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Becoming-lithic: elemental utopian possibility in the contemporary ecocatastrophe

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ABSTRACT

This article explores an emerging cluster of ecocatastrophe narratives that locate utopian possibility within the Earth's sub-crustal lithosphere. Texts such as N. K. Jemisin's "Broken Earth" trilogy (2015–2017), J. G. Ballard's *The Crystal World* (1966), Lars von Trier's film *Melancholia* (2011), Irene Solà's Catalan novel *When I Sing, Mountains Dance* (2019), and the first season of the Icelandic TV series *Katla* (Netflix, June 2021) uncover an inhuman ecology whose vibrant, lively agency can be discerned within the geologic temporalities of deep time. Unlike their "Hollow Earth" precursors (a late nineteenth-century subgenre of the literary utopia), in which human protagonists ventured below the Earth's surface to discover rich worlds of utopian alterity, these contemporary lithic texts revoke their characters' human sovereignty in images of encroaching human-lithic intimacy: a process that I call becoming-lithic. In conveying the lively potentialities of geological processes such as the rock cycle, plate tectonics, continental drift, orogenesis and subduction, igneous activity, these lithic texts encourage readers and viewers to reconsider our relationship between the geosphere and the biosphere. I trace their emerging elemental aesthetics, asking how we might parse their inhuman moments of possibility and, in the process, undertake the urgent task of decolonising utopian studies.

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'Let's start with the end of the world, why don't we? Get it over with and move on to more interesting things'.¹ The opening lines of N. K. Jemisin's award-winning fantasy novel *The Fifth Season* (2015), the first in her critically acclaimed 'Broken Earth' trilogy (*The Fifth Season* (2015), *The Obelisk Gate* (2016), *The Stone Sky* (2017)),² accept ecocatastrophe as a *fait accompli*. Extending a thought experiment within orbital mechanics – what would happen to Earth if it lost its moon? – Jemisin imagines the

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resulting climatological volatility of axial tilt. The writer's inspiration for *The Fifth Season* came in the form of a dream; the oneiric image of a catastrophically angry woman with 'a rock shaped like a volcanic cone' floating above her head.³ In this fantasy landscape, each rock, crystal, geode, and seismological ripple, each layer of sediment that converts into rock under pressure, each tectonic collision, and magma extrusion is richly detailed in a world where protagonists can either draw power from the Earth, or directly enter it. Moving through the planet's sub-crustal *lithosphere* (sphere of rock), excavating deeper into its upper mantle towards the mobile *asthenosphere* (weak sphere), descending through flowing mantle as it meets the Earth's molten outer core, Jemisin's protagonist Essun comes into contact with the geologic temporalities of deep time: an inhuman ecology whose ceaselessly evolving, lively movement is hidden from the human gaze. In providing Jemisin's reader with access to the sub-crustal lithosphere Essun enters a nonhuman realm of igneous processes and magmatic encounters that annihilate the human. As the geologist Nigel Clark writes, to engage with the lithic is 'to become enmeshed with rock – is to become rock. It is to meet with sudden, certain, cessation of life'.⁴

1. Just what's so utopian about rocks and magma?

This blurring of the boundaries between human and mineral is the first step in a process I call, borrowing a Deleuzian terminology, '*becoming-lithic*'. As I demonstrate in this article, exploring human-lithic encounters helps us uncover vital aesthetic strategies for rethinking the human; a perspectival and ethical shift that is urgently required at a time of climate emergency, as Patricia MacCormack's fiery *Ahuman Manifesto* (2020) advocates.⁵ Rather than simply offering nihilist stories of rocky demise, I argue that a small (apparently growing) caucus of ecocatastrophe narratives reveal surprisingly *hopeful* images of *human-lithic intimacy*. Whilst human contact with the inner Earth through igneous processes such as magmatic extrusion most likely results in death, we are reminded in these images of human-lithic intimacy that the sub-crustal lithosphere is also the source of all life. Volcanic eruptions of extruded magma provided the mineral-rich conditions for multi-cellular organisms in the Cambrian period of the Paleozoic Era. Magma cooled and solidified into granite, which slowly eroded releasing trace metals that allowed single-celled organisms to evolve into complex multi-celled organisms such as algae, plants, fungi, and animals.⁶ Although 'vast eruptive events have impacted brutally on the biosphere', as Clark notes, such mass extinctions are matched by magma's ability to open new evolutionary pathways; Earth's lithosphere, then, should be understood as 'a source of potentiality'.⁷

This lithic potentiality can be hard to discern on a first reading of Jemisin's 'Broken Earth' trilogy. These are brutal, bloody texts – from the visceral

murder scene in which Essun's toddler son is clubbed to death at the start of *The Fifth Season* to the horrifying discovery that children with seismic abilities (like Essun's children) are sold into a state-sanctioned system of slavery in which their comatose bodies must be kept alive, in excruciating pain, to function as living nodes within a seismic system of protection from earthquakes. This system maintains 'the Stillness', an equatorial band of relative seismic inactivity. In Jemisin's ecocatastrophic world, a dwindling humanity has endured a desperate cycle of apocalyptic 'Seasons' for thousands of years (including volcanic extinction events and tsunamis that render entire coastal regions uninhabitable); a cycle that was initially triggered, according to legend, by Father Earth's anger at humanity. In these books, the Earth is alive, sentient, and vengeful – intent on destroying humanity, described as 'the hateful, waiting planet beneath their feet' (*FS*, 146). This is an omnipotent lithic presence, we are told, that 'wants nothing more than to destroy the life infesting its once-pristine surface' (*FS*, 146). In the geological *longue durée* of Jemisin's fantasy worldbuilding, we find an Arcadian revenge that recalls the extinction fantasies of an earlier generation of radical environmentalists in the 1960s and 1970s. Protesting against the environmental ravages caused by industrialisation, these activists advocated for a biocentric antihumanism, in which Earth needed to be protected from humanity. Taken to its extreme, James Lovelock's Gaia principle could therefore be used 'to justify the extinction of those species [i.e. human] that cause untold suffering for other species. The whole of life – Gaia itself – might benefit by the removal of certain of its constituent parts'.⁸ Rather than succumbing to the misanthropic antihumanism suggested by old myths of Father Earth, however, Jemisin's exploration of human-lithic relations in the trilogy reveals an intriguingly utopian set of elemental possibilities. In what follows, I will explore these elemental utopian possibilities via the process of *becoming-lithic*.

Becoming-lithic brings into conjugation three distinct methodological traditions. The first is Deleuzian. Although he never systematically organised the concept of becoming, it reverberates across Gilles Deleuze's oeuvre in works such as *Nietzsche and Philosophy* (1962), *The Logic of Sense* (1969), *Difference and Repetition* (1968), and the 'Capitalism and Schizophrenia' project with Félix Guattari (1972–1980), as well as their co-authored *What is Philosophy?* (1991).⁹ The influence of Nietzsche and Henri Bergson on Deleuze's philosophy of becoming inform a complex temporality of the immanent unfolding of being that resists representational thinking. The second tradition is ecological posthumanism, which takes as its central project the dethroning of anthropocentric sovereignty in a materialist examination of nonhuman agencies, desires, vitalisms, and possibilities.¹⁰ The third tradition is utopian studies. Drawing primarily on the utopian philosophy of Ernst Bloch, whose commitment to a process-oriented, anti-systematic wrestling with the 'unfinished' qualities of the world is deserving

of further comparative work on Deleuzian becoming, this third strand is exemplified in Ruth Levitas' influential *Utopia as Method: The Imaginary Reconstitution of Society* (2013) and, more recently, Tom Moylan's *Becoming Utopian: The Culture and Politics of Radical Transformation* (2021).¹¹ The lithic possibilities contained within *becoming-lithic*, as this article will show, draw on two further traditions of their own: the new materialist turn in human geography that has led to speculative volcanology, illustrated in the work of Nigel Clark and others;¹² and the so-called 'elemental turn' in ecocriticism since 2010, which is informed by the pre-Socratic cosmogonic theory of Empedocles, as well as the elemental poetics of Gaston Bachelard.¹³

In this article, I want to consider what is utopian about the lithic's 'source of potentiality' in texts that explore human-lithic intimacy. With reference to a small, emerging cluster of lithic texts, including Jemisin's 'Broken Earth' trilogy, J. G. Ballard's *The Crystal World* (1966), Lars von Trier's film *Melancholia* (2011), Irene Solà's Catalan novel *When I Sing, Mountains Dance* (2019), and the first season of the Icelandic TV series *Katla* (Netflix, June 2021), I trace the utopian implications of this geomorphic possibility, asking: what kind of formal analytical method is required to parse inhuman utopian moments of possibility? How might the inhuman process of becoming-lithic help us to decolonise utopian studies? And what kind of redemption is suggested in the ultimate intimacy with the lithic which, as Bachelard reminds us, is death itself?¹⁴

2. The lithic point of view

In his book *Stone: An Ecology of the Inhuman* (2015), Jeffrey Jerome Cohen considers the philosophical significance of the lithic, arguing that stone has a *queer liveliness*. 'Despite relegation to a trope for the cold, the indifferent, and the inert' he writes, 'stone discloses queer vivacity'. This requires a non-anthropocentric perspective to perceive stone's 'adventure in deep time and inhuman forces [including the] slow sedimentation of alluvium and volcanic ash, grinding tectonic shift, crushing mass and epochal compaction, infernal heat, relentless turbidity of the sea'.¹⁵ The *lithic point of view*, he suggests, offers 'multiple, noncoincidental modes of worldly inhabitation, a dizzying multiplication of prospect'.¹⁶ Geoscientists have been reluctant to consider stone, rock, and mineral life as agential or lively despite the influence of new materialist thinking, which has revolutionised the ways in which we think about animals, plants, and ecosystems.¹⁷

However, an increasing number of contemporary ecocatastrophe narratives are turning to the sub-crustal lithosphere to explore the lively potentialities of geological processes such as the rock cycle, plate tectonics, continental drift, orogenesis and subduction, igneous activity, and the relationship between the geosphere and the biosphere. In addition to

Jemisin's 'Broken Earth' trilogy, we can identify what Jason Groves calls 'stories of human-mineral encounters [that] offer a perspective in which the image of the human cannot be distinguished from the image of the mineral and thus in which *the minerality of the human* becomes apparent'.¹⁸ J. G. Ballard's *The Crystal World* (1966), the fourth novel in Ballard's environmental disaster quartet, is an early example of dredging the geological unconscious to the surface. With its virus-like spread of crystallisation in the Cameroonian jungle, Ballard's novel offers an arboreal realm that promises vitrification and death whilst embalming its victims in an resplendent light that hints both at messianic revelation as well as Enlightenment knowledge, clarity, and illumination. Through its crystallised extrusions, Ballard's lithic point of view hints at the utopian possibilities of inhuman mineral brilliance: the resacralised contours of an 'enchanted world' that is repeatedly described in religious terms – cathedral-like, sepulchral, effulgent, anticipating the New Jerusalem.¹⁹ More recently, Lars von Trier's epic treatment of depression and the end of the world, *Melancholia* (2011), extends this fascination with rocks and the lithic. In what I have elsewhere called the 'nude bathing scene' in *Melancholia*, Kirsten Dunst's character Justine reclines naked on a rocky outcrop, bathing in the iridescent glow of the oncoming planet that will destroy all life on earth at the end of the film.²⁰ The scene deliberately exploits several Romanticist tropes of lithic fascination which, as Noah Herringham has argued, depict rocks as somehow outside of the natural realm – transcendent, mysterious, awe-inspiring, and inherently dangerous. In von Trier's oddly aestheticised image, Justine conveys a libidinal investment in the very forces that will shortly annihilate her, welcoming a human-lithic encounter that anticipates her own imminent minerality at the moment of planetary collision. Taking a lighter-hearted approach, Irene Solà's Catalan novel *When I Sing, Mountains Dance* (2019) considers the liveliness of the lithic point of view in the Pyrenees mountains. First-person and first-person plural narration is extended beyond the human, giving voice to clouds scudding across the sky, mushrooms emerging from their subterranean mycelial networks, deer foetuses in utero, necronarrators beyond the realm of the living and, finally, the mountain range itself. Reluctantly recollecting its geological formation, the mountain describes 'the slow, terrible crash, the annihilating blind violence, the jerking and the earthquakes, the columns of smoke and dust, the tearing deep into the hot liquid rock'.²¹ Accompanied by a series of diagrams that sketch the formation of mountain belts via plate tectonics, oceanic subduction, and magmatic extrusion, the first-person lithic narrator describes '[t]ons upon tons of rock and earth, granite, gneiss, and calcite'²² that folded and burst into the Pyrenees we recognise today.

Returning to Jemisin's 'Broken Earth' trilogy, we can trace this geological process of mountain-building (orogenesis) at the sub-crustal level of

the lithosphere through the extraordinary powers of Jemisin's protagonist, Essun.²³ Essun offers Jemisin's readers the miracle of "first contact" with the inner Earth; the lithic perspective that Nigel Clark described as impossible, 'alien, intimate and untouchable'.²⁴ As one of a minority of human inhabitants of the Stillness, Essun can harness magical geological power through 'sessing' the lithosphere. Known as 'orogenes' (in a nod to the geological term for mountain formation) these characters are racially signified, subject to enslavement, physical abuse, murder, and discrimination. As we can see in the following passage, Essun's second-person narration details the fluidity of the rock cycle, in which crystallisation, lithification, and metamorphism remind us of the *liveliness* of rocks when viewed over millennia:

[...] you are within the geode's crystal substrate, through its shell and burrowing into the rock that surrounds it, flowing around the warps and wends of ancient cold stone. [...] Where's all this [magic energy] coming from? She drags it out of the rock itself, which is another wonder, because you have not realized until now that there is any magic *in* the rock. But there it is, flitting between the infinitesimal particles of silicon and calcite ... At some point millions or billions of years ago, you suspect, this whole area was at the bottom of an ocean, or perhaps an inland sea. Generations of sea life were born and lived and died here, then settled to that ocean's floor, forming layers and compacting ... what you suddenly understand is this: Magic derives from life – *that which is alive, or was alive, or even that which was alive so many ages ago* that it has turned into something else. (OG, 360–1 [my italics])

Jemisin's elemental aesthetics offers what Jeffrey Jerome Cohen calls the 'dizzying multiplication of prospect' via a layering of sub-crustal temporalities that drag geological deep times into relation. This explicitly nonhuman point of view is extended through a group of characters called 'stone-eaters'. Seemingly immortal and completely inscrutable to human understanding, the stone-eaters are composed out of stone and move through the sub-crustal lithosphere and asthenosphere deep into the Earth's magmatic core. They communicate using a resonant language of seismological vibrations. In *The Stone Sky* (2017) Jemisin gives her readers access to the thoughts of a stone-eater who describes their unique language of 'earth talk' or 'earthspeaking':

She switches easily as we do between the words of the conductors and our language, the language of the earth. Her communicative presence is *radiant heavy metal, searing crystallized magnetic lines of meteoric iron*, and more complex layers underneath all this ... (SS, 47–8)

Elsewhere, earthspeaking is described by a stone-eater as communicating non-verbally, using pulsations, atmospheric perturbations, waveforms, and signals sent through the earth: 'Her presence is suddenly as still and pent as

pressurized stone in the instant before it becomes something else' (SS, 109). In these glimpses into the lithic point of view, Jemisin's reader is reminded of the lively vitalism of rock – not just in animist, pre-modern, Empedoclean terms, but geologically, when viewed outside of anthropomorphic time and within the glacial scale of lithic deep time. '[W]e are a very slow people' one stone-eater tells Essun, explaining that even when stone-eaters are destroyed into fragments, '*[i]n ten thousand years or ten million, they will reconstitute themselves from the[ir] component atoms ...*' (OG, 232–3). In decelerating anthropocentric temporality to the slow pace of geological compaction and metamorphism, Jemisin connects the human and the lithic, revealing the vitality of rock and stone. As Robert Macfarlane reminds us in his recent subterranean study, *Underland: A Deep Time Journey* (2019):

We tend to imagine stone as inert matter, obdurate in its fixity. But here in the rift it feels instead like a liquid briefly paused in its flow. Seen in deep time, stone folds as strata, gouts as lava, floats as plates, shifts as shingle. Over aeons, rock absorbs, transforms, levitates from seabed to summit. Down here, too, the boundaries between life and not-life are less clear. [...] We are part mineral beings too – our teeth are reefs, our bones are stones ... It is mineralization – the ability to convert calcium into bone – that allows us to walk upright, to be vertebrate, to fashion the skulls that shield our brains.²⁵

As Essun explores her orogenic connection through the geological layers of substratal earth, rock, and crystal, she experiences the ongoing life and liveliness of what poetic and aesthetic representation has tended to consider to be 'dead' or 'inorganic' forms.²⁶ However, these forms, like carbon, are simply stored energy – and are only dead according to a human sense of time, or anthropocentric time. If we think about them within the much larger time-scale of the deep time of geological duration, they contained life some millions of years ago and this life (stored energy) continues to pulse through them. Over the course of the trilogy, Jemisin removes the elemental barrier between the human and the lithic entirely, as Essun is gradually 'eaten' by a stone-eater. As Essun becomes increasingly more lithic, her guardian stone-eater Hoa 'no longer seems alien' (SS, 25) and the nauseating journeys through the bowels of the Earth, where Hoa drags Essun into the sub-crustal lithosphere, become less painful; 'little more than a blurring sensation of movement, a flicker of darkness, a whiff of loam richer than the acrid ash' (SS, 26).

3. Relocating (white) utopia beyond the human

Essun's journey from orogene to stone-eater presents readers with a literalisation of the connection between humans and rock; a connection that is ordinarily buried within what Jason Groves calls 'the geological unconscious'.²⁷ In dissolving the epidermal barrier between human skin and

molten lithic interior, Jemisin's trilogy traces an *elemental inhumanism* whose utopian potentiality is closely related to the assertion, in the face of pervasive anti-Black racism, that Black utopias are possible. Against the overwhelmingly dystopian experience of despair and worlds ending, 'forms of black life and liveliness [must be] claimed and created in the terror', as Jayna Brown writes in *Black Utopias* (2021).²⁸ As a growing number of utopian scholars are demonstrating,²⁹ the teleological project of Enlightenment progress upon which the literary genre of utopia was founded has entrenched a genocidal whiteness at the heart of literary utopianism: from King Utopus' reliance on slave labour to build his utopian city-state, and the eugenicist visions of Charlotte Perkins Gilman and Mary E. Bradley Lane, to the uncritical celebration of Hegelian dialectics that permeates the Golden Age of literary utopias from the 1880s to the 1910s, which rarely stops to question Hegel's own derogatory, racist remarks about Africa as a site of pre-history.³⁰ Jemisin's first line of *The Fifth Season*, 'Let's start with the end of the world' reminds us, as Katherine Yusoff writes, that 'the end of this world has already happened for some subjects, and it is the prerequisite for the possibility of imagining 'living and breathing again' for others'.³¹ As the Jamaican novelist and critic Sylvia Wynter observes, the 'white utopia' of industrial progress was a 'black inferno'.³²

If we read Jemisin's trilogy as writing back to the white utopian literary canon by reinscribing Black bodies into the genre, we might suggest that the lithic point of view is an effective aesthetic strategy for achieving this. In so doing, the novels redeem a repressed Black utopian tradition which, as Alex Zamalin reminds us, has been present all along: 'A utopian kernel was, indeed, lodged at the beginning of the black experience. [...] This utopian strain of hope [is evident], based on what are arguably the three pillars of African American political thought (liberation, justice, and freedom)'.³³ From runaway maroon slave colonies, the prophetic faith of spirituals, all-Black towns founded by ex-slaves, Black nationalist discourse, and Black intellectuals writing fantasy literature (including Sutton E. Griggs, Frances Harper, Pauline Hopkins, and Edward A. Johnson) to the extraterrestrial visions of Afrofuturist musicians, artists, performers, and writers, Black utopias have carved out alternative spaces of hope, even at times when despair predominated.³⁴ Indeed, Jemisin's trilogy presents an explicitly utopian community in the form of a subterranean settlement known as Castrima(-under). Hidden beneath a nondescript village (Castrima), this separatist colony is mounting a resistance against the tyranny of the Fulcrum, a training academy that dominates geopolitics in this ecocatastrophic world. The colony is located within the sub-crustal extrusions of a mysteriously glowing structure that appears, at first, to be a naturally formed crystal geode. By the third novel, *The Stone Sky*, Essun discovers that the geode is not a natural formation but a 'very old, very delicate machine that you

didn't understand' (SS, 21). Facilitated by a mysterious group known only as 'the conductors' who are working with the stone-eaters to harness an extraordinarily powerful onyx, this mechanism confirms the utopian project at the heart of the trilogy – the *telos* of a post-scarcity utopia that would 'help set humanity on a new path toward an unimaginably bright future' (SS, 97).

In presenting orogenes as alien others to be feared for their lithic sensibility, Jemisin's fantasy worldbuilding incorporates a violent structural racism that underpins the industrialised progress upon which modern European notions of utopia were founded. As Alexander G. Weheliye describes, the modern idea of the human that emerged during the period of Enlightenment rationality and industrialisation 'discipline[d] humanity into full humans, not-quite-humans, and nonhumans'.³⁵ The dreams of liberated workers luxuriating in automated post-scarcity futures that characterise the Golden Age of late nineteenth- and early-twentieth-century literary utopias (such as Edward Bellamy's *Looking Backward: 2000–1887* (1888) and H. G. Wells' *A Modern Utopia* (1905)) thus, in actuality, depended upon proliferating a system of industrialised production that has systematically dehumanised and exploited Black, Brown, and indigenous subjects at the colonial frontier. Jemisin's texts draw attention to this dehumanisation. When Essun reminds her orogene partner Alabaster that 'We aren't human', he responds angrily, saying: 'Yes. We. Are. [...] That we're not human is just the lie they tell themselves so they don't have to feel bad about how they treat us' (FS, 354). Weaving their lived experience into recent posthuman scholarship in critical plant studies, critical animal studies, and ecological posthumanisms, several Black scholars have drawn on colonialism's classificatory system of humans and nonhumans to uncover an unexpected utopian potentiality. In dividing human agents from inhuman material or matter, and locating Black bodies in the latter category, Enlightenment rationality reveals a site of nonhuman experience that might help us think beyond the violent limitations of the human; a project that the radical environmentalists of the 1960s and 1970s only partially understood, when they insisted the elimination of the human from Gaia would save the planet's ecosystems. As Jayna Brown explains:

... because black people have been excluded from the category human, we have a particular epistemic and ontological mobility. Unburdened by investments in belonging to a system created to exclude us in the first place, we develop marvellous modes of being in and perceiving the universe.³⁶

This 'ontological mobility' is exemplified in the lithic characters of the 'Broken Earth' trilogy. From Essun's ability to 'sess' the geological *longue durée* of cyclical sub-crustal evolution to the lithic 'communicative presence' of stone-eaters, whose earthspeaking renders searing magnetic lines and

metallic seams audible, Jemisin's fantasy protagonists 'loosen the bounds of individualism', as Brown writes, demonstrating the Black utopian possibility of 'mingl[ing] with other flesh and with the elements'.³⁷

4. From the sub-crustal to the volcanic

Where Jemisin's 'Broken Earth' trilogy traces human-lithic intimacies within the sub-crustal layers of the Earth's lithosphere, our next lithic text focuses more closely on the planet's molten interiority as it meets the surface. The eight-episode first season of the Icelandic TV series *Katla* (Netflix, 2021-) presents viewers with an elementally ambiguous, weird process of becoming-lithic as a result of magmatic extrusions.

The show is set in the remote seaside village of Vík í Mýrdal in South Iceland near the eponymous subglacial Katla volcano. Belching steam and gas through the series, the foreboding presence of the volcanic Mýrdalsjökull glacier dominates the first season of the show, which the director Baltasar Kormákur describes as a work of 'psychological sci-fi'.³⁸ In the opening scene of Episode 1, 'From Under the Glacier', we peer into the darkness of an ice cave as a shrouded rocky outcrop sharpens into focus. Undulating slowly to the sound of a mournful violin dirge, the rock comes to life. As the camera pans along the fluid black silhouette a hand is revealed clutching volcanic aggregate, then a face emerges, and the female figure opens one eye. Her skin is caked in volcanic ash, crusted like lichen into the folds of skin, or like rivulets on an alluvial plain. The intense close-up jumps backwards to reveal her full naked form upon a rock deep within the subglacial Katla ice cave (Figure 1). Pulling herself along a narrow basaltic crevasse, the mysterious rock-woman emerges from the cave and the audience is shown an aerial perspective of the glacier: revealing a massive, billowing volcanic ash cloud that establishes the show's ecocatastrophic credentials in this anticipatory near-future. As the titles appear, this aerial image establishes the significance of the volcano, which dominates the small community at the largely abandoned village of Vík; now a restricted area since Katla began erupting 12 months earlier. Most villagers have been evacuated, leaving just a handful of our central characters eking out a harsh existence in the stifling volcanic ash cloud; lit, every now and again, by oppressive Arctic light.

4.1. Lithic panorama

Environmental setting is the central feature of *Katla*. This is a landscape that completely engulfs human life and activity. Repeated aerial shots of mud-spattered four-wheeled drives trekking across the black volcanic sands



Figure 1. The first rock woman appears from the subglacial ice cave (*Katla* (Netflix, 2021), S1, e1).

(Figure 2) reduces the human protagonists to a Lilliputian scale, struggling like buckling insects in the shadow of Katla. Wide-angled shots establish the sheer scale of the volcano, dominating the basaltic landscape, and horizontal tracking shots scanning the ice shelf from the show's characters' point of view add to the palpable sense of impending pyroclastic flow. These shots combine to create a distinctly perspectival reversal from the human to the nonhuman point of view. This use of *lithic panorama* eschews panoramic painterly perspective in landscape art by inverting the central viewing position. It is not



Figure 2. The subglacial Katla volcano, viewed from the village of Vík (*Katla* (Netflix, 2021), S1, e1).

the human spectator who has unfettered access to 360° of panoramic landscape; rather, the Katla volcano itself occupies this omnipotent viewpoint. The elevation of the volcanic caldera is the only point on the sub-glacial shelf from which a proper sense of perspective might be achieved; a geological panopticon that controls the act of seeing and sense-making, whilst its human inhabitants are buffeted about on the blackened plains below. The show's viewers are similarly restrained at a lower vantage point; despite the use of drone cinematography (as in one tracking shot in the first episode where the camera follows a meteorological balloon as it ascends towards Katla) we, too, are denied a fully aerial perspective of the volcano. The utilisation of lithic panorama does more, however, than simply set the tone for a sci-fi mystery TV series in which human existence is completely in thrall to the elements. It also challenges centuries of perspective in landscape painting and, in the process, recovers some of the perspectival weirdness of the panorama as a media technology. The Irish painter and inventor Robert Barker coined the term panorama, which he patented in 1767 to describe his own elongated rectilinear landscape prints. These were displayed as circular, immersive experiences in custom-built rotundas, offering paying spectators a 360° perspective of landscape. Barker drew on ancient Greek etymology (*pan* + *horama*, meaning 'complete-view') to express a perspectival construction that 'required painstaking efforts to efface the sutures between the frames and mask the signs of temporal disjunction, creating the illusion of a spatial – and temporal – unity'. The panorama, as William Uricchio reminds us, thus 'fixed nature within its controlling gaze'.³⁹

If the purpose of eighteenth-century circular painted panorama was to offer paying spectators an exhilarating experience of virtual reality and the human control over landscape, the resultant effect was rather different. As Katie Trumpener and Tim Barringer note, the panorama in effect destroyed the secure vantage point of landscape painting, eliciting 'a sense not so much of mastery as of epistemological uncertainty...'.⁴⁰ Early viewers reported feeling overwhelmed by the experience, gasping, and fainting when confronted with the unfamiliar perspective, *trompe l'oeil*, massive canvas, and shocking proximity that brought distant vistas up close.⁴¹ Analysing Katla's use of lithic panorama within the context of panoramic rotundas as a media technology, rather than a feature of landscape painting, recovers the perspectival weirdness and epistemological uncertainty of this nonhuman point of view. This deliberately posthumanist perspective reminds us, in almost every single shot, of the fragility and ephemerality of human life and human temporality when considered in relation to the glacial timescale of the Katla volcano.

This perspectival technique of lithic panorama is the first step in the utopian process of becoming-lithic. The show's distinctive camerawork decentres anthropocentric point of view by erasing the camera's presence

as a human technology, dissolving ‘the subjective dimension of the filmic image’.⁴² Like the meteorological equipment that the show’s protagonist Gríma carries with her, digital cameras are a lithic technology. Frequently manufactured out of magnesium alloy and containing printed circuit boards with gold, silver, and base metals like aluminum and copper cameras, too, emerge out of rock – quartz for gold, granitic and gneissic rocks, clay slate, and mica schist for silver.⁴³ The geo-visual poetics of lithic panorama are thus materially grounded in the proximity between metamorphic rocks and the digital film cameras made out of their precious metals. In drawing the viewer’s attention to the lithic connection between the camera and the volcanic caldera, *Katla* eschews any secure footing on which to establish human point of view in this volatile landscape. The show’s desaturated, almost monochromatic colour scheme adds to the effect by dissolving clear distinctions between the elements of the volcanic landscape: fog vapour is indistinguishable from volcanic ash cloud, black larval sand from rocky outcrop, frigid sea from the stygian beach.

4.2. Human-lithic erotic encounters

By the end of the first episode, we learn that the rock woman who has appeared up on the glacier is the lithic incarnation of a young Swedish woman called Gunhild who was staying in the village of Vík twenty years ago. Shortly afterwards, a second rock woman emerges from the glacier, stunning residents: she appears to be Ása, missing sister of the show’s central protagonist Gríma; a young woman who disappeared a year ago when *Katla* began its current period of eruption and ‘everyone assume[d] she got swallowed by the glacier’ (S1, e3). Ása’s miraculous return from the dead is followed by more rock doubles: a boy called Mikael, the semblant reincarnation of a little boy who has been dead for three years; a lithic double of Gríma discovered by Gríma herself at the glacial research cabin; and, in the same episode (S1, e6), police chief Gísli returns home to find a much younger, healthy version of his (now disabled, dying) wife Magnea cooking dinner.⁴⁴ In *Katla*, relations between the human protagonists are nearly always fraught, beset by dissimulation and uncertainty, and often traumatic. There are uneasy hints, for instance, that local police chief Gísli has abused his wife Magnea, who is mute and immobile (her tracheostomy and declining condition suggests throat cancer). Despite the show’s overwhelming focus on death and bereavement, abuse and its effects, parental abandonment, and the suffering of children, these human-lithic encounters offer a curious salve at a time of ecocatastrophic danger. *Katla*’s lithic incarnations catalyse a variety of redemptive encounters for their corresponding human protagonists: Rock-Magnea rescues her immobile human self from Gísli’s abusive control; Rock-Gunhild enables a rapprochement with

former lover Þór who finally meets the son he didn't know he had; Rock-Ása enables Gríma to come to terms with her sister's disappearance and, in the process, heal a little from their mother's suicide; Rock-Gríma repairs Gríma's broken relationship with her husband Kjartan; even Rock-Mikael, the most psychopathic of all the lithic doubles, reunites his separated parents.

Indeed, *Katla*'s treatment of the ecological crisis of climate change is oddly peripheral to the narrative. If this text is 'promot[ing] ecological awareness', as scholars define the objective of ecohorror (a genre category into which we might also credibly place *Katla*),⁴⁵ it does so via the slanted perspective of rethinking human-nonhuman distinctions. As Stephen A. Rust and Carter Soles suggest, reading and viewing texts in the Anthropocene situates contemporary works within a horrific context: 'These days ... as we read texts, our sense of horror is amplified by considering the relationship between textual terrors and those in the material world. When one considers the terrors that humanity hath wrought upon the planet, particularly over the past two centuries, it is easy to be scared'.⁴⁶ Whilst its volcanic setting invokes memories of the violent Gothic sublime (exemplified in dangerous mountains, or the Arctic passages of Viktor Frankenstein chasing the Creature to the ends of the Earth, for example) *Katla* is not simply an Arcadian revenge. In fact, its awe-inspiring volcanic power comes to represent the possibility of utopian redemption for each of the central characters touched by the lithic doubles who emerge from the glacier and stumble into settled human lives. In terms of affect, it is the *hopefulness* which distinguishes the show from contemporary works of ecohorror. But it is undeniable that the show employs horrific tropes. Indeed, each of the ensemble cast of protagonists in *Katla* are struggling with traumatic pasts; memories and clues rise unbidden like Proustian *mémoires involontaires*, roused into consciousness as the rock doubles surface from the subglacial volcanic caves. Gríma has forgotten how to 'keep on living', as her father puts it, having suffered a nervous breakdown after Ása's disappearance and presumed death, and her ensuing depression is straining her marriage to Kjartan beyond repair; Gunhild blames herself for her son's disability, which she thinks was caused by an attempted backstreet abortion that went wrong; the geologist Darri and his wife Rakel have failed to come to terms with the death of their young son Mikael, which has led to the eviscerating collapse of their marriage; moreover, there is an implicit, almost unthinking violence in the scene in which Darri locks Rock-Mikael in a cabin (S1, e3) that suggests this is perhaps not the first time he has emotionally abused his son (a hint possibly confirmed in a later scene, when Darri implies that he created '[a] child who kills people' (S1, e8)).

With the exception of Rock-Mikael, the only lithic child in the show's first season, there's an *inescapably erotic component* to these lithic doubles and their capacity to redeem their human counterparts, that bears closer scrutiny.

Becoming-lithic, we discover, involves what Jason Groves calls ‘the sexuality of the mineral realm’. As he writes in *The Geological Unconscious*, the lithic is ‘immoderate in a way that exceeds any gender or sexual norms’. Analysing Ludwig Tieck’s *Der Runenberg* (*Rune Mountain*, 1802), for example, Groves describes how the protagonist’s body ‘dilates with longing and desire, and is penetrated’.⁴⁷ Magnea’s narrative offers a compelling example of how the eroticism of becoming-lithic offers redemption to the characters in *Katla*. Entirely recumbent in her dying state, she is completely transformed as Rock-Magnea: attractively made up, wearing a figure-hugging silk dressing gown, and luxuriantly inhaling on a cigarette when Gísli first encounters her. His later confession at church interpellates Magnea’s lithic double as both Satanic temptation and Christian redeemer, as Gísli begs forgiveness for his carnal lapse whilst also thanking God for returning his wife in a healthy incarnation. Gísli’s monologue is interspersed with shots of the two Magneas driving away from Vík like the eponymous heroines of Ridley Scott’s *Thelma & Louise* (1991). Watching them from a camera positioned in the rear seat, we see their hands clasped and Gísli’s crucifix swinging above the dashboard, then the scene jumps to a wide-angled shot of the truck as Magnea’s attractive younger lithic double drives straight into the volcano’s crater (Figure 3). In the final scene of *Thelma and Louise*, the two women drive off a cliff edge into the Grand Canyon and the film ends with their soaring 1966 Thunderbird suspended in mid-air. Scholars have described this ending as offering a ‘disingenuously utopian’ image of redemption which refuses to show us the women’s’ deaths, instead attempting to conclude with an image of freedom that can never take place.⁴⁸



Figure 3. Magnea and Rock-Magnea drive into the volcanic caldera (*Katla* (Netflix, 2021), S1, e8).

Magnea and Rock-Magnea's ascent into the elemental embrace of the volcanic caldera is aestheticised very differently. Religious symbolism dominates the scene; from Gísli's swinging dashboard crucifix to the swelling choral crescendo, the parallel editing that layers the scene of Gísli praying for Magnea's redemption as a voiceover to the action, and the fact that this plunge into the deathly abyss is explicitly presented as an ascension. The Katla volcano is transformed into an ecocatastrophic mount – the Ararat, Sinai, or Zion of late capitalist climate emergency – reminding us of the significance of the mountains of Seir immortalised in scripture.⁴⁹ Like Mount Moriah in Genesis 22, it is the elevated site of ultimate sacrifice. When Abraham slays his son Isaac, the mountain becomes the locus of what Yvonne Sherwood calls God's 'divine eye as a gigantic voracious figure of the insatiability of seeing'.⁵⁰ Where Akedah (the 'binding of Isaac') demands a child-corpse as proof of Abraham's fear and obedience to the Old Testament patriarch, however, Magnea and Rock-Magnea's ascent into the Katla volcano reveals the utopian possibilities of unmediated contact with the sub-crustal lithosphere. Having arrived at peace and forgiveness, their climactic ascent into the caldera returns them into Earth's bowels; a fittingly cinematic gesture for a series that has insisted on dismantling the ontological veil between the living and the dead.

Michel Serres' reframing of the subterranean earth in *Biogée* (*Biogea*, 2012) might help us understand the weirdly sexualised climax in which we watch Magnea and Rock-Magnea drive into the volcano. He describes an experience rock-climbing in the Alps when one of his party slides down a crevasse. As the group sends a rope to rescue her they pull up, instead, a lone climber who has been stranded for days, having resigned himself to an icy death. '[H]e was, that day', Serres writes, 'expelled from the belly of his mother', reflecting:

Where did he live formerly? Here, in the womb, in the warmth, nourished, lodged, curled up, cradled. But where now? Wandering in space, exposed to the high seas, he dreams, more or less, of returning to the lost paradise. The sexual and reproductive system of women, this place, the bottom of the torso, becomes the Eden of origins, high with dream. Hard with blood and narrow passage, soft with strange nostalgia.⁵¹

Serres' unapologetically heteronormative account in *Biogea* might be forgiven its gender essentialism of Mother Earth, with her nourishing rocky womb and fleshy vaginal walls, if we take seriously its provocation of ripping open the human subject's 'interfering epidermis'⁵² to seek unmediated contact with the subterranean Earth. Like the dissolution between camera and volcanic caldera discussed above, which reminds us that filmmaking relies on a lithic technology, Serres' use of genital language dissolves the boundary between the human and the lithic. Without an elemental

analysis, Magnea's death offers little utopian promise. However, in rescuing Magnea from Gísli's abusive custody, Rock-Magnea offers the dying woman one final act of irrepressible agency; a moment of control over her life and her decision to end it on her own terms. In examining the elemental aesthetics of Magnea's character as it is presented in this final image of becoming-lithic, literally submitting herself to a deathly union with the volcano, something unexpectedly joyful crystallises, comes into focus. As her rock double facilitates the complete annihilation of Magnea's human life, we are reminded both of sexual consummation as well as the longed-for return to the womb. Recalling what Bachelard memorably refers to as 'the intumescence of a mountain',⁵³ this (re-)birth of the human into an Empedoclean elemental system, with its premodern unity of the love and hate that structures all organic and inorganic matter, is shocking in its erotic viscosity.

4.3. Utopia: from literary genre to geological literalisation

As Magnea and Rock-Magnea fall to their deaths, Gríma and Rock-Gríma negotiate their own redemptive conclusion. This scene takes the form of a game of Russian roulette that forms the climax of Season 1's final episode. The vaginal caldera into which Magnea and Rock-Magnea tumble, like the volcanic equivalents of Thelma and Louise, leads us to our final point concerning *Katla*'s elemental aesthetics: what I will call the camera's evagination of viewpoint in the Russian roulette scene that ends with Gríma's death and the show's most lithic utopian transformation.

Let's look closely at the action and camerawork in this scene. Having taken a pistol and single bullet from the cowshed, Gríma walks into the living room and sits down next to her lithic double, carefully removing her hairband and letting the austere ponytail fall to match the liberated long hair of Rock-Gríma (Figure 4). She slips off her wedding ring and places it on the table as the prize. Both wordlessly remove their jumpers. 'I'll start', she says. Seated side by side in matching outfits, the only thing differentiating the two Grímas is the colour of their matching vest-tops and trousers. The camerawork heightens this confusion, moving from a head-on frontal view to shots filming their reflections in the mirror above the mantelpiece so that the two Grímas appear to be swapping places on the sofa. The pistol chamber moves around and after shooting five blanks between them the real Gríma shoots herself. Splattering blood and brain tissue onto the net curtains behind her, the camera's elevation barely misses the horror and gore of her final act. The reverberation commingles with the crack of the *Katla* volcano, shown immediately in the next shot spewing ash into a billowing cloud that darkens the afternoon sky. The symmetry between the volcanic cloud and Gríma's splattered blood and brains



Figure 4. Gríma and Rock-Gríma play Russian roulette in Season 1's climactic scene (*Katla* (Netflix, 2021), S1, e8).

on the net curtain underscores the lithic connection between volcano and the surviving version of Gríma who has, herself, emerged from Katla's subglacial caves. If the camera lens may be considered analogous to the eye, this view-point becomes evaginated during the scene; turned inside out, just as the real Gríma has experienced in preceding scenes where she walked in on her own double having joyful sex with Kjartan. This idea of reflective evagination that the show's frequent doubling effects has created through the heightened awareness of mirrors, windscreens, and windowpanes, brings to the surface the erotic intentions, or effects, of the female lithic doubles in Katla.

At this climactic moment of *becoming-lithic* Gríma sacrifices her own life for her lithic double, Rock-Gríma. As she realised in the previous episode, Rock-Gríma is 'warm and gentle. Everything I'm not' (S1, e7). In the elemental terms of our utopian analysis, Gríma's self-sacrifice enables her to survive, even flourish, by *becoming less human*. Enduring the harsh ecocatastrophic environment of the active Katla volcano, which has strained her relationship with her husband Kjartan to the point of no return, necessitates this abandoning of her formerly human self. In stepping aside to allow her lithic double to take her place, Gríma demonstrates the *humaneness* of a post-anthropocentric perspective that is grounded in a Blochian '*humane* historical time' of natural futurity. This climactic Russian roulette scene uses a striking formal technique to underscore the process of lithic substitution in which Gríma accedes her mortal future to Rock-Gríma. In the weirdly eroticised, redemptive relationship between *Katla*'s human protagonists and their lithic doubles, as well as the show's use of formal properties to distort perspective (lithic panorama, the proliferation of mirrors and reflections throughout the first season, the use of an almost monochromatic colour

scheme, and the elemental focus on disruptive weather conditions that blur boundaries between people and landscape) we find utopian possibility has moved from literary genre to geological literalisation. Human protagonists no longer journey into the sub-crustal Earth to find better worlds as in late-nineteenth- hollow Earth utopias such as Edward Bulwer Lytton's *The Coming Race* (1871), Mary E. Bradley Lane's *Mizora: A World of Women* (1890), Solon Byron Welcome's *From Earth's Centre* (1894), John Uri Lloyd's *Etidorhpa* (1895), and Anna Adolph's *Arqtiq: A Story of the Marvels at the North Pole* (1899). Rather, as *Katla* demonstrates, in the contemporary ecocatastrophe protagonists are obliged to become lithic. As the characters encounter unlikely redemption in the process of relinquishing their human sovereignty, the show's viewers are guided towards the nonhuman, lithic point of view through a series of irruptive perspectival shifts. Formal properties in *Katla*, such as the show's use of lithic panorama and uncomfortably eroticised encounters between human protagonists and the show's eponymous volcanic interior, draw on the elemental properties of the lithic to reveal the odd utopianism of a radically shifted, nonhuman point of view.

5. Concluding remarks: becoming less human yet more humane

There is an undeniably, if overlooked, utopian quality to ecomaterialist and posthumanist thinking. Jeffrey Jerome Cohen and Lowell Duckert frame their elemental ecocriticism in terms of the relationship between liberal humanism and behaving in a humane manner towards the environmental systems on which we depend for life. As they argue in their 2015 edited book *Elemental Ecocriticism*, one does not need to be entirely human in order to exert a humane influence in the world. 'The less human the collective', they write, 'the more *humane* it may become – and by 'less human' we do not mean *The World Without Us*, but a disanthropocentric reenvisioning of the complicated biomes and cosmopolities within which we dwell'.⁵⁴ Cohen and Duckert's call for 'a reinvigorated, future-laden mode of ecomaterial inquiry'⁵⁵ is explicitly utopian in its anticipatory vocabulary.

Although ecological posthumanists have yet to engage with the utopian philosophy of Ernst Bloch, there is a compelling strand of his thinking that offers a glimpse of what a utopian ecocriticism might look like. As I have discussed elsewhere,⁵⁶ his reflections upon natural historical time suggest a strikingly similar gesture of dethroning anthropocentric models of temporality. This would uncover 'a largely inaugurated *tomorrow* of Nature' capable of imagining what he terms 'humane historical time'.⁵⁷ This shift into a *less human*, and yet paradoxically *more humane*, historical perspective triggers the radical reconceptualisation of anthropocentric frames of reference – in this case, the developmental historical paradigm

inherited from Hegelian dialectics – arguing that the less human our understanding of futurity, the more humane it might become. In this little-cited text from Bloch's mature utopian philosophy (published, as so many of his works were, whilst he worked at Tübingen from 1961 until his death in 1977), *Tübinger Einleitung in die Philosophie*, Vol. 1 (translated as *The Philosophy of the Future* in 1970), we find fertile conceptual territory in which to refine an elemental analysis, in terms of its nonhuman utopian potential.

As I hope to have demonstrated in this article, one compelling aesthetic and political strategy for *becoming less human* is to rethink our relations with the elements; starting with the lithic. Beyond considering human survival amidst an intensifying onslaught of elemental violence at a time of climate emergency and impending, irreversible ecocatastrophe, we might ask ourselves: 'What if the elements are more than a threat?'⁵⁸ It can be a hard question to contemplate at a time of rising sea levels, volatile climate patterns that cause unpredictable and severe flooding, extended hurricane seasons, and rampaging wildfires as far north as the Arctic tundra. How, we might wonder, can an elemental approach help us to uncover new modes of ecological engagement informed by the love outlined by Empedocles in his idea of elemental *philia*? Released from the shackles of human exceptionalism, these texts demonstrate elemental aesthetic strategies for imagining a *less human, but more humane*, relationship with the environment upon which we depend for our survival. In cleaving an imaginative space to consider the utopian possibilities of becoming-lithic, the lithic texts I have discussed here thus demonstrate the importance of narrative and form in contributing to the political task of deconstructing human exceptionalism. As Robin Wall Kimmerer puts it, learning to listen to 'intelligences other than our own', reveals 'how much less lonely the world [c]ould be',⁵⁹ even as we negotiate the climate emergency.

Notes

1. N. K. Jemisin, *The Fifth Season* (London: Orbit, 2015), p. 1 (subsequently referred to as (FS)).
2. *The Obelisk Gate* (London: Orbit, 2016) (subsequently referred to as (OG)); *The Stone Sky* (London: Orbit, 2017) (subsequently referred to as (SS)).
3. N. K. Jemisin qtd in Raffi Khatchadourian, 'N. K. Jemisin's Dream Worlds', *The New Yorker*, 20 January 2020. <https://www.newyorker.com/magazine/2020/01/27/nk-jemisins-dream-worlds> [Date accessed: 20 March 2023].
4. Nigel Clark, 'Bare Life on Molten Rock', *SubStance*, 47.2 (2018), pp. 8–22 (p. 8).
5. Patricia MacCormack, *The Ahuman Manifesto: Activism for the End of the Anthropocene* (London: Bloomsbury Academic, 2020).
6. Throughout this article, my understanding of physical geology and the rock cycle is informed by Edward J. Tarbuck and Frederick K. Lutgens's textbook

- Earth: An Introduction to Physical Geology*, 11th edition, with illustrations by Dennis Tasa (Boston: Pearson, 2014).
7. Clark, 'Bare Life', pp. 15, 19.
 8. Tim Delaney and Tim Madigan, *Beyond Sustainability: A Thriving Environment* (Jefferson, NC: McFarland & Co., 2014), p. 132. For an interesting reconsideration of the impact of radical environmentalists in the 1960s and 1970s, see Keith Makoto Woodhouse, *The Ecocentrists: A History of Radical Environmentalism* (New York: Columbia University Press, 2018).
 9. For helpful discussions of Deleuze's philosophy of becoming, see: Samantha Bankston, *Deleuze and Becoming* (London: Bloomsbury Academic, 2017), James Williams, *Gilles Deleuze's Difference and Repetition: A Critical Introduction and Guide*, 2nd edn (Edinburgh: Edinburgh University Press, 2013); and Craig Lundy, *History and Becoming: Deleuze's Philosophy of Creativity* (Edinburgh: Edinburgh University Press, 2012).
 10. The key text here is Rosi Braidotti and Simone Bignall's edited collection, *Post-human Ecologies: Complexity and Process After Deleuze* (London: Rowman and Littlefield, 2019).
 11. Thinkers advancing a process-oriented approach to contemporary utopian studies include Tom Moylan, *Demand the Impossible: Science Fiction and the Utopian Imagination* (New York: Methuen, 1986), Angelika Bammer, *Partial Visions: Feminism and Utopianism in the 1970s* (London: Routledge, 1991), Lucy Sargisson, *Contemporary Feminist Utopianism* (London: Routledge, 1996), Russell Jacoby, *Picture Imperfect: Utopian Thought for an Anti-Utopian Age* (New York: Columbia University Press, 2005), Fredric Jameson, *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso, 2005), Jennifer A. Wagner-Lawlor, *Postmodern Utopias and Feminist Fictions* (Cambridge: Cambridge University Press, 2013), Phillip E. Wegner, *Essays on Science Fiction, Globalization, and Utopia* (Oxford: Peter Lang, 2014), David M. Bell, *Rethinking Utopia: Place, Power, Affect* (New York: Routledge, 2017), Sean Austin Grattan, *Hope Isn't Stupid: Utopian Affects in Contemporary American Literature* (Iowa City: University of Iowa Press, 2017), and Caroline Edwards, *Utopia and the Contemporary British Novel* (Cambridge: Cambridge University Press, 2019). Ruth Levitas' *Utopia as Method: The Imaginary Reconstitution of Society* (Basingstoke: Palgrave, 2013) is perhaps the most influential study of process utopianism in its insistence on utopian sociological method, as differentiated from the study of utopia as a literary genre.
 12. See Clark, 'Bare Life'; Nigel Clark, Alexandra Gormally, and Hugh Tuffen, 'Speculative Volcanology: Time, Becoming, and Violence in Encounters with Magma', *Environmental Humanities*, 10.1 (2018), pp. 273–94 (p. 276).
 13. Key texts of elemental ecocriticism that compare the elements include David Macauley, *Elemental Philosophy: Earth, Air, Fire, and Water as Environmental Ideas* (New York: SUNY Press, 2010), Jeffrey Jerome Cohen and Lowell Duckert (eds), *Elemental Ecocriticism: Thinking with Earth, Air, Water, and Fire* (Minneapolis, MN: University of Minnesota Press, 2015), Jeffrey Jerome Cohen, *Stone: An Ecology of the Inhuman* (Minneapolis, MN: University of Minnesota Press, 2015), and Enrico Cesaletti, *Elemental Narratives: Reading Environmental Entanglements in Modern Italy* (University Park, PA: Pennsylvania University Press, 2020). Sub-fields exploring individual elements, such as

water studies and hydrofeminism, are too numerous to draw into the discussion here.

14. 'To contemplate rocks, in other words, is to entertain the possibility of being crushed by them'. Bachelard, *Earth and Reveries of Will: An Essay on the Imagination of Matter* [1943], trans. Kenneth Haltman (Dallas, TX: The Dallas Institute Publications, 2002), p. 148.
15. Jeffrey Jerome Cohen, *Stone: An Ecology of the Inhuman* (Minneapolis, MN: University of Minnesota Press, 2015), p. 4.
16. *Ibid.*, p. 8.
17. Clark, 'Bare Life', p. 10. For key texts in new materialist thinking that have informed the 'materialist turn', see Bruno Latour, *We Have Never Been Modern* [1991] (Cambridge, MA: Harvard University Press, 1993); Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC: Duke University Press, 2007); Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010) and *Influx and Efflux: Writing Up with Walt Whitman* (Durham, NC: Duke University Press, 2020); Diana Coole and Samantha Frost (eds), *New Materialisms: Ontology, Agency, and Politics* (Durham, NC: Duke University Press, 2010); and Catherine Keller and Mary-Jane Rubenstein (eds), *Entangled Worlds: Religion, Science, and New Materialisms* (New York: Fordham University Press, 2017).
18. Jason Groves, *The Geological Unconscious: German Literature and the Mineral Imaginary* (New York: Fordham University Press, 2020), pp. 15–16 (my italics).
19. J. G. Ballard, *The Crystal World* [1966] (London: Flamingo, 2000), p. 75.
20. Caroline Edwards, 'Hypnotic Inhumanism: The Welcome Descent into Decaying Worlds', Keynote Lecture delivered at *Current Research into Speculative Fiction (CRSF) 10th Annual Conference*, University of Liverpool, 1–2 July 2021. <https://www.youtube.com/watch?v=dBWg6aoH-t8&t=1s> [Date accessed: 21 March 2023].
21. Irene Solà, *When I Sing, Mountains Dance* [2019], trans. Mara Faye Lethem (London: Granta, 2022), p. 95.
22. Solà, *When I Sing*, p. 97.
23. In a plot twist towards the end of *The Fifth Season*, Jemisin's narrator reveals that her three Black protagonists are in fact the same woman at different stages in her life, with each timescale presented as though taking place in the present time. She appears as a monstrous young girl whose magical abilities have the power to murder people around her (Damaya), as a young woman apprenticed to a powerful professional orogene with whom she must also breed to ensure the continuation of useful orogene children (Syenite), and as a mother on a quest to find her missing daughter (Essun). In this analysis I'll call her Essun, as this is the narratorial present through which the earlier two narrative temporalities are framed, and in which the present action unfolds.
24. Clark, 'Bare Life', p. 10.
25. Robert Macfarlane, *Underland: A Deep Time Journey* (London: Penguin, 2019), p. 37.
26. Noah Heringman discusses how Romantic poetry, in particular, played on this idea of the dead, inorganic lithosphere. See Noah Heringman, *Romantic Rocks: Aesthetic Geology* (Ithaca, NY: Cornell University Press, 2004).
27. Groves, *The Geological Unconscious*.

28. Jayna Brown, *Black Utopias: Speculative Life and the Music of Other Worlds* (Durham, NC: Duke University Press, 2021), p. 1.
29. For recent examples of decolonising the whiteness of utopianism published by scholars working within utopian studies, see: Eve Darian-Smith, 'Decolonising Utopia', *Australian Journal of Human Rights*, 22.2 (2016): 167–83; Mary Irene Morrison, 'Decolonizing Utopia: Indigenous Knowledge and Dystopian Speculative Fiction', PhD Thesis, University of California, Riverside, 2017; Brown, *Black Utopias*; Alex Zamalin, *Black Utopia: The History of an Idea from Black Nationalism to Afrofuturism* (New York: Columbia University Press, 2019); Utopian Acts Radical Network, 'Decolonising Utopia Resource List', *utopia.ac*, n. dat. (2020), <https://utopia.ac/resources/decolonisation/> [Date accessed: 21 March 2023]; Caroline Edwards, 'Hope Draped in Black: Decolonising Utopian Studies', contribution to a roundtable article forthcoming in *Utopian Studies*, 34.1 (2023): pag. Unknown; Sheryl M. Medlicott, 'Utopia and the Plantationocene', *Just Utopias* website, 5 January 2023. <https://justutopias.com/?p=745> [Date accessed: 21 March 2023].
30. For critiques of the eugenicist visions of Gilman and Bradley Lane, see Michael Robertson, *The Last Utopians: Four Late Nineteenth-Century Visionaries and Their Legacy* (Princeton, NJ: Princeton University Press, 2020), p. 211 and Kenneth M. Roemer, *America as Utopia* (New York: Burt Franklin, 1981), p. 167. For a critique of Hegel's racism, see Joseph R. Winters, *Hope Draped in Black: Race, Melancholy, and the Agony of Progress* (Durham, NC: Duke University Press, 2016), p. 9.
31. Yusoff, *A Billion Black Anthropocenes*, pp. 12–13.
32. Sylvia Warner qtd in Kathryn Yusoff, *A Billion Black Anthropocenes or None* (Minneapolis, MN: University of Minnesota Press, 2018), p. 23.
33. Zamalin, *Black Utopia*, pp. 6–7.
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35. Alexander G. Weheliye, *Habeas Viscus: Racializing Assemblages, Biopolitics, and Black Feminist Theories of the Human* (Durham, N.C.: Duke University Press, 2014), p. 4.
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41. *Ibid.*, pp. 4–5.
42. Francesco Casetti, *Eye of the Century: Film, Experience, Modernity* [2005], trans. Erin Larkin with Jennifer Pranolo (New York: Columbia University Press, 2008), p. 57.
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44. To avoid confusion between the human and lithic protagonists of *Katla*, I will refer to humans by their first name and their lithic doubles with the prefix -Rock; e.g. Magnea and Rock-Magnea.
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47. Groves, *The Geological Unconscious*, pp. 34–5.
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49. The significance of mountains to scripture is explored in Rev. John McFarlane, *The Mountains of the Bible: Their Scenes and Their Lessons* (London: James Nisbet & Co., 1849).
50. Sherwood discusses Akedah as a pun on seeing (*ra-ah*) and fearing (*yara*). Yvonne Sherwood, 'Passion – Binding – Passion', in Virginia Burrus and Catherine Keller (eds), *Toward a Theology of Eros: Transfiguring Passion at the Limits of Discipline* (New York: Fordham University Press, 2006), pp. 169–93 (p. 178).
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54. Jeffery Jerome Cohen and Lowell Duckert, 'Introduction: Eleven Principles of the Elements', in *Elemental Ecocriticism: Thinking with Earth, Air, Water, and Fire* (Minneapolis, MN: University of Minnesota Press, 2015), pp. 1–26 (pp. 4–5) [my italics].
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