so vast, so resilient, it shouldn't matter how much we take out of —or put into—it" (*The World* 12), displaying the scale of damage given to the ocean both by polluting it and exploiting its resources due to the flawed perception related to the ocean's durability and infinite resources. In the novel, Danny reveals the serious ramifications of the faulty understanding of the freedom of the oceans, saying:

> […] "Let's say the Atlantic is 160 million years old," she continued. "It might be older. We appeared less than one million years ago. We walked in yesterday. It's not much of a claim. Yet somewhere in the Atlantic right now and in the other oceans, […] some man is smashing up a seamount more ancient than any greenwood on land, which he can't see and refuses to value." (55)

By pointing to the tremendous harm humans give to marine life despite their short geological past, Danny demonstrates how the discourse of "the freedom of the seas" validated by anthropocentric thinking puts the oceans at the disposal of humans with dire consequences.

Accordingly, the exploitation of marine resources becomes "a transboundary issue of global dimensions that presents a serious threat to marine biodiversity" as observed in the severe repercussions of the destruction of seamounts for marine ecosystems (*Connectivity* 5). In the novel, seamounts are presented as the significant habitats for many marine species as "feeding grounds and sites of reproduction" (Rogers 1) as explained with Danny's example of "orange roughy", a fish that "takes forty years to reach maturity and lives to one hundred years on the seamounts" (55). That is why, through urging readers to value marine resources such as seamounts, the novel calls for an awareness that necessitates "the growth of the felt need for a planetary environmental policy that does not conceive earth's resources to be 'created for man's exclusive benefit'" (Buell, *Writing* 198). Namely, by speaking to ecoglobalist sensibilities, the novel motivates people to respect and appreciate marine resources, not for the materialistic profit they provide for humans, but for their intrinsic value and vital role for marine ecosystems.

It is through generating such ecoglobalist consciousness that Ledgard's novel leads to the adoption of an ethical stance that encompasses all material agencies beyond borders as Oppermann proposes:

> As humans and nonhuman alike are all embedded in and bound by ecological processes, the recognition that we cannot be separate from the biotic communities of the planet necessitates a new ethical paradigm beyond the exclusively human, one that is inclusive of the nonhuman, and one that transcends geographical borders. ("Transnationalization" 410)

Consequently, whether human or nonhuman, "the Earth's inhabitants […] are bound together by a global ecosystem whose functioning transcends humanmade borders" (Heise, *Sense* 25), requiring the development of ocean management policies on a global

scale for "the conservation and sustainable use of biodiversity" in an effort to ensure the sustenance of the material life on the planet (*Connectivity* 8). The novel reflects this idea by highlighting ecological interconnectivity between bodies of water and human and nonhuman life. The scene in which the source of water in the badlands of the drought-hit Somalia serves as a meeting point for both humans and animals across geographical boundaries offers a recognition of how the existence of all material life depends on water and thus functions to appeal to readers' environmental sensibilities on a planetary scale:

> […] They rattled up into the green hills. "We're going to where the water is," said one of the boys. […] It was a new, soft, blown-apart hill. The spring water attracted all kinds of thirsty animals. There were dik-diks, of course […] Three elephants walked through. They had climbed the hill for a drink. They moved cautiously, snapping the branches. […] It was improbable, yet that was how nature was. Hippos appeared at waterholes from nowhere. Tilapia fish eggs attached themselves to the legs of waterbirds and spread from one pool to another. Life clung to life. (105-6)

What the novel accentuates is the vitality of environmental processes across human-made borders by emphasizing the connectivity of all material bodies through life-giving bodies of water. As such, the novel evokes ecoglobalist affect that enables readers to affectively engage with the endangerment of bodies of water as a global environmental issue by helping them to reach a planetary understanding of the fact that water scarcity in the localized Somalian environment points to the larger issue of droughts and shortage of water all around the globe as a serious threat to the whole life on the planet.

In view of this, during her conversation with James about the large-scale destruction of marine habitats, Danny is "taken aback at her own vehemence" (55) and therefore displays eco-globalist affect through her "emotion-laden preoccupation" with

valuable and ultimately finite marine resources of the ocean, making this serious environmental issue "emotionally salient for readers" (Buell, "Ecoglobalist" 232; Weik von Mossner, *Affective* 161). From an enactivist approach within the framework of cognitive affective discourse, the role of Danny as the narrative's "focalizer", "inviting readers to see and—most importantly—feel along with" her could help readers to relate to her subjective experience through what Carraciolo calls "consciousness-enactment" (Weik von Mossner, *Affective* 25, 33; 110). In consciousness enactment, readers "can enact a fictional consciousness" when they are given "direct access to the character's […] perceptions, sensations, thoughts, and emotions either because the narrative is told from a first-person perspective or because a third-person narrator uses the character as focalizer" as in Danny's case (Caracciolo 113; Weik von Mossner, *Affective* 25). Thus, being able to access Danny's emotions of anxiety and anger in the face of the loss of biodiversity in marine habitats, the novel's readers could enact the affective state of Danny and feel the same emotions and concern about the ongoing destruction of the oceans. As Weik von Mossner states, emotions are "the basic mechanism that connects us to our environment, shapes our knowledge, and motivates our actions" ("Environmental" 536); accordingly, readers' emotional engagement with this threatening environmental issue could drive them to reach "a wider environmentalist ethos that values ecosystems, biodiversity, and nonhuman life" with a material ecocritical perspective (Alaimo, "Oceanic" 131). Such "an environmentally oriented cosmopolitanism", as Heise underlines, can link "experiences of local endangerment to a sense of planet that encompasses both human and nonhuman worlds" as ecoglobalist affect encourages to realize (*Sense* 21, 159). Concisely, the destruction of the seamounts which causes serious ecological damage as represented in the novel "indicates the enormity of the effects of intentional and unintentional human actions, as those actions reverberate all the way to the sea floor" (Alaimo, "Anthropocene" 155). This showcases,

as Iovino underlines, “an extremely dense web through which ‘local’ criminal activities become ‘global’” in that the destruction of a seamount in any specific region of the ocean is highly damaging to the whole oceanic ecosystem (“Ecocriticism” 31).

Further, Danny’s feelings of distress and disappointment about the massive damage given to marine resources exemplifies, as Buell states, how ecoglobalist affect requires

> […] a perception of raised stakes as to the significance of whatever is transpiring locally in the here and now that tends to bring with it either a fatalistic sense of the inexorable or a daunting sense of responsibility as the price of prophetic vision. (“Ecoglobalist” 232)

Evidently, ecoglobalist affect is an effective tool to either evoke feelings of anxiety and fear in the face of the future environmental catastrophes that await humanity or guide people to take responsibility in order to avoid the dire future with ecological disasters. In the novel, Danny epitomizes how ecoglobalist affect both speaks to the anxieties related to marine habitat destruction and calls for responsible action. To illustrate, Danny states that, “[i]f this [destruction of the global ocean] was happening in a science-fiction world we would see it clearly for what it is, but we don’t because it’s happening here and now” (56). Danny not only emphasizes the seriousness of the destruction of the marine ecosystems but also raises concern about how this is not a future danger but a contemporary reality threatening the existence of the whole planet. Danny also adds that, “[w]e’re always raising our hands after the destruction has taken place” (56). Pointing to the fact that environmental actions are not taken in time to prevent ecological collapse but are only put into effect after the damage is done, Danny invites the public to take responsibility before it is too late. Buell explains this tendency to inaction to tackle environmental issues by referring to “U.S. public opinion polls” and asserts that, “the

state and fate of the 'environment' matters much more to respondents in principle than as a top-priority crisis in the here and now" ("Ecoglobalist" 231). All in all, by evoking ecoglobalist affect, the novel seeks to make it possible for readers to "question the viability of the ways we choose to act going forward" (Otto 61) in the context of calamitous practices that cause extreme harm to the marine habitats and resources, endangering the life on the planet.

In addition, the affective power of Ledgard's novel in terms of raising awareness of ocean connectivity and evoking ecoglobalist affect also stems from its attempt to overthrow the commonly held faulty perception of "the deep ocean as an alien space" (Alaimo, "Feminist" 1). The discourse of "alien" for the deep ocean and its corollary lack of concern with the flawed conception that "anything dumped into the ocean will be dispersed into oblivion" has inevitably led to extensive damage given to the marine life (Alaimo, "States" 477). Alaimo underlines that, "even as human impacts may be colossal, human understanding of marine ecologies and species, especially those of the deep seas, is miniscule" and accordingly, "little is known even by the scientific experts, about what creatures exist, what their life cycles are, what they eat and how various ecosystems work" ("Anthropocene" 154; "Feminist" 6). In the novel, defining ocean exploration as "a journey inward, toward blindness", Danny explains that the complete darkness and the challenges to reach the deep regions of the ocean result in the lack of scientific interest in oceanography: "[…] It is about weight, the stopping of the craft on thermal layers, the pressure of water pushing in, and the discomfiting realization that most of the planet you call your own is hostile to you" (60).

Moreover, Danny delineates the lack of human interest in oceanography with respect to anthropocentric limitations: "To push inward is hard, to descend even more so; it challenges our sense of who we are and where we came from" (83). In other words, since oceanography provides insight into how all life originated in the ocean's deepest

and darkest zones and how our evolutionary and biological origins trace back to the ocean, it forces people to realize that they "exist only as a film on the water" and disrupts the discourse of the "primacy of man on the planet" as the novel accentuates (54). Hence, by bringing the deepest layers of the oceans to light and revealing the lack of knowledge of humans about these "ecological commons" that comprise the majority of our planet, Ledgard's novel "undoes anthropocentric readings of the Anthropocene" and becomes a prominent example of how, as Mentz points out, "looking closely at the sea, rather than just the land, challenges established habits of thought" (Alaimo "Dispersing" 184; Derry 18; 997). As Danny insightfully expresses, "[a]ny study of the ocean and what lies beneath it should serve notice of how easily the planet might shrug us off" due to the fact that "[i]n relation to the volume of the deep sea and the length of its existence, we are reminded that humans occupy a thin space, only briefly" (54; Couling and Hein 54).

By underlining the implications of human life with the world's oceans, the novel invites readers to recognize the absurdity of not giving importance to oceanic exploration while our corporeality is constituted by the ocean as indicated by Danny: "Even though we are inundated with seawater, the advances of our oceanographic agencies do not match those of our space agencies" (83). Drawing upon the contrast that blue environmentalists like "Sylvia Earle uses between space exploration and ocean exploration", Danny gives voice to the perception that "something is wrong when we know so much more about other planets than about the depths of our own planet" (Alaimo, "Feminist" 7), an idea being widely recognized with the rise of the oceanic studies[3] in the recent decades. Danny also discloses the fact that compared to funding allocated for space exploration, "there was not enough funding for ocean research" and criticizes this policy, saying: "There was

[3] "Oceanic studies" also known as "The Blue Humanities" is termed as "terraqueous ecocriticism" by Dan Brayton, "blue cultural studies" by Steve Mentz, "critical ocean studies" by Elizabeth DeLoughrey, "humanist Oceanic Studies" by Rachel Price, and "aquatic environmentalism" by Stacy Alaimo (Oppermann, "Storied Seas" 445).

a faulty sense of perspective […] The looking up, the looking out. Through difficulty to the stars, never to the deep. The worry for the skin, not the lungs […]" (124). Highlighting the vital function of the oceans for the global biosphere, Danny urges to prioritize the ocean exploration, since, as Earle expresses, two things that have been discovered in the 20th century compel a new way of thinking about the oceans: not only "more discovered about the nature of the ocean and its relevance to the way the world works than during all preceding history" but also "during the same narrow slice of time, human actions caused more destruction to ocean systems than during all preceding history" (*The World* 12). As a result, as Earle maintains, in contrast to "tremendous investments […] made in aviation and space technologies" in the 20th century, neglecting ocean "has cost us dearly" (*The World* 179):

> […] Ignorance about the ocean and lack of understanding about the relevance of the fundamental ways people everywhere are connected to the sea underlie the indifference and complacency that have led to abuses imposed by people in recent years, with dire consequences to our future. (*The World* 179)

Despite the fact that the world's oceans are the pivotal driving force of the whole life on the planet, the absence of the oceans from scientific and cultural inquiry for a long time has been detrimental to marine species and habitats, jeopardizing the humankind's "watery futures" (DeLoughrey 34).

In addition, Danny explains that although humans are "drawn to the unknown, the curiosity does not extend the ocean"; therefore, the ocean is absent not only from human knowledge but also from literary imagination (82). Giving examples from the literary history, Danny states that, "*Moby-Dick* [by Herman Melville] is the greatest novel in the English language about the sea. It is not concerned with the ocean" and that "the distance in the title refers to the journey taken across, not down" in Jules Verne's *Twenty Thousand*

Leagues Under the Sea, manifesting the lack of insight into the depths of the ocean in these literary classics on the sea (82). Thus, as Vermeulen indicates, "the downward journey to a planetary darkness is then *Submergence*'s contribution to this literary tradition" (*Literature* 56). As a matter of fact, Ledgard's novel is "one of the first literary works to explore", what Stefan Helmreich calls "alien ocean", a concept which signifies "uncertainty about what the sea can tell us about life on Earth and the place of humans in this realm" (Vermeulen, *Literature* 56; xi). By focusing on "the interlinked nature of the ocean" connecting human and nonhuman bodies, ecosystems, oceanic species, ecological, biological and cultural systems, *Submergence* underscores how "the Anthropocene has catalyzed a new oceanic imaginary in which […] the largest space on earth is suddenly not so external and alien to human experience" (*Connectivity* 1; DeLoughrey 34).

Challenging the conception of "alien ocean", Ledgard's novel highlights the fundamental role of the global ocean for the sustainability of life on the planet and defines the ocean as "the sanctuary of life on earth for as long as it kept spinning, primitive, consistent, constant, offering protection from solar flares, nuclear radiation, comets, and other yet unknown human crimes" (130). Moreover, as Michael A. Rex and Ron J. Etter in their *Deep-Sea Biodiversity* (2010) maintain, "far from being the isolated, stable environment it was long assumed to be, the deep sea is now understood to be a dynamic and integral part of the global biosphere" (x). To illustrate, as the novel indicates, while "the teeming hordes of nameless microorganisms that mimic no forms, because they are the foundation of all forms" displays how microbial life of the deep ocean form the root of all life on the biosphere, the discovery of "tens of thousands of new species" and "a hundred creatures never seen before "during the first and greatest oceanographic expedition" between 1872-75 draws attention to innumerable and diverse life forms that have existed in the oceans since time immemorial (147; 83). In her *The Deep: The*

Extraordinary Creatures of the Abyss (2007), Claire Nouvian states that, "public opinion cannot possibly develop until people are enlightened about the exceptional natural heritage existing at the bottom of the seas" (26). Therefore, this recognition of "unimaginable biodiversity of the oceans", an insight provided by Ledgard's novel could bring about "an ethical response", calling for, as Alaimo affirms, "an expansive posthumanism that does not disavow or exclude even 'the strangest' of living creatures from consideration" ("Feminist" 13). Appealing to ecoglobalist affect that requires adopting planetary sensibilities that "entangle all of us in networks of […] responsibility, and concern" (Alaimo, "Feminist" 15), the novel, therefore, motivates us to celebrate and acknowledge the existence of unique life forms that live in the deep ocean.

Viewed in this perspective, by unearthing the ocean's valuable resources and species that are central to all life on the planet, the novel manages to "sensually and affectively immerse readers" into the long-neglected and under-valued ocean and "thereby provoke some kind of 'awakening' or heightened modes of 'awareness" in terms of the criticality to protect marine life (Weik von Mossner, *Affective* 8). As Alaimo asserts, since "scientific and popular rhetorics cast distant depths and abyssal creatures as 'alien', they imaginatively remove them from the planet, from the terrain of human concern, and even from reality" ("Anthropocene" 154). Accordingly, disrupting the discourse of "alien ocean" that is detrimental to the deep ocean and its many resources and species, the novel offers readers to adopt environmental consciousness by "build[ing] moral allegiance with human characters who feel with, and fight for, nonhuman others who suffer and who do not deserve to suffer" (Weik von Mossner, *Affective* 107). For instance, during her dive into the Greenland Sea for her biomathematical research, Danny catches sight of "a killer whale [which] cut loops under migrating geese" and expresses her emotions for the harsh conditions the whale is made to live and hunt due to human activities:

> It [the whale] appeared troubled by the thrumming of the ship. It made her think of the changes that had occurred in the Greenland Sea in its lifetime. When it was birthed, there were hardly any ships. There were no submarines. There were no engines, klaxons; no man-made noises. There were many seals and fish then, whereas now there was such a competition the killer whale was forced to trail geese in the hope that one might fall from sky. (124)

Through making it possible to access Danny's sadness and worry about the deterioration of marine ecosystems, causing serious disturbances in whales' hunting behaviour, the novel holds the potential to promote "an ethic of responsibility and 'care'" for many marine species that are made to suffer by anthropocentric and exploitative activities in marine habitats (Heise, *Sense* 33). As Barad states, "ethics […] is a question of material entanglements and how each intra-action matters in the reconfiguring of these entanglements, that is, it is a matter of the ethical call that is embodied in the very worlding of the world" (160). Therefore, through its exploration of these intricate cobweb of intra-actions between nonhuman agencies and the human world and by inviting to grasp how anthropocentric discourses pose danger to "the survival of species cast away from our perception and yet transcorporeally connected to ours" (Iovino, "Stories" 458), Ledgard's novel could be interpreted as a blue environmental text that demands ethical responsibility towards the world's oceans, which entails taking heed of and respecting all these precious marine life forms and oceanic species.

Furthermore, the notion of ocean connectivity that promotes the sense of planetary connectedness and ecoglobalist affect is also reinforced through the novel's final image of the submergence of two main characters into the ocean. The separate storylines of Danny and James during the course of the novel are eventually connected with their immersion into the waters of the global ocean with significant affective and symbolic implications. On an affective level, the characters' submergence into the ocean becomes

emblematic of how "the materiality of landscapes becomes affective through individuals' imaginations evoked through sensory interactions with these materialities" (Broch 161). To clarify, both Danny and James experience their moments of submergence with a sense of planetary connectedness stimulated by ocean connectivity. During the final scene of the novel where Danny is diving into the Greenland Sea with her crew in their submersible, the *Nautile*, she is overcome by "a powerful sense of vertigo" at the sight of the amazingly rich and vibrant deep-sea environment, which, as she describes, is "pitted, knobbly, rust-colored from oxidation, black in places, in others mottled white with mats of bacteria" (151). Moreover, when Danny feels that "the *Nautile* was too close to the edge, that they were teetering, and would fall into the underworld", she imagines her death: "Her body would be a puff of life, gone, instantly, with no possibility of ascent […] cartwheeling into a chemical soup" (151). Clearly, the enchanting and dark depths of the ocean incite Danny to be overwhelmed by a strong sense of connection to the archaic microbial life that exists at the bottom of the ocean where, as she defines, "all living creatures were at some point disassembled" (151). This affective experience that causes Danny to feel interrelated with all the living things that have emerged from the ocean highlights, as Oppermann underscores, "human kinship with the main bulk of the Earth as it elicits […] physical interconnectedness between human and nonhuman bodies" ("Enchanted" 107).

Similar to Danny, James also feels a part of the ocean as exemplified in the scene where he gets a glimpse of the Indian Ocean during his move by his captors across Kismayo: "He […] saw the Indian Ocean and something in him was set true at the sight of that expanse, he was straightened out, he was a part of the world again, not a consciousness removed from it" (61). Since emotions "reflect one's affective relationship with the environment" (Engel, Vaske and Bath 3), it is significant that James' excitement and sense of connectedness to the whole world is triggered by the sight of the Indian

Ocean, revealing his deep attachment to the global ocean as the driving force of the planet. Further, in parallel with Danny's story that ends in the ocean, James finds himself submerged in the waters of the Indian Ocean when he and his captors are attacked by a missile at the end of the novel: "He came up for air in bloody gaining waters, with cooked crabs, with martyrs. He looked at death, went under again, and swam away, toward the Boni, toward Kenya. In this sense, at least, his submergence was shallow" (150). It is also important to note that before his submergence, just like Danny, James ponders his death:

> What form might he take in death? If he could appear to Danny, he would be a small African owl, fluttering at her porthole […] If he were allowed a supernatural instruction, it would be for her to achieve a dispensation to study the microbial life inside it. (149)

James' desire to be a life form that Danny can examine after his death becomes a reflection of the novel's stress on how our bodies will eventually become a microbial life form, which will most probably make its way into the deep ocean: "It is far likelier that the greater part of us will become protists […] a portion of each of us will be given new life in the cracks, vents, or pools of molten sulphur on which the tonguefish skate" (146). All in all, the submergence of Danny and James at the end of the novel drives them to contemplate their selves as imbricated with the material processes of the global ocean along with other species. Affectively immersing Danny and James into "the dynamics of life through the fundamental inseparability of the human and the nonhuman in their shared earthly rootedness", the ocean, therefore, functions as "a nodal point of interconnected force fields of planetary scope", instilling a sense of togetherness and planetary connectivity (Iovino and Oppermann, "Environmental" 5; Buell, "Ecoglobalist 233).

On a symbolic level, the submergence of the novel's two protagonists into the global ocean represents "eternal return" (Buell, *Writing* 200); that is, going back to the

ocean where life originated. Carson insists that, "for all at last return to the sea- the Oceanus, the ocean river, like the ever-flowing stream of time, the beginning and the end" (*The Sea* 212). The novel reiterates this idea through its description of death as a return to where we originally came from:

> You will be in Hades, the staying place of the spirits of the dead […] It will be a submergence. You will take your place in the boiling-hot fissures, among the teeming hordes of nameless microorganisms […] In your reanimation you will be aware only that you are a fragment of what once was, and are no longer dead […] You will burgle and rape other cells in the dark for a seeming eternity […]. (147-8)

The novel emphasizes that the life-giving body of the ocean that has enabled all human and nonhuman beings to come into existence also becomes their final destination where they take part in the everlasting and substantial microbial life in the ocean. In doing so, the novel associates the circle of life that starts and ends in the ocean with "seamless life, the comfort of collective awareness, common nostalgia", resonating with Carl Jung's description of the ocean as "the symbol of collective unconscious" (152; 642). Stating that "the ocean is the way down into the past", Jung declares that "if you follow your psyche down to the roots, you reach the primitive condition first, and finally the place where man was more or less cold-blooded, an amphibian living on the shores of the ocean" (714). Thus, functioning as, what Iovino calls, "a 'warehouse' of common memories to humanity and nature, in which human and natural life are dialectically interlaced in the form of a co-presence", the ocean in the last scene of the novel is used as a symbol that reminds people of their evolutionary roots that go back to the ocean in line with Jung's theory ("Ecocriticism" 31). According to Engel, Vaske and Bath, "mental imagery influences psychological and decision-making processes, which in turn may affect the nature of people's impact on the environment" (3). Hence, through its

employment of the image of the oceans as the all-embracing and life-providing common heritage shared by all humanity both physically and psychologically, the novel could help readers develop a sense of responsibility to adopt pro-environmental behaviours to protect these global commons as the basis of our existence on biological, evolutionary and psychological levels.

To conclude, offering readers the chance to reach an understanding of the planetary significance of the oceans in the context of both the human and nonhuman world, *Submergence*, as a climate change novel, plays a crucial role in raising awareness about the urgency and criticality of the conservation of the oceans through the medium of communicating ecoglobalist sensibilities. Covering the largest area on the surface of the earth, being a major source of sustenance for the life on the planet and the host to numerous oceanic creatures and life forms, the world's oceans are what all living things have in common and therefore have to be protected with a sense of responsibility shared globally. Besides, "if one of the obstacles for ocean conservation movements is that terrestrial humans are disconnected from the aquatic habitats that cover much of the planet", as Alaimo underlines, "then narratives, theories, paradigms, and practices that reveal interconnections between these spheres may encourage marine environmentalisms" ("Oceanic" 122). Interpreted in this vein, by revealing how the ocean is deeply ingrained in the biochemical processes of the global biosphere, the origin and continuation of all the material life on the planet, and the biological, cultural and psychological dimensions of human life in essentially intricate ways, Ledgard's *Submergence* not only advocates "marine environmentalisms" but also urges its readers to contribute to the ocean conservation for a sustainable future for all living things on the planet with ecoglobalist consciousness.

CONCLUSION

In the age of the Anthropocene, we are all confronted with the pressing reality of climate change with its many alarming consequences for individual and public health, the survival of numerous species and the socio-economic welfare and political stability of countries. As such, it is essential that the critical issue of climate crisis inseparably embroiled with our corporeality, psychological and social well-being, and the quality of life on individual and societal levels be presented as a palpable and accessible conception for the general public. As Mehnert points out, "without diminishing the materiality of climate change, the only means of perceiving climate risks is through discourse, narratives, climate models and visualizations" (7). In line with this, through an in-depth analysis of three cli-fi novels, John Brunner's *The Sheep Look Up* (1972), Ruth Ozeki's *My Year of Meats* (1998) and J.M. Ledgard's *Submergence* (2011), this study has shown that climate change fiction serves as an effective tool in making it possible for people to perceive and respond to ecological issues and climate change and their repercussions in terms of the environment, the material world, corporeality and affectivity. By depicting the possible scenarios of a climatically changed world and exploring the potential challenges to be faced in such an altered environment, these climate change narratives transform the issue of climate change from an abstract and distant future risk cast away from human understanding and concern into a tangible and familiar concept that could ultimately have a definite impact on humans' relationship with the environment. Enabling readers to relate to fictional characters' experiences of living in a world shaped by climate change through complex plots in which characters are brought into confrontation with climatic disasters generated by political, social, economic and environmental systems, these cli-fi novels deal with the inseparability of discursive systems from environmental changes.

In view of this, this dissertation explores the intensification of the anthropocentric climate change from the 1970s to the 2000s through the examination of three climate change novels on a chronological basis. Starting with John Brunner's 1972 *The Sheep Look Up*, the precursor of climate change fiction, this study presents a continuum in the engagement of environmental issues and the effects of climate change, which are also dwelt upon through the scrutiny of two newer cli-fi novels, Ruth Ozeki's 1998 *My Year of Meats* and J.M. Ledgard's 2011 *Submergence*. To clarify, as one of the earliest examples of climate change fiction, *The Sheep Look Up* explores the risk of climate change by envisioning a catastrophic future brought about by environmental destruction and climate crisis, and therefore "present[s] a world in which climate change has caused dramatic and devastating changes in the global ecosystemic, economic, social, political, and cultural orders" (Mayer 23). The more recent cli-fi narratives of *My Year of Meats* and *Submergence*, on the other hand, address climate change as a contemporary reality and focus on how the daily lives of people and the social, political and economic structures of societies are being shaped by climate collapse in the present moment. Thus, the chronological exploration of climate change as represented in these cli-fi novels in this study becomes functional to underline that climate change which once was a risk threatening the planet has eventually turned into a reality of the modern period; accordingly, the materiality and affectivity of human and nonhuman bodies and bodily natures such as air, soil, bodies of water have been considerably shaped in correspondence with these climatic changes during the age of the Anthropocene.

This dissertation discusses that the selected cli-fi novels, *The Sheep Look Up* (1972), *My Year of Meats* (1998), and *Submergence* (2011) express environmental concerns related to climate change, widespread pollution, extinct species, chemical contamination, habitat loss, and ocean pollution and acidification from the 1970s to the 2000s. Drawing attention to the increasingly worsened environmental degradation over

several decades, the analysis of three cli-fi novels demonstrates the extent of the environmental destruction caused by anthropocentric discourses and practices during the age of the Anthropocene by presenting an examination of the material-discursive ways humans are interconnected with the nonhuman world. The writers of the selected cli-fi novels have made use of climate change fiction as a medium to reflect their ecological consciousness and raise awareness about climate change and large-scale environmental collapse. Therefore, these cli-fi writers have continued the tradition of climate change fiction in their engagement with anthropogenic climate change through fictional plots that explore the struggles of various characters in the face of environmental destruction and climate change in the present or the future.

The second chapter of this study examines *The Sheep Look Up* (1972) as a science fiction work which anticipates the future of an environmentally degraded American society in its account of the year that leads up to ecological catastrophes as a result of environmentally damaging political, social and economic practices. Brunner's novel not only touches upon the environmental concerns of its own time but also relates to the contemporary world with its dystopic predictions that proved to be true in the modern era. As a product of its times, the novel reflects the environmental anxieties and concerns of the 1960s and 1970s including the fears related to the nuclear age, disastrous oil spills, the dangers of the use of chemical pesticides and herbicides. The novel also successfully predicts the environmental issues that we face in today's world such as global warming, weather aberrations, extreme air and soil pollution and toxification of bodies of water and food crops. Therefore, with its scary predictions about a severely contaminated and climatically changed world, Brunner's novel becomes useful to reveal the power of science fiction in climate change narratives to present the alternative reality of the fictional narrative as recognizable within the similar conditions and structures that could be doomed in a similar catastrophic end in today's world.

The third chapter of this study engages with Ruth Ozeki's *My Year of Meats* (1988) which focuses on climate change as a controversial reality of the contemporary world different from *The Sheep Look Up*, which relies on a dystopian mode of writing in its imagining of an environmentally collapsed world. Ozeki's novel delves into the disastrous impacts of the meat industry on the environment as currently experienced in the form of extreme weather events, the loss of biodiversity and eroded and degraded soil. Set in the early 1990s against the rapid global expansion of the meat industry and addressing the meat industry as one of the leading causes of global warming especially with its high amount of methane gas emissions, *My Year of Meats* accentuates that the environmental concerns of the 1960s and 1970s raised in Brunner's *The Sheep Look Up* were proven to be valid in the 1990s. Moreover, similar to *The Sheep Look Up* which focuses on how exploitative and capitalist industries that contaminate air, soil and water resources are responsible for environmental collapse and the deterioration of individual and public health, *My Year of Meats* points out that the discursive systems of capitalism, speciesism, patriarchy and anthropocentrism ingrained in the meat industry as observed in the use of toxic hormones and chemicals with profit-seeking aims and torturous processes carried out in slaughterhouses play a decisive role in the victimization of human and nonhuman bodies that are poisoned, toxified, abused and killed, underlying how the materiality of the bodies and discursive systems cannot be divided in our understanding of the world.

The fourth chapter of this study looks into J.M. Ledgard's *Submergence* (2011) which draws attention to the endangerment of the oceans as the root of all life on Earth and the water crisis as the most serious and fundamental environmental crisis in today's world. Similar to *My Year of Meats*, *Submergence* is also set in the present time and dwells on the contemporary realities of the Anthropocene such as global warming and the acidification, pollution and depletion of the world's oceans. As Earle states, "since the

middle of the 20th century, hundreds of millions of tons of ocean wildlife have been removed from the sea, while hundreds of millions of tons of wastes have been poured into it" (*The World* 12). Moreover, the drought-stricken Somalia where much of the novel's plot takes place becomes emblematic of how climate change and water scarcity bring about catastrophic consequences for societies ranging from mass deaths and drought-induced famine to the loss of livelihoods. Therefore, in the face of the destruction of the oceans through negligent anthropocentric activities and water crisis as one of the most serious impending threats for the survival of the whole planet considering the vital importance and irreplaceableness of water, *Submergence* places emphasis on the criticality of the conservation of bodies of water as the driving force of the planet.

While continuing the tradition of climate change fiction through their complex plots that address climate crisis as a serious issue threatening the life on Earth, three cli-fi novels have also contributed to climate change fiction through the employment of new and innovative narrative techniques and styles. Three cli-fi novels adopt a non-linear narrative structure and offer an empirical perspective on the understanding of environmental issues and their many repercussions on the human and nonhuman world. Accordingly, one of the common denominators of *The Sheep Look Up, My Year of Meats* and *Submergence* as cli-fi narratives is their employment of a fragmented narrative mode in which the multiple narratives of distinct storylines of characters and the accounts of scientific and environmental facts are juxtaposed. In doing so, these novels reveal how climate change fiction makes use of the formal possibilities of the novel in order to explore the diverse natural, cultural, discursive and material forces that both engender environmental issues and shape people's experiences on corporeal, social, political and psychological levels.

Brunner's *The Sheep Look Up* exemplifies how the dialogic style as one of the most distinctive qualities of the novel is instrumental to reflect climate change in its

complexity. The multiplicity of factors that determine and shape people's lived experience in this environmentally collapsed society in Brunner's novel is explored through the utilization of diverse narrative techniques and styles that the novel offers. In his assortment of various dialogues among multiple characters, advertisements, radio extracts, short pieces of information on scientific and environmental facts within the non-linear narrative of the novel, Brunner not only "foregrounds the ways in which his characters are actively constituted by a variety of social, political and economic practices" but also underscores "the multiple elements that shape human reality within a global system" in line with material ecocritical thinking (Bukeavich 56). Thus, Brunner's novel showcases that material bodies, the nonhuman world, discursive structures, ecological systems and the affective responses of people are involved in a network of interconnections and interchanges.

Similar to *The Sheep Look Up*, Ozeki's *My Year of Meats* also makes use of the narrative possibilities of the novel and its incorporation of factual information into the fictional stories of characters serves as a very effective narrative strategy to portray how individual lives are embedded in and immensely affected by environmental, social, political, economic and cultural conditions. Ozeki's novel juxtaposes the fictional and emotional stories of different characters victimized by the practices of meat industry specifically due to the harmful impacts of the growth enhancing hormone DES (diethylstilbestrol) and environmental hazards caused by the meat industry with the non-fictional accounts of the history of DES and climactic changes induced by the meat industry. In doing so, Ozeki's novel underlines the environmental injustices linked to the global meat industry and achieves to create empathetic engagement with the characters who suffer from these injustices.

In parallel with the first two novels' reliance on the intricate plots and juxtaposition of different texts in their attempt to tackle the experience of living in the

age of the Anthropocene from a wide range of aspects, Ledgard's *Submergence* is characterized by its fragmented narrative in its account of the separate stories of Danny, a scientist who works on microbial life in the deep ocean and James, a spy who tries to survive at the hands of Somalian jihadists. These distinct but ultimately connected storylines are also juxtaposed with non-fictional pieces of information, including scientific data on climate change and oceanography and passages on Somalian ecology. In doing so, Ledgard's novel allows it to explore the material world encompassing human life, diverse species, nonhuman forces as inescapably interconnected with the current precarious state of the planet through various experiences of climate change. Thanks to its innovative narrative mode that enables readers to ponder over the contemporary environmental crises with a planetary perspective, *Submergence* manages to arouse ecological sensibility with its call for submerging ourselves in the present global moment which requires urgent and decisive environmental actions.

The second common denominator of three cli-fi novels is their reliance on various stylistic techniques within their non-linear narrative, namely, the inclusion of poems in *The Sheep Look Up*, the use of sensory images in *My Year of Meats* and the use of symbols and myths in *Submergence* in their criticism of anthropocentricism. Through the employment of these stylistic techniques, three novels draw attention to the various ways the nonhuman world is exploited and assaulted by detrimental human-centred ways of thinking and practices and therefore arouse affective responses in readers in order to engage them affectively and move them into action against environmental degradation.

In *The Sheep Look Up*, poems that appear at the beginning of each chapter stand out especially because of their ironic and sarcastic critique of anthropocentric discourses. For instance, the faux-historical poem that starts the novel named "Christmas in the New Rome" celebrates the domestication of wilderness by human efforts: […] The road, the railway and the telegraph, /And eke the South;/ The oceans round the Pole/ Shall be

domestic. What a noble goal!" (4). This celebratory poem for the domestication of nature for human purposes serves to criticise the anthropocentric discourse that falsely perceives nature at the disposal of humans and results in the irreversible destruction of nature. Critical of such a detrimental discourse, Brunner places this poem just before the scene in which a man becomes a victim of the modern industrial technology rather than wild animals that are seen dangerous to humans, requiring them to be tamed as reflected in the introductory poem. The way Brunner narrates the incident in which a man is hit and killed by a car is ironic: "Hunted? By wild animals? In broad daylight on the Santa Monica freeway? Mad! Mad! It was the archetype of nightmare: trapped, incapable of moving, with monstrous menacing beasts edging closer […] (5). The man, who tries to escape from "cougars, jaguars, cobras, falcons and barracudas" and eventually falls victim to a "stingray", is killed not because of the wild animals preying on him in wilderness but because of the cars named after wild animals on a freeway in the modern and civilized world (5). By disrupting the expectations of readers with a twist and making them face how human-centred thinking and practices are responsible for the destruction of the environment through the use of poems in a critical way, the novel appeals to readers' affective sensibilities and encourages them to take action against the faulty assumption that nature is to be tamed and dominated by humans.

In *My Year of Meats*, Ozeki makes use of striking sensory images especially in the depiction of torturous and exploitative practices of the global meat industry in an effort to create sentiment and raise awareness. To illustrate, in the scene in which Jane and her crew go to film the slaughterhouse at Blatszik Meat Fabricators, Ozeki describes workers who "were sharpening their knives" and the sound of the metal with "a rhythmic *shuunck, shuunck, shuunck* of steel against stone" with an acute observation (115). Thus, the atmosphere in the slaughterhouse which is conveyed through kinaesthetic, auditory, and visual images offers a highly cinematographic experience to readers and helps them

imagine the ambience of the slaughterhouse through a camera lens. Ozeki's cinematographic depiction of such scenes in the novel, thus, becomes functional in "documenting real environmental issues in a way that taps the power of emotional narrative" (Harrison 458). In doing so, the novel could arouse affects in readers and direct them into political and ethical actions with respect to climate change, environmental justice and animal rights.

In *Submergence*, the connectedness of humans to the oceans on evolutionary, biological and cultural levels and hence the criticality of the preservation of the oceans are reinforced through the symbolic significance of the oceans. In the novel, Danny's study of microbial life in the Hadal deep, the deepest and darkest layer in the ocean, and the ocean-themed myths of Greek god Hades and the River Lethe along with Sumerian creation myth and Enki, Sumerian god of water, are incorporated. This incorporation functions to underline that the oceans not only have always had a primary place in the cultural productions of different societies throughout the history in their effort to understand the origins of life but also play a fundamental role in the biochemical and climatological processes of the material life on Earth and thereby its survival. The ocean is also used as a symbol of circle of life in the final image of submergence of two main protagonists. The distinct quests of Danny in her dive into the Greenland for her biomathematical research and of James who is captivated by jihadists in Somalia are connected with their submergence into the waters of the global ocean. By returning to the depths of the ocean where all life on the planet originated, two protagonists are able to see themselves as a part of much larger form of life. This becomes a symbol of how all material beings are connected to the ocean from their evolutionary origins to their final destination. The novel's reinforcement of the embeddedness of humans to the oceans through the symbolic significance of water, therefore, could prompt readers to develop ethical attitudes and a sense of responsibility with regard to the protection of the oceans.

The third common denominator of three cli-fi novels is their choice of diverse settings that function both to reflect the impacts of climate change realistically and to bring the issue of environmental justice to the fore. In *The Sheep Look Up*, much of the plot is located in different cities in the USA where people experience apocalyptic consequences of climate change and various environmental catastrophes ranging from excessive air and water pollution to treatment-resistant diseases caused by toxicity in food and water supplies. Accordingly, the accounts of "rain in New York which "merely moistened the dirt" instead of "clear[ing] the air, "filthy days" in Denver and "the notoriously poor quality of California water" (352, 71, 320) become functional to reveal the widespread impacts of environmental degradation in real-world settings and thus make readers relate to the issue of climate change as a tangible reality. Apart from the USA, Noshri in Africa where a brief part of the plot takes place serves as an important setting for the novel to delve into the issue of environmental justice. Reported to have been in a war with its neighbours for some time, Noshri is in a rapid process of social, political and environmental disintegration. Famine-stricken people who are dying of starvation and cannot find water to drink in Noshri in the novel demonstrate the fact that people in Global South countries suffer from environmental problems disproportionately in terms of risk exposure to environmental calamities from an environmental justice perspective.

In *My Year of Meats*, the meat industry as an area of concern for ecological health of the planet and environmental justice is explored effectively through the use of different locations in the USA. The impacts of the global warming for which industrial animal farming plays a major role are observed in several accounts of extreme weather conditions in numerous real-world settings in the novel. While New York is warned of "a record-breaking blizzard, another 'Storm of the Century'", there are many cases "droughts and heat waves" in Colorado, Denver because of the high amount of methane gas emitted by

belches and flatulence of the cattle and the use of tractors and machinery in the meat industry (192, 131). Moreover, the novel draws attention to how working-class people and people of colour in low-income neighbourhoods suffer from social and environmental injustice. These disadvantaged groups are victimized by the exposure to the cataclysmic growth hormone DES through the consumption of cheap and unhealthy meat. For example, Mr. Purcell, who lives "in the tiny Mississippi town of Harmony, which hugged the Tennessee border" with his nine children, has "develop[ed] signs of feminization after eating cheap chicken parts" as he cannot afford to buy quality red meat (58, 68). The use of diverse settings in Ozeki's novel thus becomes effective to showcase the reality of how climatic changes engendered by the practices of meat industry are experienced in the form of weather aberrations and to inform about the environmental injustices linked to the global meat industry with the inclusion of disadvantaged groups especially in the poor areas of the country.

In *Submergence*, the plot is located mainly in three locations, all of which suffer from the impacts of climate change: Somalia and its badlands where one of the protagonists, the British spy James More is held captive by jihadist fighters; the Greenland Sea in which the other protagonist, the biomathematician Danielle Flanders is carrying out her research into the hydrothermal vents beneath the North Atlantic and the Hotel Atlantic in France, "an ancient manor on the French Atlantic coast", which brings two protagonists together in their brief but enduring romantic encounter (21). In the novel, it is underlined that the impacts of climate change are observed in both terrestrial and marine environments: Somalia, where James is located within the narrative, is described as "dried up", looking like "a drained sea" while Danielle's biomathematical research in the depths of the ocean shows that "the water under the ship, carried through the Fram Strait on the East Greenland Current, had warmed by 1.9 degrees Celsius since 1910" (59, 124). Moreover, at the Hotel Atlantic in France where Danny and James meet, Danny

notices that “a spare stand of trees” over the lawns look “more vulnerable than the last year, with climate change with storms, the salt on resin” (17). All these real-life settings of the novel serve to reveal the prevalence of climate change experienced all around the world. Further, the use of Somalia as one of the main settings of the novel becomes instrumental in understanding that due to lack of material resources, African countries are more exposed to environmental risks and much more prone to be influenced by ecological disasters compared to economically developed countries. The novel also showcases that although all Somalis are affected by lack of water, the poor Somalis who cannot reach drinkable water which is sold at high prices due its scarcity in the impoverished areas they live are more inclined to be victimized by the impacts of environmental problems from both postcolonial and environmental justice perspectives.

Apart from the employment of common thematic and stylistic features that characterize the narrative possibilities of climate change fiction, the selected novels contribute to the genre separately with their unique qualities. To start with, John Brunner’s *The Sheep Look Up*, which is widely accepted as the precursor and one of the earliest examples of climate change fiction, has been able to predict the contemporary environmental disasters in the age of Anthropocene as early as 1972 in its imagining of an environmentally collapsed society due to anthropogenic climate change induced by capitalist industries and anthropocentric ways of thinking and lifestyles of the Western societies. Namely, *The Sheep Look Up* epitomizes “the key role that science fiction can play in the development of ecocritical discourses, in its vision of consequences of (and alternatives to) twentieth-century environmental degradation” (Bukeavich 55). Thus, as one of the earliest science fiction novels that explore climate change, *The Sheep Look Up* contributes to climate change fiction by underlying how the view of the primacy of humans on the planet inevitably results in catastrophic environmental destruction for the

whole life on Earth and provides insight into the environmental issues and climate crisis that we experience in today's world.

As an example of how "climate fiction seems likely to expand its foothold in contemporary fiction" (Irr 16), Ozeki's *My Year of Meats* contributes to climate change fiction by focusing on the detrimental effects of the global meat industry that damages both the corporeality of human and nonhuman bodies by violating them in various ways and environmental health of the planet as one of the biggest contributors to the intensification of global warming. Along with *My Year of Meats*, Ozeki's *All Over Creation* (2003) also tackles food industry, more specifically the genetic engineering in the potato agribusiness. Accordingly, Ozeki is thought to be "isolating what must be one of the strangest literary niches ever" through her food narratives that focus on "the foul nature of what we put in our bodies" (Dederer par. 2). As a food-centred narrative, Ozeki's *My Year of Meats*, therefore, opens up new ways to perceive the issue of climate change in relation to the entanglements of the agricultural technologies, cataclysmic growth hormones and chemicals, material bodies and environmental health. By delving into the complex ways in which the production and consumption of meat are interrelated with the social, economic, political and environmental systems, Ozeki's *My Year of Meats* becomes a notable example of how a climate change novel could unearth the brutal realities and injustices related to industrial food systems.

What makes *Submergence* a prominent cli-fi narrative of the modern period is its invaluable contribution to "oceanic studies". Also known as "the blue humanities", oceanic studies have emerged as a recent critical development in ecocritical thinking that calls for the recognition of the kinships among the material life on the planet, human and nonhuman bodies, and marine ecology in the contemporary era in which the endangerment of the oceans poses a multitude of dangers to the planet and its many human and nonhuman inhabitants. As "the concept of the Anthropocene compels us to

think the temporal and spatial reach of the human in vast, and predominantly geological dimensions," oceanic studies have responded to "a new oceanic imaginary emerging in the wake of the knowledge of anthropogenic climate change" in the twenty-first century (Alaimo "Anthropocene" 153; DeLoughrey 32). In this sense, through its exploration of the global and planetary concerns related to the destruction of the oceans and climate change, the interconnected systems of the oceanic life, the survival of the planet and its human and nonhuman inhabitants, Ledgard's *Submergence* urges people to realize that these current environmental crises we are experiencing "anticipat[e] the danger of a larger, ultimately global catastrophe in the future" unless more environmentally-conscious perspectives and actions are adopted (Mayer 28).

All in all, this study has indicated that through the utilization of complex plots, various characters, diverse genres and narrative strategies, three climate change narratives elucidate the functionality of heterogeneous structure of the climate change fiction in environmental humanities. It is because of the fact that the selected cli-fi novels explore the multi-faceted dimensions of climate crisis and delve into the interchanges and intricacies between the materiality of human and nonhuman bodies, the nonhuman natures of air, soil, bodies of water, the discursive systems of anthropocentrism, capitalism, speciesism, and patriarchy, and the affective dimensions of environmental catastrophes in the context of humans' emotional lives and psychological states and responses. As Caren Irr affirms, "given its popularity and potential for deepening understanding of environmental issues", climate fiction will continue to "flourish in a broader range of moods, sites, and literary forms", as writers "develop new temporalities, moods, and locations, and new stylistic variations as well as new subject matter that will energize the genre" (16). In brief, by continuing to expand its thematic and stylistic possibilities, climate change fiction seems likely to remain a very significant literary medium with its great capacity to present the complex reality of climate change for

readers to perceive and to take action against it both in the contemporary era and in the years to come.

Last but not least, this study has drawn attention to the functionality of material and affective ecocritical discourses in grasping, addressing and responding to environmental disasters and climate crisis that have become an inescapable part of our lives in the age of the Anthropocene. Material ecocriticism and affect theory affirm the interconnectedness and togetherness of all material beings, both human and nonhuman, in the formation and continuation of the life on the planet with their agentic, transformative and affective capabilities without giving supremacy to any of them. Therefore, in stark contrast to the traditional anthropocentric and Cartesian discourses that situate humans at the centre of the universe by endowing them with every right to exploit nature at their own disposal and thus being responsible for serious ecological issues threatening the contemporary world, material and affective ecocritical discourses offer an inclusive and planetary understanding of the material world that acknowledges the capacities of all material agencies to create, transform and affect all human and nonhuman material beings.

Consequently, the employment of material and affective ecocritical perspectives in the analysis of these climate change fiction novels within the scope of this study reveals the complex entanglements among the material environment, human world, affectivity and materiality of the bodies and nonhuman natures in the age of the Anthropocene and the ways in which bodily natures and discursive systems are intermeshed intricately. To clarify, the material world and its many agentic forces have extensive power on the human world from our corporeality to our affective states; relatedly, environmental problems can only be scrutinized and perceived through understanding the ramifications of human-created systems on the environment and the material world due to the substantial impact of these systems on the formation of numerous environmental disasters.

The discussion of the selected climate change novels within the theoretical framework of material ecocriticism and affect theory, thus, has made it possible to arrive at several significant conclusions. First of all, this study has focused on the body as a site on which the trans-corporeal transits between environmental degradation, discursive systems and different kinds of matter with their agentic power play a critical role in its creation and transformation. In Brunner's *The Sheep Look Up*, the nonhuman agency of the widespread air, water and soil pollution is observed in the embodiment of the effects of contamination in the sick bodies of people who suffer from a myriad of illnesses including typhus, enteritis, hepatitis, and brucellosis. In addition to the human bodies, nonhuman bodies like animals and plants also showcase the embodied impacts of toxicity caused by the excessive use of pesticides and insecticides such as DDT (dichloro-diphenyl-trichloro-ethane) since these harmful and dangerous chemical substances express their agentic capacity by leading to the detrimental and unwanted results like infertility and death in animals.

Ozeki's *My Year of Meats* reveals the agentic capacity of xenobiotic substances, especially detrimental growth enhancing hormones and chemicals such as DES (diethylstilbestrol) and Lutalyse used in the meat industry in the sick and poisoned bodies of material bodies. DES, commonly found in the meat products humans consume, exerts its agentic force in destroying the female reproductive system, resulting in miscarriages, infertility, cervical and uterus cancers. DES is also responsible for the femininized bodies of males as observed in high-pitched voice and grown breasts of men in the novel. Along with the human bodies, the nonhuman bodies of animals also embody the poisonous effects of the toxic hormone called Lutalyse, which disrupts the bodily functions of animals including respiration and reproduction.

Ledgard's *Submergence* unearths the agency and materiality of the world's oceans through its focus on the ocean as the life-nurturing body that both has enabled the material

life on the planet to come into existence and ensures its continuation by governing the biochemical and climatological processes of the planet. The ocean becomes an agentic medium through which the accepted idea of the oceans as places of nonlife is challenged as the novel delves into the intricacies and kinships between the human life on the earth's surface and the dynamic and profuse nonhuman life that exists in the depths of the oceans. In doing so, *Submergence* highlights the vitality and indispensability of the oceans as materialized in the life-affirming body of the global ocean by emphasizing the oceanic origins and aquatic corporeality of all material bodies and the fact that the sustenance of life on the planet is inextricably dependent on the preservation of these bodies of water across the globe.

Secondly, drawing upon the narrative agency of matter conceptualized as "storied matter" within the material ecocritical discourse, this study has identified different kinds of material forces, namely, the polluted environment in *The Sheep Look Up*, the toxified, oppressed and poisoned bodies in *My Year of Meats* and microbial life forms in the oceans in *Submergence* as texts and sites of narrativity that articulate meaningful stories of their creation, exploitation and destruction through anthropocentric discourses and practices. To exemplify, *The Sheep Look Up* presents the contaminated air, soil and water resources as material agencies that convey their stories of being formed and transformed into lethal forces to afflict human and nonhuman bodies with sickness and death. In *My Year of Meats*, DES and Lutalyse as xenobiotic substances communicate their stories of being created and put to use as a result of capitalist, patriarchal and speciesist ideologies in an attempt to control and manipulate the bodies of animals and women. In *Submergence*, the ocean with its rich and complex microbial life constituted by diverse forms of microbes, fungi and bacteria is posited as a site of narrativity that expresses its significance in the creation and sustenance of the material world, driving the planet's chemical, biological, climatological systems and providing essential knowledge on the extent of climate change

and hence the necessity to protect it from the calamitous practices of capitalist industries that damage its materiality in irrevocable ways.

A final crucial conclusion that could be drawn from this study is that affect theory in alignment with material ecocriticism provides a useful framework to underscore the idea that only through realizing the vibrancy and materiality of bodies, the material world, the environment and their affective powers in their complex entanglements is it possible to have greener and more environmentally-friendly approaches. Thus, affect theory proves its relevance in environmental humanities by revealing how environmental narratives could trigger affective states and responses in people, moving them into action against ecological threats. Taking the understanding of affect proposed by Spinoza and Deleuze which affirms the capacities of all material beings and forces to affect and be affected by each other through trans-corporeal interactions among bodies, material agencies, nonhuman others and the environment as the basis of its discussion, this study has approached the concept of affect from diverse directions in an effort to explore the concept of affect in its multifariousness and to reflect how selected climate change novels arouse affective responses and states in readers through various textual, environmental and corporeal registers.

In *The Sheep Look Up*, ecological catastrophes and polluted environment are posited as the nonhuman elements that arouse what Jane Bennett terms "impersonal affect" with their intense affective force, becoming instrumental in leading people to go through varied affective experiences and enhancing their capacities to act against environmental collapse. Such an understanding of affect urges us to realize that the affective power inherent in all kinds of things and bodies, human or nonhuman, is what makes it possible to experience affective intensities across innumerable material agencies. Bennett's concept of "impersonal affect", which is based on Spinozan idea of "conative bodies" and Deleuze and Guattari's concept of "assemblages", functions to analyse the

environmental collapse and its many agents including widespread pollution, toxic bodies and political and social turmoils as depicted in Brunner's novel as an assemblage that has the potential to exercise power over characters and evoke various emotional responses in different types of people, including sorrow, anxiety, despair and resistance. Experiencing such affective responses strengthens people's capacities to take an active part in fight against environmental disasters as can be observed in environmentally-conscious activists called Trainites in the novel. As a result of these affective intensities shared between characters and readers evoked by the impersonal affect of the polluted environment as represented in the novel, *The Sheep Look Up* prompts readers to gain environmental consciousness and awareness and take decisive actions against environmental destruction.

In *My Year of Meats*, the incorporation of factual information into the emotional stories of characters, the use of striking sensory images through the novel's documentary mode and the employment of what Suzanne Keen calls "authorial strategic empathizing" by making readers see the events from the viewpoint of the main character are the prominent stylistic techniques that function as "narrative affect" in the novel. These narrative techniques serve to lead readers to have emotional and empathetic engagement with the trans-corporeal interchanges among corporeality, environment and nonhuman agencies as explored in the novel and gain insight into the horrors of the meat industry that harms the environmental, bodily and public health severely through its use of catastrophic growth enhancing hormones, environmentally detrimental processes of animal farming and the inhumane treatment of factory animals. Hence, the novel motivates readers to involve in ethical and political actions such as adopting vegetarianism and reacting against the brutalities of the meat industry.

In *Submergence*, the representation of the oceans as the global commons shared by all human and nonhuman material beings appeal to what Lawrence Buell calls "ecoglobalist affect". As an effective tool to evoke feelings of planetary

interconnectedness, “ecoglobalist affect” becomes useful for readers to perceive the ecological and material interconnectivity among material bodies, marine ecosystems and environmental processes and thus emotionally engage with the planetary reverberations of the local and regional environmental destruction both on the surface and depths of the oceans. Through its portrayal of the oceans as the central forces that govern weather events, climate and chemical and biological processes for all life forms on the planet, the novel focuses on the ocean connectivity and therefore challenges the long-accepted conception of “the alien ocean”, which has resulted in the large-scale destruction of marine life in the age of the Anthropocene. Immersing readers into the planetary significance of the oceans and its ethical implications, the novel encourages readers to take responsibility and action against the widespread marine habitat destruction and ocean pollution happening here and now to save the whole planet for the future.

Consequently, explored at the juncture of materiality, embodiment and affect, the discussion of three cli-fi novels has presented new and fresh ways to perceive the material world as a network of interconnections and interplays among various material beings and forces in the formation and large-scale effects of climate change and environmental issues. As opposed to the traditional understanding of matter as passive and inert, this dissertation has underlined the vital and agential power of all matter, which is an intrinsic component of its materiality. To put it simply, the corporeal matter of both human and nonhuman material beings is the site on which the interconnections among multiple bodies, environmental forces, nonhuman elements and discursive systems could be recognized. It is through these complex transitions, transferences and interactions affective intensities arise and strengthen the capacity of all material beings to respond to material-discursive imbrications. Accordingly, humans’ affective experiences are formed through their interactions with the natural world, environmental issues, nonhuman elements and also environmental narratives that examine the multiple ways in which

human and nonhuman world are intertwined. Affect proves to be a state of in-betweenness involving connectivity and responsiveness for all material bodies and forces. Offering to view nature and the material world as agentic, vital and affective forces with their potential to shape and to be shaped by the human world, three cli-fi narratives hence become effective in triggering affective responses in readers and prompting them to be more conscious of their impacts on the environment.

To conclude, through enlightening perspectives gained by material and affective ecocritical discourses through the medium of climate change fiction, this study brings the porosity of the boundaries between nature and culture, human and nonhuman, discursive and material to the fore and demonstrates how the materiality of both human and nonhuman bodies and the social, political, cultural and economic structures of societies are closely intertwined with the material world and environmental systems. As such, this study makes it possible to reach an environmental ethos that recognizes and respects all life forms, natural heritage and the environment and thus opens new paths towards transcending anthropocentric ways of thinking in its attempt to reveal the agency and affectivity of the material world. With this in mind, this study concludes that with their unique depictions of different human experiences entwined with the nonhuman world, ecological changes and environmental catastrophes, Brunner's *The Sheep Look Up*, Ozeki's *My Year of Meats* and Ledgard's *Submergence* showcase the agentic and affective capabilities of the natural and material world to impact the human world and be impacted by it profoundly in numerous ways. In doing so, these novels raise environmental consciousness and awareness about the long-neglected issues of climate change, global warming, widespread contamination, extinct species, ocean pollution and marine habitat destruction and thereby lead people to abandon their anthropocentric thinking and practices through stimulating and discursive representations.

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ÖZET

Bu çalışmanın amacı, Antroposen çağda karşı karşıya kaldığımız en kritik çevresel sorunlardan biri olan iklim değişikliğini ve iklim değişikliğinin bedenlerin maddeselliğinden, toplumların sosyal, ekonomik, politik sistemleri ve çevresel yıkım karşısında insanların duygulanım durumları ve psikolojik tepkilerine varan çok yönlü etkilerini 1970'lerden 2000'lere kadarki süreç içerisinde, iklim-kurgu türünde yazılan John Brunner'ın *The Sheep Look Up* (1972), Ruth Ozeki'nin *My Year of Meats* (1998), ve J. M. Ledgard'ın *Submergence* (2011) eserleri üzerinden incelemektir. İklim-kurgu türünün ilk örneklerinden biriyle başlayan bu çalışma, seçilen üç iklim-kurgu romanının iklim değişikliğinin, gezegenimizin geleceğini tehdit eden soyut bir risk olmaktan çıkarak şu anda yaşadığımız dünyada somut ve acil müdahale gerektiren bir gerçekliğe dönüştüğünü göstermesinde temel oluşturmuştur. Bu nedenle, iklim değişikliği, insan eliyle yaratılan sistemler, insan ve insan olmayan bedenler ve maddesel elementler arasındaki maddesel-söylemsel düzlemde birbiri içine geçen kompleks ilişkiler bağlamında ele alınması gereken bir konu olarak karşımıza çıkmaktadır. Bu amaçla, bu çalışma adı geçen eserleri maddesel ekoeleştiri ve duygulanım teorisi (affect theory) odaklı bir kuramsal çerçeve içinde tartışarak, maddesel dünyanın eyleyici, dönüştürücü, metinsel ve duygulanım kapasitesinin farkına varılmasına ve insanların, insan olmayan bedenlerin ve çevresel elementlerin birbiriyle olan etkileşimi sonucunda ortaya çıkan ekolojik oluşumların ve etkilerin önemine dikkat çekmiştir. Çalışmanın ikinci bölümünde, iklim değişikliği ve birçok çevresel sorunun toplumların çevresel, sosyal, politik ve ekonomik çöküşüyle sonuçlandığı distopik bir dünya tasviri sunan Brunner'ın *The Sheep Look Up* romanının, çevresel sorunların hem bu sorunları ortaya çıkaran hem de bu sorunlardan etkilenen çeşitli söylemsel sistemlerle ilişkili olarak anlaşılması ve ele alınması gerektiğine dair değerli bir anlayış sunduğu ve böylelikle çevresel farkındalığın artırılmasında etkili olabilecek duygulanımsal tepkiler uyandırdığı fikri üzerinde

durulmuştur. Çalışmanın üçüncü bölümünde, endüstriyel et üretimi bünyesinde özellikle hayvanların gelişimlerini hızlandırmak için kullanılan zararlı ilaç ve hormonlarla insan ve insan olmayan bedenlerin sömürüsüne ve tahribatına sebep olan ve günümüzde küresel ısınmaya yol açan en temel faktörlerden biri olduğu bilinen et endüstrisini odağına alan Ozeki'nin *My Year of Meats* romanının, bedensel, çevresel ve halk sağlığının birbiriyle olan bağlantılarını ortaya koymada ve et endüstrisine karşı etkili etik ve politik adımların atılmasında önemli bir rol oynadığı savunulmuştur. Çalışmanın dördüncü bölümü, eyleyici kapasiteleri ile insanlardan bağımsız kendilerine ait bir dünya olan okyanusların aynı zamanda dünya üzerindeki yaşamın devamlılığıyla doğrudan ilişkili olduğunu ortaya koyan ve okuyucuların gezegenle duygulanımsal bir bağ geliştirerek onları evrensel olarak paylaşılan bir sorumluluk duygusuyla okyanusları korumaları için teşvik eden J. M. Ledgard'ın *Submergence* romanının, mavi beşerî bilimler alanına önemli katkılarda bulunduğunu gözler önüne sermektedir. Bu bağlamda, kritik çevresel problemlerin adı geçen eserlerde iklim-kurgu roman türünün sağladığı tematik ve biçimsel olanaklar aracılığıyla ve maddesel ve afektif ekoeleştirel bir anlayışla ele alındığı bu çalışma, günümüzde olumsuz etkilerini yaşamın her alanında deneyimlediğimiz temel çevre sorunlarına sebep olan antroposentrik düşünce kalıplarının yıkılmasında, doğanın ve içinde yaşadığımız maddesel dünyanın gezegensel bir bakış açısıyla algılanmasında ve böylelikle çevreye duyarlı ve yeşil bir yaklaşımın etkili olduğu davranışlar geliştirilmesinde önemli bir potansiyel taşımaktadır.

Anahtar Sözcükler: John Brunner, *The Sheep Look Up*, Ruth Ozeki, *My Year of Meats*, J.M. Ledgard, *Submergence*, iklim-kurgu romanı, maddesel ekoeleştiri, mavi beşerî bilimler, beden-ötesi cisimcilik, maddesellik, toksik bedenler, eyleyicilik, maddesel-söylemsel, metinsel madde, duygulanım teorisi

ABSTRACT

The aim of this study is to explore the critical issue of climate change in the age of the Anthropocene over the period of the 1970s through the 2000s and its multi-dimensional impacts ranging from the embodiment of material bodies, social, political and economic systems of societies to the affective states and psychological responses of humans in the face of environmental collapse in the selected cli-fi novels: John Brunner's *The Sheep Look Up* (1972), Ruth Ozeki's *My Year of Meats* (1998) and J.M. Ledgard's *Submergence* (2011). Starting with one of the earliest examples of climate change fiction, this study provides the basis on which three cli-fi novels underscore that climate change has transformed from an abstract risk threatening the future of the planet into a tangible and pressing reality of the contemporary world. Accordingly, the issue of climate change needs to be deciphered within the context of material-discursive entanglements among the natural environment, human-made systems, human and nonhuman bodies and material forces. To this end, this study discusses the selected texts within the framework of material ecocriticism and affect theory in order to highlight the agentic, transformative, narrative and affective capabilities of the material world and the interactive ways in which humans and nonhuman elements are involved in ecological relationships. The second chapter argues that through its portrayal of a dystopic world in which climate change and a myriad of environmental issues ultimately result in the environmental, social, political and economic collapse of societies, Brunner's *The Sheep Look Up* offers a valuable understanding of how ecological problems need to be grasped and addressed in relation to the multiple discursive systems that both cause and are influenced by these problems and thus triggers affective responses that can be fruitful in increasing environmental awareness. The third chapter demonstrates that the critique of the industrial meat production as an industry which is not only based on the victimization and exploitation of both human and nonhuman bodies, specifically due to its use of damaging growth

enhancing drugs and hormones but also as one of the great contributors to global warming in today's world in Ozeki's *My Year of Meats* is instrumental in perceiving the interrelatedness of bodily, environmental and public health and leading people to take effective ethical and political actions against the meat industry. The fourth chapter points out that J. M. Ledgard's *Submergence* contributes significantly to the blue humanities by focusing on the oceans as a world of their own with their agency and independence from humans and yet closely connected with the survival of the whole planet and by prompting readers to enhance their affective ties with the planet and protect the oceans with a globally shared responsibility. All in all, this study concludes that such material and affective ecocritical engagement with critical environmental issues through the medium of climate change novel and its thematic and formal possibilities in the selected texts functions as an invaluable potential to overthrow the anthropocentric worldview that has resulted in ecological disasters and to adopt a planetary approach to nature and the material world we all live in, which could be effective in generating environmentally-conscious and greener attitudes and behaviours.

Keywords: John Brunner, *The Sheep Look Up*, Ruth Ozeki, *My Year of Meats*, J.M. Ledgard, *Submergence*, climate change fiction, material ecocriticism, blue humanities, trans-corporeality, materiality, toxic bodies, agency, material-discursive, storied matter, affect theory