"Shadowtime": Michelle Paver's *Dark Matter* and Ghosts of the Anthropocene

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Abstract

This paper explores "shadowtime," or co-existence of multiple temporalities, in Michelle Paver's novel *Dark Matter: A Ghost Story* (2010). *Dark Matter* is filled with temporally-strange figures that evade human vision and understanding. Central among these is the spectral presence of a *gengånger*, or ghost, which haunts the Arctic research station where the novel is largely set. After tracking some of the metaphorical and material dimensions of the spectral, the essay investigates "shadowtime" in the context of the novel's various 'archives.' It then looks at how the incorporeal or immaterial concepts of value and choice frame the novel's 'dark matters.' 'Possibility,' or the question of 'what if?' haunts the novel's pages, encouraging readers to imagine multiple realities simultaneously. The essay argues that, despite being set in a period that predates wide awareness of climate change, *Dark Matter*'s "shadowtimes" create forms of temporal and ontological instability that resonate with the existential uncertainties of the Anthropocene.

Keywords: Anthropocene, ghosts, econarratology, shadowtime, materiality, immateriality, uncertainty

Introduction: Forms of Endurance

> *We found the wreck a hundred years to the day after Shackleton's funeral (5 March 1922). I don't usually go with this sort of stuff at all, but this one I found a bit spooky.*
> Mensun Bound, marine archeologist, Endurance22 Expedition (BBC, 9 March 2022)

On February 16, 2022, with funding from the Falkland Maritime Heritage Trust, *Endurance22* set out from Cape Town towards Antarctica's Weddell Sea. The goal of the expedition was to locate, survey, and film the downed ship of renowned Antarctic explorer, Sir Ernest Shackleton (1874-1922). The research team was not the first to attempt such a mission. Over the years, a number of crews have scoured the Sea's treacherous 2.8 million square kilometers in search of the wreck (Shackleton Contributor 2022: n.p.). Unlike earlier

attempts, however, conditions for *Endurance22* were "unexpectedly favourable": the early months of 2022 saw the "lowest extent of Antarctic sea-ice ever recorded during the satellite era, which stretches back to the 1970s" (Amos 2022: n.p.). Seventeen days into the voyage, the remotely-operated submersibles of the expedition's icebreaker ship, *Agulhas II*, caught sight of the wreck: at a depth of 3,008 metres sat the *Endurance*, upright on the seabed. Despite nearly 107 years underwater, researchers found the ship—true to its name—exceptionally well-preserved and lively:

> The *Endurance,* looking like a ghost ship, is sprinkled with an impressive diversity of deep-sea marine life—stalked sea squirts, anemones, sponges of various forms, brittlestars, and crinoids (related to urchins and sea stars), all filter feeding nutrition from the cool deep waters of the Weddell Sea (Dr Michelle Taylor in Amos 2022: n.p.).

Remarkably, the discovery of the ship coincided—to the day—with the 100th anniversary of Shackleton's funeral and hearkens back to an era deeply invested in the heroes and adventures of polar exploration.[1] As its conjuring of the past intimates, what is most significant about the *Endurance*'s discovery in the context of this essay is how the preserved vessel condenses multiple temporalities.

Time meets in a strange way in Shackleton's ship. Not only is this "ghost ship" a time capsule offering a glimpse into life 107 years ago, but its discovery is tied to pasts that continue to haunt the present: it's not difficult to link the "unexpectedly" low levels of ice around Antarctica to the troubling effects of climate change—effects, which include alarming and unprecedented levels of polar ice melt. Indeed, the ship's discovery comes less than two years after the Anthropocene Working Group voted, with 88% in favour, to label the official epoch following the Holocene, "Anthropocene." The Anthropocene, a term proposed by Paul Crutzen and Eugene Stoermer, describes the period of time where humans' impact on the Earth has become discernible in the geologic record. In fact, scientists are now on the hunt for the "golden spike," or "the most obvious and legible signal in the geologic strata" to "establish the starting date of the epoch" (James 2022: n.p.). As Erin James has noted, the debates do not simply concern numbers—each potential start date brings with it a different

[1] For many, Anglo-Irish explorer Shackleton's name is synonymous with heroism. With his "Imperial Trans-Antarctic Expedition" (1914-17), Shackleton intended to be the first man to complete an overland crossing of Antarctica. However, in 1915, less than a year after leaving its last port of call in South Georgia, the ship became locked in pack ice, forcing the crew to abandon it. As the vessel began to buckle and sink, the men evacuated to the nearby Elephant Island. With the lives of his crew at stake, Shackleton undertook one of the most "daring rescue missions" in recorded history: after sailing a small boat across 1,287 kilometres of dangerous waters to a whaling station in South Georgia, Shackleton returned with a team of volunteers to save the 22 crew members stranded on Elephant Island (Fiennes 2021: n.p.).

narrative of the Anthropocene (James 2022: n.p.). For example, if we follow Simon L. Lewis and Mark A. Maslin's argument that the year 1610 has a particularly convincing "anthropogenic signature," Shackleton's ship becomes tangled in a ghost net connecting colonialism and climate change (2015: 171). Geological records for 1610 show an especially sharp decline of CO_2, which Lewis and Maslin suggest is an accumulated effect of 1492's New-Old world "collision"—a collision which led to mass loss of human life (approximately 50 million individual deaths) and a subsequent period of forest regeneration and carbon uptake (2015: 175, 176).

In this article, I am interested in how multiple temporalities meet, metamorphose, and endure in specific bodies, objects, and places. In particular, I explore how time haunts Michelle Paver's gothic travelogue *Dark Matter: A Ghost Story* (2010). Set during the interwar period, Paver's novel follows a group of young British men who are lured by the pastoral ideal of the Arctic and its potential to serve as a proving ground for forms of masculinity and heroism—both of which we find in narratives like Shackleton's (see fn.1). The men plan to overwinter in Spitsbergen on a military-funded expedition to collect meteorological and other scientific data. The expedition has two aims: firstly, "to study High Arctic biology, geology and ice dynamics" and secondly, to provide "a meteorological survey, transmitting observations three times a day for a year, to the Government forecasting system" (Paver 2010: 7). Four of the five men—Algie Carlisle, Hugo Charteris-Black, Teddy Wintringham, and Gus Balfour—come from wealthy, upper-class families. The other, our narrator, is twenty-eight year old Jack Miller who is, in his own words, "frightfully middle class" (2010: 7). Jack dreamt of becoming a physicist, but the nation's economic slump forced him into work at a stationary factory. He applies for the expedition as a wireless operator and sees the trip as a chance to escape, to "get away from [his] life" (14).

In the end, only three crew members—Jack, Gus, and Algie—make it to Spitsbergen (now Svalbard), Norway. Despite vaguely ominous warnings from the captain of the ship taking them north, the three men decide to set up their research station on a site called Gruhuken. Yet again ignoring warnings, the men tear down an old trapper's cabin and build a new one in its place. They soon learn, however, that the past cannot be built over or burnt away. When Gus, accompanied by Algie, returns to Longyearbyen to have his appendix removed, Jack is left with a presence he had hitherto attempted to rationalise into non-existence: the malevolent ghost of a murdered trapper, the *gengånger*, or the "one who walks again" (2010: 198). Alone at the research station, in the total darkness of the polar night, Jack reads about physics' discovery of an invisible force called "dark matter"—a finding which

becomes for him unsettlingly prescient. The ghost that haunts Gruhuken is not merely an echo or residue of the past, but a persistent material marker both the product and perpetrator of violence—a being capable of opening doors, entering cabins and, as we later learn, killing.

In these events, tales of male heroism like Shackleton's "pok[e] through" the plot of Paver's novel (Paver 2010: 68). Despite being set in the inter-war period—a period which postdates the height of heroic exploration—the earlier era's appeal still lingers in the novel's pages and in the mind of its protagonist. For example, when contemplating whether to join the expedition, Jack gazes on a poster tacked above his mantlepiece, a polar scene with "two men dressed in Shackleton gear standing over a polar bear" (2010: 13). And, in Gruhuken, the men discuss polar heroes such as Shackleton, Roald Amundsen and Robert Falcon Scott, ranking them in terms of who was a better explorer (2010: 59). Yet, just as the past "pokes through" the novel, when reading Paver's *Dark Matter* in 2022, the readerly 'future'— a future including readers who are likely aware of the contributions of exploration and exploitation to climate change—folds back on the novel's earlier setting. This makes it possible to read the novel's record of "past inhuman ecologies"—its references to extractive practices like whaling, sealing, mining—in conversation with contemporary concerns of "Arctic geopolitics" (Merola 2014: 22) and, more broadly, the uncertainties and gap-filled knowledge of the Anthropocene (Caracciolo 2022: 17).[2] Throughout this essay, I label the simultaneous presence and confusion of different temporalities "shadowtime." I draw the term from Ranu Mukherjee and Alicia Escott's exciting Anthropocene web project "The Bureau of Linguistical Reality" where it is described as the experience of "a parallel timescale that follows one throughout day to day experience of regular time. Shadowtime manifests as a feeling of living in two distinctly different temporal scales simultaneously" (The Bureau of Linguistical Reality 2015: n.p.). In narratological terms, "shadowtime" evokes a kind of temporal confusion David Herman has called "fuzzy temporality"—a "temporal indeterminacy" that results from the inexact temporal sequencing of narrative events and, sometimes, an inability to "fix" these events "along a timeline" (2002: 228, 212). In Paver's novel, the most concentrated site of this temporal fuzziness is the *gengånger* (198). With its endurance and oscillation between visibility and invisibility, Paver's ghost, like Shackleton's ship, offers a timely and convenient metaphor for the strange and often circular temporalities

[2] In addition, Marco Caracciolo describes narrative as an "inherently 'gappy' practice" where "our emotional investment in stories is driven by facts that we don't know *yet*" (2022: 17). This uncertainty, he contends, does not remain within the text, but can "mirror, and blend with, the extrinsic (i.e. real-world) opacity of climate change futurity" (2022: 17).

of the Anthropocene—for example, bodies (material and affective) of the past that persist into the present and future. What is more, its ghostly presence functions as a conceptual metaphor, "a discourse, a system for producing knowledge" (Hessling 2015: n.p.)—one which frequently surfaces in Anthropocene writing and criticism.[3] However, by linking the ghost with dark matter, Paver's novel raises productive tensions in the ghost's status as a metaphorical and/or material entity.

Despite the proliferation of 'Anthropocene ghosts' in critical discourse, few scholars have turned to the genre of the ghost story itself as material for investigating contemporary environmental crises (Merola 2014: 27). With Paver's ghost story as my focus, I first turn to the metaphorical and material ghosts of the Anthropocene and its critical discourse. I consider how Paver's novel creates "fuzzy temporalities" precisely by weaving together the metaphorical and material dimensions of the spectral. The second section focuses on materiality as I read "shadowtime" in the context of *Dark Matter*'s various 'archives': its forms of journaling and nonhuman memory—both of which comprise a palimpsest of human debris. In the final section, I examine how the incorporeal or immaterial concepts of value and choice frame the novel's 'dark matters.' I argue that 'possibility,' or the question of 'what if?' haunts the novel's pages, encouraging readers to imagine multiple realities simultaneously. Via these readings I ask: what might "shadowtime" within Paver's *Dark Matter* teach us about living in the Anthropocene, this "strange" time "where life persists in the shadow of mass death"? (Gan et al. 2017: G8).

Conceptual shadows and gaps: Ghosts as metaphor and/or material

Like all of the best and most horrifying ghosts, Paver's novel never gives Jack or the reader a clear sense of the *gengånger* (Merola 2014: 33). Instead, only twice do we glimpse some of the ghost's physical characteristics—once shortly after Jack and the others settle in Gruhuken:

> He wore a tattered sheepskin coat and a round cap, and ragged boots. […] He turned to face me, a dark figure against the glare. Fleetingly, I saw his hands were at his sides, and that one shoulder was higher than the other. There was something about the tilt of his head that I didn't like. (Paver 2010: 81)

And, two months later, on the evening of first dark after the polar summer while Jack transmits communications at the station near the cabin:

[3] For examples of this, see Tsing (2017), Gragnolati and Holzhey (2017), Bayley (2019), Paphitis (2020), and Carstens (2021).

> It crouched at the edge of the rocks. It was streaming wet. It had just hauled itself from the sea. And yet the stillness was absolute. No droplets pattering on snow. […] It stood. It faced me. Dark, dark against the sea. I saw its arms hanging at its sides. I saw that one shoulder was higher than the other. I saw its wet round head. […] *I knew*, with some ancient part of me, that it wasn't alive. (2010: 104)

As Nicole M. Merola has noted, between these two encounters Jack's use of pronouns shift from "he" to "it," from the human to non/inhuman (2014: 33). Such a shift is consistent with the novel's frequent portrayal of the ghost as a force rather than (quasi-human) figure. Instead of its unsettling physical appearance, what lingers is the ghost's affective malevolence. On a number of occasions, Jack notes how he can feel the *gengånger*'s rage even without being able to see it. In a somewhat Lovecraftian turn of phrase, Jack describes the ghost as an affective force, as "belonging to the dark beyond humanity. It was rage without end. A black tide drowning" (176). The ghost initially unsettles Jack's sense of security and self through immaterial means—pulsations of affect and disturbing dreams—before increasingly turning to physical means of destruction like entering the cabin, lighting it on fire, and drowning Gus. Paver's ghost is an interesting object of study due to how it flickers between immateriality and materiality, invisibility and visibility. These flickerings raise important questions about the dominance of materialism in ecocritical thought and the significance of spectral presences that both do and do not *mean* and *materialise.*

With the spectral turn of the arts and cultural theory in the 1990s, the figure of the ghost became increasingly abstract—it became a conceptual metaphor for producing certain kinds of knowledge. Colin Davis notes how Jacques Derrida's concept of "hauntology" (*hantologie*) in *Specters of Marx* (1993 trans. 1994) has proven "extraordinarily fertile" for rehabilitating ghosts as "respectable subject[s] of enquiry" (2005: 373).[4] Hauntology, typified by the figure of the spectre and generally concerned with crises of time and space (what is *no longer* or *not yet*), was proposed by Derrida as a corrective to ontology—in place of what *is,* hauntology "supplants its near-homonym ontology, replacing the priority of being and presence with the figure of the ghost as that which is neither present nor absent, neither dead nor alive" (C. Davis 2005: 373). Making an important connection between hauntology and ethics, Line Henriksen points out that Derrida was concerned with a form of relationality that "takes seriously the agency of […] absent others, suggesting that ethics does not merely

[4] C. Davis also notes a second inspiration for this renewed interest in the spectral: Nicolas Abraham and Maria Torok's work on phantoms (1978). He summarises: "Phantoms lie about the past whilst spectres gesture towards a still unformulated future" (C. Davis 2005: 379).

concern that which can be said to be *present* and *immediate*, but also *absent presences*" (2016: 14; emphasis in original).

In recent years, ecocritical scholarship has turned to the figure of the ghost to describe the ways in which humans and their relics, agential "absent presences" like Shackleton's ship, motivate human action, haunt landscapes, and trouble time (Tsing 2017; Gragnolati and Holzhey 2017; Bayley 2019; Paphitis 2020; Carstens 2021). One of these Anthropocene ghosts is the collective haunting of "relentless waste"—a relatively new species of spectres Michelle Bastian and Thom van Dooren label "new immortals" (2017). These immortals are "new forms of persistence, of seeming immortal presence" like plastics, radioactive waste and chemical pollutants—all of which "have interpellated us into unfathomable vast futures and deep pasts, with their effects promising to circulate through air, water, rock and flesh for untold millions of years" (Bastian & van Dooren 2017: 1). The setting of Paver's novel predates widespread awareness and use of these "new immortals"; however, given that a form of waste like plastic "condenses and illustrates" both "the goals of techno-utopian thinking" and the "paradoxes of the Anthropocene" (H. Davis 2022: 10; Vermeulen 2020: 38), it is possible to trace a line of continuity from the extractive practices detailed in the novel (whaling, sealing, coal mining) to the "new immortals we now find ourselves sharing time with" (Bastian and van Dooren 2017: 2).[5] Like the haunted Artic landscape depicted in *Dark Matter*, the contemporary Anthropocene moment is one

> in which relationships between life and death, creation and decay, have become uncanny; no longer entailing what was once taken for granted. Toxic legacies, mass extinction, climate change: all simultaneously remake both temporal relations and possibilities for life and death. (Bastian and van Dooren 2017: 2)

In Paver's novel, dark matter functions as an analogical umbrella for both the *gengånger* and 'immortal' human waste, linking them both as 'unseen' forces that impact the material world.

The existence of dark matter was proposed by scientists in 1933 to try to explain what they saw as a gravitational anomaly. According to Einstein's theories of gravity, the universe's rate of expansion should be slowing; however, when scientists discovered this was not the case, they turned to dark energy and dark matter as possible explanations.[6] Both dark energy and matter are completely invisible; dark matter particles do not interact with light—instead, their presence is inferred through measurements of gravitational attraction. Defined

[5] "The first fully synthetic polymer," Heather Davis writes, "was made in 1907 by Leo Bakeland and patented in 1909" (2015: 232). For more on the novel's extractive violence, see Merola (2014).

[6] Dark energy and matter are separate (albeit related) phenomena, with the former constituting the bulk of the unseen world. The visible world constitutes but 5% of the universe, while dark energy and matter make up 68% and 27%, respectively (NASA: n.p.).

almost wholly by what they are not, dark matter and dark energy probe the limits of human knowledge. Over the course of the novel, the analogical mapping Paver sets up begins to break down: both the ghost and waste exert direct impact on their surrounds and are intermittently visible—rendered so via anthropomorphism and description, respectively. The ghost and waste become visible and "vibrant" material agents (Bennett 2010).

In their excellent readings of Paver's novel, both Merola (2014) and Lindgren Leavenworth (2017) explore how "life and matter can no longer be seen as separate categories" (Lindgren Leavenworth 2017: 467). The two critics approach this idea in different ways. Merola follows Jane Bennett in looking to a kind of "vibrant materialism" which understands both humans and nonhumans as "actants"—sources of action that have "efficacy, can *do* things […] produce effects, alter the course of events" (Bennett 2010: viii). Akin to a 'lively' ghost ship that affects human decision-making and action, Merola reads the bear post that sits outside the cabin in Gruhuken as an especially concentrated site of material vibrancy—controlling Jack's patterns of behaviour as he compulsively looks at it, and seeming to reappear after he has, in a fit, chopped it to pieces (Paver 2010: 162; Merola 2014: 32). As we sense from the 'waste' like the bones and relics that litter the novel's Arctic landscape, "vital materiality can never really be thrown 'away,' for it continues its activities even as a discarded or unwanted commodity" (Bennet 2010: 6).

Unlike Merola, Lindgren Leavenworth approaches the idea of boundary destabilisation—not only between life/nonlife, but also between internal/external and past/present—through Sara Ahmed's work on queer spatiality (2006). In *Dark Matter,* "dead things, both inanimate and previously animate, come alive and concretely and detrimentally influence Jack's body and mind" (Lindgren Leavenworth 2017: 267). Where matter in Bennett's understanding strikes and surprises the human observer, Ahmed's approach is different: "when we touch an object, we invade its space, potentially influencing it. '[W]e perceive the object as an object, as something that "has" integrity and is "in" space, only by haunting that space'" (Ahmed 2006: 54 in Lindgren Leavenworth 2017: 467). Both articles make strong cases for how lively matter highlights long histories of nonhuman violence (Merola) and how forms of "queer resistance emanating from place" (Lindgren Leavenworth 2017: 462) challenge binary thinking; however, while Lindgren Leavenworth's work comes closest, neither offers a sustained engagement with the ghost's *immateriality.*

Reading Paver's novel (and, more broadly, narratives of the Anthropocene) solely through the frame of *material* ghosts forecloses the significance of *incorporeality*, or what Elizabeth Grosz describes as the "excesses beyond and within corporeality that frame, orient,

and direct material things and processes" (2017: 5). The incorporeal is a kind of "*extramaterialism*" that helps us think at the limits of materialism; for example, on topics like space and time (2017: 5): "How, for example, do materialist models consider concepts, thoughts, ideas? […] How do materialists understand the conditions of appearance of matter, such as space and time, materially? How do materialists understand meaning or sense in terms beyond their materiality?" (Grosz 2017: 17). The remaining sections of this paper investigate both material and metaphorical dimensions of haunting and "shadowtime" in Paver's novel. In these analyses, I consider the degree to which the figure of the ghost affords a reading of material traces that trouble time *and*, metaphorically, how incorporeal forces shape the time and trajectory of a narrative—how human thought and human choice influence and direct story matter, or *storied* matter. What connects both are forms of reflection—intra-textually through journalling and extra-textually through readerly experience. What we find in each of these is that, materially and metaphorically, humans haunt themselves.

Haunted wor(l)ds: Archives, ghosts, and the "new immortals" of the Anthropocene

Practices of recording and remembering play key roles in *Dark Matter* and in the text's creation of "shadowtimes." The novel is told almost entirely through Jack's journal entries—only the "Preface" (a letter set ten years after the main events of the story) introduces another authorial voice. In this opening letter, fellow expedition member Algernon "Algie" Carlisle tersely replies to a researcher interested in "phobic disorders," all the while foreshadowing the dark events to follow. He assures the researcher, Dr Murchison, that while it is unlikely anyone will ever learn the truth of the terrible event that took place in Gruhuken in the winter of 1937, he knows for certain "it was real. It was not the result of some phobic disorder" (2). The researcher mentions a journal Jack kept during the expedition but Algie informs him that this journal "has not survived" and he cannot "ask Jack himself" (2)—the former of which the reader learns is untrue.

The ghost in Paver's novel is the most obvious example of a past that persists; however, *Dark Matter* also layers on and explores two additional forms of remembering and haunting: Jack's journal as a *human* archival form and the landscape of Gruhuken, littered with the remains of human activity, as a more speculative form of *environmental remembering*. In recent years, scholars working in the field of memory studies have sought to open up social memory to the environmental, to an 'Anthropocene archive' that documents humans' processes of 'writing' the Earth like "golden spikes." Kate Eichhorn notes how

definitions of the archive "continue to loosen" (2008: n.p.), although, most designations still gravitate around "collecting, preservation, ordering" as "products of archival practices" (2008: n.p.). Eichhorn usefully synthesises: "[a]t the centre of both [Foucault's and Derrida's] theories is an insistence upon the archive's link to narrative production" (2008: n.p.). Jack's desire to record his experiences produces the very narrative we read; yet, hovering simultaneously are the moments of its creation—"shadowtimes" not easily consolidated within a single temporal frame. Towards the end of the novel, Jack reflects on his journalling as a compulsion to understand and to control—namely time, space, and affect: "is that […] why I've been writing this journal? To set down everything clearly, make sense of it? If it can be described, it can be understood. If it can be understood, it need not be feared" (188). Jack is, however, surprised by what he selectively chooses to write down and his inability to order his experience. Indeed, like the ghost that evades Jack's attempts to categorise and describe, the past "bleed[s] into the present" (188).

Late in the novel, Jack 'ends' his official journal, but appends two additional fragments, both written in a different font. These fragments sit outside his 'official' record of the expedition; however, in detailing Jack's escape from Gruhuken and recounting Gus' death as he is pulled underwater by the *gengånger*, they chart his increasingly unstable understanding of the world. After closing his official journal, Jack straps it to his chest—an action which literalises the seeming protection offered by writing's ability to 'control' and 'elucidate': "I can feel my journal strapped to my chest, like a breastplate" (227). Yet, Jack's archival practices fail to separate and protect him (and Gus) from the nonhuman web he finds himself tangled in. Indeed, his own writing undercuts his attempts at rational control and instead becomes a palimpsest of haunting where Jack finds different versions of himself layered over the presence of the *gengånger*: "I've also flicked through this journal, which was a mistake. I'm shocked at how my handwriting's changed. I used to write a neat copperplate hand, but since I've been alone, it's degenerated into a spidery scrawl. Without reading a word, you can see the fear" (168). Like the ghost that eludes categorical control, what the journal affords is not neatness and order, but disorientation—the record of a world that "consistently exceeds the traditional, well-ordered archive and refuses to be turned into human-made orders of knowledge" (Liebermann and Neumann 2020: 149).

Part of this nonhuman resistance is in the Arctic's own 'memory': indeed, the novel's icy, polar setting is a particularly concentrated site of "nonhuman mnemonic power" (Liebermann and Neumann 2020: 149). Jack may take the journal with him as he leaves Gruhuken but, like the ghost, other signs of human presence—in the form of waste—persist in

the landscape. Like many before (and after) him, Jack imagines the Arctic will be a "wasteland," a place of pure wilderness free from the human touch. As it turns out, Gruhuken is indeed a land of waste—just not the kind Jack had envisaged. Where the fullness of the natural world—the island's abundant animal life—"energizes him, he is disturbed by the human relics which corrode his sense of himself as a pioneering adventurer entering untouched territory" (Merola 2014: 30).

> The relics at Gruhuken include a claim sign "roughly painted in Swedish," the ruins of a [coal] mine, "a tangle of wire and gaffs and some large rusty knives," a bear post, and an old trapper's cabin, "crouched among the bounders in a blizzard of bones." (Paver 55 in Merola 2014: 30).

Both the relics Jack describes and the *gengånger* manifest this temporal strangeness and uncanny relationship between life and death. Beyond the industrial and architectural waste, Jack sees 'human remains' reflected back to him in the bones of animals—misidentifications that conflate and connect animal and human death and extinction. On a walk Algie points out and identifies bones, "the big manlike frames of bears. And smaller ones with short limbs and long toes that look unsettlingly like human hands, which he said are seals" (62). In all of these instances, the icy Arctic setting of the novel functions as a concentrated, localised space to play out broader Anthropocenic boundary troubles, especially those related to new forms of immortality. As the ship's captain says, "we're so far north that 'dead things' last for years" (Paver 40).[7] Akin to a century-old vessel locked in icy waters, human traces and markings on the landscape *endure*. Observed by literary scholar Stef Craps, "[o]ur impact on the planet is so profound that our existence will be discernible as a distinct geological layer long after humanity has gone extinct" (Craps et al. 2018: 499), i.e. legible in waste that litters the landscape and chemical patterns written in ice and rock. Paver's multiple ghosts introduce "shadowtime" by *foreshadowing* of our own status as 'dark matter' that impacts the world around it, even if it cannot (or can no longer) be seen.

Textual ghosts: Shadow narratives and the "unrealized" futures of the past

In "How Do We Read What Isn't There to Be Read? Shadow Stories and Permanent Gaps" (2015), narratologist H. Porter Abbott considers the elliptical quality of "shadow narratives,"

[7] Maria Lindgren Leavenworth makes a similar point by citing R. McGhee's *The Last Imaginary Place: A Human History of the Arctic World* (2005), which observes that "Spitzbergen's" long history of exploitation remains visible across its landscape "[f]or hundreds of meters the surface is carpeted with thick and heavy bones… impenetrable to decay" (189 in Lindgren Leavenworth 2017: 468).

which prompt readers to ask 'what if…?' According to Abbott, "[n]arrative gaps […] open onto a vast arena of virtual events that are never realized but rather exist like a kind of dark, weightless energy, hidden under the words and images that actualize a story" (2015: 104). In this sense, they expand narrative beyond event-based definitions: its "unrealized, generally transient fragments" form "an active part of the narrative experience" (2015: 104). Within *Dark Matter* (and its broader Anthropocene context) "shadow narratives" split readerly experience by asking readers to simultaneously play out different realities, to exist in what Jennifer Wenzel calls "past's futures" (Craps et al. 2018: 503). The "past's future" taps into the virtual potential Abbott locates in narrative gaps and shadows in that it describes "entanglements of anticipation and retrospection," "*unrealized* visions" of a particular future (Craps et al. 2018: 503).

Indeed, throughout the novel, Jack is presented with countless opportunities to tell Gus and Algie about seeing the ghost and/or to call off the expedition. However, not only would talking about the ghost out loud "make it real" (Paver 114), but Jack also worries that "he may seem unreliable, which would question his role in the group" (Lindgren Leavenworth 2017: 469)—a group he already feels the need to prove himself to given his perceived class inferiority. Jack's desire to 'prove' his worthiness and masculinity continually outweighs his desires for solidarity and security. As Lindgren Leavenworth writes, Jack's "decision to stay behind [after Gus and Algie leave] is intimately connected to his unwillingness to let Gus down," "the insecurities he still harbors concerning his role in the group," and "the possibility of becoming the 'saviour of the expedition'" (Lindgren Leavenworth 2017: 469; Paver 121). In this, *Dark Matter* plays with the trope of the "preserving, stoic, self-sacrificing hero"—a "model of masculinity" found in "British polar expeditions such as Sir John Franklin's 1819-1822 expedition" and, as we saw earlier, Shackleton's (1914-1916) (Merola 2014: 28). Jack sees his time in Gruhuken as a "test of endurance and manhood" (Lindgren Leavenworth 2017: 467). The value Jack places on proving himself plays a significant role in the events of the story. As such, I read Jack's patterns of thought as incorporeal forces that create both haunting "shadowtimes" and physical consequences within the novel. These patterns of thought fall into two clusters: those that lead to Jack continuing the expedition, and those that prevent the men from openly discussing the threat of the ghost with one another. On no less than five occasions does Jack have the chance to withdraw from or end the expedition: the first comes after meeting his prospective expedition members (11), the second after finding out that Teddy, the medic, can no longer join them (16), the third after an injury causes Hugo, the meteorologist, to withdraw (42), the fourth after finding out that Gus must return to

Longyearbyen to have his appendix removed (116), and, lastly, when the trapper Bjørvik visits and offers to take Jack with him to his campsite (193). With each missed opportunity, the tension increases, "I should have gone with him," Jack finally admits (193). Coupled with these instances are similar missed opportunities for the ship's captain, Jack, and the other men to talk about the presence of the ghost (45, 65, 80, 94, 115): "The Norwegian [ship captain] opened his mouth to reply, but just then Gus and Algie came running down […] so he lost his chance" (83). Within the novel, each of these moments denote a "virtual space of spectrality" (Derrida 1993: 12). Following the novel's light investment in physics, it is possible to read each choice as creating a branching or splitting in the (narrative) universe: "Each experiment, each […] event, *[spins] off new branches* […] *creating a multitude of universes in which that one event had every possible outcome*" (Becker 2018: 124; emphasis added).[8] The story we read, with Jack's terror and Gus' death, is haunted by the possibility that things might have been otherwise. What if he had not gone in the first place? What if he had taken up the invitation to leave with the trapper who visits him while he is alone? What if all the men had openly discussed having seen the *gengånger*? In a way that evokes environmental concerns, *Dark Matter* is filled with moments where characters might stop or change the trajectory of events. However, these possibilities, these visions of alternative futures remain unrealised, existing only as "shadowtime," as a parallel timescale that hovers over our readerly experience and "manifests as a feeling of living in two distinctly different temporal scales simultaneously" (Bureau of Linguistical Reality 2014: n.p.). In Paver's novel, both characters and readers face the perils of persistence and the lingering of possibility. *Dark Matter* is haunted by these impossible questions produced by the incorporeal spectres of human thought and choice.[9] In a sense, Jack's commitment to endurance may prompt ecocritical scholars to turn a critical eye on frequently repeated contentions such as Haraway's notion of "staying with the trouble" and to consider instances where "staying" (the course) *is* the trouble.

Conclusion: Uncertainty and the Anthropocene Noir

Idiomatically-speaking, *Dark Matter* leaves its readers in the dark. Ten years after the escape from Gruhuken and Gus' death, Jack picks up a new journal. "I swore I would never write another journal," he says, "but yesterday I bought this exercise book. Why? Maybe it's

[8] Here Adam Becker discusses Hugh Everett's "many worlds interpretation" of quantum mechanics. For more, see Becker (2018: 124).
[9] For an investigation of one of such crucial moments and the "shadowtime" it invokes, see Rich (2018).

because tomorrow is the tenth anniversary of Gus' death and I feel the need to give an account of myself. Although I'm not sure to whom" (235). Together with Algie's Preface, this final entry frames, or temporally embeds, the events of Gruhuken. This last entry updates readers on Jack's life after Gruhuken and speculates on what might have happened to Gus after he was dragged into the ocean: "Gus' body was never found. Perhaps the current bore him out to sea. Perhaps he never escaped Grukuken" (235). After a year in a sanatorium, Jack moves to Jamaica to work in the Botanical Gardens in Castleton (238). Once each year, he ventures to the sea—in the middle of the day when darkness is still hours away—to pay his respects to Gus. Even though the Jamaican beach looks nothing like Gruhuken, Jack notes how "it's the same sea. And thought I stand on this white sand before the warm little waves, I know that at Gruhuken, it's the deep of the polar night" (241). Indeed, while not explicitly mentioned, the connection between Jamaica and Gruhuken is especially pertinent given the waters of the Gulf Stream flow from Jamaica to polar regions like Spitsbergen (Svalbard). Mustering his courage, Jack bends down and touches the water.

> The worst is not knowing if you're still there. Are you, Gus? Are you there in the black water? Do you walk on the shore, in the dead grey stillness among the bones? Or were you snuffed out like a spark, all trace extinguished? Oh, I hope so. I can't bear to think of you still there. (Paver 243)

Deborah Bird Rose writes that "[t]he term Anthropocene noir indicates the story without a known ending," a story in which we are both villain and victim (2013: 215). With its hauntings and uncertainties, Paver's novel offers a condensed example of the affective landscape of the Anthropocene—a landscape created not only by uncertain futures, but by pasts that persist in the present, by ghosts and ghost ships that *endure* (Merola 2014: 25).

In this analysis, I have foregrounded narrative devices that draw attention to the power and endurance of the 'unseen' and the potential of these bodies and forces to point to gaps in—and to shape—our knowledge. Paraphrasing Gilles Deleuze, Elizabeth Povinelli writes that "concepts open understanding to what is all around us but not in our field of vision" (2016: 4). We also find this potential to "open" and reveal in narrative and in literature which, "due to [their] specific aesthetic devices and openness to ambiguity may serve as a special kind of archive that can make the 'plurality, unpredictability, and compromised condition of the natural world partly readable'" (Clark 2014: 80 in Liebermann and Neumann 2020: 148). Ecological uncertainty has become an important concern in science and scholarship on the Anthropocene. Marco Caracciolo argues that narrative form can be used to negotiate uncertainty and that "literary narrative offers formal tools to cultivate readers' acceptance"

(2022: 5). While this essay does not go so far as to argue that Paver's novel encourages an "acceptance" of uncertainty, it does ask readers to dwell in uncertainty, to *endure* it. This lingering is significant in that it opens onto new epistemological terrain, what Anahid J. Nersessian has called "'nescience,' or not knowing"—a term referring to "literary-critical practices 'capable of moving between what can and cannot be seen, tracked, or measured" (Nersessian 2013: 308 in Caracciolo 2022: 14). Along with Gus, the ghost of Gruhuken sits in a Schrodinger-like state of ontological uncertainty, of life/nonlife. Attending to the "shadowtimes" of Paver's novel encourages a degree of epistemological humility and an endurance of uncertainty, both of which may open onto possibilities for different and new ways of knowing. As Bastian and van Dooren write, "alongside new forms of attention to those [new immortals] that endure in novel ways, we are asked to be attentive to the long lasting heritages that are breaking down" (2017: 5). The novel, like our contemporary moment, is haunted not only by the "shadowtime" of climate change, but by a question of 'what if?': what if we'd chosen not to stay the course, but to escape?

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