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The Palgrave Handbook of Literature and Aging
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From Mushroom Men to Mycorrhizal Relations: Imagining Posthuman Aging and Care

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In this chapter, I explore mycorrhizal frameworks for imagining posthuman aging and care. As Robert Macfarlane notes, the term "mycorrhiza," formed from the Greek words for "fungus" (*myco*) and "root" (*rhiza*), "is itself a collaboration or entanglement; and as such a reminder of how language has its own sunken system of roots and hyphae, through which meaning is shared and traded" ("The Understory"). I use "mycorrhiza" to refer to the symbiotic association between plant roots and fungal mycelia in which the two organisms are conjoined in a mutually beneficial arrangement, exchanging nutrients and chemical messages, resulting in a complex, far-reaching network that is sometimes referred to as the "wood wide web."[1] I begin by providing a short overview of the posthuman as a heterogeneous concept and discipline that demonstrates how and why the posthuman can enrich the study of care and aging before exploring shifting interpretations of fungi that make them especially potent models for imagining more-than-human, or posthuman care. The second half of the chapter explores an example of posthuman aging and care imagined by novelist Hiromi Goto in her novel *Chorus of Mushrooms* (1994). Goto is a Japanese-Canadian writer whose work has been celebrated for its exploration of embodiment and difference across a range of genres (Almeida, Harris, Latimer), including, most recently, a graphic novel about a 76-year-old woman who flees a care home (*Shadow Life*). Goto's first novel, *Chorus of Mushrooms*, which tells fantastical stories about aging and care on an Alberta mushroom farm, is a generative text for exploring the possibilities of mycorrhizal relations. Its blend of realism and fantasy encourages readers to imagine posthuman forms

of aging and care in its depiction of bodies and relations that unsettle humanist expectations. In *Chorus of Mushrooms*, Goto imagines human beings mycorrhizomically and organismically,[2] as entangled and one of many, depicting her characters as both material entities and narrative subjects enmeshed in dense, vivid, vital worlds teeming with more-than-human life (fungal, animal, seasonal). Unlike the majority of fungoid fiction, which highlights the uncanny, even horrific otherness of fungi, Goto's novel stresses continuity across more-than-human worlds. Building on Goto's imaginings of sustaining mycorrhizal relations**,** I argue that fungi invoke the material and metaphorical entanglements that produce and necessitate posthuman approaches to aging and care.

Mycorrhizal relations and posthuman care

Posthumanism is an expedient**,** if sometimes imperfect shorthand for a wide range of critical positions devoted to interrogating, decentering and disrupting "the human" in culture and theory and demonstrating how and why the "human" has never existed as the stable, universal category "we" (Anglo-Europeans) often presume it to be (Braidotti 26). Care theory, much like aging studies, tends to be preoccupied with "our" human selves. Posthuman care communicates an effort to expand this focus to includes the incredible range of human/non-human interdependencies and ontologies that produce and sustain life, from the soil's macro- and mesofauna and fungi that transform plant and animal remains into fertile soil, to the complex entanglements of the microbiome, to human/animal/technological bonds. Posthumanism can help expand care philosophy's focus on humans as embedded and embodied subjects to consider the complex more-than-human networks that embrace and bind subjects not only to their species, but to the dynamic micro- and macro-biomes that envelop and connect all matter.

Posthuman care describes the incredible range of affects, energies, behaviours, attachments, dependencies, both visible and invisible, that produce and sustain life in more-than-human worlds. It is a trans-corporeal, transdisciplinary conceptualization of frequently overlooked, denigrated, minimized even pathologized contact zones that are in fact ubiquitous and ongoing, sustaining, formative and transformative. Therefore, posthuman care is not a future phenomenon; it not only describes new and emerging human/technological entanglements operating across the life course, but also a wide range of longstanding more-than-human relations that create and sustain embodied existence, relations that are always already happening to, with and around us, most often in quiet, unremarkable ways that are easy to overlook (take the microscopic communities of the microbiome or the wood wide web, for example).

Aging and care are unavoidably intertwined – it's difficult to discuss aging without attending to care since so many of the biases and stereotypes circulating around later life are based on popular associations between old age and dependence, helplessness and disability. Indeed, prejudice toward disability is a significant source of the prejudice towards old age. As Sally Chivers and others have demonstrated, cultural associations between later life, frailty and impairment contribute to persistent, dangerous metaphors of population aging – the silver tsunami is perhaps the most infamous example – that treat aging adults as economic liabilities, vulnerable bodies in need of expensive medical treatment and social care (Barusch; Charise; Chivers; Gullette). The "age panic" incited by such metaphors of natural disaster "relies on the idea that people do not want to grow old if doing so involves physical or mental decline" (Chivers 1), and, moreover, the assumption that impairment and disability are necessarily synonymous with decline. From this perspective, illness and impairment are the antithesis of "successful" or "productive" aging, gerontological

formulations that equate success with able-bodiedness, independence and strength.[3] What Robert McRuer terms "compulsory able-bodiedness" (301) contributes to wide-spread antipathy toward aging and older adults; a fear of vulnerability and impairment makes the prospect of aging into what sociologists term "the fourth age" -- the final stage of life, characterized by frailty and dependency (Gilleard and Higgs) -- especially alarming, even panic inducing, to many (Chivers 4). Posthuman aging, like posthuman care, involves destabilizing the normative "human," undermining associations between "the human," autonomy, independence and able-bodiedness. It is important to note that these critical posthumanist approaches to aging, embodiment and care are at odds with transhuman models, which are, confusingly, also sometimes referred to as posthuman. Transhumanists seek to eliminate and transcend aging as it is frequently experienced (as slowing down, as an accretion of impairments, as *change*) via biotechnology, biohacking, body modification, extreme diet and exercise (Dolezal). Transhumanism is distinctly ableist and gerontophobic in its prioritization of physical ability and strength and fantasies of immortality, or, at the very least, "growing older without aging" (Katz and Marshall 5).

Aging studies scholarship has expertly demonstrated the ubiquity of ageism in the Global North, especially in the UK, the United States and Canada where populations deemed old, senior, elderly, or aged are frequently interpreted as less-than-human by their younger counterparts. This kind of marginalization is inherent within humanism, which is constructed around a particular version of the "human:" able-bodied, white, male, heterosexual and so on. Posthumanism (unlike transhumanism) exposes the degree to which the human is, and has always been, an exclusive, unstable socio-political and economic concept masquerading as a biological category. As Rosi Braidotti explains, "Humanism's restricted notion of what counts as the human is one of the keys to understand how we got to a posthuman turn at

all" (16). As a theory and praxis devoted to not only *decentering*, but *disrupting* "the human" as a coherent, stable ontology, posthumanism can help aging studies to critique not only the socio-political disavowal of the humanity of aging subjects, but *the very conceptual category of the human itself* and how it has historically functioned as a tool of marginalization and exclusion. Though aging studies, like care studies, has its roots in humanistic approaches that prioritize human individuals as the primary, exclusive focal point of enquiry, there is growing attention to posthuman alternatives[4] that analyze aging organismically, decentering the human to consider the meanings and effects of aging across a wide range of non- and more-than-human entities. As critical gerontologists Gavin Andrews and Cameron Duff explain, posthuman-inflected gerontological work "thinks of older humans as being 'of-the-world,'" as opposed to distinct from it (46-7). [5] In this sense, the interconnected fields of aging studies and posthuman care embrace the embedded and entangled nature of being that is endemic to fungal networks.

Consider the mushroom

"Fungi don't keep to themselves."
(Merlin Sheldrake)

In their 2005 essay "Dependency, Difference and the Global Ethic of Longterm Care," Eva Kittay, Bruce Jennings and Angela Wasunna introduce their demand for increased attention to global politics in care philosophy by contrasting human interdependence with the spontaneity of fungal life: "People do not spring up from the soil like mushrooms," they write. "People produce people. People need to be cared for and nurtured throughout their lives by other people, at some times more urgently and more completely than at other times" (443). Their comments rehearse a key point from ethics of care, namely, that myths of spontaneously produced, sovereign human beings problematically erase the formative

care labour required for human existence, survival and flourishing. As a counterpoint, they invoke the fungal kingdom, particularly its fruiting bodies, which has historically functioned as a figure of quasi-magical, spontaneously sprouting life, serving as an image of independence and autonomy antithetical to human interdependence. Kittay, Jennings and Wasunna's opening remarks allude to Seyla Benhabib's oft-cited essay, "The generalized and the concrete other," which in turn alludes to Thomas Hobbes' independent, self-sufficient "mushroom men": In his 17th century discussion of dominion and "the right of Masters over slaves," Hobbes' describes man in his "natural state," freshly "emerged from the earth like mushrooms and grown up without any obligation to each other" (102). Benhabib argues that, like many universalist and proceduralist philosophers, Hobbes conjures an image "Man's" independence that relies on an erasure of maternity and the larger collective production of human subjects, thereby "free[ing] the male ego from the most natural and basic bond of dependence" (156). Benhabib cites Hobbes's description of men "sprung out of the earth, and suddenly, like mushrooms, come to full maturity, without all kind of engagement to each other" as "the ultimate picture of autonomy" (Benhabib 156).

From Hobbes's 1642 text through Behnhabib's 1992 essay and Kittay, Jennings and Wasunna's 2005 follow up, the mushroom has often functioned in the Anglo-European cultural and philosophical imaginary as an oppositional touchstone for the "human," regarded as a mysterious organism, neither plant nor animal, a figure of spontaneous generation and pure independence. However, contemporary insights into the complexity and ubiquity of mycelia – the vegetative, branching part of fungus that produces and supports its fruiting bodies through vast network of hyphae -- reveal Hobbes's mushroom metaphor as not only a mischaracterization of "man's natural state," but of fungi's as well.

In fact, fungi are profoundly entangled organisms, as documented in range of popular publications by biologists (Sheldrake, whose 2021 book *Entangled Life* became a *Sunday Times* bestseller; McCoy; Simard; Stamets), nature writers (Macfarlane; Pouliot), anthropologists (Tsing), memoirists (Long Litt Woon; Whitely, *The Secret Life of Fungi*), which detail the complexity of mycelium networks and their enmeshment in plant and animal life. These publications and many more dedicated to communicating the wondrous operations of fungal life -- in her 2020 article, "Writing the Lives of Fungi at the End of the World," Alexis Harley argues publishing is in "the thick of a veritable fungus craze" (146) -- have upended any notion of mushrooms as exemplars of independence and autonomy. Quite the opposite, argues Merlin Sheldrake: "Fungal networks embody the most basic principle of ecology: that of the relationship between organisms. Mycelium is ecological connective tissue, a living seam by which much of life is stitched into relation" ("Why the Hidden World of Fungi is Essential to Life on Earth"). Mushrooms are only one manifestation of the these complex, often microscopic mycelia, which form a connective tissue so remarkably communicative that it is sometimes referred to as the "wood-wide web" for its ability to facilitate connections across a wide range of species. In short, mushrooms are not individual, self-contained organisms, but one element (a reproductive organ, in fact), produced by multitudinous fungal colonies embedded in the soil (Harley, Money). As a result, "Interconnection," claims Peter McCoy, co-founder of the Radical Mycology movement, is "the primary lesson that fungi teach . . . mushrooms and other fungi permeate the world, connecting and turning its innumerable cycles to demonstrate that every act carries an immeasurable chain of effects" (xv). The longstanding assumption that mushrooms spring up from the soil as discrete, autonomous matter is a distinctly anthropocentric misapprehension of nonhuman life that transforms dense entanglement

into sovereign isolation. Philosophical appeals to mushrooms, from Hobbes through to ethics of care, obscure the complex, sustaining entanglements of flora, fauna and fungi in their reliance on anthropocentric models of being that interpret human interdependence as species specific, isolated from dense webs of interconnected existence.

The misleading assumptions underlying the mushroom analogy in Kittay, Benhabib, and Hobbes stem from centuries of fungal misapprehension and mycophobia. When Carl Linnaeus began to classify living organisms in the eighteenth century, fungi proved problematically amorphous: neither plant nor animal, but something in between, fungi confounded conventional taxonomies (Camara, Harley, Mershon).[6] Linnaean taxonomic systems "bent biological thinking toward a kind of individualism" (Harley 151) unable to accommodate the diversity of networked fungal life.[7] As a result, Linnaeus underestimated the ubiquity and significance of fungi, classifying them as little more than a subset of algae (Harley 149). Compare this to modern biological taxonomies, which have designated fungi as a distinct kingdom with five million (or more) species (149). For centuries, Anglo-European biology, philosophy, literature and culture have been confounded, even repulsed, by fungi's mysterious origins and liminal ontological status:

> Inhabiting literal and figural borderlands, fungi flourish in the gaps between taxonomic orders, in the ruins of environmental collapse, in the intervals between life and death. While indicating fungi's ecological hardihood, this interstitial flourishing also suggests that fungi represent imaginative possibilities for rethinking the relationship between language-making, self-making, and world-making. (Mershon 267)

In what follows I pursue these imaginative possibilities, investigating fungi as material and metaphorical emblems of posthuman care. In contrast to the mushroom's previous role as a

symbol of autonomy and independence, revelations from the life sciences and other disciplines of networked mycelia have made fungi potent evidence of the deep-seated entanglements that connect organisms, across species and so-called kingdoms. Fungi offer a model of being at odds with humanist individualism, a model in which organismic life is first and foremost *relational*. Taking a fungal approach to biology would involve "recognizing nature as systems of relations," and the **"**fluid nature of life processes" (Pouliot 4). Fungi embody a relational ontology in their pointedly networked existence; at once conduits and organisms, entangled and separate; in the fungal world relations produce organisms in a most material sense.

Contemporary insights into the relationality of more-than-human being stress the human as entangled in, indebted to, encumbered and produced by the nonhuman, including fungi.[8] Anna Tsing's work, for example, traces assemblages of matsutake mushrooms and their human collectors, companion species of a sort in their interdependent precarity, which illustrate "ways of being as emergent effects of encounters" (23). Tsing's anthropological investigation of human/fungal entanglement is part of a series of "turns" toward more-than-human worlds that have been occurring in cultural theory over the past decades. The nonhuman or posthuman turn, the object-oriented or ontological turn, the animal turn, the affective turn, all of these critical shifts involve some acknowledgement of human animals as embodied, interdependent, trans-corporeal, affective beings, an acknowledgement of human relationality and vulnerability that contradicts neoliberal fantasies of independent, autonomous, rational humanist subjects unburdened by the vicissitudes of aging, illness, and frailty (Andersson et. al.; Harvey). Posthumanism, affect theory and new materialism have functioned as vital correctives to anthropocentric models of selfhood that consign older, ill, disabled subjects, that is, those deemed unproductive, in-

or non-human, to the margins, the dustbin, the institution. In their insistence on vulnerability, interdependence and the porousness of the category "human," these more-than-human turns inevitably draw attention to the necessity of care for human animal being throughout the life course. The alignment of relational ontologies with mycological materiality continues the tradition of treating fungi as figures for socio-political imaginings. Just as mushrooms were recruited as representative of humanist individualism for philosophers, fungi have latterly become fruitful embodiments of the fundamental relationality central to a wide range of posthuman philosophies.

Fungal Family: mycorrhizal relations in Hiromi Goto's *Chorus of Mushrooms*

> "the geographies of desire and belonging created through fungal intimacies make it impossible to speak of either the self-contained individual or ecology in the singular. Open and plural, selves and worlds proliferate, contaminate, and interpenetrate through the secret, infectious touch of fungal relations." (Mershon 268)

> "Who was that silly Chinese philosopher? The one who fell asleep gazing at a butterfly and dreamt that he was a butterfly dreaming that he was a philosopher. And when he woke up, he didn't know if he was a philosopher or a butterfly. What nonsense. This need to differentiate. Why, he was both, of course." (Goto 44)

Published 21 years before Tsing's *Mushroom at the End of the World*, 26 years before Sheldrake's *Entangled Life* and 25 years before Andrews and Duff's work on posthuman gerontology, Goto's *Chorus of Mushrooms* imagines the mycorrhizal dimensions of human life, that is, the networked capacities of aging bodies as relational organisms. Goto explores amorphous, open-ended, interactive embodiments, interpreting human being as mycorhizzally relational in ways that anticipate the current "fungus craze" and its associated theoretical turns.

Chorus of Mushrooms is a multigenerational, polyphonic novel that explores the relationships amongst a family of Japanese-Canadian women living in the small town of Nanton, Alberta. The novel's title reflects Goto's approach to storytelling, which employs multiple narrative voices to produce a communal narrative, a "chorus" befitting the novel's fungi-centric perspective. In an interview with Robert Macfarlane, Sheldrake has discussed polyphony as narrative and musical forms that echo mycelial networks in their ability to "intertwine without ceasing to be many" ("Fungi's Lessons"). Sheldrake "came to think of fungal mycelium—which is both a multitude of growing tips and a single interconnected entity—as polyphony in bodily form" ("Fungi's Lessons"). Goto's novel expresses this commingling in both its form and content, employing polyphonic narration to explore networked, more-than-human embodiments.

The novel's primary characters include Muriel (also known as Murasaki), who is telling her unnamed lover stories of growing up with her grandmother, Naoe, and her parents on the family's mushroom farm. Nanton is a prairie town, hot and dry in the summer, cold and snowy in the winter. The warm, damp darkness of the mushroom barns is striking, at odds with the dry and dusty Alberta weather. These barns function as the novel's warm, dank heart, spaces of mysterious, sometimes unsettling vitality where characters discover unexpected posthuman connections. Though the novel ostensibly opens with a conventional narrative frame – Muriel, in bed with her lover, recalling stories from her childhood, especially her time with her *Obāchan* (grandmother) – the boundaries between the narrative frame and the stories it contains are quickly blurred as a range of narrators, both first and third-person, take over the telling.

The novel's opening sentence – "*We lie in bed, listen to the click of the blinds, watch a thin thread of dusty cobweb weave back and forth, back and forth, in the waves of air we*

cannot see" (1) – immediately highlights its collective narration and reliance on sensory storytelling, evident in the oscillating rhythms of departure and return conveyed by the lolling cobweb, as well as the significance of forces beyond human apprehension: "the waves of air we cannot see." This attention to more-than-human bodies and forces continues throughout the novel, reflected in its structure, narration and lyrical style, The novel's "back and forth, back and forth" structure of repeated returns and temporal reversals thwarts linear expectations and denies teleological satisfaction. Timeline are jumbled; narrators come and go; characters converge and transform. In its disorienting temporal play, its focus on entanglement, its depictions of porous, unstable bodies, its attention to more-than-human relations, *Chorus of Mushrooms* creates a mycorrizal narrative that challenges teleological frameworks. As Muriel/Murasaki tells her lover when he complains that she "switch[es] around in time a lot," leaving him "all mixed up," struggling to know "in what order things really happened,"

> There isn't a timeline. It's not a linear equation. You start in the middle and unfold outward from there. It's not a flat surface that you walk back and forth on. It's like being inside a ball that isn't exactly a ball but is really made up of thousands and thousands of small panels. And on each panel, there is a mirror, but each mirror reflects something different. And from where you crouch, if you turn your head up or around or down or sideways, you can see something new, something old, or something you'd forgotten. (132)

Goto's spherical, mirrored narrative provides the reader with multi-dimensional, cubist views of its worlds, views that change according to the position of the viewers (or reader, as the case may be). Muriel's explanation treats narrative as unfixed, its form and structure dependent on the perspective of the interlocutor.[9] This cubist temporal model contrasts

narrative aging approaches, which plot life cycles according to teleologies of growth, maturation and decline. By emphasizing relations over individuals, *Chorus of Mushrooms* depicts aging as dynamic and unpredictable, with characters withering or flourishing according to the vibrancy of their networks. Naoe compares her isolated, insular youth, when she refused opportunities for connection and her "lips were an ornament upon [her] face" (24) with her later life loquaciousness, stressing the power and fervor of her communication: "Now my face is crumpled with care and seams adorn my cheeks. My mouth bursts wide and the words rush out, a torrent of noise and scatters. An old woman on a wooden chair might not be much to look at, but step inside her circle of sound and fall into a tornado" (Goto 24). Naoe's self-described old age is a time of powerful, binding affects that evoke a vision posthuman aging as a non-linear becoming that echoes Muriel's dynamic narrative model. This emphasis on the primacy of relations continues throughout Goto's novel, which pays close attention to embodied interactions (human and more-than-human) in all their sensuous detail.

Goto relies on multisensory communication – especially smell and touch – to convey a range of more-than-human connections. As a child, Muriel is horrified to discover that her family's fungal entanglements register in intangible, yet potent ways. She learns from her best friend, Patricia, that her family home smells different than other houses, that it reeks of "the clamour of mushrooms growing," that the stench of the mushroom farm has infiltrated "the walls of our home, the upholstery in our car, the very pores in our skin. We had been contaminated without ever knowing" (62). For Muriel, who, as a child, seeks sameness and invisibility, this fungal entanglement is experienced as contamination. Her reaction to the fungal traces accords with Anglo-European mycophobia, evoking literary traditions of what Ben Woodard terms "fungoid horror" (26): "fungus, despite its crucial role in maintaining

healthy ecosystems, is most commonly demonized as parasite or pathogen, a toxic organism that attacks the human body" (Malinowki 271). As Camara, Crane, Malinowki, Macfarlane and Woodard have documented, fungi carry longstanding negative associations with death, decay, filth and parasitism. As a result,

> fungus joins the ranks of [Anglo-European] literary monstrosities in the late nineteenth century . . . Wildly variant fungal morphology erodes the religious notion of the teleological finality of divinely-created life. Instead of radiating from on high as the eternal image and emanation of God, the fungus sprouts up from down low, emerging from excreta and decayed remains only to return to them after the briefest season lived in darkness and filth. As a both a product and agent of decay, the fungus is simultaneously of and for death" (Camara 9-10).

However, as discussed above, this association with death and decay is precisely part of fungi's generative liminality and queer potential (Mershon) as an emblem of unexpected, ungovernable agencies based firmly in relations. *Chorus of Mushrooms* narrates a fungal posthuman turn as characters become increasingly attuned to the integrity of mycorrhizal relations, including, but not limited to, fungal entanglements. Muriel gradually overcomes the sense of shame associated with her fungal "contamination." When she finally takes Patricia to see the barns, the buildings are steaming, "shrouded with mist that no amount of wind could whisk away" (94). Patricia describes the barns as "enchanted castles" (94) and once inside the magic continues: "I showed Patricia a room where the mushrooms were growing. In the silent hum of wet darkness, the mushrooms glowed like cave fish. 'Wow,' she whispered. Like in church" (96). This moment of reverence marks a shift in Muriel's attitudes toward the farm, a growing appreciation of its wondrous more-than-human life. Later, when her junior high boyfriend buys her a T-shirt that says, "I must be a mushroom /

Everyone keeps me in the dark / And feeds me horseshit" for their three-week anniversary (103), she throws the gift in his face (122). By this point, she has absorbed her grandmother's posthumanist perspective and refuses to treat fungal entanglement as a joke.

Muriel's *Obāchan*, Naoe, also narrates the novel, telling fantastical stories about her childhood in Japan, her unhappy marriage spent as an occupier in China, her life in Nanton before and after Muriel's birth, her flight from Nanton during a snowstorm and subsequent adventures as a freewheeling hitchhiker. Fed up with her desiccated life in Nanton, Naoe flees the Tonkatsu family home where she has sat for two decades in a hard wooden chair (never visiting the family farm), speaking Japanese largely to herself since her daughter has willed herself to forget her first language in an attempt to embrace the whiteness synonymous with being "Canadian" in 1980s Alberta. Naoe's departure is not particularly well timed: she leaves late at night during a howling snowstorm and, seeking refuge from the freezing prairie winds, decides to explore the property's mushroom barns on her way out of town. Opening the barn door, she is immediately struck by the warmth and moisture of the space, the dank smells, which she experiences as mesmerizing "beauty" (83). Sensuous details abound in the long description of Naoe exploring the mushroom barns during this blizzard. Overcome by the earthy damp heat, she removes all her clothes to bask in the the rejuvenating "fungal ecstasy" (85) of the space:

> for the first time in decades, moisture filtered into her body. Moisture rich with peat moss and fungal breath. Slowly seeping into parchment, osmosis of skin and hair . . . Her skin, so dry, slowly filled, cell by cell, like a starving plant, the mushroom moisture filling her hollow body. The wet tingling into her brittleness. Blood stirring, restless. Like

> silk threads, they wound through her. . . . She could hear her body filling, the rippling murmur of muscles and bones, squeak of hair growing long and smooth. (84)

Unlike her young granddaughter, Naoe experiences fungal convergence not as "contamination," but as sensual bliss. The passage is replete with animated language and vibrant, vital imagery: "tingling," "stirring," "rippling"; the space is characterized by moisture, softness, blood, damp, silence, warmth, breath, murmuring, humming, swelling, floating, stroking. The brittle desiccation of Naoe's body is revealed as less a function of aging than its segregation, its isolation from the more-than-human relations that nurture and sustain it. The "fungal breath," "fungal ecstasy," and "fungal silence" of the barns revitalize her (84-85). Soothed and nourished, Naoe lies down naked in peat water, "feeling the seeping the sinking into." In Naoe's experience, fungal convergence is wondrous and invigorating, experienced as communion, not contamination. It's an experience of posthuman care, generative, producing an ecstasy that sustains Naoe as she continues her journey away from Nanton.

Fungal Futures

> "Thinking with fungi, thinking mycorrhizomatically, allows for unexpected moments of other agencies, giving rise to considerations of other modes of becoming and being in the world." (Crane 241)

Chorus of Mushrooms offers a portrait of thinking and being "mycorrhizomatically." In this chapter, I have argued that this kind of fungal thinking can help illustrate (and illuminate) the degree to which care and aging in more-than-human worlds necessitates a posthuman approach alert to the formative role of relations. Posthumanism offers a critical vocabulary for investigating and communicating this entangled, embodied, processual existence. I argue that the theorization of care and aging can benefit from posthumanist

approaches that engage the vicissitudes of embodied vulnerability in their modeling of relational being. Fungal posthumanism enables the interrogation and dismantling of 'the human' as a discrete, autonomous individual, and highlights the ubiquity and integrity of care across the life course. As Goto and other more contemporary fungal philosophers make clear, interdependence is a manifestation of our posthuman status, that is to say, our embodied, embedded and relational condition as human animal beings enmeshed in dense more-than-human, mycorrhyzomatic networks.

As it stands, the majority of posthuman aging and care scholarship exists in the domains of sociology, anthropology, geography and social work. Literary studies can help us enter into more-than-human worlds in (imagined) action -- in this case, mycorrhizal ways of being and relating -- divested of the stifling conditions of socio-political realities. Fiction like Goto's helps aging and care studies imagine otherwise,[10] invoking novel ways of aging and relating that evade neoliberal scripts of compulsory able-bodied independence and youthfulness. With further investigation into the posthuman theorizations offered by literature, we can begin to plot alternatives perspectives and ontologies alert to the mycorhizal dimensions of more-than-human entanglement.

Notes

[1] While the notion of the "wood wide web" may be relatively new, mycorrhizal entanglements were first noted and named in an 1885 publication by Albert Bernhard Frank. Frank's description of mutually beneficial fungal connections ran counter to contemporary estimations of tree-fungal associations, which were largely understood to be parasitic and damaging. Quite the contrary, Frank's publication suggested that some trees were nourished by a fungal "wet nurse" (qtd. in Mershon 282).

[2] Agnes Malinowski uses this term to analyse Charlotte Perkins Gilman's "Fungal Female Animal", arguing that it "offers significant benefits to scholars invested in the nonhuman turn. First, by bringing an organism studies perspective to animal studies, we become less inclined to endow the animal with the same status that the (rational, autonomous, universal) 'human' subject took on for humanists. That is, we avoid unwittingly reifying certain attributes or behaviors as essentially animal,

thus placing undue weight on certain species to the neglect of a broad panorama of life" (282). As she continues, "Like lonely mushrooms, our organism-selves may seem individual, autonomous, isolated—but we are emphatically not so. Rather, we extend ourselves outward in nets and skeins, binding root and soil, alive only as part of a much larger, invisible organism" (282). Goto's work enacts a similar process, exposing the enmeshment of more-than-human life via fungal imagery.

[3] See DeFalco, "In Praise of Idleness," for a detailed discussion of the pathologization of inactivity and the able-ism endemic to theories of "successful aging."

[4] In their exhaustive 2019 literature review, Gavin Andrews and Cameron Duff counted over sixty articles and book chapters and two edited collections had been published as part "gerontology's posthumanist turn." For a detailed overview of posthuman critical/cultural gerontology, see their essay, "Understanding the Vital Emergence and Expression of Wging: How Matter Comes to Matter in Gerontology's Posthumanist Turn," as well as Andrews, Evans and Wiles, "Re-spacing and Re-placing Gerontology: Relationality and Affect."

[5] As they go on to explain, "On one level this involves a reevaluation of older humans, from a view of them as autonomous, complete, closed, almost always acting fully consciously, to a view of them as dependent, incomplete, open, often acting less-than-fully consciously. On another level it involves rethinking particular features of older human life (such as forms of health and wellbeing), from a view of them as being internal, verbalisable 'facets' of the body and mind, to being wider 'modes of existence' produced through distributed, expansive and ongoing processes involving multiple biological/natural and material/technological actors, and the vital forces that exist within and emerge between these actors" (47).

[6] In her wonderfully titled essay, "Pulpy Fiction," Ella Merson elaborates on the problem fungi posed for naturalists seeking to classify the living world:

> For the first half of the nineteenth century, it was not clear whether fungi should be classed with plants or animals. Unlike plants, fungi did not contain chlorophyll and thus could not produce their own nutrition. Like animals, fungi either fed on living matter (parasitic) or dead matter (saprophytic) and produced animal-like excretion. While, by the end of the century, the taxonomic confusion was resolved by creating a new third kingdom, fungi were still figured as "quasi-animals," consuming rather than storing the sun's energy. Hunger for flesh—as well as a resemblance to flesh as the pileus was often called "fleshy"—continued to animate fungus in the Victorian imagination. In this way, fungi reflected the "flexible" location of life in the Victorian period, in which life could be latent in both animate and inanimate matter. (Mershon 272-3)

As contemporary fungi writing demonstrates, this "fleshy,""quasi-animal" status continues to fascinate (and sometimes confound) a wide range of scholars, nature writers and novelists. Fungi's in-between, mycorrhizal status has sparked many an imagination. In addition to the many nonfiction publications discussed above, recent fiction by M.R. Carey, Ling Ma, Richard Powers, Jeff VanderMeer and Aliya Whitely (*The Beauty*), employs fungi, real and imagined, as important narrative agents. Goto's novel, however, is unusual in its joyful, often ribald celebration of fungal life and mycorrhizal relations. Far more common is the "fungoid horror" (discussed further below) of Carey, Ma, VanderMeer and Whitely.

[7] As Kylie Crane explains,

> Fungi's relations to taxonomic systems are troubled. Fungal entanglements aid us in becoming attuned to the boundaries of exceptionalism – the notion of individual specimens, for instance – but also ideas of species and that awkward idea of "kingdoms." Many of the writers of fungi point out that Linnaeus classified fungi as Cryptogamia, the lowest order of

> plants. Rather than being met on its own terms, fungi has historically been measured against other biota, plants, and come up "short." (Crane 244)

However, if one attempts to counter this exceptionalism by adopting a fungal perspective, the artificially atomized existence of the "human" "comes up short." The privileging of autonomy and independence has inhibited our ability to recognize fungal and human interdependence alike.

[8] This emphasis on entanglements that challenge humanist individualism, not to mention, straightforward species and kingdom boundaries, has touched a wide range of disciplines, from anthropology, sociology, philosophy, literary and cultural studies to plant biology, where, Sheldrake argues, "many biologists have begun to reimagine the tree of life as a reticulate mesh formed as lineages not only branch, but fuse and merge with one another. Strands of the mesh loop in and out of the realm of viruses—entities that many don't consider to be living organisms at all—and make it clear that life shades off into non-life gradually. If anyone wanted a new poster organism for evolution they needn't look far. It is a vision of life that resembles fungal mycelium more than anything else." Though the murkiness of life/non-life distinctions is beyond the scope of this chapter, it is highly relevant to fungal and posthuman theory alike. For more on the posthumous dimensions of posthumanism, see Colebrook and Weinstein; DeFalco.

[9] Previous scholarship on the novel has highlighted its collective narration (Latimer; Libin; Ponce) in relation to hybridized Canadian identities, intertextuality and postmodern storytelling.

[10] For further discussion of literature as "theoretical devices that help us apprehend and unravel the narrative dimensions of naturalized racial, sexual, gender, and national identities" (x), see Chuh's *Imagine Otherwise*.

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