Of Posthuman Dragons and Sympoietic Solarities: An Ecocritical Analysis of the Figure of the Dragon in Early Solarpunk Fiction

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Abstract: This article analyses the posthuman aspects of the role of dragons in the construction of solar-powered architectures within two solarpunk short stories, M. Pax's "Wings of the Guiding Suns" and Danny Mitchell's "Dragon's Oath." These two stories from the early solarpunk anthology Wings of Renewal: A Solarpunk Dragon Anthology (2015) mix fantasy tropes with solarpunk eco-optimistic spaces, producing what can be described as "solarity." These two stories are particularly relevant to discussing posthuman landscapes in science fiction; their dragons are not only "posthumanly" related to humans (and other species), but they are also constructed as landscapes themselves. This article subsequently reflects on how Donna Haraway's sense of posthumanism (specifically her notions of sympoiesis, kinmaking and the Chthulucene)

may be employed as an analytical framework to understand the ecological proposals and posthumanist debates latent in solarpunk parratives

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Hic sunt dracones. Here be dragons. This well-known Latin phrase appears on the famous Lenox Globe (c. 1510) near what seems to be the Melayu Kingdom (modern day Indonesia, Malaysia, and Thailand). This terrestrial globe evidences an early use of that text instead of illustrations of dragons inside the boundaries of uncharted territories — a common "mapmaking" convention just a century earlier. As this implies, dragons have always had an intrinsic connection with territory and landscape, and particularly, as Chet Van Duzer argues, those spaces that Europeans



considered to be "the distant edges of the earth [...] the realm of exotica — of treasures, strange animals, and monstrous beings (2013: 518). The drastically imperfect maps of medieval times regularly assign dragon dominion to all those sections of land humans find dangerous, savage, chaotic or even mythical. In the imaginations of such cartographers, the draconic domains were so opposed to human ways of existence that cautionary advice was due to explorers, merchants, and colonising missions.1 Had these beliefs been justified, one wonders if the humans entering those allegedly dragon-dominated reigns would have returned home, or if they would have chosen to remain and live with the beasts. Patently, dragons inhabit the imaginations of the past and of the contemporary fantasy genre, yet, as this article proceeds to detail, they can also occupy

the territory of the future — and not just any future, but one whose socio-cultural nature directly opposes the industrialist, extractivist and individualist reality of our present time.

Enter solarpunk, a science fiction amalgamation of steampunk, cyberpunk, and climate fiction narratives, focused on depicting ecologically sustainable imaginaries and sociopolitically optimistic scenarios. The literary corpus of the subgenre, mostly consisting of Anglophone short story anthologies, can be positioned as a fictional attempt to explore ideas of "community, respect for difference, cultivation of heterogeneity, social justice, and the use of science for sustainable development" (Więckowska, 2022: 351) — in contradistinction to hegemonic ecological paradigms that either propose submitting to an acritical form of Silicon Valley techno-

And yet, this advice was not a way to deter these missions from visiting those faraway locations. As Van Duzer claims, the "description and depiction of faraway monsters removed the edges of the earth from the realm of the entirely unknown, and the fact that knowledge of those regions and their monsters had been obtained entailed the unspoken implication that the regions could be visited again, this time with knowledge of their dangers" (2013: 515-516).

optimism, or propose a radical return to nature. The subgenre presents a fertile ground for ecocritical analysis, particularly in relation to how its techno-industrial landscapes are presented, and the social consequences of their development for the populations that inhabit them. Through studies into how its sense of ecological technology operates (Williams, 2019), how environmental justice is portrayed (Farver, 2019), or contrasting its sense of progress with apocalyptic fictions (Więckowska, 2022), the subgenre is a burgeoning academic subject of study which critically interrogates neoteric approaches to human/nature relationships.

One dynamic linked to the solarpunk subgenre that is not usually taken into account is its engagement with contemporary posthumanist discourses. Aside from depicting sustainable forms of technology and collectiveoriented societies, solarpunk narratives regularly emphasise communion and collaboration with non-human beings, considering the role of technology in connecting not only different living species but also the ecosystems they inhabit. One of the earliest solarpunk collections, Wings of Renewal: A Solarpunk Dragon Anthology (2015), shows a specific interest in exploring posthuman potential, via the figuration of dragons across its nineteen stories. In this article, I analyse M. Pax's "Wings of the Guiding Suns" and Danny Mitchell's "Dragon's Oath"; both short stories not only present an approach to interspecies relationships conversant with Donna Haraway's relational sense of posthumanism, but also consider how such posthuman relations may condition the material habitats that humans and other-than-human species share. This article subsequently investigates how the posthuman/dragon assemblage problematises the way in which solarpunk landscapes may be understood, and explores how these two stories elicit a discussion of the possibilities and limitations of different eco-technological models of multispecies coexistence.

Solarpunk Solarities

Solarpunk science fiction has witnessed many different variations of the genre's aesthetics, themes and political proposals.2 Most narratives nonetheless tend to reproduce speculative spaces working under the remit of what scholar Imre Szeman terms 'solarity': "a state, condition or quality developed in relation to the sun, or to energy derived from the sun" (2020: 129). For Szeman, the transition from fossil fuels to a solar energy paradigm of energy production — namely, a civilisational solarity — inspires complex reflections on human dilemmas pertaining to the sustainability of Earth's environments, since solarities usually envision human life in a world without limited fuel that, nonetheless, still "requires the use of poisonous and toxic chemicals" in order to create photovoltaic panels (Szeman, 2020: 132). Solarities also promise global sociopolitical change in which an infinite and environmentally-friendly source of energy determines the way the world operates. In a prospective future within which the plentifulness of solar energy empowers human and more-than-human societies, Szeman asks:

> How can one own what is infinite? What happens to property in a world awash with energy? And what is the impact of infinite energy on existing forms of geopolitics, which is defined

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² For a detailed and up to date view on the history of solarpunk fiction and its modes, see Więckowska, 2022, and Rivero-Vadillo, 2022.

by a competition over resources and which is assumed (at present) to persist indefinitely? Solar panels need to be located somewhere, of course. And yet, the infinite energy promised by solar can't help but lead one to speculate about how else we might live once we have access to infinite, clean energy. (2020: 131)

Hence, imagining solarities is not (just) an exercise of utopianism, but a way of positioning our societies in a world of energetic abundance that might still maintain association with some of the sins of our petrochemical Earth.³ Solarpunk fictions often depict worlds that in one way or another answer Szeman's questions, evoking a new sense of techno-industrially mediated relationships with non-human matter alongside an optimistic outcome for global geopolitics.⁴

When assessing their optimistic depictions of the future, it is important to acknowledge that solarpunk literatures also present certain issues and problematic assumptions, largely pertaining to the way they frame their sense of utopia. Even though solarpunk is normally defined as a subgenre that "encourages individuals and communities to take charge of the future through a reappropriation of technology and a rejection of any technology that is environmentally or socially exploitative" (Harrison, 2019: 111), elements of its academic reception have gravely problematised its

optimistic tones. As Rhys Williams points out, solarpunk solarities tend to be a literary space in which "advanced technologies are deployed in a relatively pastoral setting that doesn't seem to allow for the production and distribution of such technologies" (2019: 10). Solarpunk is therein not *just* technologically and environmentally optimistic; it envisions societies whose sense of industrial development can hardly fit within the environmental ideal they depict.

This disconnection between solarpunk's desires (peaceful, comfortable and sustainable communion with the natural world) and solarpunk's necessary vehicle for achieving that aim (techno-industrial infrastructure) is a particularly conspicuous issue from the standpoint of Energy Humanities. For some critics, solarpunk narratives defend a sense of utopia that is so detached from our geophysical possibilities that positioning their societies as ideal models only anaesthetises and distracts us from the possible ways in which we can discursively tackle contemporary global ecocide. Perhaps, then, plumbing highly optimistic and idealist solarities for infrastructural guidance might not be the right angle to approach the subgenre — despite there being an increasing literary interest in creating functional solarities.⁵ Solarpunk's material conundrums are obvious, and yet, if one closely looks at the way in which some of its relational aspects operate — namely, the way in which human and non-human models of coexistence are presented — we

³ Solarities are not necessarily optimistic, however. For instance, Reza Negarestani's "theory fiction" book *Cyclonopedia* envisions a sense of solarity aestheticized by esoteric and Lovecraftian motives and deep philosophical jargon, in which it is prophesized that a chthonic demon will eventually devour the world (Negarestani, 2008, 18-19).

⁴ This generally hopeful tone mostly applies primarily to US short story collections. For instance, *Solarpunk: Histórias Ecológicas e Fantásticas em um Mundo Sustentável* (Lodi-Ribeiro, 2012), a Brazilian collection, presents dystopic scenarios in which green techno-capitalism maintains the same power relationship to that of its cyberpunk predecessor.

⁵ Real-world applications are the central premise of the two collections published by Arizona State University's Center for Science and the Imagination (Eschrich and Miller, 2019; Eschrich and Miller, 2021), anthologies which attempt to make solarpunk technically and realistically imaginable, in response to criticism of the subgenre's hyperoptimistic dynamics.

might find some productive philosophical value in its post-capitalist landscapes.

The ways in which solarpunk literature depicts interspecies representations are multiple and heterogeneous, since hundreds of stories published to date do not provide a clear sense of aesthetics or themes. Solarpunk modes have employed diverse visuals; cyberpunk scenarios, space-opera configurations, steampunkesque settings, and technologically realistic worlds. The great majority of solarpunk, however, operates with tropes traditionally associated with the science fiction/speculative fiction genre, and so, stories tend to feature representations of cyborgs, robots, spaceships or flying cars, which are sometimes combined with more "apocalyptic" visuals (à la films such as Mad Max: Fury Road (2015)) such as highly desertified zones and reappropriated urban ruins. With their many aesthetic and thematic differences, solarpunk stories envision imaginaries in which core ideas inherent in the philosophy of posthumanist thinkers (like Rosi Braidotti, Cary Wolfe or Donna Haraway)6 are imparted a narrative tone. In this sense, the posthumanist (or rather, "compostist")⁷ thought of Haraway with regard to ideas such as the Chthulucene, sympoiesis, and holobiont alliances offers a very productive framework through which solarpunk narratives can be read.

Haraway's proposals in *Staying with* the *Trouble: Making Kin in the Chthulucene* (2016) argue for a new sense of relational ethics with non-human beings, proposing a need to reincorporate humanity into Margulisian evolutionary patterns — namely, the idea that survival may only be achieved through cooperation with other species. Haraway's

foremost aim is to generate and recognise symbiotic alliances with other beings. Through multispecies collaboration (which she terms "making kin" (Haraway, 2016: 138) and "sympoiesis" (Haraway, 2016: 125), she suggests that humanity could be able to develop the techno-biotic mechanisms which would allow us to overcome the epistemological restrictions caused by anthropocentrism. This, she asserts, will hopefully reintroduce humanity into the sustainable network of multispecies collaboration that generates non-anthropic ecosystems (Haraway, 2016: 101). She names the new age defined by this kinmaking attitude the Chthulucene, whose main characteristic is that, rather than fully invoking previous understandings of deep ecology or degrowthoriented ecological thought — in which industrial technology is intrinsically linked with capitalist scientific progress — it instead defines a middle ground in which technoscience is seen as a natural and necessary tool to develop both kin and ecologically sustainable relationships.

Communion non-human with subjectivities in the formation of Chthulucenic models is a more or less omnipresent aspect of solarpunk fictions. In a way, posthumanism is to solarpunk what transhumanism was to cyberpunk; a perennial trope through which fantastic elements render cultural, political and ecological anxieties. If, in the case of first-wave cyberpunk, transhumanist currents somewhat apathetically presented concerns about an incoming ecological collapse caused by the burning of fossil fuels (Lavigne, 2013: 98), the posthumanist elements of solarpunk fictions attempt to problematise, reflect, dramatise

⁶ In fact, the collection *Multispecies Cities: Solarpunk Urban Futures* directly mentions "more-than-human ties, relationships and kinship" (Rupprecht et al., 2021: 2) as the main theoretical premise from which its stories depart.

Although Haraway's thought is usually framed inside posthumanism, she attempts to distance herself from posthumanist discourses, claiming that she is a "compostist, not a posthumanist" (Haraway, 2016: 97).

and negotiate the possibilities of creating a post-scarcity society in which the ecological and social consequences of civilizational anthropocentrism have been overcome by, above all, changing our toxic relationship with other species, environments and technologies. With the exception of the two deliberately realistic anthologies by Eschrich and Miller (2019; 2021), solarpunk's posthumanism is realised through technological magic; readers are usually introduced to stories in which green technology works because it needs to work, in order to visualise an ulterior moral or philosophical message. The lack of rational explanation justifying the technological infrastructure of such solarpunk stories is not necessarily a problem. As Frederic Jameson comments:

> If SF is the exploration of all the constraints thrown up by history itself — the web of counterfinalities and antidialectics which human production has itself produced — then fantasy is the other side of the coin and a celebration of human creative power and freedom which becomes idealistic only by virtue of the omission of precisely those material and historical constraints. Magic, then, may be read, not as some facile plot device (which it no doubt becomes in the great bulk of mediocre fantasy production), but rather as a figure for the enlargement of human powers and their passage to the limit, their actualization of everything latent and virtual in the stunted human organism of the present. (2005:66)

Solarpunk's idealistic solarities can therefore be better approached through their symbolic meaning, and their capacity to inspire new ontological and moral frameworks that —

although impossible to fully adopt in today's world — may become the seed for realistic future considerations of human/non-human interactions.

The Dragon as Posthuman

Across the mélange of stories envisioning potential posthuman solarities that illustrate justifications for the connections between individuals and territories, Wings of Renewal: A Solarpunk Dragon Anthology is unique in inserting dragons into the already obtuse aesthetical configuration of the subgenre. Contrasting materialist approaches to the creation of solarities, this collection introduces the titular fantastic dynamic to make the magical elements of the subgenre more literal and selfevident, visualising optimistic posthumanist themes outside the field of science fiction. The fact that dragons are the primary protagonists of this compendium is interesting in itself; dragons were the mythological animal that most profoundly oversaturated pop cultural imagination during the 2010s. In televisual media such as Game of Thrones (2011-2019), The Elder Scrolls v: Skyrim (2011), or the movie franchises How to Train Your Dragon (2010-2019) and The Hobbit (2012-2014), human and dragon relationships are prominently negotiated — in many cases creating interspecies kin links, and in some others, problematising human-dragon coexistence.

In addition to being the cultural zeitgeist, the figure of the dragon offers a great potential for a posthuman analysis from a Harawayan perspective. Inside a Chthulucenic framework, the dragon inhabits a complex location. On the one hand, they — as far as science can explain — neither exist nor have ever existed, which renders futile any materialist discussion of their potential relationship with humanity.

Dragons are, necessarily, fantastical animals with no real physical translation or animal substitute in the real world. On the other hand, they embody a sense of agency that mirrors humanist comprehensions of the world from the perspective of an "intelligent Other," interrogating the supposedly innate superiority of *homo sapiens* over other species.

In the European tradition, and specifically contemporary renderings, dragons are depicted as subjectivities liminally situated between three ontologies. Firstly, they are animals; they tend to live in non-anthropic and isolated locations; the Lone Mountain in the case of Tolkien's Smaug; the mountainous Throat of the World in the case of Paarthurnax from Skyrim; and even the Wood of Woden in Fritz Lang's classic film Die Nibelungen (1924). Secondly, regardless of their actual ferocity in the narrative, they are depicted as savage, uncivilised and, in many cases, as threats to human colonisation of the territory. They consequently emblematise an idealisation of pure animal essence, for although they may be subjected to human rule (as in Game of Thrones or How to Teach your Dragon), they remain unruly, unpredictable and dangerous to human settlements. At the same time, dragons embody some very human characteristics.8 Not only do they tend to be able to speak human languages — with the example of Smaug, the Skyrim dragons, and even some previous depictions like Draco from Dragonheart (1996) - but they also clearly show human-like emotions and behaviours. This may be visually observed in child-oriented productions such as Pete's Dragon (1977; 2016) or How to Train Your Dragon, in which dragons show affection and understanding of human actions and relations, along with more mature products, such as *Game* of *Thrones*.

For instance, when Drogon — Daenerys Targaryen's last remaining dragon — melts the Iron Throne after the death of his human mother ("The Iron Throne"), he symbolically puts an end to the sempiternal fight over its control, showing audiences that, firstly, he is able to understand complex human semantics (and even politics); and secondly, that he feels a sense of rage and rebellion against a systemic problem that has killed his beloved human mother, proceeding to provide a solution to that very issue. Thirdly, dragons embody qualities beyond human and animal embodiment, a divine or preternatural aura that allows for their distinctive abilities to be real in the narrative. Their magical power to breathe fire from their mouths, their physically impossible ability to fly, and the magical properties of their blood (used by Siegfried in Das Nibelungenlied to make himself invulnerable to his enemies' weapons) or bones (which can be used by Skyrim's players to forge the most powerful armours and swords in the game) renders them as beings biologically and transcendentally superior to humans and non-human animals alike.

This triple ontological condition (a human-animal-divine ontology) situates dragons as a potential incarnation of posthuman subjectivities, something already noted by Jameson, who, commenting on the works of Ursula K. Le Guin, Anne McCaffrey and Samuel R. Delany, argues that they:

incarnate sheer otherness, so that its symbolic capacities well exceed those of inanimate machinery. Indeed, in Delany and Anne McCaffrey the ecstasy of

⁸ Humans are, of course, also animals. In this section of the text, I use the binary human/animal (instead of the usual human animal/non-human animal) to easily depict the different components that compose dragons' most common representations.

dragons in flight rehearses intensities at the very limit of the human; in Le Guin the dragon's preternatural wisdom and knowledge, and its symbiotic relationship with humans, equally make it into a vehicle for transcending ordinary human possibilities. (2005: 64)

In this sense, dragons can be defined neither as animals nor as humans (nor angels or demons) but as an embodiment of all the above that is, however, an Other to them all. They are rational non-humans that tend to live in absolute harmony with the environment they inhabit, and only happen to show up when humans, hobbits, dwarfs, orcs, or elves invade their home to appropriate some aspect of it. Through a Harawayan view, draconic domains represent a Chthulucene reality (sympoietic and harmonic), whereas human(oid) spaces present an anthropocenic (or even capitalocenic) ethos focused on constructing environmentally destructive societies.

Humans in these texts tend to show not only anthropocentric behaviours (they tend to use dragons to accomplish their own materialistic ends, such as conquering a city), but also anthropocenic modifications of the environment the dragons inhabit. In the Hobbit, the dwarf company lead by Thorin aims to reconquer Smaug's mountain in order to reestablish the mining settlement that once governed the kingdom of Erebor; in Game of Thrones, most coexistence issues between Daenery's dragons and the surrounding humans occur because of their need for hunting and food is not satisfied by her mother. Despite their ferocity, cunning and magical (and so, technological) superiority, dragons do not interact with the environment in the same way humans do, but rather seem to be part of the intricate web of biophysical processes that constitute a self-sustainable nature. Rather than

setting the world on fire, they tend to choose to peacefully sleep in the guts of a mountain, and the calmness is only broken when they somehow feel this connection to nature is in danger.

Dragons are also suitable posthuman candidates via their kinmaking pretensions. Although there is a large corpus of works in which dragons are portrayed as merciless war machines, observing the way they interact with some specific humans (usually, focalised protagonists) uncovers a different, empathetic nature. An early, but paradigmatic, example may be the orphan Lessa, from Anne McCaffrey's novel Dragonflight (1968), part of the Dragonriders of Pern saga. In McCaffrey's science fiction/fantasy worldbuilding, some humans (the dragonriders) are telepathically, affectively and even spiritually connected with 'their' dragons, and develop a sense of kin relationship that goes beyond the mere instrumentalization of these creatures. In the case of Lessa, her dragon Ramoth helps her "to come to terms with both her social and sexual states of abjection. She learns to direct her dragon's flight not only from place to place, but forwards and backwards in time. This knowledge enables her to help the dragonriders save the planet and earns her a place among them." (Marchant, 2005, 6). Her connection to Ramoth, in this sense, helps her overcome her childhood trauma, establishing a spiritual connection so strong that she is capable of protecting her environment from the toxic fungus infection threatening her planet.

A more recent example may be Daenerys Targaryen, who does not only take the name "Mother of Dragons" but, most importantly, takes actual care of her three dragons from their very hatching, developing a parental bond that is expressed throughout the narrative. Similarly, in *Pete's Dragon*, the eponymous protagonist is adopted by the film's dragon after his parents

die, creating a father-son bond that persists until the end of the film. Similar elements can be found in *Maleficent* (2014) — a feminist reboot of the Grimm Brothers' story "Little Briar-Rose" [German: "Dornröschen"] (1812) — in which the witch protagonist eventually transforms one of her animal companions, a raven, into a dragon to protect her and the princess Aurora. Dragons, in this regard, do not only embody a posthuman condition, but also relate with selected humans in sympoietic ways, producing interspecies kin relationships that outdo traditional conceptualisations of families, whilst allowing (posthuman-minded) humans and dragons to thrive together.

What happens, then, when hopeful solarities meet posthuman dragons in the uncanny literary grounds of solarpunk? What kind of fantastical (yet symbolically powerful) speculative futures are imagined when mixing mythical subjectivities with ecologically optimistic prophecies? As this essay proceeds to illustrate, this hybrid admixture of science fiction and fantasy allows for an intriguing reflection on and reconceptualisation of solarities inside solarpunk debates. Specifically, two stories in the anthology Wings of Renewal present particularly intriguing configurations of posthuman solarities, emphasising precisely how the fantastic elements of the collection develop a sense of posthuman landscape that may serve to both illustrate and problematise Donna Haraway's posthumanist theories.

Draconic Gaias from Outer Space

One of the most intriguing representations of Chthulucenic spaces in *Wings of Renewal* can be found in "Wings of the Guiding Sun" (2015), by M. Pax. The story opens with Sita, a dragon recently transmogrified into a human girl, wandering through the halls of a spaceship

she calls "Mother." The vessel, as readers discover, is actually a gigantic solar-powered biomechanical dragon, Darlig, on a mission to save species in the galaxy about to go extinct. Darlig is presently orbiting the Earth. As it transpires, the mother dragon has transformed Sita in order to better appeal to the humans living on the planet, since her primary aim is to convince them to abandon the planet and join "the Accord" — an intergalactic multispecies alliance led by dragons living in communion with one other. The people on Earth inhabit a slowly decaying solarpunk society, for even though they have managed to develop an energetic infrastructure based on solar and geothermal power (2015: 232), their world is threatened by an unstoppable crisis; the Sun's eventual collapse. On Earth, Sita meets Cero, the son of the head of the Synod of the last remaining city on the planet, New Chigopolis. Despite humans' initial rejection of assistance from the dragon emissary, Sita eventually convinces them, and in order to help them migrate to a new world of their own, Darlig transmutes her again into a dragon-spaceship. The story ends with humans happily boarding Sita before leaving for the stars.

Although the events taking place in the story are far from intricately-plotted (Sita simply lands on Earth, meets the human leaders, and eventually convinces them to board her and leave Earth), Pax's text offers a sound comparison between models of posthuman ecological thought. From a Harawayan perspective, two types of ecological spaces are shown in the story. The first one is the human solarpunk Earth, one that has survived the different environmental dynamics of the planet up until its possible limits, through the use of sustainable technologies. New Chigopolis represents a very optimistic solarity, for not only is society self-sustainable in the harsh conditions

of an Ice Age, but it has also not fallen into the hands of an authoritarian regime, nor an unruly and chaotic collapse of civilization. The synod governing the city is instead a "panel of citizens who make decisions for the survival of us all. They make rules, ration food, allot residences and resources" (233). This human society, nevertheless, replicates some archetypical flaws associated with anthropocentric thought; they are very reluctant to leave a dying planet that they hold property on for the sustainable space that the dragons promise to them, since they would have to coexist with other sentient species in equal conditions. As if this was not enough, humanity's historical perception of these creatures as "murderous [...] and tricky serpents" (236) makes them unwilling to trust the promised utopian salvation. As Cero claims, "many citizens [would] rather die here on our terms" (236). His Earth is a sustainable environment, but one that only permits human control over such territory.

The second ecological space represented is Darlig herself, who acts as an agentic microplanet. As New Chigopolis, she is entirely powered by solar energy. As the narrator describes:

The great solar wings [...] and the hull absorbed starshine, enabling the ship to hook into the solar strands to travel the galaxy. The spacecraft's systems were powered by suns and planets rich in hydrogen. Air and biological matter were recycled. Mother could fly forever among nebulae and moons. (226)

Darlig, moreover, is a macroorganism that holds smaller species inside of it; not only her dragon offspring, but also a species of reptilian humanoids, the Uikeas, who decided to join the Accord millions of years earlier. The description of the Uikeas advances and predicts the future

of humans under draconic guidance. This species, evolved from the Earth's dinosaurs (239), is now part of the Accord and operates as intelligent drones voluntarily submitted to the dragon's will. As the text explains: "The dark suits the Uikeas wore glowed with energy from distant stars. Conduits throughout the spacecraft fed power to the suits, which linked the Uikeas to Darlig. They knew what needed to be done on the ship without being asked" (227).

The conflict between both solarities pertains, fundamentally, to posthuman nature. On the one hand, Earth's solarity evokes a catastrophic prediction for *Homo sapiens*, since, in their attempt to maintain an anthropocentric regime, humans are letting themselves be annihilated by a force beyond their control. In this specific case, this event is the Sun's collapse, but its genocidal consequences gesture to contemporary prophecies and fears of species extinction in an era of climate change whose effects are well beyond possible reparation in the short term. The sun's impending explosion, in this sense, may be observed as what Timothy Morton calls a "hyperobject," a process (or object) that does not minimally change in human temporalities but that will affect the special composition of the solar system for eons (or even eternity) (2010: 130-135). Although, for Morton, hyperobjects bear an anthropogenic condition — i.e. literal objects, like plutonium and its radiation, or even processes like climate change — the announced collapse of the Sun in the story incorporates the two most important psychological components of hyperobjects; firstly invoking "terror beyond the sublime, cutting deeper than conventional religious fear", and secondly, eliciting the dominant ideology to react in only passive ways, discouraging a collective sense of responsibility to save the species (Morton, 2010: 131).

According to Cero, the humans of New Chigopolis have already accepted the dreadful future of the planet and their oncoming extinction (and hence compartmentalised the fear that comes with the idea); they live with that presence in their daily life and prefer not to be toyed with by what seems to be "false hope" (237). When the possibility of salvation is offered, the Synod laughs "in short, loud outbursts" (234), and Sita's father spits out that there's no possibility of salvation (and so, of human action) since "[t]here's nowhere to go. The entire solar system will be obliterated" (234). Despite their sustainable technological communion with the Earth, the human solarity is only sustainable inasmuch as the hyperobject haunting the planet allows it to be — without a strategy to tackle the problem that lies beyond comprehension in the terms of human lifespan, their achieved communion with the planet's biophysics will eventually be rendered futile. In this sense, the hyperobject summons a fear that co-opts any solution to the problem, for any uncertain solution to the crisis is addressed as magical, impossible, and false.

The only solution posited in Pax's text is absolute submission to the dragons' seemingly fair, moral, and egalitarian control, a rule that is presented as utopian — "[t]he suns of the dragons are mellow. We live by the accords of charity and empathy" (235), Sita says. Dragons are presented not as just another species but as a Gaian arcology, as an incarnation of Nature's self-organising condition that properly administrates biological and technological matter in ways that allow for the survival and thriving of any species in danger of extinction.9 At a certain point during Sita's meeting with the Synod, a dragon hatchling that accompanies

her creates a fire hologram showing "[c]ities and people bustl[ing], smiling, joyful, thriving" (235) in an attempt to convince Nithya to join the dragon-led multispecies alliance. It is only thanks to draconic supervision that humans will be able to "live in peace among other gentle beings of the galaxy [and] flourish and continue to grow" (236), and thus escape the hyberobject menace. Although Nithya originally sees this solution as magic, such magical infrastructure is real in the text's universe, and poses a potential way to escape the hyperobject's threat. Hence, after some negotiation (humans will live alone under the supervision of Sita until they are ready to join the Accord), they agree to the dragon's plan. The inclusion of humanity into this Gaian/Chthulucenic paradigm is depicted at the end of the story, when a parade of human beings appears near Sita and enters her new body, where they will travel to a far-distant planet in order to continue the process of willingly joining the Accord.

In an essay on Charlie Jane Anders' City in the Middle of the Night (2019), Guillermo Guadarrama Mendoza describes the novel's Lovecraftinesque race as being modelled on Haraway's famous example of chthonic beings who are ancient, monstrous, tentacular, kinmaking, sympoietic, and perform a type of biogeoengineering that makes them participants of the complex network of material relationships between natural processes (2023: 122). Very similar ideas can be attached to the dragons in Pax's story. They are "ancient and upto-the-minute" (Haraway, 2016: 2), tentacular - Darlig connects to Uikeas minds through conduits linking the spaceship and the species' spacesuits — and although they come from space (and so, they are technically not chthonic

⁹ This "dragon-as-protector" trope is not a unique feature of this story. Others in the collection such as Jaylee James' "The Last Guardians" or Gemini Pond's "Fighting Fire with Fire" also feature dragons whose main purpose is to protect a specific community of humans at risk of leaving a pre-existent chthulucenic relational system.

but rather the opposite), their microplanetary condition makes them "chthonic" in relation to the beings they hold inside of them.

Moreover, Pax's dragons have been uplifting species for eons, and persist doing so to pursue a prospective plan of complete self-sustainable integration. In that vein, they fundamentally desire to create kin with other species as if this was their divine duty, an aspect that also fits with the mythopoetic elements with which Haraway describes the Chthulucene (Haraway, 2016: 53-54). The dragons' own bodies are a combination of techno-biological configurations operating in sustainable ways (thanks to solar energy), and they do not inhabit a unique body, but rather mutate based on their sympoietic habitat's needs. In order to attract humans to the draconic Chthulucene, Sita bodily becomes a human, yet once she is required to guide humanity in its transition, she does not return to an archetypical dragon body, but transforms into a "dragonship." Dragons are not only part of a multispecies network, but instead, their own corporealities dilute into the many strings of the story's relational paradigm.

"Wings of the Guiding Sun" is a highly conceptual story deeply engaged within the posthuman imaginary it envisions. Firstly, Pax's text depicts a model of communion with nature that is dependent upon its dragons' willingness to incorporate us in their entanglement, implying that an external force is ultimately what could grant us a sense of transcendental salvation, and that without it, human agency, posthuman or not, is helpless. More problematically, the harmony promised by this dragon-led utopia conveys a sense of religious totalitarianism in a Gnostic fashion, the dragons being a divine body within which humans must incorporate in order to keep existing. This echoes Williams' comments on the general tone of solarpunk fictions, in which the "sun

promises and threatens to subsume everyone and everything beneath it, as much a symbol of beneficence as an emblem of tyranny" (2019: 11). At a certain point in the narrative, Nithya asks Sita "[w]hat happens if someone forgets their manners?" (235). Sita answers that this has never happened and implies that those who do not join the Accord are left to die (236). The story's narrative gives no place for negotiation or middle ground. Either humanity blends into a draconic and draconian Chthulucene (and so relinquishes its own sense of agency in exchange for salvation), or it perishes at the hands of the hyperobject that besieges it.

Reaching Peak Dragonscale

Other texts in the collection are not as totalistic as Pax's, while nevertheless remaining capable of conveying productive depictions of dragon-human interactions. One of the most conspicuous examples may be found in Danny Mitchell's "Dragon's Oath," set in a small, isolated village situated in an undefined fantasy retrofuturist scenario. The settlement's energetic infrastructure is predominantly dependent on magical black scales fallen from the migrating dragons that fly over the village's locale. With them, the community powers its houses (as if they were miniature solar panels), and if they happen to find green ones, they are also able to provide "sugary water, which [i]s a boon for hungry villagers and bees alike" (2015: 192). The text starts with Rashida, a young girl, and her father searching for scales in the outskirts of the village. They are both aware that few dragons have been spotted lately, and so scales have been scarce. In addition to this problem, the village is building more homes to house a migrant population that has recently arrived looking to start a new life (191).

When Rashida and her father finally spot a dragon, they realise that its flight is erratic; eventually the creature falls into a nearby forest. Although Rashida organises a rescue team in order to help the dragon, by the time they reach the beast, the dragon is already languishing. They are, however, not alone. A baby dragon emerges from the belly of the bigger one. The dying mother speaks telepathically to the young girl, and asks her to take care of the dragon and to treat it with "[c]uriosity. Trust. Compassion. Empathy" (198). As she eventually discovers, the dragon had been attacked by a more technologically developed society, far away from Rashida's town. The story finishes with the villagers scrapping the scales of the deceased dragon as Rashida bonds with her newly acquired friend.

As other critics have noted, "Dragon's Oath" presents readers with an important contradistinction between solarpunk opulence and the material possibilities of technoindustrial pastoralism, since beyond "its green credentials, beyond its decentralising capacities, beyond its utopian promise, the technology needs to be manufactured and distributed in the first place" (Williams, 2019: 19). Dragons, in this case, are not the salvatory figures depicted in "Wings of the Guiding Suns", but rather living (and very limited) sources of energy production, whose residues allow humans to establish a fully sustainable solar infrastructure. The problem is, as Rashida states, that "to get dragon scales, you needed dragons" (191) and for dragons to keep existing, humans must allow their population to flourish rather than killing them for their scales. The eco-energetical aspect at stake in the story is clear: resource extractivism eventually leads to societal collapse, whereas a more empathetic sense of relationship with nature, such as the one Rashida's village performs with their limited territory, might configure a means of survival in an ecologically fraught age.

Mitchell's posthuman dragons are very different (and yet, very similar) to those of Pax's story. In both texts, the dragons' bodies become an ecologically balanced housing for humanity. Whereas' Pax's story presents such bodies as a solar-powered galactic home, Mitchell's text locates sustainability in the fusion of their corpses with the planet's matter. Dragonscales operate as the connective tissue transforming photovoltaic energy into green technologisation. However, Sita and Darlig's bodies are portrayed as being as totalizing as the abundance of energy they represent; their power resides in their capacity to hold a whole civilisation inside them. They are needed alive for humans to survive an assured planetary collapse.

Mitchell's dragons, on the other hand, offer a sustainability boost for human technoscientific improvement. Should dragons become extinct, human existence would not be directly threatened; only human technological progress would. Thus in "Dragon's Oath" dragons are not a Gaian entity, but another holobiont inserted in the network of interspecies sympoietic connections. Dragons are as vulnerable to human agency as any other non-human species on the planet, and far from being divinised, they are merely seen as flying resources waiting to be harvested. In the case of Rashida's village, humans have opted for a non-intrusive system of recollection — simply waiting for scales to fall off dragon's bodies, forcing the town to adapt their social and technological development to this resource limitation — whereas the other unseen city, either due to greed or need, has shifted to active collection. Although the story depicts these models as opposed to each other, both solarities, at least at the beginning, seem to show a similar understanding of the

creatures; they are simply "majestic beasts flying over the village or basking on the plains nearby, grooming themselves and shedding loose scales in the process" (191). Before Rashida sights the dying dragon, descriptions of the species mostly focus on valuing the direct service that their scales provide to human communities.

This "dehumanizing" yet nonetheless sympathetic attitude towards dragons uncovers a very posthuman nature. The village's architectural space is primarily constructed and remains functional thanks to the scales, engendering a sort of necrotic sympoeisis. In the same way that fungi consume dead flesh, humans take advantage of the dragons' skin surplus, and use it to firstly enhance their quality of life, and secondly, to multiply their numbers (more scales means more houses for wanderers). However, there is no direct interaction whatsoever with the species, and so, no possibility of "kinmaking." The story here produces a second binary between models of relationality with the non-human. Despite the unambiguous fact that the village's citizens are not the despicable dragon hunters from afar, their sense of empathy towards draconic life is strangely grotesque.

When Rashida comes back to the village with her new baby dragon, she is welcomed by the town leader, Amelia, and after Rashida tells her they have carried out some variety of funeral service, Amelia states that "[a]ll who pass beyond deserve memory and dignity, dragon or human alike" (202). Right after that line, she encourages the rest of the villagers to quickly prepare their tools to skin the dragon, since the "sooner we get everything harvested, the sooner we can finish houses and improve more things around here" (202). In an act of posthuman cannibalism, she rationalises that the dragon is worthy of human-like ways of respect but that, somehow, profaning its body

to get a huge amount of valuable scales is not disrespectful. The reader is nonetheless left questioning whether, if mutilating a human corpse was technologically profitable, Amelia would agree to do it.

This morally dubious action also reveals a new aspect on Rashida's apparently-respectful village; there has never been any need to hunt dragons until now. The village's land development does not only require a one-time bounty of dragon scales, but it will most likely involve some sort of increase in maintenance costs, which will add more pressure for the local administration to obtain scales that are already becoming more limited. Inasmuch as the community can afford the costs, they will be able to passively collect dragonscales, but once the village reaches a critical point of resource demand, they will have to either forcefully embrace a degrowth program, or sacrifice their empathy towards the majestic beasts flying above and start hunting them to enhance human survivability. This is perhaps why Rashida's contact with the dragon (and the adoption of her hatchling) is so vitally symbolic within the story as a whole. Contrary to any other person in the settlement, Rashida has actually interacted with a dragon, has learned about their feelings and, due to its telepathic powers, has even grasped their sense of species futurism — that of creating care relationships between the two species (198). As tends to happen in many stories featuring dragons, Rashida becomes another "mother of dragons," a link between human communities and dragon subjectivities that creates a new relational (yet liminal) paradigm of multispecies ethics. At the end of the story, she gives a name to the dragon, Lumina, (re)confirming her intent of creating a relationship with the dragon that transgresses the previous human/resource divide.

In this sense, it must also be noted that whilst the story's humans are reluctant to establish kinship relations with dragons, dragons are just as inclined to create them as they are in "Wings of the Guiding Suns." Even after being mortally wounded by humans, the dragon mother shows a very sympathetic attitude towards Rashida. The creature lets her pet its head (196) and, in fact, trusts the young girl with her baby after a few seconds of contact. Kinmaking is thus fostered not by humans but by dragons, positioning them as a projection of the ideal moral connection with Nature, and linking them to Jameson's view of the dragon as a posthuman entity. Kinmaking, here, is essential in order to avoid the violence between humans and dragons that already affects faraway territories which the beasts are fleeing from. Within an anthropocentric paradigm, nature/ human relationships are always going to remain in conflict, since human agency is always going to be driven by the desire to improve our own species' living conditions, without taking into account more-than-human subjectivities.

Making kin with dragons, through this lens, inspires a new sense of coexistence that also includes dragons' needs and sensibilities in the equation, conditioning human territorial development as well. Mitchell's story is a clear example of how kinmaking might potentially operate in our material life, but also offers credence to the many criticisms that may be attached to the biopolitics and necropolitics derived from its embrace. The success of the necro-architectural alliance between dragons and humans in a context of "peak dragonscale" scarcity implies that the population of homo sapiens will need be dependent on the production of surplus scales, otherwise some humans will not be able to access the solar

powered technology offered by dragons' bodies — or rather, the general outcome should be distributed, providing less food per individual, and so forth. Contrary to Pax's solarity, in which humanity seems to have unlimited access to solar energy, Mitchell's more realist solarity may leave the system with no other solution than encouraging (not-necessarily-violent) population control.

This conflict is intrinsically linked to posthuman political extrapolations and not just a discursive problem of this specific story. Haraway's notion of kinmaking has been problematised due to the Malthusian implications that Chthulucenic alliances indirectly propose; xenofeminist scholar Helen Hester, for instance, argues that this new sense of kinship:

> cannot take the form of a punitive disdain regarding the reproductive choices of others (which would be against all the nuances of intersectional accounts of reproductive justice), nor can it take the form of a single-issue campaign for population control.10 Instead, it must be grounded in xeno-hospitality, in the opening up of currently curtailed choices, and in the creation of the ideological and material infrastructures required to synthetize new desires as accessible, feasible choices. (2018: 63-64)

"Dragon's Oath" does not provide readers with a specific depiction of infrastructures of posthuman xeno-hospitality (nor does "Wings of Guiding Suns," which portrays an even more materially detached view on this notion). Mitchell's story, in fact, does not even present the multispecies model as a perfect or even

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¹⁰ This is actually a direct reference to Haraway's proposed Chthulucenic slogan "Make Kin Not Babies!" (Haraway, 2016: 102).

an unquestionable way of relating with nonhuman nature. Right at the end of the story, Rashida recognises that although she will try to take care of her new baby, there will be mistakes (203). The posthuman model produced by this story, is, following Jennifer Harrison's definition of the genre, "eutopic rather than utopic; it imagines a significantly better existence for humanity (and for nonhumans) without the drive for perfection and endof-time impossibility implied by traditional visions of utopia" (2019: 111). "Dragon's Oath," hence, abnegates a flagrant and unconditional defence of posthuman relationality, as there are many debates that still have to be addressed, but remains faithful to solarpunk's spirit of hopefulness and human willingness to actively face the hyperobjective nature of the ecological crisis. "I'll figure out how to take care of you. I promise" (203), Rashida declares right before the story ends.

Conclusions

The study of those draconian architectures and arcologies depicted in "Wings of the Guiding Suns" and "Dragon's Oath" adds yet another analytical horizon to the young (but already convoluted) field of solarpunk studies. In either text, dragons are both Chthulucenic kinmakers and the embodiments of an ideal posthumanist model. Either becoming nature itself, or including themselves as holobionts, they cultivate a notion of multispecies coexistence and collaboration that ultimately overcomes debates over solarpunk's supposed viability in realist terms. The dragon trope, in this respect, catalyzes a deep reflection on abstract conceptualizations of humanity, technology and non-human sentience. Rather than imagining a possible techno-green future, these stories focus on the philosophical debates that need to be addressed for these still-to-come realities to even start existing.

Both stories agree on something essential; inclusion in a Chthulucenic relational paradigm implies sacrifices in terms of agency, and would also "include mourning irreversible losses" (Haraway, 2016: 101). These losses can be individuals, species, or even planets in the solarpunk imagination, but what would they be in our reality? And what would we be able to sacrifice in the first place? Contrary to popular ideas about the subgenre, the fundamental ambiguity at the heart of these two stories also demonstrates that solarpunk fiction, rather than providing a clear and direct answer to the contemporary ecological crisis, may be better formulated as a narrative space of debate in which conflicting posthuman ecologies attempt to find and occupy a place in our imaginative landscapes. Solarities, like dragons themselves, are magical constructs that only operate in fictional territories, and yet, they may likewise guide us high into the sky, allow us to see our habitat and our relationship with it from a different angle, creating a more complete picture of ourselves and our contradictions. Hic sunt dracones.

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