

Fungi Functions: Cross-Species Imaginaries in Tade Thompson's *Wormwood* Trilogy

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Abstract Science fiction (SF), through its various generic conventions, provides a stage for exploring many dimensions of the Anthropocene: It enables challenges to time, to species, to causalities, to space-time coherences, and also to singularity. Tade Thompson's *Wormwood* trilogy engages several non-linear metaphors in engendering a nonhuman other, most specifically internet networks and fungi becoming. The alien sentience rendered in the trilogy offers an – amorphous and yet simultaneously very concrete – other against which humans must rally, themselves at the brink of the threat of extinction. *Wormwood*'s xenosphere – an atmosphere permeated with ›xenofoms‹, a kind of alien fungi which can interact with humans – constitutes only one of the many ways in which this SF world challenges the modes with which we organise our knowledges of our world.

Keywords Tade Thompson · Science Fiction · Fungi · Anthropocene · Contact

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Fungale Funktionen: Imaginarien artübergreifender Vorstellungsbilder in Tade Thompsons *Wormwood*-Trilogie

Zusammenfassung Durch seine verschiedenartigen Genre-Konventionen bietet Science-Fiction (SF) eine Bühne, auf der die vielseitigen Dimensionen des Anthropozäns erkundet werden können: Sie ermöglicht dadurch die Herausforderung gängiger Vorstellungen von Zeit, Spezies, Kausalitäten, Raum-Zeit-Zusammenhängen und auch davon, was Singularitäten sein können. Tade Thompsons *Wormwood*-Trilogie bringt verschiedene nicht-lineare Metaphern zusammen, die ein nicht-menschliches Anderes erzeugen. Dabei liegt der Schwerpunkt auf Internet- und Pilz-Netzwerken. Diese fremden Empfindungsvermögen, die die Trilogie entwirft, bieten ein gleichzeitig ungeformtes und doch sehr konkretes Anderes, gegen das die Menschen, die sich am Rande des Aussterbens befinden, sich verbünden müssen. Wormwoods Xenosphäre – eine Atmosphäre, die von ›Xenophormen‹, einer Art von fremden Fungi die mit Menschen interagieren können, durchdrungen ist – ist dabei nur eine der zahlreichen Möglichkeiten, die diese SF-Welt nutzt, um die Modi zu befragen, mit denen wir unser Wissen über unsere Welt organisieren.

Schlüsselwörter Tade Thompson · Science-Fiction · Fungi · Anthropozän · Kontakt

Zoran Živković starts his first essay in *First Contact and Time Travel* by stating: »The ›first contact‹ theme in science fiction is characterized by its two generically different kinds of protagonist: the human and the alien« (Živković 2018, p. 3). He continues by thinking about the »anthropomorphic pitfalls« (Živković 2018, p. 4) and how they are facilitated or interrupted by narrative voice, that is, how the story is negotiated – communicated – between science fiction (SF¹) world and reader. There are other communicative challenges in this kind of ›first contact‹ situation: I am specifically thinking of communication between ›the human and the alien‹. Intradiegetic communication between radically different sentient species poses another kind of challenge: How do different species broach the divides of (first) contact?

Tade Thompson's *Wormwood* trilogy – comprising *Rosewater*, *The Rosewater Insurrection* and *The Rosewater Redemption*, located, primarily, in Nigeria – imagines a world of this kind of contact between humans and an other species.² In the first novel, Kaaro is our sole narrator (the later novels give way to a more polyphonous account). Kaaro acts as a kind of mediator as a ›sensitive‹ – one of those humans able to engage in bidirectional knowledge exchange with the so-called xenosphere; he is no hero, though, and has used his skill to his own material advantage, locating lost and valuable goods for stealing, despite being from a middle-class Nigerian family. The world is complicated, after all.

¹ The abbreviation SF has the ›added bonus‹ of also capaciously including related genres, such as speculative fiction.

² I leave the space in between ›an‹ and ›other‹ on purpose: This is a weirding of grammar which goes further than another and not quite as radically distanced as an Other.

Thompson thus employs an interesting (hybrid) metaphor to grapple with the limits of trans-species communication: The xenosphere. *Wormwood's* xenosphere – a ›ball of strangeness,‹ if we think etymologically for a moment, an apt way to think of a planet – connects the alien sentience with human characters. It is described, particularly in the first volume, in mycological terms, though is (increasingly) augmented by metaphors of networks influenced by the internet.³ *Wormwood* thus melds two kinds of *www* in a trilogy-long metaphor to facilitate contact: the Wood Wide Web and the World Wide Web. In this contribution, I stress the former: Relations facilitated by fungi. And fungi abound in the first novel, especially: Sensitives must smear themselves with antifungals to protect themselves from the xenodata; Nigeria's top scientist on the alien presence, Professor Ileri, is a mycologist; the ›seeds‹ of the xenosphere are released as spores and have healing – and resurrecting – qualities. There's also slime, mucus, some dendrils, and stems: All kinds of fungi structures, shaping the world and its weird worldings.

Fungi's appearance as mushrooms, puncturing surfaces, is dependent on decay. The appearance of mushrooms, or ›toadstools‹ as they are sometimes called, is not really the process of ›birth‹, ›fruiting‹ or ›going to seed‹ as regeneration of biological forms which we might be more familiar with. Hyphae form sporebodies when environmental conditions shift for the spreading of spores. This usually happens when environments increase in moisture, as is the case in autumn. Their spread is a finely tuned adaptation to ecological niches. The emergence of fungi, then, in cultural texts might be seen as a sign to start thinking through shifts in environmental conditions, adaptations to ecological niches, and to processes of decay.

Fungi becoming is an other's un-becoming. Fungi helps us to attend to the idea that what might seem like a body, an individual somehow separated from its environment, is rather itself a system through which matter is passing. Merlin Sheldrake suggests this is true of all kinds of organic matter: »When we see an organism, from a fungus to a pine tree, we catch a single moment in its continual development« (Sheldrake 2020, p. 60). Fungi, in the world of *Wormwood*, is an other ›interscalar vehicle‹, to adopt the phrasing of Gabrielle Hecht, for an (African) Anthropocene.⁴ I attend to the various ways fungi figures as a vehicle for the metaphorical functions of Thompson's trilogy, paying particular attention to the first novel, *Rosewater*, for its creation of a world, or worlding.

Mycorrhizal networks are anything but linear: scholarly articles must be. The contribution touches on metaphor, contact zones, fungi relations, and crisis: The order is probably unimportant, the main claim I want to make is that thinking about

³ For Susanne Gruss, fungi feature prominently in Martin MacInnes' novel *Gathering Evidence* as a ›posthuman equivalent to man-made networks‹ (Gruss, [forthcoming](#)). The novel's foregrounding of an app (The Nest) that connects people, and increasingly dis-/replaces their relationships, also resonates with the *Wormwood* trilogy's imagination of rhizomatic communication pathways.

⁴ In »Interscalar Vehicles For An African Anthropocene: On Waste, Temporality, and Violence«, Gabrielle Hecht asks: »What happens when we treat empirical objects as interscalar vehicles, as means of connecting stories and scales usually kept apart?« (Hecht 2018, p. 115). Hecht's attention in that article is directed towards uranium and uranium byproducts. As is evident by now, my attention has been drawn towards the fungi that structure *Rosewater's* worlding. Fungi harbour, I think, massive potential for thinking as an interscalar vehicle.



the specific rendition of the contact zone (Wormwood's xenosphere) as a mycorrhizal or fungal network means attending to the materiality of the contact zone and its setting. Metaphors shape thinking; fungi has shaped the metaphor; thinking with fungi means attending to becomings – decay, death, healing, and crisis.

1 Metaphor

SF grapples with imaginations of the consequences of the worldings that constitute ›our world‹ by weirding them in particular ways. Darko Suvin observed – a long time ago now – that the way this happens is through metaphor (Suvin 1988). We need a prop, a kind of bridge, to travel from the world we know to other worlds, and metaphor is one way this happens in SF. In doing so, the world is crucially *related* to the world we know, it is *connected* to it, by the bridge of metaphor. We notice specific weirdings because they are in relation to worldings with which we are familiar. The Wormwood trilogy imagines its sentient alien creatures using extensive metaphors of network theory and mycorrhizal networks to probe how the weirding of our current world shifts away from linear development trajectories. Fungi helps us to attend to how linear thinking is not the only way to consider development.

The alien sentience – later referred to as the Homians – has established a foothold on Earth in their search for a new habitat, having rendered their previous planet unliveable (cf. Thompson 2018, p. 348). This brings questions of pressing urgency to the fore: What do we do when we're faced with the end of ›our world‹? Kaaro, narrator of the first volume of the trilogy, *Rosewood* – who does go on to fight the ›invasion‹ in the second and third volumes of the trilogy – suggests that most of us, to put it bluntly, just don't care: »Humanity dies one cell at a time. I don't know what will happen when we all become full xeno, but it's like climate change or that asteroid that will collide with the Earth and wipe us out. We all think we'll be dead and gone by the time the carnage begins« (Thompson 2018, p. 390). The discrepancy between cognition of disaster and capacity, even willingness, to act on it has been documented, and protested against, by many scholars working in the environmental humanities. Kaaro, though, notes: »For this disaster we will all be present. For this we will all have front row seats« (Thompson 2018, p. 390). In the contact scene configured in this trilogy, two seemingly unbridgeable differences are brought into relief: the communication between humans and their radical other(s) *and* the discrepancy between knowledge of and the willingness to act upon environmental disaster.

In the inhabitation, colonisation, exploitation of dead bodies, and reconfiguring of alliances in the Wormwood Dome and beyond, the alien sentience figures as a metaphor, though not in any singular sense, and it is the fungal qualities that help us attend to this. Doug Bierend's forays into the world of fungi lead him to note that »[s]ome of the work and worldviews I document [...] take fungi as allies in challenging patriarchy, colonialism, capitalism, various extractive or supremacist worldviews that ignore the agency and interconnectedness of nature« (Bierend 2021, p. 12). In reading the Wormwood trilogy, people whose world experience has been impacted or damaged by colonialism will possibly recognise (European) colonisers



in the alien sentience; for feminist scholars, particularly second wave feminists, interpretations might think about the alien sentience as the patriarchy exploiting bodies, in particular as homes for new life; infrastructure thinkers might entertain a reading of the alien sentience as a bureaucracy, or perhaps the latest technology; queer studies scholars will consider how the presence of the alien sentience queers reproduction more broadly, and also helps us to think through elective affinities and kin relations, broaching normative borders, even bio-normativity (or species borders) (cf. e.g. Hanchey and Asante 2021). By bringing the meanings and becomings of fungi to the fore, these angles to, and interpretations of, the *Wormwood* trilogy can jostle alongside each other.

Metaphor moves us: It mobilizes structures of thinking, gets us from one place to another. I do not want to suggest that we only think about the place of departure or only think about the place of arrival, but also think about the vehicles that get us there, including the rhetorical ones. Moving, in the double sense of shifting our spatial orientation and awareness as well as ›moved‹ in the sense of emotional shift, means thinking about the various ways in which these connections can be made. In the *Wormwood* trilogy, this is figured not so much in terms of a linear trajectory, but rather in terms of the generative potential and ›mycorrhizomatic‹ capacity of fungi to connect laterally in unexpected ways. Attending to the pervasive metaphor of fungi as configuring contact means also considering that the infrastructures and toxic sludges of Nigeria – where the trilogy is set – are not necessarily preconfiguring a specific outcome, and that there are modes of lateral, mycorrhizal thinking that push back on this linear trajectory.

Donna Haraway, for one, has noted the impact of SF on the development of her thought around contact zones in *When Species Meet*: »I learned much of what I know about contact zones from science fiction, in which aliens meet up in bars off-planet and redo one another molecule by molecule« (Haraway 2008, p. 217). Rules of realist fiction can be, and are, abandoned for a genre that orients itself very explicitly towards the future. SF is, then, a prime site for the exploration of the many repercussions of environmental exploitation that shape our current moment: climate change, resource exploitation, pollution, habitat destruction, extinction, and the various understandings of the effects of the Anthropocene.

By imagining an encounter with an alien sentience, the trilogy stages historically localised contact zones on a global level. This is something that SF can do, and which novels in a more realist vein will struggle with. Such staging has specific effects: By imagining the other as alien, intra-species differences give way to inter-species differences. Specifically, conflicts staged at the levels of nation, religion, race, gender, sexuality, or other intra-species qualities of distinction seemingly diminish when countered by conflicts at the level of the species. SF like Thompson's *Wormwood* trilogy thus imagines challenges that afflict humanity *as a species*. In this, it resonates with ideas of the Anthropocene. SF can do so without neglecting distinctions *within* the species. Metaphors do not replace, but allow for re-cognition of difference, a recognition that is also a re-thinking. A re-cognition with networks – circling back to the fungi that I am centring in this contribution – offers an organisational metaphor as well as material configuration that attends to specificities in/and relations.



The fungi-like xenophere, as is explained at the end of the first volume of the Wormwood trilogy, was developed in order to assess the environment by amassing knowledge by means of infection:

»We have all your knowledge, your eccentricities, your emotions and your petty little naked-ape motivations. Simplistic. We did this by seeding space with what you call xenofoms, synthetic microorganisms programmed to multiply and change form as necessary, to infect the local species and gather data neurologically, to be warned of the pitfalls. Our infections answer many questions for us. Is the style of politics generated by the environment or can any system work? Can the climate change be reversed? What will we do with the nuclear stockpiles? Is *Homo sapiens* useful for anything, or will it be a nuisance?« (Thompson 2016, p. 330)

Here, again, specific issues of global import are broached because, from the extra-terrestrial perspective, they are crucial to establishing the liveability of the planet. The distanced perspective of the alien sentience gathering information evokes, quite explicitly I think, the colonialist trope of exploration: establishing the liveability of a place, the ways in which its environment might be harnessed for (exploitative) purposes. A fact-finding mission. An exploration. A tentative establishment of a settlement.

2 Contact

Work on fungi, such as that by Suzanne Simard, has led to the articulation of a more nuanced understanding of the relations between trees and fungi, in particular, as the ›Wood Wide Web‹ (see also Simard's memoir, *Finding the Mother Tree*, 2021). The phrase obviously draws on another network we are (perhaps) more familiar with: the world wide web, whose traces in our daily interactions are still present in many website addresses (the www). The metaphorical exchange here is interesting for a number of reasons, not least of which that it resonates particularly well with the shifting reckonings with the xenosphere in Thompson's trilogy. In this vein, as Patricia de Vries argues, »the Wood Wide Web is challenging us to rethink the partial understanding we had of trees, for one. But there's more, much more. It challenges us to reassess how the metaphors and models we use to navigate the world play out in knowledge, and blind us« (de Vries 2018, p. 7).

SF, with its incredible manifestations of metaphor, is a great site to explore this. It is also a great site to think through contact scenes, or indeed contact zones. Mary Louise Pratt's articulations of the contact zone have been influential in cultural and literary studies for over 30 years. Pratt's use of the term contact derives from linguistics, and articulates a spatial and temporal co-presence of cultures:

»›contact zone‹ is an attempt to invoke the spatial and temporal copresence of subjects previously separated by geographic and historical disjunctures, and whose trajectories now intersect. By using the term ›contact,‹ I aim to foreground the interactive, improvisational dimensions of colonial encounters so

easily ignored or suppressed by diffusionist accounts of conquest and domination« (Pratt 1992, p. 7).

Her work, *Imperial Eyes*, stresses the visual dimensions of conquest, as the key term from the title suggests. This reveals a tendency to code dominance and privilege in terms of sight (e.g. the ›gaze‹), as well as the concomitant pervasiveness of sight in metaphors of knowledge (e.g. terms like ›enlightenment‹, as well as turns of phrase like ›I see‹ to mean ›I understand‹). The contact ›scene‹ articulated in the *Wormwood* trilogy subverts such an understanding by its imagining of contact as a visceral, incorporated zone of contact, *and*, simultaneously, with its imagining of reckoning with this contact zone as itself an imagining. This is evidenced by the networked xenosphere, which can be manipulated by ›sensitives‹ so that they appear not in their bodily forms, but as creative (and oftentimes aggressive) avatars, as well as through the embodiments of the ›undead‹ inhabitants, ›healed‹ by the alien sentience (the ›reanimates‹).

The xenosphere uses visual imagery for encounter, though the rules of this ›scene‹ are not those of worldly encounters. Kaaro explains that this is a mechanism of self-preservation as well as intimidation: »On entering the xenosphere, there is a projected self-image. The untrained wild sensitives project their true selves, but professionals like me are trained to create a controlled, chosen self-image. Mine is a gryphon« (Thompson 2018, p. 4). Kaaro's gryphon mobilises a mythical creature to configure encounters where specifics of his bodily form no longer shape his relations to others. Instead, he draws on shared mythologies of hybrid animals, indeed, predators, to shape his interactions. He explains: »Look, my avatar's a gryphon. It isn't cuddly. Both the eagle and the lion part are pretty predatory. They like to kill and eat things« (Thompson 2018, p. 310). The evocation of predatory carnivores speaks to the embodied, creaturely, repercussions of contact. Encounters between bodies are not always, nor necessarily, visual(isable): Some are tangible, physical, violent, and some kinds of encounters result in death.

The ›reanimates‹ – the undead zombie-meets-robot avatars for aliens – of *Wormwood* epitomise the repercussions of contact in several different ways. Rosewater gives rise to a ›splinter state‹ that enters negotiations with aliens in order to secure its sovereignty, allowing the aliens to ›heal‹ some dead, human, bodies for use as avatars. Human bodies become containers, a place for others' becomings. As Jenna N. Hanchey stresses, the literal incorporation of African bodies by the alien sentience is a reckoning with human lives as resource, noting, with Armond R. Towns (2018) the way in which »[b]lack bodies are used within coloniality as technologies through which to extend the colonizers' being« (Hanchey 2021, p. 9).

Reading the *Wormwood* trilogy in this way thus suggests that the potentials of particular settings are not preconfigured: a previous manifestation of the alien sentience in the US have sent the US into a state of lockdown, unable to continue contact with the rest of the world, unable or unwilling to share its experience of meeting the alien sentience. A state of exceptionalism that contrasts with the way in which agents of the Nigerian state encounter – make contact with – the aliens. Femi Alaagomeji, a member of staff of the S45 (the secret service, something of

an x-files agency of the Nigerian government), explains the government's interest in the Dome, the xenosphere, and the alien presence as follows:

»It's not just us. Everyone, every nation wants a part of it. There's a theory that the Americans went into seclusion because of its existence. If we could befriend it, there's the scientific data, the contact with unknown species, the health benefits, the defence applications . . . it could help us clean up the environment. We, Nigeria, can be the first nation to engage it. Think of what it would mean.« (Thompson 2018, p. 313)

Our narrator, the unwilling hero and key protagonist of the first novel, *Rosewater*, Kaaro objects that people were unsuccessful in contacting or indeed harnessing the presence in London. To this, Oyin Da (also known as the Bicycle Girl, an enigmatic character whose capacity to manipulate the xenosphere is exceptional) objects that »We have more experience than any Western country in dealing with first contact« (Thompson 2018, p. 314). First contact is, in Oyin Da's objection, not a discrete moment in time, but a long duration, a duration to be endured and survived. Colonised people, her injunction stresses, know contact. Nigerians – Africans – know contact. Contact and apocalypse are, for some, not an exercise in imagination, but a lived reality.

In Nigeria, in Africa, the foldings of SF into future temporalities are reckoned with under Africanfuturism and Afrofuturism. Afrofuturism, Kodwo Eshun argues, »is concerned with the possibilities for intervention within the dimension of the predictive, the projected, the proleptic, the envisioned, the virtual, the anticipatory and the future conditional« (Eshun 2003, p. 293). Eshun enlists the figure of the future archaeologist in his deliberations on Afrofuturism to reckon with the lasting effects of the present on the future. These future archaeologists, will be »touched« he writes, by the founding actors⁵ of Afrofuturism, in particular »by the responsibility they showed towards the not-yet, towards becoming« (Eshun 2003, p. 289). They engage in games, he imagines, »[s]et in Lagos, with other options to follow, the game invites users to specify variables for transportation, energy consumption, waste disposal, residential, commercial, and industrial zoning« (Eshun 2003, p. 293, italics in original).

Wormwood undertakes a three-book-long thought experiment in a conceptualisation of communication and knowledge exchange in trans-species terms by rendering the contact zone itself a site of exploration. Many sites in the Wormwood trilogy, as I argue in this contribution, are ›worlded‹ through fungi. Fungi ›at the end of the world,‹ to borrow from Anna Tsing is also, crucially, fungi as a portent of an apocalypse of (future) contact as ›our ancestor's dystopia today,‹ to draw on Kyle Powys Whyte's recognition of the Anthropocene as something new only to those who haven't been subjugated by colonialism (cf. Whyte 2017).⁶

⁵ Eshun refers to the founding actors as mothers and fathers; Thompson queers this potentially heteronormative assumption in the trilogy through Junior, the child of Oyin Da and Nike Onyemaihe (cf. in particular Hanchey and Asante 2021).

⁶ For Indigenous SF, see for example Grace Dillon: »Liberated from the constraints of genre expectations, or what ›serious‹ Native authors are supposed to write, they have room to play with setting, character, and dialogue; to stretch boundaries; and, perhaps most significantly, to reenlist the science of indigeneity

Fungi draws attention to contact, to moments of exchange and, interestingly, troubles ideas of boundaries (e.g. between species). Suzanne Simard has done much to popularize understandings of fungi as facilitating interspecies communication, suggesting – by way of analogy – that we might consider fungi networks as »analogous to neural synapses« (Simard 2018, p. 194), as structures for sharing information. Thompson's *Wormwood* trilogy, in particular the first volume *Rosewood*, pushes this analogy to an extreme. As SF, this world is not restricted to accepted frameworks of how communication works, and the partaking of knowledge exchange is described – explicitly – as a fungi-like network. Professor Ileri, a mycologist and dendrochronologist, explains this to Kaaro, a so-called »sensitive«, how his access to this knowledge can be understood in the following terms:

»What we at S45 call the xenosphere, the psychic link that you are all able to exploit, is made up of strands of alien fungi-like filaments and neurotransmitters. [...] It is everywhere, in every environment on Earth. These delicate filaments are too small for the naked eye to see, and they are fragile, but they form multiple links with the natural fungi on human skin. [...] Everybody linked to this network of xenofoms, this xenosphere, is uploading information constantly, passively, without knowing. There is a global store of information in the very atmosphere, a worldmind that only people like you can access.« (Thompson 2018, p. 76)

In one instance, Kaaro visits his colleague and friend Bola's xenospheric presence to assess her physiological and psychological well-being. She is dying, and Kaaro needs to find out why in order to avert facing the same fate: »Her mind is a decaying temple. The ground is putrefying meat and the columns are wet with spit, mucus and pus. The windows let in a jaundiced light, which is bile-filtered sunlight« (Thompson 2018, p. 154). The description continues with descriptions of tumors and crushed organs. This is a world of turmoil, of organic waste, evoked in vivid, abject terms. The existence of fungi draws on, and draws attention to, decay. Fungi feeds on, amongst other things, dead and dying material. If we attend to this quality of fungi and relate it to the world of *Wormwood*, we consequently direct our attention to the particular modes through which the world depicted is also a world of dead and dying material. Fungi facilitates contact between humans (and between humans and Homians), and at the same time does not relinquish its decaying capacities or associations.

The myth of »first contact« is integral to the trilogy in another important way.⁷ The Nigerian setting informs the worlding, drawing attention to an other scene of contact, namely colonialism. Colonialism, and neoimperialist exploitative regimes that adopt assumptions from it, pervade the novel. Oil and energy concerns, themes of social organisation, sovereignty, citizenship, and rights, are either just below the surface or explicitly rendered in the three novels.

in a discourse that invites discerning readers to realize that Indigenous science is not just complementary to a perceived western enlightenment but is indeed integral to a refined twenty-first-century sensibility« (Dillon 2012, p. 3).

⁷ I am using »myth« in the sense of overarching story that provides narrative grounding for processes of meaning-making.



3 Crisis

First contact, especially in the colonialist mode, is often – though not necessarily – consumptive. It looks immediately to extracting ›goods‹, and results ultimately in producing discards (cf. Liboiron and Lepawsky 2022). As the alien sentience – who has adopted the form of a street-sleeper named Anthony from a previous incarnation/incursion in London – explains to Kaaro, the aliens themselves are looking to colonise the Earth and exploit its resources: »We are called footholders, and our function is to descend on planets with fauna and flora from our home world and see if we can survive. It is a wasteful colonisation technique, but the masters can no longer go back home. They live in space now, but would love to live on a new planet« (Thompson 2018, p. 348).

The specific evocation of ›masters‹ is reinforced by the third person plural. The footholders, on the other hand, are evidently expendable lives – cognizant of their role – sent to probe survivability. Where ›Anthony‹ describes it as a ›wasteful colonisation technique,‹ this is obviously an understatement. The blatant disrespect of life is, on Earth, a taboo, an ethical transgression, a crime: but only insofar as it extends to sentient life. Actually: human life. The capacity of other species to engage in ›intelligent‹ thought is itself a topic for entire subdisciplines, but it doesn't look like humans are particularly good at respecting communicative abilities as a limit to exploitation. And, it is worth pressing the point, not all humans are buttressed against extreme forms of exploitation. Robert Nixon's term for these people is »uninhabitants,« an idea which »holds in equipoise ideas of presence and absence – absence not as originary but as imposed through a war against presence, as inhabitants drop off official maps and plummet into zones of invisibility« (Nixon 2011, p. 153). The background story of the aliens thus folds into a possible future of Earth: SF other-worldings become future earth-worldings.

Through its association with decay and ruin (see also Crane 2021), fungi as communication structure draws attention to the destruction entailed in communication in colonial contact zones. Armond R. Towns notes: »The whip, chains, small pox blankets, the reservations, the plantation, the border, and the gun (i.e., the multiplicity of racial violences) were *communicative technologies that laid the foundation for both Black and Brown people to learn to speak English (and even Spanish) – to begin to think of themselves/ourselves in terms of man's mutual recognition*« (Towns 2020, p. 77–78, emphasis in original). The extent to which the violent insertions of communicative structures by the aliens in the form of fungi (or later: synthetic) networks can be read as a speculative, fanciful conceit restricted to the domain of SF is the extent to which *whiteness* is centred as a dominant framework. Town, like others, explicates theoretically what Thompson imagines creatively: the violence entailed by communication in the colonial and colonising contact zone.

Sharae Deckard asserts that the »more intangible or unrepresentable aspects of ecological crisis produced by longer temporalities of extraction, mining and appropriation of nature« (Deckard, [forthcoming](#)) are more difficult to represent, following the work, for instance, of Rob Nixon on slow violence. Deckard suggests that this is addressed by an ecogothic meets horror inflection in the works she addresses, with careful attention paid to extractive regimes. In a different line of argumenta-

tion, Hugh Charles O'Connell considers the contact zone of the *Wormwood* trilogy a second apocalypse. Citing Mark Bould, O'Connell argues that »second apocalypses portend ›the end of the coloniser's world and of totalising historical schema. All that remains is detritus and salvage« (O'Connell 2020, p. 111), a sign of apocalypse, offered by the Anthropocene (cf. *ibid.*).

In Thompson, the extraction of oil is a substrate that erupts into the text only on occasion, and yet informs the colonial relations that have given rise to the nation state of Nigeria. The structure of the xenosphere is, for instance, described with a reference to infrastructures of oil extraction – »like a drill pipe from an oil rig« (Thompson 2018, p. 345). Elsewhere, Klaus, a Belgian (perhaps?) entrepreneur who makes money as Kaaro's agent, suggests that the omnipresence of oil and gas in Nigeria makes it attractive to those who wish to exploit: »If you must live a life without meaning, live a rich life without meaning« (Thompson 2018, p. 121) Klaus insists. The omnipresence of oil has permeated – or rather *saturated* – the nation. As Kaaro explains on one of his forays into the xenosphere:

»There is the detritus of the nation's communal consciousness that I have to navigate. The blood and sweat of slaves in a stew of their own anguish at being removed from their motherland, the guilt of slavers, the prolonged pain of colonisation, the riots, the CIA interference, the civil war, the genocide of the Igbos, the tribal pogroms, the terrorism, the killing of innocents, the bloody coups, the rampant avarice, the oil, the dark blood of the country, the rapes, the exodus of the educated class . . .« (Thompson 2018, p. 225)

The contact scenes of Thompson's novel are suggestive of the ways in which extractive infrastructures, energy generation, and daily lives are not separate spheres, but intricately imbricated in our habits, behaviours and thoughts.

Extractivist regimes look to shift resources from ›far away‹ places into forms that produce profit: Removing goods from one place and transporting them to another place needs to ›make sense‹, for it requires intensive labour, logistics, and infrastructure; this is normally understood as making *economic* sense. Only if a resource is deemed to be of value beyond and above that which is required to extract it, will it indeed be extracted. This, then, entails that those goods which are extracted are (historically, currently, and ›future-ly‹) under-valued. Future repercussions are insufficiently ›priced‹ within extractivist regimes: The long future of pollution, including for example nuclear waste, is bracketed out of most consideration of resources. Labour, livelihoods, liveability of environments, arrangements of naturecultural interactions, and future inhabitability are just a few of the things that are extracted, or at least transformed (read: destroyed), as a ›side-effect‹ of extraction.

In Nigeria, this is prominently played out with fossil fuel extraction. Jennifer Wenzel argues »in the Niger Delta, where riverine communities have been living for more than half a century in the shadow of petroleum extraction, evidence of environmental harm is all-too-visible in the eternal glow of gas flares and the unnatural sheen of polluted fields and creeks« (Wenzel 2020, p. 88).⁸ Oil rigs figure as metaphors for understanding the working of the *Wormwood* dome (cf. Thompson

⁸ Leerom Medovi, in his reading of Helon Habila's *Oil on Water*, stresses the omnipresence of oil as a »striking quality of Habila's novel«, noting »its treatment of petroleum, not simply as a toxin that has



2018, p. 345); air conditioners run at high-level banks, despite fines (cf. Thompson 2018, p. 1); the presence of the dome is initially framed as »an experiment in sustainable energy and clean living within a biodome« (Thompson 2018, p. 71) until it is, indeed, exploited as a source of energy (Thompson 2018, p. 216). The idea that an environment might be capable of generating a politics seems strange. SF offers many different ways of interrogating this idea: The Wormwood trilogy does it very explicitly by creating a fungi-like extension of an alien sentience. Territory gives way to extraterrestriality, through a very earthy metaphor.

4 Fungi Relations

Fungi's seemingly contradictory association with decay and with healing lends it to compatibility with ecogothic, zombie, and other horror-adjacent genres. Jonathan A. Rose has traced this association in his interpretation of the film *The Girl With All the Gifts*. The film, Rose argues,

»highlight[s] humanity's precarious positioning within immensely complex ecosystems, [...] our vulnerability and inability to fight [...] unseen, uncanny and uncaring enemies such as viruses or fungi. [...] [In the film] a group of sentient zombie children calls into question the boundaries between human and non-human, between living and dead, and between species, representing the possibility for a networked and symbiotic existence of (post)humans within their ecosystem.« (Rose 2020, p. 190)

Fungi are also present in other novels that broach the borders of humanity: I think here specifically of Bram Stoker's *Dracula*, whose casket transports not just human cells but also mould from Transylvania to England (cf. Richards 1993, p. 61). A »derelict« ship comes bearing »almost entirely [a] ballast of silver sand« except for »a number of great wooden boxes filled with mould« (Stoker 2019, p. 131), though of course it is the absence of a number of crew that garners more attention. Mould – a form of fungi – accompanies otherworldly, (post)human creatures that are themselves harbingers of decay. The intertwining of the gothic and fungi has, thus, a long, if somewhat obscure, tradition.

Wormwood's »Openings«, which heal all kinds of illnesses and broken bones, are described as a release of spores: »Right now, all is invisible. Microbes flying into the air. The scientists are frenzied now. They take samples and will try to grow cultures on blood agar. Futile. The xenofoms do not grow on artificial media« (Thompson 2018, p. 14). Like fungi, the xenofoms are (almost) uncultivable. Both forms require a specific kind of environment and develop through a relationship with it. Cultivation (on blood agar, or on soil or other media) entails a particular removal – alienation – from the relations that engender the organism in the first place. The »undead« of the vampire gives way to that of the zombie in this, rudimentary, tracing of fungi's intertwining with posthuman others. In the Wormwood trilogy,

poisoned its surroundings [...], but as itself a new and persistent feature of the environment« (Medovi 2014, p. 22–23).

the posthuman is rendered both zombie *and* alien, although the repercussions only become evident as the series progresses.⁹

Fungi agency is not straightforward, and our relationship with fungi is not straightforward either, as Long Litt Woon recognises: »Mushrooms induce in us both fascination and fear: they lure us with the promise of sensual delights, but the threat of deadly poison lurks in the background. Not only that, certain species grow in fairy rings and others have hallucinogenic properties.« Even more: »They may be [...] so spectacular and bizarre that they seem like something from another planet.« (Woon 2019, p. 8 f.)

Anna Lowenhaupt Tsing notes, in *Mushrooms at the End of the World*, that all manner of biological scales interrupt notions of exceptionalism and/or individualism. »The cell, once an emblem of replicable units, turns out to be the historical product of symbiosis among free-living bacteria. [...] Human DNA is part virus; viral encounters mark historical moments in making us human« (Tsing 2015, p. 143). Fungi also interrupt species exceptionalism, Tsing argues, as »the role of fungi in ecosystem renewal makes it more than obvious that fungi are always companions to other species« and continues to note: »Species interdependence is a well-known fact – except when it comes to humans« (Tsing 2012, p. 144). The work done, in particular by humanities scholars, within the rubrics of the Anthropocene has struggled, and continues to struggle, with this notion of exceptionalism.

In »Home is Where the Heart Is,« Jane Taylor traces a particular manifestation of fungi to elicit a connection between transplantation, organic boundaries and hospitality: An off-shoot of Novartis, a Swiss Pharmaceutical company, she explains, encouraged staff to return from travel to other destinations with a souvenir of soil. In a package from Norway (for me, an obscure link to Long Litt Woon), a fungus with immunosuppressive qualities was determined, and was consequently developed into a drug for use in transplantation surgeries. »Our tolerance,« she writes, »of invasive organs is a possibility not because the host has become more accommodating; rather, through collaborative effort, we have discovered how to manage our innate inclination to reject and destroy the intruder amongst us« (Taylor 2020, p. 105). Fungi as a recreational drug might open our minds to new ideas, but developed into a legitimate drug, it functions to open our systems to (ideas of) foreign matter. Crucially, the capacity to not immediately reject an intruder is a collaborative effort, one that requires agents in the contact zone: translators, transformers, mediators, travellers.

⁹ One species of fungus, *Ophiocordyceps unilateralis*, is an insect-pathogenic fungus, where the fungus infects ants which then act as transporters for fungal spores up trees. The ants do not survive this process, their heads rupture as part of the spore release process, nor do they have agency over their actions: They are often referred to as »zombie ants«. Merlin Sheldrake explores »zombie fungus« – his attention is very much for fungi – following deliberations on fungi's »ability to modify the inner experience of our minds« (Sheldrake 2020, p. 107), thus opening a juncture that grafts right into the concerns of the *Wormwood* trilogy.



5 Conclusion

SF stages myriad interventions and inventions that give rise to weird worlds. The Niger Delta, as the Wormwood trilogy's setting and as a site of colonialist and neo-colonialist extraction, further binds these fabulations with the ecological crisis of our current time, grounding the contact scene in relations of exploitation. Attending to fungi further entails shifting species-specific thinking sideways. In the contact zone of the Wormwood trilogy, it is the array of fungi qualities that help us to attend to the interactions with alien – that is, unfamiliar and potentially unknowable – others.

Accordingly, the Wormwood trilogy describes a world with mycorrhizal (and internet) networks metaphors, moving us to think about the ways in which our day-to-day lives are networked in strange ways; the ways we are moved to connect seemingly disparate ideas with each other. In these texts it is this kind of lateral thinking that we are invited to dwell with: Ways of thinking that aren't directed towards any preordained or particular outcome as well as the ways in which this kind of thinking also suggests that our movements are not entirely prefigured by the sites that we come from. There is an emancipatory potential for thinking through networks in this particular way, that is, as readers receptive to these kinds of metaphors. Thinking about the vehicle – the media of the exchange at and in the contact zone – means thinking about the metaphorical potential of fungi. Fungi can help us radically reimagine metaphor: the connective paths, which might be lateral, and which emerge from specific entangled sites. Fungi forges relations, at the same time as it embodies these relations.

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Further Reading

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