Article

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Of Deep Time and Slow Violence: Anthropo-Scenic Timespaces and the Chronotopes of Climate Theatre

Abstract: This article explores how contemporary climate theatre navigates the distorted scales of the Anthropocene and the climate crisis through its unique aesthetics – embodiment, spatiality, temporality, and reciprocity. Previous literature on climate theatre has largely discussed its anthropomorphism and anthropocentrism in relation to global warming. Building on ecodramaturgical frameworks, this article draws on ecocritical appropriations of Mikhail Bakhtin's chronotope to investigate how theatrical time and space make the abstract nature of climate change tangible. The argument posits that chronotopes of climate theatre are crucial for understanding how contemporary theatre and performance tackle scalar derangement. By drawing on interdisciplinary approaches from environmental humanities, performance and theatre studies, and posthumanism, the study situates itself at the intersections of performance art, political theatre, aesthetic theatre, drama, and environmentalism, examining how different theatrical formats use theatrical 'timespaces' to address the spatio-temporal complexities of the Anthropocene. It discusses Ella Hickson's *Oil* (2016); April De Angelis's *Extinct* (2021); Extinction Rebellion's "The Sea Is Rising and so Are We" (2019); and Chris Rapley and Duncan Macmillan's *2071* (2014), showing how each uses theatrical chronotopes to transform deep time, slow violence, and the dispersed nature of climate change into the 'hyper-present' of the stage.

***Keywords**: Anthropocene; April De Angelis; climate theatre; chronotope; Duncan Macmillan; ecodramaturgies; Ella Hickson; Extinction Rebellion.*

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'Everywhere' and 'nowhere', 'here' and 'now': Anthropocene scale effects and the 'hyper-present' of the stage

On the brink of environmental collapse and species extinction, humanity has allegedly become a geological force. First coined by Eugene Stoermer, then popularised by Paul Crutzen, recently rejected as a geological era (Amos) – the Anthropocene valorises the collective agency of humanity as rivalling geological forces, with severe impacts on Earth Systems on a planetary scale; it proposes that the human species has evolved into a "malignant form" (Povinelli 9) of influence that increasingly governs and impacts planetary conditions (Lewis and Maslin 215; Povinelli 9; Woynarski 186). The legitimacy of the Anthropocene as a geological era has been contested from its inception (Ellis chapters 3 and 5; Povinelli 9, 11); the refusal to officially recognise the Anthropocene underscores these controversies but does not diminish its relevance for ecological and societal discourse. Geologists still acknowledge anthropogenic impacts on Earth Systems, such as the ongoing sixth great mass extinction (Kolbert, Grusin) or global warming, which, as Colin Sterling and Rodney Harrison contend, is "*related to* but not *synonymous with*" (24; orig. ital.) it. Despite its contestation as an official geological era and the legitimate criticisms leveraged against it, there is merit in the term Anthropocene for focalising climate action given its popular appeal.

One of the major criticisms against the Anthropocene is its oversimplification of human agency by declaring the human species to be an impersonal and singular entity that rivals the forces of nature. Critics argue this disregards socio-historical contexts and overlooks cultural diversity, including inequalities within and between societies (Clark 14-17; Hartley 164; Povinelli 115-17; Woynarski 180-186; Yusoff). For example, Timothy Clark cautions against the erasure of individual experiences in the creation of a "crude sort of species-identity" (17) that imagines human agency as "transpersonal" (14) and "impersonal" (16). Lisa Woynarski castigates it for neglecting systemic injustices, such as colonialism or white supremacy, in its attributing environmental degradation to humanity as a group (150, 180, 186). Sterling and Harrison concur, claiming that positioning the 'anthropos' as a uniform geological force "effectively erases historical inequities and present injustices through the figure of a universal human agent" (29). Hence, a plethora of critics from critical theory and the environmental humanities has proposed surrogate terms for the Anthropocene, including the 'Anglocene', Jason W. Moore's 'Capitalocene', Anna Tsing's 'Plantationocene', Justin McBrien's 'Necrocene', Linda M. Hess' 'Petrocene', Elizabeth Povinelli's 'Meteorocene', or Donna Haraway's 'Chthulucene' (Povinelli 10, 176). Haraway's Chthulucene, in particular, attempts to transcend an anthropocentric focus by attending to the ethical dilemma of "multispecies co-existence" of human and non-human beings (Fredengren and Åsberg 70). As research in the natural sciences on symbiotic relationships confirms, our shared composition of human-microbial genomes underlines our interconnectedness with the more-than-human world (Bennett 112-13), a notion captured by Jane Bennett's terms 'vital materiality' and 'vibrant matter', which argue that human corporeality is "not fully or exclusively human"

(112), but "populated and constituted by different swarms of foreigners [...]. The its outnumber the *mes*." (112; orig. ital.) As Nicholas Wade, for example, shows, "The bacteria in the human microbiome collectively possess at least 100 times as many genes as the mere 20,000 or so in the human genome." (qtd. in Bennett 112). A focus on human embodiment is insufficient given the fact that "[w]e are, rather, *an array of bodies*, many different kinds of them in a nested set of microbiomes" (112-13; orig. ital.). These and similar voices attempt to find solutions to the oversimplification of human agency as a geological force in Anthropocene discourse. The charge of anthropocentrism leveraged against the Anthropocene remains problematic. (Haraway, *Staying* and "Making Kin"; Haraway, Tsing, and Mitman; Tsing; Tsing et al.)

The Anthropocene disrupts conventional notions of spatiality and temporality (Sterling and Harrison 19-20, 29). Defined by "'nonlocality'" (Kverndokk and Eriksen 6), it "cannot be localised" (6) because it is "everywhere and nowhere" (Sterling and Harrison 20). According to Sterling and Harrison, the Anthropocene discombobulates common knowledge by entwining faraway locations and isolated events, such as radioactive particles dispersed globally (29; Bjork-James 335). For them, the Anthropocene, more than just a novel geological epoch or "temporal threshold" (Sterling and Harrison 20), is characterised by a process of 'territorialization', with continuous irrevocable effects on ecological systems (20). Its global reach notwithstanding, the effects of the Anthropocene are detectable in localised manifestations, such as landfills or polluted metropolises, as a result of which its local repercussions and planetary conception disaccord (21); the Anthropocene is "stubbornly territorial" (21). Conversely, Bjork-James remarks how the Western denigration of the natural world as nothing but a background to human action is being unsettled by the climate crisis (339). Relatedly, Kyrre Kverndokk and Anne Eriksen argue, the climate crisis is "intrinsically about time and temporality" (3). The climate crisis demands awareness of past perspectives and present action to avoid near and deep future catastrophes (Clark 13, 22-23, 71; Sheu 3). Requiring "action *now*", it "is only truly legible through the lens of the deep future and the deep past" (Sterling and Harrison 29). Deep time, or geological time, is central to the understanding of the Anthropocene (Fredengren and Åsberg 67-71). Environing billions of years of change, it furnishes a foundation for comprehending Earth history beyond human temporality (67; Ialenti). Deep time informs Dipesh Chakrabarty's argument of the fusion of geological and historical time, which has become a staple in Anthropocene discourse. His argument, however, is only "apparently radical" (Kverndokk and Eriksen 4) and gives little space to "analysing agency, ideologies, politics, social structure, or cultural values" (4). In its evocation of apocalypticism, the Anthropocene razes modernist assurance of progress (Bjork-James 335-36). Simultaneously, this leads to Anthropocene discourse gravitating towards a technocratic and eco-modernist cynosure, which disregards necessary political solutions for effectively responding to the climate crisis (Hartley 157; Lewis and Maslin 215; Moore, "Introduction" 8; McBrien 134-35). By contrast, Haraway's Chthulucene asserts the necessity for "[s]taying with the trouble" (1) and remaining with present conflicts; it insists on being acutely committed to the present

moment (Bjork-James 336-37): "Staying with the trouble does not require such a relationship to times called the future. In fact, staying with the trouble requires learning to be truly present [...] as moral critters entwined in myriad unfinished configurations of places, times, matters, and meanings" (Haraway, *Staying* 1). In other words, the focus on deep futures distracts from present ethical responsibilities. The spatio-temporal disruptions of the Anthropocene thus pervert our relationship with the present moment, to the detriment of our psychological make-up and the well-being of the entire planet.

To what extent can we even perceive these spatio-temporal disruptions phenomenologically? A non-localisable abstract phenomenon, the climate crisis is defined by imperceptibility, as Kverndokk and Eriksen contend: It "is characterised by not being directly observable" (6); the representation of complex scientific data is elemental to comprehending it (6); it is not directly observable or palpable for humans (6) but a "highly abstract concept" (6) influenced by linguistic and semiotic practices. As Una Chaudhuri and Shonni Enelow state, "[t]he first thing that makes climate change difficult to represent in art is the maddening fact that climate – unlike weather – can never be directly experienced" ("Theorizing Ecocide" 23). Concurrently, Catherine Love observes that the climate crisis exceeds an "anthropocentric scope of reference" (226); it persists in being inaccessible.

This imperceptibility of the spatio-temporal entanglements of the climate crisis has major psychological consequences. In Timothy Clark's assessment, this era is characterised by a derangement of scale (22). Because it transpires on scales that escape phenomenological human consciousness, ecological destruction is generally counter-intuitive (22). Sterling and Harrison maintain that a multi-scalar perspective that reconciles local effects with colossal global transformations is necessary to comprehend the Anthropocene (19-20). Clark employs the term 'scale effects' to signify that, depending on the scale at which it transpires, one action can have different effects. The Anthropocene itself typifies a scale effect in which innumerable ostensibly inconsequential actions amass to cause momentous ecological disruptions (Clark 72-73). Hence, Clark argues we are afflicted by 'Anthropocene disorder'. This disorder arises from difficulties in comprehending scale effects, where phenomena are visible or invisible depending on the scale of framing, "juxtaposing the trivial and the catastrophic in ways that can be deranging or paralyzing – for what can *I* do?" (14; orig. ital.) It signifies the rational and psychological, as well as political and ethical disorientation and timorousness caused by the magnitude of environmental destruction (14, 23-24, 139-141, 196), and is comparable to terms such as 'eco-trauma' (Narine), 'eco-anxiety', or 'climate-anxiety'. For all of these reasons, scale effects, coupled with the apocalypticism of the climate crisis, adversely affect the mental health of many, especially younger people.

What is the role of theatre in tackling scale framing, Anthropocene disorder, and climate action? To what extent can it generate a new environmental imagination that meets these challenges? The number of voices (activists, writers, scholars, and ecocritics) that demand a new environmental imagination in light of the imminent climate crisis has

grown. Theresa J. May concurs with Bill McKibben, founder of 350.org, who calls for the "arts […] to translate the facts of climate change into felt experience" (May, *Earth Matters* 238) because scientific facts alone are insufficient to instigate climate action and systemic changes (238). May ponders how an ecodramaturgical approach to theatre can render ecological science into embodied, viscerally felt experiences (13). Brian Kulick (234) similarly stresses the inspirational potential of theatre for storytelling as crucial to influencing environmental perception and motivating climate action (324). In this view, stories are an ecological power impacting society and nature alike in their reframing of anthropocentric attitudes towards the more-than-human world. However, Love critiques the position that theatre alone can achieve momentous impact; instead, it should be understood as one minor aspect of the wider movement of climate activism (235); she argues that "[t]heatre is [maybe] best seen as a small part of a much larger constellation of climate activism" (235). Kulick equally interrogates whether theatre, owing to its ephemerality, can contribute to lasting change (1-2). Nonetheless, a major strength of drama is its depth of interrogation: "conversation and debate is where theatre does its best work" (Boles 110). Despite its limited reach, theatre may serve as a potent catalyst for an environmental imaginary that helps tackle, or at least alleviate, the worst outgrowths of scale effects and Anthropocene disorder.

A recognition of the kinship of theatre with the earth has become a central tenet in theatre and performance studies. These perspectives spotlight the potential of theatrical performances to investigate the reciprocity of humanity and environment (May, *Earth Matters* 13; Woynarski 9-10). Carl Lavery emphasises "the earthiness of the medium" ("Theatre in the Anthropocene" 68) in his exploration of theatre in the Anthropocene. Because of its aesthetic parameters, theatre resists reducing nature to a scenery: "Theatre is not just a fleshy art but a mineral one, a medium of stone and bone." (67) These medial qualities of theatre are, of course, profoundly social. Kulick accentuates the intrinsic conjunction of theatre with "communal engagement" (67) and communal experience (6-7, 9, 65, 67). Relatedly, May emphasises liveness, immediacy, and communality as central phenomenological parameters of theatre (*Earth Matters* 2-4, 131-33). The convening of spectators and performers in the here-and-now of a performance enables shared experiences through physical presence and is crucial to how theatre generates meaning: "Plays are blueprints for live performance that require collective co-imagining by people who have come together in time and place." (*Earth Matters* 2) This is "how theatre makes meaning" (2) and "how it might make a difference" (2). Theatre can engage audiences with the complexities of the Anthropocene and connect these to the immediate, embodied realities of spectators because theatre relies aesthetically on materiality, spatiality, temporality, embodiment, communality, and connectivity. As an art form, this materiality of theatre highlights its 'earthiness' and underscore its implicit ecological reciprocity (Angelaki; Downing; Hudson, *The Environment on Stage*; Lavery, *Performance and Ecology*).

Terms such as ecodramaturgy or critical theatre ecologies theorise such ecological reciprocity of the theatre. In May's definition, ecological ethics invade the process of

mounting theatrical productions; dramatic plays, even canonical ones not overtly addressing ecocritical concerns, are probed for their environmental content; and theatre speaks to pressing contemporary ecological topics (Arons and May 4; May, *Earth Matters* 13 and "Kinship and Community" 164-65). Ecological thinking, Lisa Woynarski argues, requires a modification of thinking that transcends anthropocentric attitudes and neoliberal ideologies; it challenges the nature/culture divide (9-11, 14-15). Ecodramaturgies seek to "reframe or subvert this binary between humans/nature and nature/culture" (15). Conversely, in their theorisation of critical theatre ecologies, Martin Middeke and Martin Riedelsheimer (5-6) understand theatre as an interface of human and non-human interactions, naturally inclined towards ecological investigation and exploration (see also Kershaw). In his discussion of climate theatre, Kulick invokes Thich Nhat Hanh's Buddhist concept of the 'inter-being-ness' of all existence: "When we look into the human being we see human ancestors, animal ancestors, plant ancestors, mineral ancestors. We see that the human is made of non-human elements." (qtd. in Kulick 210) May's understanding posits that theatre can counter climate denial, contemplate surrogate futures, augment the viewpoints of affected marginalised communities, and interrogate anthropocentric ideas of human relationships with the more-than-human world ("Climate Theatre" 131-42). More recently, several scholars have engaged with Timothy Morton's notion of 'dark ecology'; Abby Schroering, for example, defines "a darker ecodramaturgy" as one that "does not empower readers and spectators with concrete solutions to the climate crisis, nor to search for heroes to light the way toward a sustainable future" (192). Instead,

> the theatre offers something else: the time and space to confront the darkness of the human species and the future into which we are heading; to dwell in the depressing, uncanny discomfort in the company of other depressed, confused performers and spectators so that new forms of ecologically aware collectives of humans can form; and to revel in the dark-sweet sensation of ecological awareness (192).

The "dark-uncanny" (192) of such ecodramaturgies thus almost has a cathartic, curative, and therapeutic effect. Irrespective of the affective nuances of these theoretical positions, they all highlight the role of theatre as a site of ecological reciprocity, multidisciplinary reflection, and communal resonance.

How can theatre rethink ecological representations of the environment? Kirsten Shepherd-Barr and Hannah Simpson critique the tendency in much climate and eco-theatre to foreground anthropocentric dimensions that reduce ecological crises to interpersonal dramas. They advocate for new representational strategies that decentre human experience to include broader ecological perspectives (323-24, 327-29). An anthropocentric scope obscures "our larger understanding of […] [the vastness and complexity of] the climate crisis" (324), which exceeds human perception. Love, referring to Timothy Morton, compares climate change to a 'hyperobject' that exceeds the

immediacy of human experience (226). She critiques the prioritisation of human-centred action structures and characterisation in eco-theatre to make “complex environmental issues” more “graspable” (226) for potentially reinforcing the same anthropocentrism that caused the ecological crisis. On a broader genre level, Derek Woods delves into the dichotomy between human-scale embodiment and the planetary scale of climate in literary representations (71-72). He discusses how human observation is constrained by ‘anthropo-scalar’ norms that limit our comprehension of the climate crisis to representations at our scale (72). While Shepherd-Barr and Simpson insist that human responsibility must not be trivialised, theatre needs to find “new stage images and new scales of dramatic representation” (325) that “deprioritise” (325) “human action and experience” (325) in climate change discourse. By contrast, Linda M. Hess argues that theatre, “a medium that comes alive through human voices and bodies” (203), can interrogate anthropocentrism precisely because of its reliance on human scales. Relatedly, Love questions the extent to which cultural representations of the climate crisis, including theatre, “can ever escape anthropocentrism” (235). She argues that our conceptions of nature are restricted by our human experience and our mediation of “ideas about ourselves” (235). Una Chaudhuri rejects the symbolic use of the natural world in dramatic texts as perpetuating anthropocentric views in which nature is subordinate to human needs (Woynarski 15). Chaudhuri notes “a new – Anthropocenic – imagination” (“Anthropo-Scenes” 25) in contemporary eco-drama about humanity’s relation to nonhuman nature. This new artistic sensibility is suited to addressing ecological subjectivity in relation to geological dimensions, “figuring species life across many scales” (25) and “undertak[ing] recalibrations of scale across the drama of ideas” (25). Chaudhuri coins the term “Anthropo-Scenes” as a theatrical response to humanity’s ecological impact in the Anthropocene and as a strategy for reconceptualising human subjectivity on the scale of geology and species (12, 25). Chaudhuri’s concept of Anthropo-Scenes argues that “drama – because of rather than despite its focus on human consciousness, action, and conflict – [i]s an important medium of cultural expression to negotiate these concerns” (Rössler 150). All of these positions point to the challenges of decentring anthropocentrism and speciesism in theatre, which remain acute (see also Boles; Bottoms; Chang; Hudson, “Climate Change in British Theatre”; Levine; Lonergan, “Theatre Ecologies”; on literary representations of the climate generally, see Johns-Putra; Markley; Marland; Parham; Woods).

In exploring how contemporary drama addresses the spatio-temporal paradoxes of the Anthropocene, I will draw on Mikhail Bakhtin’s concept of the chronotope. Bakhtin’s notion of the chronotope, which means “‘time space’” (84), refers to “the intrinsic connectedness of temporal and spatial relationships that are artistically expressed in literature” (84). It generates representations in which space is susceptible to narrative unfolding and time becomes palpable (84-85). The chronotope is an elementary category of literature; it is essential for classifying genres (84-85, 110). Chronotopes provide coherence to the novel; they enable artistic portrayal of abstract elements, such as philosophical ideas (248-52). Genres and chronotopes have the power to tangibly

represent the abstract nature of climate change. Kverndokk and Eriksen use genre and chronotope as "important analytical tools" (6) to investigate how climate change is represented in different media, such as news articles or scientific reports (6). Chronotopes arrange a genre along spatial and temporal axes (6), as a result of which they influence the representation of human behaviours and experiences in response to climate change (6-7). Different genres shape knowledge, distribute responsibilities, and influence actions and futures disparately (13). Given the abstract nature of climate change and the Anthropocene, Bakhtin's chronotope elucidates how literature and the arts can translate these phenomena into tangible experiences (6). Chronotopic representations of climate change are elemental in how it is publicly perceived. Because of the spatio-temporal condensation of literary chronotopes into a concrete palpable moment, they are key to tackling the spatio-temporal disruptions of the Anthropocene.

How can we reappraise literary chronotopes from an ecological perspective? What does an ecological approach to literary chronotopes reveal? Timo Müller revalorises the chronotope from an ecocritical standpoint. He contends that, despite Bakhtin's anthropocentric proclivities, his concept remains relevant for the environmental humanities, provided it is improved by ecological insights (Müller 590-91). Müller demonstrates Bakhtin's predilection for "time over space" (591), temporal over spatial elements, "linear over cyclical time" (591), "cultural over chronotopes derived from nature" (590-91, 600-01). Bakhtin's preference of "linear over cyclical time" (600) is problematic because "the notion of linear progress regardless of the environment in which one progresses [...] has led to the nature/culture rift in the first place" (600). Müller espouses the renewed appreciation of chronotopes that offer alternatives to Bakhtin's predilection for historical time and linear progress, particularly unorthodox, more archaic chronotopes that promote ecological perspectives, such as the classical idyll (598-99). Müller holds that "our perception of space is more highly developed than our perception of time" (600). He contends the dominance of time over space is an invention of "modern Western society" (600) and "that society's devaluation of space (i.e., of the environment)" (601). An ecocritical standpoint on the chronotope will result in the "revalorization of space and its manifestations – especially the natural environment – in literary analysis" (602). The spatiotemporal embedding of human existence renders it uniquely suited to revealing how cultural ideas of spatiality and temporality are moulded and mirrored by literature (592-94). Cultural frameworks and the collective imagination are shaped by the ways in which literary texts employ chronotopes. Literature has the ability to both reflect and influence cultural ideas of space and time (593-94). Literary chronotopes thus have an epistemological function.

If we re-approach it from an ecological standpoint, a lot can be salvaged from Bakhtin's chronotope for an investigation of the potential of theatrical chronotopes in representing the climate crisis. There are resonances between climate theatre, Müller's ecocritical re-appraisal of Bakhtin's chronotope, and Kverndokk and Eriksen's appropriation of the chronotope; these reveal how different types of text and discourse represent the spatio-temporal aspects of climate change differently. They elucidate how

theatrical timespaces influence spectators' perceptions of the climate crisis. Theatre is remarkable in the ways it organises space and time, and enables a unique aesthetic approach to the problems of scale framing in the Anthropocene; it combines the immediate presence of spectators and actors co-convening in the theatrical event with the disparate scales of the Anthropocene. The concept of the chronotope helps show how contemporary climate theatre shapes our response to the climate crisis and to the more-than-human-world. In the following, I will attend to select spatio-temporal parameters of various theatrical formats – from traditional dramatic plays to extended monologues, performative science lectures, and artivist performances: Ella Hickson's *Oil* (2016); April De Angelis's *Extinct* (2021); Extinction Rebellion's outdoor artivist performance, "The Sea Is Rising and so Are We" (2019); and *2071* (2014), a performative science lecture by Professor Chris Rapley and playwright Duncan Macmillan. In exploring these four case studies, we will see how the complexities of the spatio-temporal disruptions of the Anthropocene, its vertiginous scale effects, and its nauseating psychological impacts may be translated into theatre. I will highlight the potential of climate theatre to create chronotopes that ground the spatio-temporal complexities of the Anthropocene in embodied, palpable experiences, and to create unique timespaces that bend deep time, slow violence, and the globally dispersed nature of climate change into the "hyper-present" (May, *Earth Matters* 241) of the stage. Theatrical chronotopes are powerful ways of translating the abstract nature of climate change into the parameters of human phenomenology.

Chronotopes of the Necrocene: Ella Hickson's *Oil* (2016)

I want to illustrate the above with four concrete examples and begin with a play that estranges the spatio-temporal structures of conventional drama. Ella Hickson's *Oil* (2016) was first performed at the Almeida Theatre, London, on 14 October 2016. It has received a fair amount of attention from scholarship (Angelaki, Shepherd-Barr and Simpson), most recently in terms of the 'Petrocene' (Hess), petro-modernity (Solnick), 'dark ecology' (Lonergan, "Dark Ecologies", Schroering), and a 'darker ecodramaturgy' (Schroering). *Oil* has a limited cast, with eleven characters. May and her daughter Amy are central, returning in each act. They mirror each other as much as their names are anagrammatic reorderings. In contrast, the temporal scale of the play, covering 162 years in five parts, with time jumps between acts that cause characters to age unnaturally, is extensive. The opening act is set on the impoverished Singer family farm in Victorian Cornwall in 1889. May, "*hardy, slim, muscular and three months pregnant*", is "*frozen, dirty and hungry*" (n.pg.; orig. ital.). She follows the allure of oil, presented by the American salesperson William Whitcomb in the form of a kerosene lamp. "[*M*]*esmerised*" by the gadget, May leaves the farm and her husband, Joss. We encounter her again 19 years later as a maid in 1908 in Tehran, caring for her little child. In the Hampstead of 1970, May is a callous middle-aged CEO of a globally operating oil company, Amy a rebellious teenager. In the Baghdad of 2021, Amy, now a young

woman, witnesses how the neo-colonial and eco-racist impetus of petro-cultures renders characters from oil-rich Middle Eastern countries ‘expendable bodies’, as Linda M. Hess attests. In 2051, May and Amy are back on the farm in Cornwall as elderly mother and middle-aged daughter, in impoverished conditions. Oil has been replaced by cold nuclear fusion; China is a global superpower; England an impoverished state; Mandarin the world language. Through this breach of theatrical naturalism, the disrupted time structure ponders the temporal timescales of human lives in relation to geological time and wider planetary processes. By spreading the lives of these two characters surreally over the time span of pre-oil, peak-oil, and post-oil, the play accentuates the extreme brevity of the age of oil in comparison to the aeons of deep time for vegetal life to transform into fossil fuels – especially in relation to the disastrous scalar effects of the climate crisis. As Hickson reveals in an interview (“On Writing Oil” 00:03:13-00:04:53), this was exactly her intention: “I think one of our problems with taking responsibility for natural resources is that they are slightly longer than our lifetime. […] [O]il takes 150 million years to make, we will have used all of it in 250 years. And somehow because that 250 years is just a smidge longer than our one lifetime, it feels no one has to take singular responsibility for what is a kind of awful use of resources.”[1] This “non-naturalistic” “time signature” (Hickson, “On Writing Oil” 00:03:21) is further amplified by the insertion of lyrically oneiric ‘Interscenes’. For example, Interscene 4: “A child flies backwards into the future. / A child drives backwards. / A child walks backwards / Retreats, returns, retracts / Yestermorrow. / A child returns, retreats, contracts / A child sits. / Home in time for bed.” (n.pg.)

It is instructive to approach the play with Justin McBrien’s concept of the Necrocene. McBrien builds his notion of the Necrocene, or “‘New Death’” (116) as he also calls it, on Jason Moore’s Capitalocene. The Capitalocene locates the rise of capitalism in the sixteenth century and the onset of the transatlantic slave trade. In contrast to the Anthropocene, it identifies capitalism as the primary cause of current ecological predicaments. Importantly, capitalism is not understood as merely an economic system, but as a “‘[w]orld-ecology’” (Moore, “Cheap Nature” 79), which does not separate human culture from “the ‘ecology of the world’” (79), but rather accounts for the entanglements of ‘naturecultures’; it attests to the ways in which capitalism transforms environments on a massive scale, at the same time as it traces how cultures are, in turn, transformed by the agencies of altered environments – agencies that exceed human control:

> Human organizations are environment-making processes and projects; in turn the web of life shapes human organization. This is the *double internality* of historical

[1] Also see Lonergan, “Dark Ecologies” 38, who discusses this comment by Hickson, and the play as a whole, through the lens of Timothy Morton’s ‘dark ecology’ and “the ‘difficulty of thinking on more than one scale at once’ – an act that is exactly ‘the thinking that ecological awareness demands’” (Morton qtd. in Lonergan 38).

> change—humanity inside nature, nature inside humanity. (With *humanity* differentiated, not reduced to a formless, abstract homogeneity.) [...] [S]pecific human organizations—such as capitalism—are revealed as producers and products of the web of life. [...] [This is] a set of problems very different from the usual environmentalist critique, with its easy metaphors of Humanity's 'footprint' upon Nature […]. (79-80; orig. ital.)

Moore deprecates capitalism for reducing the more-than-human world to exploitable resources, what he refers to as 'Cheap Nature' ("Introduction" 11). The Capitalocene frames 'Cheap Nature' as radically different from humans; its increasingly running short of 'Cheap Nature' is a major crisis of the Capitalocene. Philosophically, the Capitalocene stems from Cartesian Dualism and the Enlightenment disenchantment of nature. It relies on the 'backgrounding' of the environment. The notion of 'world-ecology' additionally reveals how the "law of Cheap Nature" (11) has subsumed the majority of humanity. From its inception, the Capitalocene has relied on the devalued or forced labour of humans considered not fully human but part of 'Cheap Nature': "capitalism was built on excluding most *humans* from Humanity" ("Cheap Nature" 79), such as African American slaves, Native Americans, or women, "the better that they could deliver Cheap Nature" (112). The Capitalocene has resulted in massive environmental transformations and, according to Moore, the Great Acceleration of the mid-twentieth century can only be understood against the backdrop of this larger historical diorama.

Not being a rival concept, but rather its "shadow double" (McBrien 117), Justin McBrien's Necrocene complements the Capitalocene. The Necrocene underscores "capitalism's drive toward extinction in a world-ecological sense" (Moore, "Introduction" 7). In McBrien's logic, the dictum of economic growth rests on "'accumulation by extinction'" (8): "the residue of life in hydrocarbons becomes the residue of capital in petrochemical plastics" (McBrien 116). Capital "necrotizes the entire planet"; "it feasts on the dead, and in doing so, devours all life" (116). The Necrocene is also a 'New Death' because it describes a capitalistic system dependent on "the decayed, dead world now harnessed for sake of capital's world-ecology" (122) for its generation of growth. Particularly noteworthy about McBrien's concept of the Necrocene, specifically in relation to the chronotopes of Ella Hickson's *Oil*, is its dual theorisation of time. On the one hand, "fossil fuels [enacted] […] a shift from 'shallow' to 'deep' time" (117) when capitalism depleted "the Cheap Nature of living energy [for example, in the form of coal] […] by the mid-nineteenth century" (122). On the other hand, "[t]he deep time of past cataclysm becomes the deep time of future catastrophe" (116).

Hickson's *Oil* critiques the ideology of economic growth (Hess 209-10). Both May and Amy are shown to be addicted to energy sources (oil and cold nuclear fusion). The play thereby examines petro-cultures as both toxic and intoxicating (Hess 201). This is further underlined by the cyclical structure of the play. Acts one and five mirror each other in their economic and ecological conditions. The setting of part one is "*remote*" in a

"*bitingly cold*" "*winter*"; "*the snow is thick – the air is purple-grey. A white sun is low in the sky*". The interior of the kitchen in the "[*e*]*arly evening*" is described as "*Candles. Black walls.*" Act five returns to Cornwall in 2051, which is as cold, energy-poor, impoverished, and economically degraded as Victorian Cornwall in 1889: "*The Singer Farm. / Bare interior. Grey light. Dead screens. Dead lights. Dead consoles. / Windows – nothing but grey light. / Snow outside, piled high. / Two armchairs. / AMY and MAY sit. Older, heavier.*" (n.pg.; orig. ital.) Relying on such spatio-temporal structures, Hickson's *Oil* dramatises how the Necrocene, in its exploitation of fossil fuels, necrotises the planet through stories of Cheap Nature. Whereas Hess reads *Oil* as 'playing' the Petrocene (her term for an era defined and mediated by our immersion in petro-cultures), I would like to complement this view by emphasising how the Necrocene, in my view, more adequately captures the spatio-temporal structure and chronotopes of the play.

Not only does the temporal duality of the Necrocene capture Hickson's thematic emphasis on fossil fuels and the play's disruption of its time structure; it also resonates with the play's use of the 'future-anterior' mode and of 'future narratives'. Pippa Marland observes that Graham Huggan identifies the "*future anterior*, or future perfect tense, which is oriented towards a future which is always, already looking back" (Marland 301) as pervasive in much (new) nature writing (300-01). For Marland, this is a "mode uniquely suited to the Anthropocene, the temporal frame of which requires us to conjure ourselves imaginatively [...] 'as ghosts that will haunt the very deep future'" (David Farrier qtd. in Marland 301). Concurrently, Middeke and Riedelsheimer note a predilection of this in critical theatre ecologies, particularly in a spate of climate change plays performed in London over the last recent years (11). *Oil*, too, employs this formula. For example, *Oil* ends with the American salesperson William Whitcomb (who presented the kerosene lamp to May in the first act) returning after 162 years, and "*spin*[ning]" with May to a "*waltz*", accompanied by Justin Bieber's music, dancing "*like gods, like monsters*". As the "*age of oil now comes to a close*", this is followed by the final Interscene, in which "*May and WW freeze, as if stuck in time*" and which is revealed to be a "*museum exhibit*". "[B]*arely interested*", Fan Wang, the salesperson of the Chinese cooperation, Nangto (distributing the Toroid – a device generating power through cold nuclear fusion), "*puts a coin into the machine and brings the historical exhibit to life*", which is first rendered in Mandarin, then "*repeat*[ed] *in computerised English*": "*[As the Age of Oil came to a close so this Western Empire fell into decline. The Western Empire, like the Roman Empire that had come before, made the false assumption that their version of modernity was modernity itself.]*" (n.pg.; orig. ital.)

Through the use of the 'future-anterior' mode, the play has us look back at our own present moment in history to critique not only the transience of current geopolitical, economic, and ecological constellations, but also the irresponsibility of a capitalistic system in its (ab)use of natural resources in relation to deep time and future catastrophes (McBrien 118). This use of the future-anterior mode functions as an accusation of the Necrocene. The time structure of *Oil*, pitting the 162-year-long age of petro-cultures against the backdrop of aeons of vegetal life transforming into fossils, resonates with how

the Necrocene exploits the deep time of fossils, thereby, ultimately generating “our own future catastrophes” (118). This time structure responds to the ways Anthropocene temporalities have been theorised by ecocriticism as a “scalar derangement of ecological time” (Middeke and Riedelsheimer 10). Although the representation of climatological time remains a major challenge for theatre, as Middeke and Riedelsheimer concede, Theresa J. May contends that it is precisely theatrical parameters that enable performance to successfully tackle this challenge: It is “theater’s innate capacity to bend time and space into the hyper-present of the stage, making imaginative connections between temporally and spatially disconnected effects of climate change” (*Earth Matters* 241). I argue that Hickson’s *Oil*, especially through its time structure, tries to grapple with questions of representing these canted temporal scales through the ways it uses chronotopes to evoke the Necrocene, and compress its deep history and future calamities into condensed chronotopes.

Apocalyptic chronotopes of flooding and slow violence: April De Angelis’s *Extinct* (2021)

Extinct by April De Angelis is an extended monologue that structurally echoes a TED-talk. Penned as a one-woman show amidst Covid-19 lockdowns, it premiered at Theatre Royal Stratford East, London, on 30 June 2021. The play swerves between dramatised fictitious scenes set in an apocalyptic near-future and meta-dramatic lectures breaking the dramatic illusion. The opening scene is titled “*1. Future Nightmare.*” The stage directions indicate a “*CAPTION: The Anthropocene; the age of human-made climate change*” (n.pg.; orig. ital.). The speculative parts of the action are set in a dystopian UK of 2030 facing food insecurity, water shortages, resource depletion, crop failures, wildfires, scorching temperatures, and severe flooding. Liberal democracy and individual liberties have been eroded, superseded by a draconian government keeping its citizens under surveillance and engaging the military to obviate impending social collapse. *Extinct* emulates the formula of eco-apocalyptic texts in which, as Ursula K. Heise observes, “[g]lobal disasters [...] typically tend to cause or coincide with a general breakdown of legal, educational, medical, and governance systems that often leads to political anarchy” (273). Protagonist April, meta-theatrically typifying the playwright, retells and performs these scenes.

As does Hickson’s *Oil*, *Extinct* applies the ‘future-anterior mode’ to have its spectators critically reflect on their own present moment: “So I have brought you back – not to where we were when we started out – not to safety – but how safe was that place?” (n.pg.), April concludes towards the end of her monologue. This temporal extrapolation into the near future exploits apocalyptic rhetoric to galvanise audience members to climate action. De Angelis draws on “[t]he rhetorical power of apocalyptic narrative [...] to inspire fear of future scenarios” (Heise 275) and “to prevent precisely what it describes” (268). The goal of environmental apocalypse “is to provoke the kind of change that would prevent worldwide collapse” (269). However, one needs to consider the

empirical studies of Matthew Mayer-Schneiderson and his team on the variabilities of how receivers react to the intended messages of ecological texts (Mayer-Schneiderson et al., “The Influence” 352, 357; *Empirical Ecocriticism*), which casts doubt on the persuasiveness of apocalyptic rhetoric. The evocation of fear, in particular, might be unproductive (Heise 279). Alexa Weik von Mossner takes a more differentiated view and argues for the value of both utopian texts (that mobilise ‘critical hope’) and dystopian texts (that draw on the force of apocalypticism). For her, different affective strategies are needed to reach as diverse and wide a populace as possible (“Climate on Screen” 163; *Affective Ecologies* 15, 144). Kverndokk and Eriksen demonstrate how terminology surrounding climate change – such as “climate crisis”, “climate catastrophe”, or “sustainable development” – is “narratively productive” (8). These terms translate climate change from an abstract concept into “encapsulated stories” (8), generative of different temporalities. The story of climate change bisects into two major, but diametrically opposed, plotlines: one conjuring “doom and perdition” (8), the other promising “salvation and bliss” (8). De Angelis marshals the first, using environmental apocalypticism to rouse her audience.

Shattering the dramatic illusion in a Brechtian ‘alienation effect’ (*Verfremdungseffekt*), April discards her role when she addresses the audience directly: “As a playwright I ask myself what’s the point of me, of theatre, in a time of crisis, if I’m not raising the alarm so that we can avoid unnecessary suffering?” (n.pg.). Wrenching her audience out of their immersion into the dystopian near-future narrative she just envisioned, April lectures on the scientific facts of global warming; she discloses how she joined Extinction Rebellion (XR), an environmentalist protest group operating globally, in 2018. In preparation for the play, De Angelis did interviews with XR activists, which she also recorded. Their recorded voices are played to spectators; intermittently, April repeats their text or speaks along. In this way, April relates fluidly to the activists’ recorded voices, coalescing her identity with them. Furthermore, April recounts the personal testimonies of journalist Suhayla, the daughter of Bangladeshi immigrants to the UK. Suhayla reports the toils her extended family in Bangladesh, especially her cousin Abani and Abani’s daughter Anya, experience when their village, Kara Mura, is flooded. This creates an intricately nested communicative structure: De Angelis meta-theatrically writes herself into the play as narrator-character April, who becomes the voice of Suhayla, who, in turn, gives her voice to Abani. As do the “*recorded voices*” of the XR activists, “*Suhayla and Abani start out as recorded voices but are taken over by the actor*” (n.pg.; orig. ital.) *Extinct*, in concocting this dramatic nesting, structurally mirrors how the Anthropocene “bring[s] distant places into close dialogue” (Sterling and Harrison 29) and “destabilizes familiar concepts of space and time” (29); it uses theatrical chronotopes to translate the “highly abstract phenomenon” (Kverndokk and Eriksen 6) and the “‘nonlocality’” (6) of climate change into events that are “directly observable” (6): it theatrically localises what “cannot be localised” (6).

In *Extinct*, the chronotope of flooding is a means of vividly portraying climate catastrophes. After incessant rain results in the collapse of the Thames Barrier, a metre of

polluted water inundates April's home, leaving behind pathogenic contaminated residua. Such apocalyptic scenes echo the formulae of eco-apocalyptic texts which invoke "a premodern experience of nature" (Heise 272), namely of "wild nature [...] as [...] a persistent threat" (269). *Extinct* juxtaposes April's descriptions of intense flooding in the speculative near-future UK of 2030 with Suhayla's narration of the calamitous effects of relentlessly extreme inundation in present-day Bangladesh. There, the setting zooms in on Kara Mura, the hamlet in which Suhayla's grandmother lives; several family members, including Suhayla's grandfather, drown due to flooding. Stressing how Kara Mura is in grave peril of flooding due to incessant rain, which eventuates unanticipatedly, Suhayla graphically expounds the defencelessness of the region, and the degree to which its traditional way of life is in jeopardy because of global warming. We can appreciate how this depiction draws attention to the suffering of nations that are least responsible for the climate crisis. Simultaneously, we should take note of its anthropocentrism. As Heise remarks, "[e]ven in environmentally oriented apocalyptic texts, the major risks typically do not affect the natural world as centrally as the social world, and they are often portrayed as a danger to nuclear families" (274). The chronotopes of inundated human habitats in *Extinct* use theatrical parameters to make the abstract notion of climate change tangible. Representations of "disaster" in eco-apocalyptic texts, such as sea-level rise and drowned cities, tend to serve "as a synecdoche for fundamental ecological change" (273), to metonymically signify wider ecological collapse and far-reaching Earth System changes. The temporality of the chronotopes in *Extinct* interlaces a speculative near future with present plotlines. This accents the protractedness of the climate crisis. The propinquity of the drowning of rural dwellings in Bangladesh and urban areas in the UK marks the global interrelatedness of the Anthropocene. These chronotopes condense spatial and temporal dimensions. They spatialise time; they theatrically compress the future, the past, and the present into individual dramatic scenes. This creates concerted images of disaster that, by proxy, stand for and flesh out the abstract nature of climate change. Abani's life-changing experiences result in Suhayla's realising that these are not isolated weather events: this "wasn't the weather anymore – this was different, this was frightening. And I understood why Abani wanted me to tell this story" (n.pg.). Through such statements, *Extinct* theatrically wrestles with the problem that "unlike weather" climate change "can never be directly experienced" (Chaudhuri and Enelow, "Theorizing Ecocide" 23).

Theresa J. May emphasises the urgency of scrutinising societal inequities by giving prominence to minoritarian voices ("Climate Theatre" 141). *Extinct* lives up to this challenge. The scenes of flooding uncloak the harrowing effects of ecological degradation; they also spotlight the ethical scope of eco-apocalyptic circumstances. The representation of drowned and inundated human habitats makes manifest what Rob Nixon calls 'slow violence'. In *Slow Violence and the Environmentalism of the Poor* (2011), Nixon argues for rethinking the concept of 'violence' in relation to climate change and ecological degradation (1-14, 264-80). Instead of understanding violence as instantaneous and immediately perceptible, we should recognise forms of violence that unfold gradually

and whose effects are often imperceptible, which makes causal connections difficult. The nature of slow violence is incremental; it unfurls over protracted periods. Nixon states: "[By slow violence I mean a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all." (2) Slow violence connotes the imperceptibility and prolongation in which the Anthropocene manifests over longer time periods and is dispersed spatially – from phenomena such as "[c]limate change, the thawing cryosphere, toxic drift, biomagnification, deforestation, the radioactive aftermaths of wars, acidifying oceans, and a host of other slowly unfolding environmental catastrophes" (2). Nixon remarks that marginalised populations, especially "the poor in the global South" (4), are inordinately harmed by the slow violence of environmental defacement. Slow violence eludes the immediacy and directness of phenomenological perception and is therefore incompatible with the sensationalism and the "media bias toward spectacular violence" (4) of tabloid journalism, 24/7 news cycles, and social media, which privilege instantaneous hazards. Nixon attends to the "formidable representational obstacles" (2) of slow violence "that can hinder our efforts to mobilize and act decisively" (2). As a remedy to this medial neglect, Nixon emphasises the potency of representation through storytelling as epitomised by "the complex, often vexed figure of the environmental writer-activist" (5, 14-16). By grounding us in the immediacy of the theatrical event, chronotopes, as showcased in *Extinct*, may act as a counterforce to what Nixon bewails is the bane of our "era of enclaved time" (8), namely "[t]he attosecond pace of our age" (8). The chronotopes of climate theatre, through the theatrical deceleration of the hectic lifestyles of affluent societies and the quick pace of mainstream media in their hunger for sensationalist news, may be one potent answer to Nixon's question about "adjust[ing] our rapidly eroding attention spans to the slow erosions of environmental justice" (8).

Extinct discloses this form of prolonged, attritional violence vulnerable populations of the mostly global South are exposed to. It bares the gradual, protracted repercussions of environmental ruination, the 'structural' violence (Nixon 10-14), disadvantaged communities face, but that go often unnoticed. The hydrological chronotope of inundation strategically juxtaposes spatio-temporal contrasts in its portrayal of the near-future UK and contemporary Bangladesh to underscore the inequitable effects of the climate crisis. As Suhayla reprimands: "For Bangladesh the one-point-five degrees of warming we have already signed up to will mean more flooding, landslides, poverty, temperature rises and displacement." (n. pg.) When their home "was washed away", and their "shrimp farm gone" and "there is no life for [...] [them] here anymore", Abani and Anaya have "no choice but to try to find work in Dhaka" (n. pg.), "in the garment trade", where "[t]he air is gritty from traffic fumes and the smoke of cooking fires", and where "[t]he Buriganga river is thick with the slick of chemicals from factories", and where "[y]ou cannot wash in it" (n.pg.), as Abani laments. Similarly, in the speculative UK of 2030, economically disadvantaged districts and underdeveloped areas are shown to be worse afflicted by the slow violence of global warming than ones that are economically more privileged. Trying to phone her son, who "is living in Rotherhithe, it's low-lying so the rent's cheaper", and

receiving "[n]o answer", April reports "A kick of fear in the pit of my stomach". "I ring my son – his phone is dead. It couldn't mean anything, could it?" (n.pg.) This discrepancy lays emphasis on the inequitable spreading of ecological hazards. It underscores that slow violence is "dispersed across space and time" (10). As Nicole Starosielski notes, we should conceive water as "a social space'" which "encapsulat[es] a complex 'matrix of power relations" (qtd. in Zylinska 221). Referring to post-colonial and indigenous critiques of eco-apocalypticism, Heise notes that many eco-apocalyptic narratives, "by projecting scenarios of extreme environmental injustice into the future [...] obscure the extent to which such events already form part of global history and reveal their anchoring in the life experiences of a mostly white and bourgeois audience in the global North for whom they appear terrifying as possible futures" (277). This criticism applies to De Angelis's portrayal of the near-future UK as well; however, she parries this in her portrayal of Bangladesh. The hydrological chronotope of inundated cities and villages in *Extinct* draws attention to how flooding in the context of the Anthropocene is more than 'just' a natural catastrophe, but always an expression of social inequalities.

April pillories the UK government's escalation of the climate crisis through collusion with and bankrolling of the fossil fuel industry: "our media won't tell us the truth"; "Our government says it wants to take action on climate change but subsidises the oil industry giants to the tune of ten and a half billion pounds a year. / The world's top sixty banks have spent three-point-eight trillion dollars financing the fossil fuel industry since the Paris agreement in 2015." She dwells on the systemic obstructions to effective climate action. And then "*She picks up a bucket of oil*." She continues: "If we want to know why things aren't changing, it's because some people are making a huge amount of money – from this." Conceding at the onset of the play that "[g]etting naked and covering myself in crude oil is not going to help my cause" (n.pg.), she poignantly contradicts herself by doing exactly this towards the closing of the play, when, in a commandingly suggestive and striking move, April "*pours the oil over the stage in a spill*", potentially also over herself. As the stage directions indicate: "*She is affected physically by the oil on her body. She may 'drink' the oil as oil-slick rebels do – impersonating the act of drinking oil.*" (n.pg.; orig. ital.) Instead of apportioning blame on the "Anthropos, the supposedly genderless transhistorical 'human'" (Zylinska 222), as the Anthropocene narrative does, April's detection of "a system that is extractive, wasteful, linear, abusive / That takes from the Earth with no heed of the consequences for people like Suhayla and her family" as the stimulus for climate change resounds with Moore's analysis of capitalism as a world-ecology that results in ruinous ecological changes.

April attacks lobbyism and economic profiteering influencing political decisions to the detriment of planetary health. In her comparison of the climate crisis to "a thousand holocausts", April accentuates the incomprehensible immensity and unthinkable dimensions of misery and destruction the Anthropocene has created and will continue to cause; this resonates with the emphasis the Necrocene lays on devastation, death, and extinction: "And when will the tipping points come that will rock the Earth into a death spiral?", she asks. "Why aren't we acting like it's an emergency?" The propulsion

towards accumulation of capital and extinction is echoed in this scene; as a petro-chronotope, the theatrical-oil-as-prop symbolises the torrents of petro-capital; April's dramatic gesture of spilling the oil ostends the Necrocene's lethal grip on petro-cultures. As a chronotope, this gesture contorts and compresses the temporality of the Necrocene – its necrotising of the Earth's deep future through its capitalistic gorging on the decomposed vegetal life of deep time – "into the hyper-present of the stage" (May, *Earth Matters* 241). By encasing deep-future extinctions and calamities, former biological life of deep time, and the contemporaneous Capitalocene into an elusive instant of theatricality, this chronotope counts upon phenomenological coordinates – the performer's body tactilely covered by crude oil; the haptic; the immediacy of the present moment; the communal nature of the performance – to denounce petro-capitalism, to decipher the abstract notion of climate change, and to ground this critique in visceral, affective theatrical experiences.

Littoral chronotopes: Extinction Rebellion's "The Sea Is Rising and so Are We" (2019)

My third example, "The Sea Is Rising and so Are We", is an artivist performance protest organised by Extinction Rebellion's Ocean Red Rebel Brigade, which took place on Porthmeor Beach in St. Ives, Cornwall, England, on 11th August, 2019. Extinction Rebellion (XR) is a global environmental movement using nonviolent civil disobedience ("World Map of Extinction Rebellion Groups"). In turn, the Earth Ensemble, XR's creative arm, uses theatrical strategies in protests in outdoor and "guerrilla theatre" performances (Shepherd-Barr and Simpson 338-39). It embodies 'artivism' – a fusion of art and activism. Performance art bridges the personal and the political (Schechner 159-60) and is often socially or politically motivated (Zarrilli et al. 473). The Red Rebels resonate with the goals and practices of performance art, political theatre, and social theatre (Schechner 325; Zarrilli et al. 437-41, 472-74). Shepherd-Barr and Simpson read the globally dispersed nature of XR performances alongside Morton's hyperobject (341-42), not intended to be perceivable in their entirety by any single spectator. The Red Rebels offer a particularly intriguing example of how artivism can use performance art chronotopes to ground the impalpability of the climate crisis and the spatio-temporal paradoxes of the Anthropocene.

Their affective performance art spans into digital artivism to maximise their outreach and push climate awareness, partly by relying on visual spectacle and emotionalising strategies. The artivist intervention is available as a short film on YouTube. Its distribution via social media channels, as well as the hybrid nature of this performance as both *live* performance and *filmed* event, attests to the fact that performance art is increasingly exceeding the domain of "face-to-face interactions" (Schechner 328) through "the internet and the digital sharing of performances" (328). The filmed version intermingles the overpowering theatricality of guerilla performance art with the skilled cinematographic manipulation of ranges of camera distance, angles, types

of shot, and extradiegetic film sound. From close-ups to aerial shots, it creates effects of both intimacy and distance which are unavailable to, and distinct from, the original live performance. Additionally, shots featuring incentivising and emotionalising slogans in bold red capital letters, such as "GRIEF", "PAIN", "RAGE", or calls to "JOIN THE REBELLION" against a screen showing an aqueous surface are edited into the film material. One cinematographic strategy of the film is to use extreme long shots and wide aerial shots which dwarf the human figures (of the performers, the protestors, and the beachgoers) against the backdrop of the natural landscapes of the coastline and the sea. We might want to understand this as a nod to the disparate scales of the Anthropocene, as an aesthetic form of scale framing, which accents the insignificance of a human perspective in comparison to other-scaled points of view. These bird's-eye shots are juxtaposed with medium long shots to medium close-ups.

"The Sea Is Rising and so Are We" is a heavily choreographed protest – as any Red Rebel Brigade intervention is. The fourteen Red Rebels commence their performance located on a craggy cliff adjacent to the sea, where they line up in front of a stone chapel, surrounded by onlookers and protestors in civilian dress. The high-angle and extreme long shots present the Brigade as a collective force in serpentine formation. The artivists then progress by the edge of the water. Their facial expressions are grave, aggrieved, plaintive. They wear stunning, garishly intense red, long vestments that cover their entire bodies – a colour with symbolic resonance: "Red Rebel Brigade symbolises the common blood we share with all species, / That unifies us and makes us one. / As such we move as one, act as one and more importantly feel as one. / We are unity and we empathise with our surroundings [...]" ("Red Rebel Brigade"). On top of their turban-like headdresses are placed long veils that envelop most of their faces; moving along the windy beach, their fabrics create wave-like undulating structures. In terms of kinesics (i.e. the use of gestures, facial expressions, and body language) and proxemics (i.e. the positioning of performers in space relative to one another), their synchronised movements and postures are deliberately slow and extraordinarily premeditated so that the Rebels act collectively. As co-deviser of the Red Rebels Doug Francisco from Invisible Circus explains in a video on the postures, gestures, and formations the Red Rebel Brigade practises, their processions often culminate in a tableaux. In artivist performance protest, it is difficult to "always predict what's gonna be happening" (00:02:00); "the pace means that you've got time to consider that [i.e. one's surroundings] and [...] play [...] with your environment" (00:02:13-20). When confusing or challenging situations arise, when their performances are disrupted or get momentarily de-synchronised, then the slow pace helps the performers to steady down.

The Rebels are accompanied by Sackcloth Penitents, "atoning for climate catastrophe" ("The Sea Is Rising and so Are We"), clad in brownish sackcloth or jute (Shepherd-Barr and Simpson 338-39, 341-42), which may be read as emblematic of repentance, culpability, remorse, perdition, ruin. Close-ups to extreme close-ups allow an intimate view of the performers' facial expressions and of the slogans on the placards they are carrying; these feature scientific facts and political indictments, such as "If this

ocean were a bank, it would have been saved by now", "Rising sea levels = millions of climate refugees", or "75% of arctic sea has melted since 1990". The Rebels and the Penitents interrupt the ordinary, leisurely behaviours of holidaymakers and beachgoers (swimmers, surfers, families), some of whom are puzzled and intrigued; others of whom are disengaged, almost oblivious to their presence. Visually, this captures the dissonance between environmental protest and the neglect of the climate crisis by society more broadly. One cannot help but be reminded of the uneven, unjust distribution of the effects of global warming across global communities, as well as across present-day and future generations, where raw devastation and insulated privilege are lopsidedly dispensed. The Red Rebels advance into the ocean until the water reaches up to their midriffs. The performance closes on the Red Rebels standing in the seawater up to their waists, interlocking with their arms, and forming a half-circle in solidarity and unison. This adds to the sense of them being a collective organic formation rather than a group of separate individuals. They are raising their fists in the internationally understood gesture of defiance, protest, revolution, but also hope, "a victory gesture" (00:01:07) and a "symbol of solidarity" (00:01:17) – a posture which they "use [...] a lot when [they are] [...] going past people being arrested" (01:19-01:22) and similar situations, as Francisco explains. The camera captures the Red Rebels, from a slight low-angle and canted shot as well as a fish-eye lens, with the waves of the ocean water splashing violently against the screen – cinematic techniques that add a sense of disquietude, menace, defencelessness to the scene. Behind the Red Rebels, we see a surfer drifting in the back of the shot, apparently disengaged. The film closes with high-angle aerial shots from drone footage zooming out of the scene, leaving the protesters in the sea, the beachgoers on Porthmeor Beach, and the dwellings of St. Ives behind as tiny specks in comparison to the vastness of the ocean.

This performance excoriates what Val Plumwood identifies as the backgrounding of nature in Western epistemologies. Plumwood contests the conception of nature as merely a trifling setting against which grandiose human actions unfold. She discerns the backgrounding of nature as a facet of normative dualism – "the process by which contrasting concepts (for example, masculine and feminine gender identities) are formed by domination and subordination and constructed as oppositional and exclusive" (31). Plumwood highlights several aspects of normative dualism: 1) backgrounding or denial; 2) radical exclusion or hyperseparation; 3) incorporation; 4) instrumentalisation and objectification; 5) homogenisation or stereotyping. To conceptualise the other as inferior and lower, the master has to rely on radical exclusion or hyperseparation so as to maintain maximum differentiation (49-51, 152-53). Consequently, "[t]he other is recognised only to the extent that it is assimilated to the self, or incorporated into the self and its systems of desires and needs" (52). Nature is instrumentalised, objectified, and conceived as an undifferentiated, homogenised other. By understanding nature as inessential and by denying human dependence on it, its exploitation and destruction are encouraged. Plumwood delineates how the backgrounding of nature informs humanist accounts of subjectivity that foreground the experiencing acting subject as a master of its background, nature, while simultaneously denying the subject's dependency on its surroundings (31-

38, 47-57, 142-147, 152-153; see also Moyer 93). Plumwood attests that this philosophy still pervades (Western) conceptions of selfhood (94): "What is involved in the backgrounding of nature is the denial of dependence on biospheric processes, and a view of humans as apart, outside of nature, which is treated as a limitless provider without needs of its own" (21). The artivist interposition by the Ocean Red Rebels counteracts these normative dualisms and the logics of mastery, subordination, and domination vehemently. In this chronotope, the ocean is foregrounded and becomes a protagonist and co-performer, rather than being backgrounded as a setting for the Ocean Red Rebels. Wilfully striding into the waters and "enter[ing] a choppy sea", the fourteen Red Rebels remained there, "supporting each other for half an hour as the rising tide threatened to swamp them," which "symbolis[es] the rise in sea levels which will drown beaches and coastal communities in the UK and worldwide" ("The Sea Is Rising and so Are We"). Dwelling on both immediate and far-reaching repercussions of climate inaction, the performance nullifies radical exclusion, the speciesist and anthropocentric idea of humanity being exceptional and superior to the more-than-human world.

Plumwood also critiques the depreciation of the body and the glorification of rational thought in the normative dualism of mind/body, which is steeped in Cartesian Dualism. This dualism "enforce[s] a strict and total division not only between mental and bodily activity, but between mind and nature and between human and animal. [...] The body, deprived of such a level of description and hence of any capacity for agency, becomes an empty mechanism which has no agency or intentionality within itself [...]. The body and nature become the dualised other of the mind." (115) Body-mind dualisms, prior to René Descartes' notorious assertions, extend back to ancient Greek philosophy of the fifth century B.C.E. (Zarrilli et al. 59-60). Performance art aesthetically uses embodiment to upend mind/body dualisms. It recognises "the embodied" and "the performed […] as its own domain of knowledge and experience" (Schechner 328). "The Sea Is Rising and so Are We" topples this Cartesian divide between active human subject and denied passivated background in a phenomenological merging of ocean and performers, especially through the Rebels' use of kinesics and proxemics, who "use their own bodies as performance instruments" (473). Their amalgamation of oceanic and human bodies vehemently attacks the separation of body and mind, nature and humanity, as espoused by Western epistemologies. However, there is a danger that the aesthetics of film result in a dissociation of viewers from exactly this grounding in embodiment and the materiality of the climate crisis. The mesmerising cinematography might potentially create distance between performers and viewers, and obscure the centrality of embodied existence, thereby unwittingly reinscribing a Cartesian divide. Conversely, the affective strategies of the film might spectacularise emotions, such as grief, loss, or rage.

The beach is a discursive space culturally connoted with leisure – which The Red Rebels' performance disrupts. Performance studies insists that "'non-theatre' venues" "are in fact sites of multiple performances". As Schechner notes, "every social activity can be understood as a showing of doing" (qtd. in Zarrilli et al. 473). "The Sea Is Rising and so Are We" makes explicit that being a leisurely swimmer on the beach is a

performance that jars with the explicit performance by the Red Rebels. The contrast underscores how scripted and culturally conditioned this identity of a leisurely swimmer is – like most performances of everyday life, these are so deeply incorporated into our subconscious behaviours that we do not recognise them as performances (Schechner 325). In selecting Porthmeor Beach as the site of their performance, "The Sea Is Rising and so Are We" condenses the climate crisis, synecdochically represented by the menace of sea-level rise, into a maritime, littoral chronotope of the shoreline in which temporal and spatial distortions of scale effects coalesce. A key component of their artivism, this liminal maritime-coastal locale is an 'empty space', "open to all kinds of possibilities" (Schechner 67). It is therefore "liminal" (67); it acts as "a threshold or sill, [...] a passageway between places rather than a place in itself" (66) – a liminal space between the beach and the sea (66), a passageway beyond anthropocentric framings of a backgrounded nature devoid of personhood, of non-human entities deprived of agency, and of the sea as nothing more but a resource for human consumption. Not only does this chronotope of the seaside anchor their protest in a concrete, definite topographic locale, it also compacts climate change temporalities of past ecological turpitudes, present complicity, and near- and deep-future legacies.

Robin Wall Kimmerer, Professor of Environmental Biology and enrolled member of the Citizen Potawatomi Nation, points out that threatened languages such as "[…] Bodewadmimwin, or Potawatomi, an Anishinaabe language" mirror a singular view of the world, which differs decidedly from Western ontologies (n.pg.; Streeby 203-205). Kimmerer sets English, a noun-based language, in opposition to Potawatomi, a verb-based one, which consists of up to 70 percent of verbs; for example: "'to be a hill,' 'to be red,' 'to be a long sandy stretch of beach'" (n.pg.). Potawatomi mirrors a view of the world that recognises everything as sentient, interrelated. Kimmerer demonstrates how the dependence of English on nouns enables a philosophy, where existence is segmented into disconnected objects, whereas the reliance of Potawatomi on verbs permits an ontology of energetic relationships that endows the world with animacy. This view of linguistic relativity is comparable to Benjamin Lee Whorf's assertion that the structure of a person's language is a central factor in their perception of reality. The grammatical background of our mother tongue influences how we construct statements and how we divide nature into objects and units. Indo-Germanic languages lead us to view the universe as a collection of distinct objects – the implicit worldview of classical physics – and a bipolar division of nature; nature, however, cannot be polarised this way (233-45). According to Whorf, languages such as Hopi have expressions that do not insist on separation, but are plastic and synthetic creations. This leads to a perception of reality that is more fluid (207-19, 233-45, 240) – an observation that corresponds to Kimmerer's claims on Potawatomi. Kimmerer notes that Potawatomi categorises nouns based on animacy, "extend[ing] the grammar of animacy" to include "rocks [...], mountains and water and fire and places", but also "our sacred medicines, our songs, drums, and even stories." (n.pg.). This grammatical structure inspires a view of the world as vibrant and reciprocal, which might stimulate more deferential treatments of the more-than-human

world (n.pg.). Symbolically, visually, and corporeally, "The Sea Is Rising and so Are We" transmits this recognition of "our kinship with all of the animate world" (n.pg.): the rising waters of the ocean, far from being inert backgrounds for environmental disaster, are agentic forces in the unfolding climate crisis. In anthropomorphising the ocean, the Rebels' performance rightly recognises the sea as an animate body of multiple agencies that are affected by, and in turn affect, anthropogenic activities.

Cryospheric chronotopes: Chris Rapley and Duncan Macmillan's *2071* (2014)

Finally, I will focus on *2071*. The play was "co-written by Chris Rapley and Duncan Macmillan, following more than a hundred hours of conversation" (Macmillan 231). It has been widely discussed by critics, particularly in relation to its status as a science play (Bartleet), its anthropomorphic scale of representation (Shepherd-Barr and Simpson), in terms of environmental theatre and ecodramaturgies (Angelaki, Love), its representation of climate science (Chang), and its heteronormative reproductive futurism through the lens of queer ecology (de Waal). At the premiere on November 6, 2014, at the Royal Court Theatre in London, directed by Katie Mitchell, Professor of Climate Science, Chris Rapley performed himself. The dramatic script elucidates concepts like the carbon cycle and dynamic balance in accessible terms (Bartleet). It explains Earth as a system and depicts human-induced changes over millions of years. The performance, as indicated by the authors' foreword, forgoes traditional theatrical elements like scenic action, scripted plots, and character portrayal. Instead, it aims for direct scientific communication to create an effect of credibility and authenticity. Katie Mitchell's approach "was to place the scientist onstage, to explain the data with clarity and objectivity from a position of authority" (Macmillan 231) for fear that "[t]he element of fiction can also allow an audience to dismiss what they're hearing" (231). Accordingly, Rapley appears as the sole speaker in an extended monologue to the audience (Bartleet 49, Chang 73). As Shepherd-Barr and Simpson point out, the hybrid form of the 'lecture-performance' or 'dramatised lecture' aims to be "as unmediated a form of fact-based scientific communication as possible, with all the attendant promises of authority and authenticity" (330). In what follows, I will approach the play through the lens of critical posthumanism and material agency, specifically through a combined application of Stacey Alaimo's, Elizabeth Povinelli's, and Joanna Zylinska's theories.

In one scene, Rapley vividly describes holding a half-million-year-old piece of ice, when on a mission to the Antarctic in 2002 as Director of the British Antarctic Survey. This mission was undertaken with a view to "observ[ing] the change in atmospheric concentration over time, by looking at data from ice cores drilled from ice sheets and glaciers in the Antarctic and Greenland" (Macmillan 252). The passage is one example of how deep time may be theatrically docked and made to be phenomenologically perceptible. Rapley explains the scientific process of drilling ice cores and measuring air samples with meticulous detail (252): "It took an hour to lower the drill, a few minutes to

drill the core section, and an hour to winch it up to the surface" (253). Rapley then describes how he "picked a piece up" (253), and elaborates on the sense of sublime awe he experienced "holding a piece of ice that had not seen the light of day since before the dawn of mankind" (253). He relates his sensuous engagement with the piece of ancient ice: "I listened to the air bubble pop and crackle as the ice melted from the heat of my hand. / I breathed the air coming out of it, air that was trapped at the time of freezing." (253) Addressing the audience directly, Rapley explains: "By measuring this air it is possible to study the composition of methane and Carbon Dioxide over time." (253) And further: "During each recent cold phase, […] the Carbon Dioxide concentration of the atmosphere dipped to about 180 parts per million. / In the warm phases it peaked at around 300 parts per million. / Last year, the Carbon Dioxide concentration of the atmosphere passed 400 parts per million." (254) He then requests the audience to "Take a deep breath" (254) to sense elevated Carbon Dioxide levels in the atmosphere. He qualifies that "We're the first human beings to breathe air with that level of CO2. / It is unprecedented in the recent record." (254) This scene creates a chronotopic motif of ice-drilling and is one example of how the spatio-temporal paradoxes of the Anthropocene are conveyed in *2071*. Not only does Rapley make the scientific method more vivid and literally graspable; the activity of drilling metres into the prehistoric ice sheet and clasping a miniscule piece of it, with which audiences can vicariously interact in their imagination through Rapley's descriptions, is a cryospheric chronotope that haptically spatialises the sublimity of deep time into the scope of a few metres of frozen water, which it imbues with aesthetic awe, wonder, and reverence: a chronicler of time, the deepness of the ice core archives specific moments of planetary history in each of its individual layers. This makes tangible and palpable abstract notional conceptions such as global warming or geological time. It is a cryospheric chronotope that suspends Anthropocene disorder in its traversing of scale framing; it unifies the immediacy of human phenomenology and perception and the vastness of Anthropocene timescales. Spectators are invited to vicariously participate in a substitute sensory experience to better comprehend Earth system changes across dissimilar, discordant scales.

I would like to contemplate this chronotopic condensation of scale effects together with some of Elizabeth Povinelli's, Stacy Alaimo's, and Jonna Zylinska's eco-philosophical propositions. Together, these positions offer insights that urge us to re-assess notions of agency, responsibility, and ethics that exceed a simple binary division into individual versus collective – they propel us to rethink notions of human separateness and exceptionality, instead realising our embeddedness within wider material-discursive networks.

Elizabeth Povinelli contends that the classical distinction between Life and Nonlife in Western epistemologies is increasingly becoming extraneous (42). Current developments in the natural sciences, as in new transdisciplinary fields such as biogeochemistry, geomorphology, or physics, increasingly disassemble clear distinctions between geochemistry and biochemistry, geology and biology. This separation, an error of human phenomenology, appears only so on the anthropo-scalar level (43). Povinelli

illustrates this with the interconnectedness of life forms in "massive biotic assemblage[s]" (42) embroiled in planetary processes, such as the carbon cycle, which the Anthropocene disarrays (42). The examination of Anthropogenic climate change unveils how miniscule, microscopic life processes, "the smallest unit[s] of life and death" (42), hinge with global planetary systems, with "planetary life and death" (42). This accentuates the degree to which extinction plays out on a planetary level, not just on the level of species (42-43). Povinelli argues that separating human bodies and other biotic organisms from their environments and from one another only makes sense when seen from the vista of "epidermal enclosures" (42); they are "external to the other only if the scale of our perception is confined to the skin" (42). She invites her readers to imagine the connections of human organisms to their environments from the perspective of their lungs (42). From this pulmonary perspective, lungs interface with the "larger, massive biotic assemblage" (42) involved in the production of "the metabolism of the planetary carbon cycle" (42). Povinelli's claims directly apply to the cryospheric chronotope of breathing in primaeval air trapped in prehistoric ice. Rapley's lecturing on the carbon cycle attests to the symbiotic entanglement of human activities, geological transformations, and the transmutations of the hydrosphere and the cryosphere. Human phenomenological perception, Povinelli implies, is generally incapable of adequately recognising the entwining of biological and geological activities.

Rapley's depiction of gripping the core of ice, together with his scientific explanations of its entrapment of ancient air, educate audiences about the interlocking of anthropo-scalar notions of existence with geological time. Whereas on a phenomenological scale it might appear judicious, seen from this more expansive vista, the ineptitude of the separation of Life from Nonlife, here represented in the form of atmospheric gases and ice, becomes obvious. Seen through the lens of Povinelli's writings, spectators are invited to perceive the world from the standpoint of their lungs in experiential recognition of their being one minor constituent of complex networks, linking the symbiotic microbial-cellular aggregation of 'our' bodies with the immense scales of planetary processes that have been shaped by natural and anthropogenic activities alike – a point driven home by Jane Bennett's vital materiality and vibrant matter, and her insistence that our corporeality is not reducible to a singular 'human' body, but should instead be seen as "*an array of bodies*" (112; orig. ital.), "many different kinds of them in a nested set of microbiomes" (112-113), "swarms of foreigners" (112). Despite the endeavour to avoid theatricality through the use of the performative-science lecture, *2071*, with its singular focal point on one speaker (Rapley-as-scientist), runs the risk of unintentionally fortifying anthropocentrism (Shepherd-Barr and Simpson 331-32). While *2071* succeeds in transliterating abstract climate science into palpable, haptic moments, it neglects historical inequities or the complexity of slow violence in its uncritical portrayal of the human species as a homogeneous "super-subject beyond all possible subjective experience" (Clark 14). This cryospheric chronotope notwithstanding, the play fails to account for the fact that "[w]e humans never experience ourselves as a species" (17). *2071* conceives the Anthropocene in exactly those limited ways for which

it has been critiqued so ferociously – as “cultureless” (Hartley 164), to speak with Daniel Hartley. Povinelli and Bennett offer alternative perspectives to reading this chronotope.

Stacy Alaimo’s concept of trans-corporeality “traces the material interchanges across human bodies, animal bodies, and the wider material world” (“Oceanic Origins” 187; orig. ital.). Trans-corporeality is a “movement across bodies” (*Bodily Natures* 2) that captures the “flows of substances [...] between people, places, and economic/political systems” (9). It creates an ontology in which the human and the ‘environment’ are indivisible (“Trans-Corporeal Feminisms” 238). Trans-corporeality belies the idea of an “ostensibly bounded human subject” (20, “Oceanic Origins” 187) because “the material self cannot be disentangled from networks that are simultaneously economic, political, cultural, scientific, and substantial” (*Bodily Natures* 20, “Oceanic Origins” 187). It reinvents the humanist subject as porous and unbounded, “radically reconceived as a site of material agencies within global networks and systems” (“Oceanic Origins” 187), in which the material self operates actively within material agencies (187). As an ethical ontology, trans-corporeality emphasises environmental justice and health (“Trans-Corporeal Feminisms” 238) because it applies to all materiality continuously intra-acting in complex, unpredictable ways (258-9). Trans-corporeality is at once “material and discursive, natural and cultural, biological and textual” (238). The natural sciences reveal the human body to be permanently intra-acting with its material surroundings; hence, human identity and corporeality should be conceived as a fluid entity. Drawing on critical disability studies, Alaimo illuminates how the impossibility of mastering one’s own body is equivalent to the futility of attempting to dominate the natural world.

Alaimo’s concept excavates implied layers of meaning in the cryospheric chronotope of *2071*. Rapley substantiates climate science when he reflects on the materiality of his encounter with the ice. The process of drawing breaths demonstrates the material couplings of, and exchanges between, human organisms and broader ecological systems, which are, in turn, discursively mediated. In this scene, audiences are trans-corporeally immerged in “the metabolism of the planetary carbon cycle” (Povinelli 42), albeit vicariously. Rapley, requesting spectators to breathe, demonstrates how oxygen, the most elementary fount of human life, merges us to planetary ecosystems. The activity of respiration becomes a chronotope of both figurative and actual interchange and reciprocity: spectators imaginatively exemplify trans-corporeal intra-activity by respiring air that has travelled over multifarious labyrinthine systems – ecological, temporal, and spatial. Their breath affixes them to antediluvian carbon cycles, current escalations of CO2-levels, eventual after-effects, and multitudinous speculative future time-lines – futures that might well asphyxiate generations to come. It spotlights the volatility of corporeality and the mutual materiality of Life and Nonlife. Exemplifying Nonlife, the ice is accorded agency to communicate atmospheric life cycles. Nonlife is hulled out of its being relegated to its existence on the sidelines for (human) Life; instead we could see it as an integral aspect of the core of our material selves, let alone our survival. In the Meteorocene (Povinelli’s term for climate change), the sciences reveal that:

> Life is not the miracle— the dynamic opposed to the inert of rocky substance. Nonlife is what holds, or should hold for us, the more radical potential. For Nonlife created what it is radically not, Life, and will in time fold this extension of itself back into itself as it has already done so often and long. It will fold its own extension back into the geological strata and rocky being, whereas Life can only fall into what already is. Life is merely a moment in the greater dynamic unfolding of Nonlife. And thus Life is devoured from a geological perspective under the pressure of the Anthropocene and Meteorocene. Life is merely another internal organ of a planet that will still be here when it is not, when we are not, undergoing its unfolding, creating who knows what. (Povinelli 176)

To better understand how we could think of the ice core as an agent that communicates across scales, I find it helpful to turn to Joanna Zylinska's theorisation of water as both "shared human-non-human heritage and as a site of geo-cultural memory" (220). Zylinska attests that water's mode of communication outstrips human linguistic ones (220). Water surmounts human communication systems because it partakes in "multiple naturecultural processes" (225). HYDROMEDIA is her coinage for characterising water "as a dynamic process that temporarily stabilizes into various forms" (221): "tears", "rain", "oceans", "machines", or "infrastructures" (221). This outlook agrees well with environmental media theory, which supplements conventional understandings of technological media (as in broadcasting) to encompass the diversity of exchanging 'information' and energies between human and more-than-human agents (221). More radically, Zylinska proclaims "*water itself*" to be "*a medium*" (223; orig. ital.). Water is not just a resource for generating technological media. More fundamentally, it acts as an indispensable component of communication systems in an "infrastructural understanding of media as communication networks" (223) embedded in other infrastructures, such as railroads or trade routes (223). Prioritising "the mediatic agency of water" (222), HYDROMEDIA accentuates its vibrant agential qualities (222). In this sense, water is not passive but "always part of hydromediations" (225). Further, Zylinska accentuates that the idea of a separate bounded self deliquesces, given the fact that all beings are constituted by water – an argument that resonates with Alaimo's trans-corporeality. Both Zylinska and Alaimo would also concur on the fact that such an altered view of the material self entails ethical dimensions because it demands that we take responsibility (240). Through demonstrating the interrelatedness of all earthly existence, water, Zylinska argues, should therefore be considered an ethical medium. Water, comprising the majority of human corporeality (222), is impossible to classify as an object that exists independently or separately from us (222-23), as Zylinska stresses. HYDROMEDIA denounces anthropocentric framings of water as "a resource for the human" (224). Rather than objectifying water, we should appreciate its "fluid ontology" (224): water is a vigorous power and energetic process; its devaluation contestable.

Applied to *2071*, the ice core typifies a "communicative medium" that eclipses linguistic biases of semiosis. An envoy of "geo-cultural memory" it transmits information

about atmospheric changes over a duration of half a million years; it acts as a malleable archive of environmental fluctuations; it reminds us that water – whether liquid, vaporous, evaporated, solidified by cold, or thawed – is an indispensable informant of our techno-scientific comprehension of planetary pasts and futures. This chronotope resonates with the fluid ontology of water, and by extension ice, and its role in agentically communicating the abstract nature of global warming. Centrally, the ice core – incorporated in wider nexuses of planetary processes, Earth systems, human activities, and technological infrastructures – 'acts'; it is not an entity sequestered. Yet again, the performative priority accorded to Rapley-as-sole-speaker and his scientific authority creates a canted angle that stresses the superiority of human knowledge, whereby it neglects the mediatic agency of non-human entities, such as water. This is an anthropocentric, anthropo-scalar vista that abates the potential of climate theatre to express the role of non-human agents, in this case water and ice, in communicating and shaping climate change discourses.

Alaimo, inspired by Donna Haraway's epistemological model of 'situated knowledges', conceives knowledge objects as active partakers and 'agents' ("Trans-Corporeal Feminisms" 251). Agency is relational and dynamic (244-45). The problem with theorising nonhuman agency, she concedes, stems from the "thorny" (244) question of imagining action and agency without agents or subjects (245). To overcome this, we must sever the notion of nonhuman agency from humanist models; instead, we should conceive of environments and entities as transforming and influencing each other (246-47). Further, Alaimo draws on Karen Barad's theory of agential realism, which reimagines agency as 'intra-activity', as a form of 'doing'/'being' that is not the (sole) property of humans or any other entity, but the result of complex processes, or intra-actions (248, 250). This view opposes a conception of things as existing autonomously, severed from their relationships (248-50). 'Intra-activity' reconceives agency as a process that surfaces out of intra-actions, rather than seeing agency as an attribute. In consequence, material agency thwarts reductionist understandings of phenomena as expedients solely for human convenience (249). Alaimo's theoretical framework corresponds to the new materialisms ("Oceanic Origins", 193; Iovino and Oppermann 2-4). From the vista of Alaimo's trans-corporeality, we may salvage the material agency of the ice core from the anthropocentrism and anthropo-scalar outlooks of *2071*. We may come to better appreciate the ice intra-acting in accord with a plenitude of human and non-human forces and actants – human actors, scientific methodologies and technologies, ecological actors, planetary systems. Ultimately, this may disclose the relational, transformational, metamorphic agency of matter, as it is evidenced, for instance, in its response to disarrayed climate systems in the form of the melting of ice and rising sea levels due to temperature increases. Trans-corporeality helps us sever restrictive notions of agency tied to human free will and intent. This combined focus of Povinelli's, Alaimo's, Bennett's, and Zylinska's musings teases out aspects that *2071* itself only touches, but fails to flesh out rigorously. While Rapley does elucidate the interconnectedness of Earth systems succinctly, his focus remains heavily

anthropocentric; the emphasis is on human well-being, and in the run-up to the 2015-Paris Climate Summit, his was a laudable political aim to mobilise the public. From the vista of posthumanism and material agency, this human enmeshment in planetary system is more thoroughly revealed in a way that deprioritises human mastery; and the material agency of non-human agents, like the ice core of the crysopheric chronotope of *2071*, is foregrounded. Such rethinking of human existence as material selves embedded in wider ecological nexuses might potentially enable the flourishing of a 'wiser egoism' that can inspire a more ethical response to the 'Anthropocene'.

Coda

As we can garner from these four case studies, climate theatre engenders striking chronotopes. It uses theatrical strategies (communality, embodiment, reciprocity, spatiality, temporality) to comprehend scale effects and, possibly, assuage, palliate, and alleviate the worst excesses of Anthropocene disorder by performing the abstract nature of the climate crisis in a graspable manner through the material nature of theatre. Climate theatre brings the boundless, incomprehensible scales of the climate crisis into the immediate and palpable 'hyper-present' of the stage. As I have argued throughout, the concept of the chronotope is particularly germane to showing how climate theatre frames these complexities of the Anthropocene but also provides a powerful medium for addressing and understanding not only our current ecological predicament, but also what it means to be 'human' in relation to the 'metabolism of the planet'. It is an invitation to rebuild our severed relationship with the more-than-human world.

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