

# Beyond Scientific Facts: Climate Change Crisis in *Earthquakes in London*

Bilimsel Gerçeklerin Ötesinde: *Earthquakes in London* Adlı Tiyatro Oyununda İklim Değişikliği Krizi

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## ABSTRACT

"Ecodramaturgy" interrogates the extent to which the overall values in relation to nature and culture binary can be reconsidered and conveyed to the public through theatre and performance arts. Placing ecological reciprocity at the center of its dramatic and thematic content, ecodramaturgy places great hope in theatrical performances, which have the potential to alter mindsets of nature-culture interactions and transform audience perceptions of ecological issues. These interactions have been remarkably evident in climate change theatre that emerges as the sub-genre of ecodramaturgy and employs climate change science on the stage. Drawing on the connection between climate change theatre and climate change science, this paper examines Mike Bartlett's *Earthquakes in London* (2010), in which the playwright provides an opportunity for the audience to interact with the climate crisis beyond a scientific approach. In this regard, this paper indicates that climate change theatre, which appeals to the feelings through story and performance, can enable the audience to interact with ecological thinking in unique ways and encourage them to take action against the climate change crisis.

**Keywords:** Climate Change Science, Climate Change Theatre, Contemporary British Drama, Earthquakes in London, Ecodramaturgy, Mike Bartlett, Nature/Culture Binary

## ÖZ

"Ekodramaturji", doğa ve kültür ikiliğine ilişkin genel değerlerin, tiyatro ve performans sanatları aracılığı ile ne ölçüde yeniden değerlendirilebileceğini ve halka aktarılabilirliğini sorgular. Ekolojik karşılıklılığı, dramatik ve tematik içeriğinin merkezine yerleştiren ekodramaturji, doğa-kültür etkileşimleri zihniyetini değiştirme ve izleyicinin ekolojik sorunlara ilişkin algılarını dönüştürme potansiyeline sahip teatral performansları fazlasıyla umut vaat edici bulur. Bu etkileşimler, sahnede iklim değişikliği bilimini kullanan ve ekodramaturjinin bir alt dalı olarak ortaya çıkan iklim değişikliği tiyatrosunda dikkat çekici bir şekilde yer alır. İklim değişikliği tiyatrosu ve iklim değişikliği bilimi arasındaki ilişkiden yola çıkan bu makale, oyun yazarı Mike Bartlett'in izleyiciye iklim krizi ile bilimsel bir yaklaşımın ötesinde etkileşim kurma imkanı sunduğu *Earthquakes in London* (2010) oyununu inceler. Bu bağlamda, bu makale, anlatım ve performans yoluyla duygulara hitap eden iklim değişikliği tiyatrosunun, izleyicinin ekolojik düşünce ile özgün bir biçimde etkileşime girmesini sağlayabileceğini ve iklim değişikliği krizine karşı harekete geçmeleri için izleyiciyi cesaretlendirebileceğini belirtir.

**Anahtar Kelimeler:** İklim Değişikliği Bilimi, İklim Değişikliği Tiyatrosu, Çağdaş Britanya Tiyatrosu, Earthquakes in London, Ekodramaturji, Mike Bartlett, Doğa/Kültür İkiliği

## Introduction

The question of the nature/culture divide has been one of the most challenging ideas that the environmental humanities investigate. Carolyn Merchant (1980, p. 193) explores the roots of this division and associates it with the "far-reaching effect of the Scientific Revolution," which justifies human control and exploitation of nature. In synch with Merchant, Val Plumwood (1993, p. 5) establishes a close relationship between Cartesian philosophy and human control over nature and writes, "[Cartesian thinking would] widen and deepen the chasm between what identifies humanity and what defines the world of nature". Wendy Arons (2010, p. 156-157) revisits this idea to investigate what this division means for theatre historiography and invites theatre scholars to reconsider the reciprocal relationship between humans and the more-than-human world<sup>1</sup>. To put it differently, environmental humanities and arts aim at overcoming the nature/culture divide by offering ecological awareness and a caring attitude towards the more-than-human world. In Merchant's words: "Humans, who have the power to destroy nonhuman nature and potentially themselves through science and technology must exercise care and restraint by allowing nature's beings the freedom to continue to exist" (1995, p. xix). Putting forward the term "earthcare", Merchant calls for a new framework that improves mutual understanding of the more-than-human world, that promotes the reconsideration of nature's agency.

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<sup>1</sup> The phrase was coined by David Abram in *The Spell of the Sensuous: Perception and Language in a More-than-human World* (1997) and it is widely used in ecocritical circles instead of conventional ones such as nonhuman nature.

In their attempt to reconsider the relationship between humans and the more-than-human world, Paul J. Crutzen and Eugene F. Stoermer “emphasize the central role of mankind in geology and ecology”, which they refer to as “*the Anthropocene*” (2000, p. 17). Indeed, the concept of the Anthropocene indicates humanity’s impacts on geophysical and biological systems for millennia to come. It further proposes the fact that the Earth has entered a current geologic phase, which “*can usefully indicate the larger, nonhuman aspects of climate*” (Trexler, 2015, p. 4) and “*the destructiveness of the human species*” (Clark, 2015, p. 61). According to Astrid Bracke (2017, p. 16), the terms “climate crisis” and “the Anthropocene” are not interchangeable; however, they both capsule the ecological problems humanity faces today. It is, therefore, no coincidence that the ecological issues arising from human conduct and its effects on geology and ecology have already been a universal and pervasive condition of the imagination. That is, a range of literary and critical works have tried to grapple with the realities of the current ecological issues, including the climate change crisis. By so doing, these works show how awareness of this crisis has become part of cultures around the world. In this sense, as the arts have always been at the forefront of social change, the capacity for the arts to interact with ecological thinking cannot be overestimated.

Nevertheless, here arises a fundamental paradox as the nature/culture binary has traditionally been functioning in the arts. The arts have long been thought of as a form of expression that often separates humanity from nature. As for theatre, its inherent embeddedness in the relationships between humans with an emphasis on human subjectivity situates it at the other end of that continuum. Theatre and performance scholars, including Wendy Arons, Una Chaudhuri, Theresa May, Carl Lavery, Clare Finburgh and Shoni Enelow, place great hope in theatre’s role in reconfiguring humanity’s attitude toward the more-than-human environment as its textual and visual possibilities render it a crucial venue for the articulation of ecological issues. As Una Chaudhuri (1994, p. 24) points out, “*the arts and humanities – including theater – must play a role*” in dealing with ecological issues which threaten humans and the more-than-human world. In synch with Chaudhuri, Wendy Arons (2007, p. 93) notes that “*humanity’s relationship to the environment is an issue of urgent concern*”. Thus, theatre demands a reconfiguration of nature and such a reconfiguration is urgently needed if theatre is expected to participate in transforming human attitudes toward ecological challenges. As Chaudhuri and Arons mention, the time has come for performance artists to advance this intellectual perspective by creating theatrical experiences that seize the public’s imagination, enhance cultural awareness, and engender dialogue on climate change. By stimulating individual and collective vision into a broader context of our interconnectedness with the more-than-human world, theatrical performances have the potential to alter mindsets of human-nature interactions and transform audience perceptions. In this sense, many playwrights have adapted the climate change crisis for the stage from the very beginning of the twenty-first century. Notable earlier works, among others, include Clare Pollard’s *The Weather* (2004), Caryl Churchill’s *We Turned on the Light* (2009), Stephen Swell’s *It Just Stopped* (2006), John Godberg’s *The Crown Prince* (2007), Steve Water’s *The Contingency Plan* (2009), Mike Bartlett’s *Earthquakes in London* (2010), Richard Bean’s *The Heretic* (2011), Simon Stephen’s *Wastwater* (2011), and *Greenland* (2011), the collective work of Moira Buffini, Matt Charman, Penelope Skinner, and Jack Thorne (Johns-Putra, 2016, p. 270).

In light of those preliminary observations, this paper focuses on Mike Bartlett’s *Earthquakes in London* to examine how the play addresses climate change across the medium of climate change science and its effects on intergenerational human relationships. Climate change theatre has two distinct features. First and foremost, it typically alludes to a catastrophic climatic event, either portraying it vividly or placing the action in its dystopian aftermath. Second, it often addresses the political and ethical problems climate scientists face and the long-term effects of their decisions on their intergenerational relationships. The paper, in this sense, first investigates the theoretical approach to ecological theatre’s involvement in climate change and then climate change theatre’s employment of climate change science. The paper, therefore, indicates that climate change theatre can provide a means for people to interact with the climate change crisis beyond a scientific approach, allowing them to reconsider how it would affect them both individually and collectively, as will be analyzed through climate scientist Robert Crannock’s experiences in *Earthquakes in London*.

### **From Facts to Feelings: Climate Change Science and Climate Change Theatre**

Theatre and performance scholars, taking a theoretical approach to theatre’s non-involvement in the climate change crisis, argue that theatre has often dealt with human-human relationships as the arts have traditionally been regarded as activities that divide humans from nature (Arons & May, 2012, p. 1). Courtney Ryan (2014, p. 236) notes that in modern Western theatre, nature is sanctioned “*as a scenic backdrop to human conflicts; represented as remote, fixed, and passive, nature is the setting which reinforces and highlights the ‘realness’ of the human action*”. As an art form, theatre participates in the nature/culture divide with the representation of nature as subordinate to human activity. However, theatre scholars, referencing this divide in their works, offer a multitude of possibilities for re-conceptualizing this dichotomy. In her oft-cited article “There Must Be a Lot of Fish in That Lake,” Una Chaudhuri (1994, p. 28) challenges the nature/culture divide and writes, “*By making space on its stage for ongoing acknowledgments of the rupture it participates in—the rupture between nature and culture [...] —the theatre can become the site of a much-needed ecological consciousness*”. Chaudhuri criticizes Western theater, which insists on nature/culture separation and addresses the capacity for a “*responsible ecological theatre*” (1994, p. 23) to develop ecological consciousness. In her critique of the humanist paradigm, she emphasizes theatre’s connectivity to the more-than-human world and rejects theater’s position as “*a wholly social account of human life*” (1994, p. 24). In a similar vein, Carl Lavery and Clare Finburgh (2015, p. 6) underscore the anthropocentric enmeshment in Western theatre and note, “*in its dominant forms, the history of theatre has been coterminous with the history of human subjectivity*”. It is, therefore, no coincidence that Theresa May (2007, p. 95) also highlights theatre’s unique position that can “*flesh out the way in which the human imagination participates in, and is integral to, our ecological ‘situatedness’*”. She goes on to argue that theatre studies have been ineffective at addressing ecological issues. However, it is time to envision, encourage, and create an ecological theatre that will reveal unjust exploitation of the environment and illuminate humans’ interconnectedness with the more-than-human world (2007, p. 98).

"Ecodramaturgy"<sup>2</sup>, in this vein, "puts ecological reciprocity and community at the center of its theatrical and thematic intent" (May, 2010, p. 6). As ecodramaturgy considers both theatrical and thematic content with regards to ecology, it principally asks "how theatre and performance might shock us into recognition of the inescapable interdependencies and shared contingencies" (Arons & May 2012, p. 4, 6) with the more-than-human world. Thus, it allows for the realization of the representations of humans' interactions with the environment in theatrical practices. Moreover, ecodramaturgy can expose faulty frameworks and erroneous assumptions of culture/nature or human/non-human divisions. In doing so, it can offer up multiple entry points from which ecological connections are embodied and conveyed to the audience. Chaudhuri and Enelow remark on the phenomenon as follows:

*The realization that "culture" is (part of) the nature of our species, and its converse, that the non-human world is both shaped by and experienced through elements of this culture (notably language), is not, for contemporary ecocriticism, a dead end but just the opposite: the emergence of new arena and new set of modalities for ecological and ecocritical practice (2014, p. 29).*

Ecodramaturgical scholarship challenges binary thinking that divides human culture from the more-than-human world and asks for the reconfiguration of theatre historiography to reconsider how human cultural productions have been shaped by the more-than-human world. Many theatre and performance studies scholars have taken up the call to reconsider how human beings' interactions with the more-than-human world are depicted in theatre. Theatre's unique position as an embodied art form can offer open spaces through which ecology can be redefined in its scientific and material sense. Theatre and performance scholars laud "a turn towards the literal, a programmatic resistance to the use of nature as metaphor" (Chaudhuri, 1994, p. 29) and focus on humans' "material embeddedness and enmeshment in and with the more-than-human environment that contains and sustains us" (Arons & May, 2012, p. 2-3). In this regard, ecological theatre challenges stereotyped nature depictions such as wilderness or landscape as "theatre is both a living art form and site wherein bodies, communities, politics, commerce, and imaginative possibilities intersect in a material way" (May, 2007, p. 97). Considering this point of view, ecodramaturgy challenges literal connections between humans and the more-than-human world; thus, it foregrounds material relationships between them. Hence, the emphasis on the material relationships between humans and the more-than-human world can offer multiple entry points to halt the devastating effects of environmental violence on all living forms.

Nevertheless, playwrights confront specific challenges while they attempt to dramatize ecological stories on the stage. The stories actually occur on multidimensional scales beyond humans; thus, they resist representation (Arons & May, 2012, p. 5-6). As ecodramaturgy considers both theatrical and thematic content regarding ecology, it urges all scales to be considered, including spatial, temporal, personal, or global. In other words, an ecodramaturgical point of view requires both the personal and global effects of climate change to be considered. The complex relationships between humans and the more-than-human world are explored in climate change theatre with regards to those multidimensional scales since human conduct on ecology reveals itself through embodied climate change consequences. In this sense, climate change theatre forms a bridge between an ecological issue and the process of creating a live performance. Chaudhuri and Enelow theorize climate change theatre as follows:

*We think of this sub-genre as an up-dated ecotheatre, dedicated to putting the vast resources of live, embodied performance at the service of the program of radical reimagination called for by the perilous predicament we find our species – and others – in today (2014, p. 2).*

As the above quotation indicates, climate change theatre emerges as the sub-genre of ecodramaturgy, aiming to convey the consequences of the climate change crisis through live, embodied performance. By making use of the unique possibilities of embodied performance, the playwrights include dystopian narratives and climate scientists into the dramatic structure to inspire the audience to take action against the climate change crisis. However, it is significant to note that the magnitude and scope of this phenomenon have made it a challenging issue to address. To put it more clearly, weather events can be directly observed; however, the climate remains a complex and diffuse mechanism, rendering it inaccessible to human awareness. Hence, the spectrum is too wide, and all the causes concerned are too complicated to be realized on stage. The fact that, as Chaudhuri and Enelow (2014, p. 23) suggest, climate change can never be directly experienced, unlike the weather, makes climate change challenging to be represented in the arts. In other words, as climate change has recently been identified as "slow violence" (Nixon, 2011, p. 4), which refers to incidents whose effects, although devastating, are not immediate, profound, or impressive, climate change resists representation. It is, therefore, no coincidence that playwrights strive to discover creative approaches to interact with these issues. Climate change theatre attempts to handle this dilemma by incorporating climate change science into the dramatic structure. The majority of climate change plays feature scientists as protagonists explaining climate change facts and integrate their personal dramas into complicated environmental problems. Thus, climate change plays bridge the gap between the arts/humanities and science, as well as nature and culture. In Kirsten Shepherd-Barr's (2015, p. 1-2) terms, "Theatre provides a particularly potent and fascinating example of how scientific ideas make their way into culture because of its combination of liveness and immediacy, kinetic human bodies in action, and time working on two levels ('real' and 'theatrical' time)". Bridging the gap between science and culture, theatre enables science to be conceived as a human endeavor. By means of this endeavor, science shares common space and time with the audience and the performer, which frees it from being an abstract idea, thus making it less opaque but more accessible. In this context, theatre functions as a potential component to communicate facts and thereby emerges as a cultural institution to be celebrated due to its ability to convey the facts by appealing to the feelings through story and performance.

As mentioned above, the long-term effects of climate change, which cannot be experienced directly, have remained a complex issue in climate change theatre. However, climate change playwrights handle this complexity by alternating timelines and the critical feature of embodiment. Addressing the past, present, and future creatively in a limited time, these playwrights enable the audience to engage

2 The term "ecodramaturgy" originally appeared in Theresa J. May, "Kneading Marie Clement's Burning Vision", *Canadian Theatre Review*, vol. 144, 2010, p. 5-12.

with both “then” and “now”, thus highlighting how climate change has affected humanity across time. As Shepherd-Barr (2006, p. 2) points out, “*There seems to be an impulse on the part of the science playwright to call on the audience’s imagination more than is usually done in the theater*”. In other words, through alternating time periods within the thematic and dramatic structure, these playwrights challenge the idea that the present is humanity’s only “reality”, and it will continue to be so. Hence, it is significant to note that climate change theatre confidently approaches the global climate change crisis in a fashion no other art form can achieve. By staging the present, future, and past in an embodied performance through “real” performers who represent characters whom we feel empathy for, climate change theatre allows for radically reimagining the climate change crisis. Climate change theatre further embodies the effects of climate change, foregrounding the interdependencies between humans and the more-than-human world. In so doing, climate change theatre has both analytical and emotional effects on the audience. Conventionally, it emphasizes the significance of paying attention to climate scientists’ warnings by interrogating the emotional, aesthetic, and living experience of the Anthropocene.

### **Climate Change Crisis in Mike Bartlett’s *Earthquakes in London* (2010)**

Mike Bartlett’s five-act play, *Earthquakes in London*, presents the complex interactions between climate change scientists, politicians, and activists through the live experience. The treatment of these interactions in the play represents an evolutionary step in dealing with climate change on the London stage. In the play, Bartlett blends complex ecological issues with personal dramas that are more familiar to the audience; as Michael Billington (2010) notes, “*Bartlett has written a big, epic, expansive play about climate change, corporate corruption, fathers and children*”. According to Catherine Love (2020, p. 226), the combination of ecological problems with personal dramas risks emphasizing the habitual human subjectivity of Western drama; however, she reinforces that climate change theatre is expected to adapt its own strategies and politics of representation to avoid this risk. *Earthquakes* puts forward the story of a climate scientist who withholds his scientific findings from the public for the sake of his company, discovering that airplanes are fueling environmental destruction. In fact, the main action revolves around the climate scientist’s short-term decisions and their long-term consequences, weaving together family breakdown and ecological collapse. As Billington (2010) writes, “*Bartlett’s play spans the period from 1968 to the distant future and, in essence, deals with our disregard for our planet. Wisely, it tackles a vast theme by pursuing the fortunes of a single family*”. Bartlett portrays complex family relationships by deliberately and constantly shifting “*scenes crashing] into each other impolitely*” (2010, p. 5). Thus, switching back and forth, the playwright’s alternating time periods makes it entirely exciting to watch; as Alex Sierz (2010) also highlights, “*part of the joy of watching Earthquakes in London comes from not knowing what will happen next, or where*”. To say the same differently, the temporality of the play covering decades enables the playwright to compress time on the stage. The various threads of the stories overlap and are returned to through a constantly shifting episodic structure, which creates a stimulating collage. In this way, the play provides a critique of humanity’s attitudes towards the more-than-human world and their devastating practices spanning many years, allowing them to observe through climate change’s impact on this family. Indeed, Bartlett has composed an articulate theatrical presentation of climate change by illustrating the past, present, and future of this phenomenon by Crannock family’s experiences.

The play begins in 1968 with the scene in which climate scientist Robert Crannock and Grace get married and have three daughters – Sarah, Freya and Jasmine. The next scene, set in present-day 2010, introduces government official Sarah, who works at the climate change department, pregnant Freya, her husband Steve, Jasmine and her boyfriend Tom in different settings. Steve is about to go on a vacation, which really distresses Freya, who experiences a pervasive feeling of dread due to her earthquake fears and impending motherhood. Freya and Steve’s conversation is intermixed with Jasmine and Tom’s discussion about Jasmine’s “*very political*” (Bartlett, 2010, p. 20) performance that she is planning to do tonight. After Steve’s departure, Freya dances and drinks, spending the rest of the day with her imaginary guest Peter. Freya and Peter’s scene is interrupted by another in which airline business executive Carter and climate change officer Sarah discuss Heathrow airport’s potential third runway expansion, which will reveal political hypocrisy on environmental care as Sarah articulates symbolically, “*We have to be seen to be doing all we can to lower carbon emissions*” (Bartlett, 2010, p. 24). The scene switches to Jasmine’s environmental burlesque, for which she is dressed in branches and leaves. She peels them off until she is left with a few leaves in the vital places “*à la Adam and Eve*” (Bartlett, 2010, p. 29), picking the following signs one by one: “*The willful destruction of the rainforest’ [...] ‘Originally, there were six million square miles of tropical rainforest’ [...] ‘Only a third is left’ [...] ‘Don’t leave the world naked’*” (Bartlett, 2010, p. 29). Jasmine’s green performance reveals both the visual and textual richness of the play. As Bartlett puts it, “*The play is about excess*” (Bartlett, 2010, p. 5); thus, it uses as much costume and scenery as possible. Jasmine’s green performance conveys the most significant environmental warning in the first act of the play. This environmental performance is also not coincidental following Sarah’s and the rest of the government’s political inaction to deal with environmental issues. As a performer, Jasmine attempts to draw attention to human conduct on ecology, situating humans and the more-than-human world in a mutually reliant framework. In this regard, it is worthwhile to add that the green performance allows the audience to elucidate how theatre enables space and time to interact with ecological thinking in unique ways. Combining textual richness with visual excess, the performer takes center stage, bringing a multidimensional story to life. Thus, theatre is a cultural phenomenon that embraces the power of narrative and performance to communicate, which renders it a vital site for articulating the climate change crisis.

Act Two begins in 1973 with the scene in which two businessmen, Roy and Daniel, question “*what the effect will be of all this air travel? With the emissions. Into the atmosphere*” and its long-term effects “*to the world. The environment*” (Bartlett, 2010, p. 41). As this conversation reveals, the businessmen order Robert to design the report as they want, promising him future works “*in the motor industry, oil companies*” and a high fee (Bartlett, 2010, p. 42). Indeed, the play emphasizes the dramatic representation of cultural despair in the aftermath of the *Copenhagen COP15 Summit* failure, when global leaders were unable to achieve global carbon emission reductions (Bottoms, 2012, p. 344). Robert’s short-term decisions in the past are followed by long-term consequences, as the conversation between Jasmine’s boyfriend Tom and Sarah reveals in the present time. Tom feels anxious about the climate change effects on his home country, Eritrea, and his family. He says of the problem, “*This is happening, right now, to people like me, to my family. And if you don’t*

believe me ... Letters, photographs, measurements. Rainfall, crop growth, all from my family in Eritrea" (Bartlett, 2010, p. 52). Tom accuses Sarah of knowing the tangible effects of climate change on agriculture and not taking action against this violence. Tom's protest makes climate change violence visible "that is typically not viewed as violence at all" (Nixon, 2011, p. 2). As mentioned above, this "slow violence" has certain effects on "those people lacking resources" (Nixon, 2011, p. 2-4). As Tom's case illustrates in the play, marginalized peoples, species, places, and non-humans are more vulnerable to this violence. As Jasmine's environmental burlesque elucidates how theatre provides a space and time to deal with ecological thinking, Tom's one-man protest also highlights climate change's tangible and violent effects on local communities, their living conditions, and well-being. Hence, these embodied performances, narratives, and stories demonstrate how the slow violence of ecological destruction deepens differences, injustices, vulnerabilities, and, more importantly, the control mechanism that underpin them (Woynarski, 2020, p. 5). It is noteworthy to add one point here: ecological theatre not only deals with climate change but also with "green business practices, sustainable urban planning, environmental justice, food security, consumption, watershed democracy, globalization, and many other human concerns" (May, 2007, p. 97). In this regard, the play aims to expose systems of environmental injustice, as Bartlett underlines through real characters and their experiences in the play. Moreover, it demonstrates how cultural production can function as an imaginative catalyst for activism in struggles for environmental justice.

Sarah makes a political comment on Tom's protest, "We take into account different factors – environmental, economic, social. It's complicated because we have to consider everything" (Bartlett, 2010, p. 53). Sarah's comment foregrounds the current political and social realities as fundamental structures of impending change. In this sense, theatre can open up ways of reconsidering those power structures and injustices to raise climate change awareness. In Jasmine's and Tom's cases, the playwright grounds ecocritical ideas in concrete images of ecological destruction to reflect the tangible effects of climate change. To put it more clearly, Jasmine's ecological burlesque with falling leaves and Tom's protest with reports of ecological degradation on local communities can shift the audience's perceptions of climate crisis since theatre, as a communal experience, has the potential to participate in climate change dialogue. Because "climate change needs collective social action" (Priest, 2016, p. 164), theatre, with its emphasis on performance as a shared experience, treats climate change as a social justice issue to inspire the creation of a sustainable climate.

Act Three turns again to Robert's report on the consequences of the huge quantities of carbon dioxide release into the atmosphere, "potentially causing rising temperatures" (Bartlett, 2010, p. 67). However, Roy and Daniel seem discontent with Robert's report and offer him "more resources. To see things more clearly" (Bartlett, 2010, p. 67). When the scene switches to the present time, Carter reveals that Robert has reported, "That burning fuel, and carbon emissions, would have little or no effect" (Bartlett, 2010, p. 74) and suggests that this report is responsible for the expansion of this industry, which has caused climate change problems in the long term. In the following scene, Robert, still alive in his seventies, is visited by Freya's husband, Steve, with whom Robert shares his scientific knowledge of climate change. He remarks on the phenomenon as follows:

*Everything in the planet is co-dependent. It exists in ever changing, ever evolving balance much like a gigantic organism itself [...] Species live and die and evolve and the planet evolves too through cycles of hot and cold and responding to the demands of life, and life responds to the demands of the planet [...] There is in fact a relatively stable climate system, and then something happens, the system is stretched and in a moment, it collapses and changes, in hundreds not thousands of years* (Bartlett, 2010, p. 87-88).

As a climate scientist, Robert interrogates the extent to which climate change affects humanity, referring to the geological records of historical climate change. Robert states the fact that humanity has abused the symbiotic relationship between humans and the more-than-human world, then he deduces, "The world will be fine in the end, and it knows what it wants. It wants to get rid of us [...] The end of humanity. We're going to see it" (Bartlett, 2010, p. 89-90). Drawing on this reciprocal relationship, Robert claims that climate change arises as a consequence of human conduct on ecology that will bring the end of humanity. Considering Robert's pessimistic point of view, it is possible to argue that climate change theatre tries to reflect the complexity of surviving in a world affected by climate change realities. Theatre's distinctive features of "skills like radical empathy, deep listening, collective embodied practice, and a sense of community – all central to theatre" (May, 2016) allow playwrights to address the effects of climate change and provide new futures by inspiring empathy. Audiences can take part in the process of envisioning futures based on various climate change scenarios on stage. This process occurs as a part of a shared experience, and it can offer a variety of possibilities for community building. Although this live process reaches a limited audience not as large as films or novels, this communal experience further provides the audience with meaningful and unique moments through which they comprehend the significance of climate change.

Robert's point of view not only asks for the urgency of ecological consciousness in the arts and humanities but also offers the opportunity to regard science as a part of the culture, bridging the divide between arts and science, making it less opaque but more accessible. Then, climate change theatre becomes a popular site for exploring climate science and politics and describing Earth's future. To put it another way, Robert's scientific lecture offers an opportunity to regard science as a cultural practice; thus, climate change theatre renegotiates its role in cultural perception. Bartlett's incorporation of climate science into the play informs the audience specifically about sudden system collapse in ecosystems. In this sense, the "direct engagement with 'real' scientific ideas, a complex ethical discussion, and an interdependence of form and content that often relies on performance to convey the science" (Shepherd-Barr, 2006, p. 2) make climate change theatre more effective, moving the audience beyond scientific facts by appealing to the emotional, aesthetic, and living experience of the Anthropocene. In this sense, climate change plays intend to wake up the audience from their current haze, as Robert does in the play. The scene is cut to another in which Jasmine and Colin are dancing to "The Arcade Fire – Rebellion (Lies)" (Bartlett, 2010, p. 91), and then it returns to Robert, who further delivers his dystopic lecture on endangered species, overpopulation, world wars, starvation, and climate change. According to Robert, the best way is "to reduce the carbon footprint"; then, he articulates, "You want to be green? [...] Hold your breath" (Bartlett, 2010, p. 95-96). By the way, he informs the audience that Freya has gone to see him to take his advice about children, and he has told her that she would be regretful for bringing a child into such a terrible world and

advised her “to kill it” (Bartlett, 2010, p. 96). As the quotation shows, Robert forges an association between terrible world conditions and the growing population, and his solution is “*Not living – an idea he extends to the abortion of his grandchild*” (Hudson, 2012, p. 266). Robert goes on his pessimistic lecture, highlighting the danger that awaits humanity, “*The enemy is on its way, but it doesn’t have guns and gas this time, it has wind and rain, storms and earthquakes*” (Bartlett, 2010, p. 97). By referencing geophysical forces beyond human control, Robert conveys his climate change predictions in order to persuade the public of science’s veracity. In this regard, the playwright’s innovative dramatization of Robert’s effort to explore the ramifications of science can help to transform the public’s view of this impending crisis. Then, humans can take the next step in creating a sustainable planet for both humans and the more-than-human world. As Shepherd-Barr (2006, p. 10) investigates, “*the marriage of the resources of the stage and the ideas and issues of science does indeed bring about unprecedented creative chances*”. That is, bringing scientific facts into the arts and humanities discourse implies a creative engagement that promises hope and change.

The conversation mentioned above between Robert and Steve also enlightens Freya’s hysteric condition in the play. Her pervasive fear of the earthquake (Bartlett, 2010, p. 16, 30), her surreal relationship with the fictional Peter character, her pessimistic mindset about becoming a mother, her telling the doctor who examines her, “*You should get rid of it. The baby. Before it is too late*” (Bartlett, 2010, p. 76) all recall Robert’s sense of a dystopic future. Robert’s pessimistic view of the future as a climate scientist, his solutions to the climate change crisis, including his “*not-living*” idea and abortion of his grandchildren, aim to shock the audience into recognition of this imminent crisis. Act Three ends with a surreal moment in which Freya’s foetus screams, “*Mummy? Help me*” (Bartlett, 2010, p. 99). This scene reflects Freya’s growing concern for her unborn child and alludes to the unavoidable consequences of the environmental crisis on future generations. In this sense, the foetus’s cry for help invites the audience to reconsider the themes of posterity and ecological concerns.

In Act Four, the scenes in which Steve opposes Robert’s pessimistic future view, stating, “*the world will be better with [my daughter] in it. She’ll add something special*” (Bartlett, 2010, p. 110); and Sarah rejects her father’s legacy, guaranteeing a total halt to airport expansion (Bartlett, 2010, p. 118) present a slightly more optimistic viewpoint for the future. The scenes demonstrate that both individual and political reactions to the consequences of climate change can be effective, offering promising possibilities. Following the scene during which Sarah, Carter, and Tom discuss the political aspects of climate change, a Greenpeace member in a polar bear costume appears on the stage, saying, “*I’m dying [...] I know my whole habitat is disappearing [...] Melting icebergs, whole eco-systems eradicated*” (Bartlett, 2010, p. 124). As Jasmine’s green performance and Tom’s one-man show highlight in the previous acts, the representation of a polar bear on the stage also addresses the fact that climate change theatre envisions a fundamental shift in violent actions against non-humans, marginalized peoples, and species as they are more vulnerable to this violence. In this context, theatre endeavors to provide a framework for these more vulnerable entities to share a common space and time with the audience. By the means of this endeavor, theatre reflects the violence they have been exposed to, thus making them more visible. In so doing, climate change theatre places value on biodiversity, environmental justice and future generations, problematizing the humanist paradigm of the stage. In the final scene, Freya appears in her delusional state, imagining Peter as her soon-to-be-born daughter, Emily, who forewarns her of a potential future filled with grim circumstances such as air pollution, diseases, blackouts, curfews, drought, crimes, among others (Bartlett, 2010, p. 132). Indeed, what Freya is afraid of is her father’s pessimistic future view projected onto the present. That is, her persistent despair about the terrible condition of the world is analogous to climate change. As a final effort to get rid of the baby, Freya climbs over the bridge, then an earthquake occurs, and she slips from the bridge.

Act Five takes the audience to 2525, as the stage directions describe. The prologue to the act summarizes anthropocentric violence against the more-than-human world. The narrator articulates as follows:

*It is said that in the old times, in the early years of the twenty-first century, mankind only thought of himself. The people would steal from the land and plunder the seas, they would kill the animals, tear out the minerals from the ground and poison the sky. And as the earth grew darker, the sun burnt brighter, and the sea began to rise, the people simply closed their eyes and drank, and danced, and attempted to ignore their certain destruction* (Bartlett, 2010, p. 138).

The prologue informs the audience from the distant future about humanity’s indifference to ecological degradation and the grim situation awaiting them soon. Bartlett’s artistic alternation of time periods, switching back and forth, invites the audience to realize that the climate change crisis is more than what we perceive and what we live through now. As Arons and May (2012, p. 2) also reinforce, “*ecological degradation will likely precipitate enormous social and political upheaval in the next century, and, with it, unpredictable and unimaginable effects on human communities and cultures*”. Climate change theatre, in this regard, materializes time within our experiential environment to persuade us of anthropogenic realities. The dystopic future view in the play asks us to reconfigure our mindset of the more-than-human world on which our very embodied existence depends. In this sense, this play suggests that humanity’s indifference to the more-than-human world threatens not only basic requirements for survival, including clean air, water, and food supply, but also environmental justice and future generations. The play ends with Freya’s death but her baby is alive, offering a hopeful entry point from which to open new spaces. Emily Sullivan, “*sixteen, [...] Bright, optimistic, intelligent*”, appears in a floral dress (Bartlett, 2010, p. 156) at the end of the play. She is depicted as the expected visionary leader who “*stood at the centre of the earth and changed everything*” (Bartlett, 2010, p. 144), promising more hope for the future and making the audience believe in ecological progress.

## Conclusion

This paper indicates that ecodramaturgy participates in transforming human attitudes toward ecological issues by making use of the imaginative possibilities that theatre stage provides. Rejecting the humanist paradigm of Western theatre, ecodramaturgy challenges the prevalent nature/culture binary by situating humans and the more-than-human world in a mutually reliant framework. Climate change theatre, which emerges as the sub-genre of ecodramaturgy, in this sense, deals with the climate change crisis by incorporat-

ing climate science into the dramatic structure. Featuring climate scientists as catalysts for the main action, climate change theatre bridges the gap between art and science as well as nature and culture. Thus, it functions as a potential component to communicate facts and, thereby, emerges as a cultural production, to be celebrated due to its ability to convey the facts by appealing to the feelings through story and performance. Therefore, it is no coincidence that climate change theatre confidently approaches the global climate change crisis, emphasizing environmental justice for marginalized peoples and the more-than-human world. This paper further shows how cultural productions may serve as creative precursors for reform in ecological protection movements. While also reimagining cultural conceptions of nature by examining the theoretical challenges that emerge when an environmental viewpoint is applied to a theatrical production, this paper reveals that the capacity for theatre to inspire change cannot be overestimated. The above-mentioned theatre and performance scholars contend that theatre's position in reshaping humanity's attitude toward the environment is really promising as theatre's power of narrative and feature of embodiment make it a critical site for the articulation of ecological thinking and stimulation of ecological consciousness. To conclude, as analyzed in *Earthquakes*, climate change theatre enables climate science to be conceived as a human endeavor as an actor performs the climate scientist on the stage. Combining the scientist's knowledge of climate change with his family relationships, climate change theatre takes climate crisis out of the realm of science and then inserts it into the arts and humanities discourse. Thus, climate change theatre enables science to share a common space and time with the audience and the performer, making it more graspable. In this way, climate change theatre creates a unique process of envisioning futures based on a variety of climate change scenarios, providing various possibilities for community building, empathy, and adequate comprehension of the significance of this global phenomenon.

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