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Insect-Thinking as Resistance to Education's Human Exceptionalism: Relationality and Cuts in More-Than-Human Childhoods

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Abstract

This article discusses the “more-than-human” turn in qualitative inquiry and education, engaging with the critiques presented by philosophers, animal studies scholars, and educational scholars toward the “too easy” adoption of an inclusive relational ontology. Based on Barad’s concept of re-turning, the article develops a methodology of insect-thinking, which folds memories as well as scientific and “low theoretical” sources in and out the analysis to re-narrate child–animal encounters as entangled with place, time, class, poverty, displacement, imagination, and planetary futures. Insect-thinking produces irritations and interruptions to the human exceptionalism that underpins educational research and childhood studies. Based on conflicts, avoidance, and violence in child–insect relations, the authors discuss “cuts in relationality” and propose insect-thinking as means to approach more-than-human worlds as both shared and incommensurable.

Keywords

more-than-human, education, childhood studies, human exceptionalism, insects

I want to begin by re-turning—not by returning as in reflecting on or going back to a past that was, but re-turning as in turning it over and over again—iteratively intra-acting, re-diffracting, diffracting anew, in the making of new temporalities (spacetime-matterings), new diffraction patterns. We might imagine re-turning as a multiplicity of processes, such as the kinds earthworms revel in while helping to make compost or otherwise being busy at work and at play: turning the soil over and over—ingesting and excreting it, tunnelling through it, burrowing, all means of aerating the soil, allowing oxygen in, opening it up and breathing new life into it. (Barad, 2014, 168)

Human exceptionalism blinds us. (Tsing, 2012, 144)

Preamble

This article was started before, but completed during, the COVID-19 pandemic that has fractured human composure, and forced us to acknowledge our inextricable entanglement in inhuman forces. In choosing/being chosen by insects, we might seem, in retrospect, to have made an error of scale. Nevertheless, the insights offered here will be useful, we think, for thought and action within and beyond the pandemic. Like viruses, insects oblige us to rethink the boundaries between inside and outside, proximity and distance, the one and the many, life and death. They offer glimpses of the inhuman affects and the unnatural relations that animate and impede human affairs. They force us to face the question of how—despite their utter indifference to human values—inhuman

agents are involved with humans, and complicit in the distribution of inequalities of race, poverty, and class.

In this article, we ponder insect influence on educational thought, and on early childhood research in particular, in the “more-than-human” turn. We argue that thinking with insects can reorient thought and action, open up theoretical and practical directions, and inform the development of educational methodologies. Insects complicate simplified and rosy notions of more-than-human relationality. Despite their convivial, though often non-consenting, participation in the projects of human science, technology, media, politics, and philosophy, insects also express something fundamentally *inhuman* in multispecies relationality. Their “uncanny affects” (Parikka, 2010, p. 1) convulse our human bodies, haunt our literature, and stalk our dreams.

Childhood Research and the “More-Than-Human”

The more-than-human paradigm has recently emerged in Western thought as an umbrella term for a range of post-humanist and new materialist-inspired research approaches.

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In the fields of childhood studies and (early childhood) education, this paradigm has offered scholars an impulse to reconfigure a range of normative educational practices and policies, and to illuminate childhoods as complex, and heterogeneously and materially entangled. The “flattened ontology” of posthumanism has been operationalized through two main analytical moves: first, “decentering the human” (e.g., Coole & Frost, 2010) and human agency, and second, foregrounding relationality between all beings (Barad, 2007; Pickering, 2005). At its broadest, more-than-human relationality has been defined as encompassing “things, objects, other animals, living beings, organisms, physical forces, spiritual entities, and human” (Puig de la Bellacasa, 2017, p. 1). Some scholars identify a specific “animal turn” within the more-than-human (e.g., Rautio et al., 2021; Weil, 2010).

An emerging body of research seeks to address ways in which more-than-human relations shape children’s lives, and societal and environmental concerns involve child–nature relationships, including children’s relations with other than human animals (e.g., Cutter-Mackenzie-Knowles et al., 2019; Malone, 2020; Nxumalo & Pacini-Ketchabaw, 2017). Recent post-qualitative scholarship has supported this divergent tendency in childhood research by developing nonrepresentational and creative methodologies that emphasize materiality, sensation, and immanent relations of foldings and embodied engagement, rather than hierarchies, layerings, or splittings (Lather, 2016). In turn, research on children’s engagements with matter and the more-than-human is informing post-qualitative theory and methodology (Holmes, 2016; Koro-Ljungberg et al., 2020; MacLure, 2013; Somerville, 2019).

Children’s relations with animals are not necessarily what adults want or expect from them. Deleuze and Guattari (1987) note children’s propensity to enter into “unnatural relations” (p. 258) with animals. These encounters do not necessarily register as pity, love, or empathy, but are in a sense impersonal—a matter of affects and intensities. Hackett (2021) describes a small girl content to feel the movements of three worms wriggling on her hand and to test what their bodies can do in contact with her own, while her slightly older friends want to domesticate them—build them a house, befriend them, tend them, tell stories about them. In another example by Rautio and colleagues (2017), an 8-year-old child, looking at a seagull, proclaims, “That’s a shitgull. They eat shit. They ought to be shot” (p. 1380). The authors argue that child–nature relationships, instead of being essentially positive or biophilic, can become a raw existence based on mutual disaffect and avoidance (see also Tammi & Hohti, 2020; Taylor, 2011; Taylor & Blaise, 2014). Children’s interest in animals is not exhausted,

then, by the orthodox comforts of pets, the anthropomorphic creatures in books for the young, or the animals that are marshaled for children’s entertainment and education in petting zoos.

We contend that thinking with more difficult animal relations, “unloved others” (Rose & van Dooren, 2011), can help with the task of challenging the extractive logic and the inbuilt anthropocentrism of Western thought that dominates educational research. Horton and Kraftl (2018) provide a recent example in their study of everyday materialities that are generally overlooked in childhood research, such as encounters with rats, dirt, litter, and excrement. These brought into view social-material processes that were “characteristically massy, indivisible, unseen, fluid and noxious” (p. 928), challenging the anthropocentrism and romanticism that often informs research on children’s encounters with the “outdoors.” Based on hidden details of local ecologies, microbiologies, and hydrologies in children’s narratives, they derive a new vocabulary of swarming, smearing, and percolating as appropriate concepts for immanent ontologies of movement and flow and argue for “extrasectionality” as an expanded notion of intersectional minority positions and intra-active relations in childhoods. Our childhood recollections below, in a similar spirit, attempt to uncover the hidden significance of insect affects in two distinct local, cultural, and temporal milieus.

The “Too Easy” More-Than-Human

Multispecies scholars have offered concepts and methods for childhood and education researchers to develop sensitivity and attentiveness toward the ways that more-than-human relations matter (see e.g., Cutter-Mackenzie-Knowles et al., 2019; Hohti & Tammi, 2019; Rautio et al., 2021; Trafi-Prats, 2019). Ogden and colleagues (2013) detect two interrelated dimensions in multispecies research: exploring the human/animal divide, and redefining what is “human” (Ogden et al., 2013). Recently, childhood scholars have adopted from human–animal studies the impulse of engaging with difficult animal relations, such as those children form with raccoons, kangaroos, and stick insects (e.g., Nxumalo & Pacini-Ketchabaw, 2017; Taylor & Pacini-Ketchabaw, 2017), to resist romantic and nostalgic notions of childhood and nature in the contexts of urban cities and the Anthropocene. In the following, we will draw on this work when pursuing the two lines of inquiry pointed out by Ogden and colleagues above and rethinking. Child–animal relations as conceptual forces that profoundly unsettle education and childhood studies, beyond mere inclusion of “the animal” in childhoods.

Pedersen and Pini (2017) take “more-than-human” as a provocation to think beyond the illusion of human control in terms of educational epistemologies and methods. They point, however, to the sheer difficulty of letting go of our familiar humanist habits of thought, with their extractive, colonial logic, and false “epistemological promise that the world is accessible for us as researchers to understand and conceptualise as a source of endless scientific knowledge production and accumulation” (p. 1051). They observe that the adoption of “new” post-humanist or post-anthropocentric paradigms may often take place too quickly, forcing new concepts into old categories, and reproducing the self-same thought systems. We take these warnings seriously. While there is an ongoing effort to challenge the grand narratives and autobiographies of the human characteristic of Western thought, the very turn to the more-than-human may have blind spots of its own. We may ask, following Pedersen and Pini (2017), if we, in the midst of posthuman entanglements and boundary deconstruction, have really *listened* carefully enough to other than humans.

We will now re-turn to un/natural relations of our own, in our meditations on insect encounters in our respective childhoods, to ask: *How might “we” and educational thought become into existence differently when we re-narrate childhoods as multispecies, shared with mosquitoes and cockroaches?* The method of re-turning (Barad, 2014, see also Malone, 2020), in its earthworm-like movement of “diffracting diffraction,” offers us a mode of analysis that sets in motion previous notions of childhood, place and time alongside autobiography, posthuman theory and multispecies scholarship, transforming them by creating new diffraction patterns. The article thus proceeds through a convulsive movement between personal memories—intense, affective intimacies of individual lives marked by insect encounters—and human–insect encounters on larger scales, weaving in and out with philosophy, literature, and the “low theory” of the amateur (Halberstam & Halberstam, 2011). These returnings begin to produce a re-narration of generations of insects and humans evolving together with place, time, weather and culture, and childhoods as always already “animalized” (Tammi et al., 2020), yet unequally situated.

Other Than Human Subjects of Place and Time

Heinola, Finland, 1970s

The huge old timbered house by the lake is called Visala. R’s grandmother bought it some decades ago, and the family has always spent every summer there. Grandmother reigns over the place according to the principle of conservation: everything must stay unchanged, and even the smallest improvements require skilful negotiations with her.

Leith, Edinburgh, 1960s

The stone façade of the tenement building is blackened by 80 years of coal smoke from trains and factories. The individual flats inside have a living room, two bedrooms, a narrow bathroom, and a small kitchenette containing a sink and a cooker. A few homes have fridges. The living rooms are heated by coal fires, sometimes supplemented by portable electric fires or highly dangerous paraffin heaters. The unheated bedrooms are freezing in the winter. M and her sister bathe once a week in a zinc bath in front of the fire in the living room, filled with kettles-full of water heated on the stove.

The first re-turnings take us to stories about our childhood homes in an attuning to the insect encounters they might offer. However, situating our stories “once upon” a place and time—Heinola in the 1970s and Edinburgh in the 1960s—we realize we have already been drawn into an anthropocentric narrative. Schrader (2012) in her study on the “time of the slime” emphasizes the role of anthropocentric temporal constructs in enabling the writing of history as the autobiography of flexible, creative, and dynamic man painted against the background of inert nature, including other than human species. Ecofeminist work has theorized this opposition as a “hyper-separation” of nature and culture (Plumwood, 1993). van Dooren & Rose (2012) point at other ways of understanding how other than human animals make themselves at home with us. These authors think of cities as storied places, which are more than physical, and materialized as historical and meaningful through the material-semiotic processes in which stories emerge from and impact upon the way in which places come to be. In the process of storying, the subjectivities of the story-weavers, who are not limited to humans only, are connected to time and place, but the emplaced “now” of a story can open up to other times and places as well (van Dooren & Rose, 2012): places involve time and motion, and stories of time always bring specific places into play. Accordingly, when we attempt to “thicken” the nonhuman subjects our childhood memories involve, we need to resist hegemonic temporal and spatial constructs. Tsing (2012) talks about the blinding effects of human exceptionalism. The nonlinear method of re-turning (Barad, 2014) is one attempt to avoid adhering to the single anthropocentric time-line and to fold in voices and agencies beyond human protagonists only. Insect-thinking does not allow us to remain at a standstill in a childhood that once was. Rather, it begins to gesture to, or, according to Barad, to *make*, new temporalities and rhythms.

Forests and old spruces surround the house. They block sunshine and make the house shadowy, cool, eternally damp, preventing the surrounding ponds and creeks from drying during the summer. R’s family uses water from the lake for cooking, washing and, boiled, for making tea and coffee. Mosquitoes, too, during their much shorter cycles of life, death and reproduction, depend on water surfaces where they lay their eggs, and where they find aquatic algae and organic materials to feed on in their larvae stage.

Through the decentering of the human, a possibility for nonhuman subjects to “animate” our narratives emerges. The asynchronous but intersecting rhythms of generations of insects and human children in their shared places begin to gain significance. The vibrant metabolism between beings highlights places as something other than just place—as ecosystems of beings caught in their entangled processes of life and death.

In R’s childhood summer house, Visala, humans did not ignore mosquitoes, rather they talked about them all the time—even today the family cannot mention the place without bringing up the nuisance. But stories of mosquitoes as a disturbance for humans are just one of myriad possible stories, and other stories could be told by birds, trees, plants, and waters (van Dooren & Rose, 2012). Lorimer and colleagues (2019) talk about more-than-human environments in terms of atmospheres, highlighting how animals are sensitive to an overwhelming range of phenomena not palpable to humans: meteorological dynamics, electro-magnetic, acoustic, and olfactory spectra that are undetectable to the technologically unassisted human body. The social lives of insects involve intra-actions with biochemical landscapes and pheromones, which are not commonly understood to be significant in the ocular-centric accounts of humans. Importantly, contrasting our earlier observation that animals “animate” *our* places, animals’ atmospheres can be sensed and engineered in the total absence of people (Lorimer et al., 2019). Weaver and Snaza (2017) suggest that to listen to other than human voices, humans have to discard the mantle of the master storyteller, and re-enter more-than-human worlds as students, as newcomers. This makes our relatings and observations just one among many ways that objects might relate, “and we can no longer afford to forget that this is a partial, interested, and deeply anthropocentric view” (p. 1061).

Indigenous peoples, such as the ancient Finns, knew the value of intra-active listening. Their listening involved constant storying of other than human beings but also atmospheric attunement, because it was a skill crucial for surviving with their habitats (TallBear, 2011). Remnants of this knowledge still exist in language and in old sayings. Immersing in memories of her childhood summer home, R still can see the spruces that were standing by the window of her bedroom. This re-turning with insects to trees (long cut now and replaced by a lawn by the new owner of the house) reminds her about the still common saying, “one shall listen to the spruce tree under which she makes his home.” Perhaps a portion of ancient ways of knowing through intra-action also remained in the ways in which R’s family obsessively observed the behaviors of the mosquitoes, talking about how they preferred some people to others—children to adults, R’s sister to herself—making guesses on what their at times particularly nasty swarming indicated—perhaps winds, or upcoming rains.

R doesn’t mind the long rainy days. She is a kid who loves sitting inside as far as it means the possibility of immersing herself in books, sitting cross-legged on the bed reading by the window. But in the old log house, where floors and ceilings are sloping, and the doors can’t be shut properly, inside is not very clearly separate from outside. After shutting the bedroom door to start reading, R performs the ritual of killing all the mosquitoes in the room. However, a new swarm of mosquitos emerges as soon as R sits with her book.

M’s mother, unlike many other working-class women, takes little pride in housework. But degrees of dirt make little difference to the cockroach population. They are long-term dwellers in the tenements, where they are referred to as “beetles.” Nobody talks much about them, however, as beetles are a badge of shame. Although nocturnal, an occasional solitary beetle is sometimes spotted on the floor in the daytime, and quickly stamped upon. M is reluctant to do this, not because she feels empathy with the creatures, but because the sickening crunch of the smashed carapace and the oozing bodily fluid is, if anything, worse than the shudders of disgust the live insect provokes.

Insect-thinking unsettles the unified temporality of human exceptionalism that commonly prevents us from paying attention to histories other than the particular history repeated in education, the history of the human. Multispecies stories of place then highlight that humans and insects do not just happen to meet each other, rather, these encounters are the result of coevolutionary histories, “rich processes of co-becoming” (van Dooren et al., 2016). Assemblages of place, time, materials, and weather have embraced and sustained generations of humans and insects, and cultures. These assemblages are nevertheless constantly changing. Cockroaches, for instance, have shared food and lodgings with humans for millennia; but the dynamics of this cohabitation continue to shift. They are becoming increasingly resistant to the poisons developed by the pest-control industry—poisons that pose a threat to the health of their human co-habitants. But the endurance of domesticated cockroach species may be an outlier: 40% of insect species are believed to be threatened with extinction as a result of intensive agriculture, pollution, and climate change, with catastrophic implications for the planet’s ecosystems (Sánchez-Bayo & Wyckhuys, 2019).

Elizabeth Grosz (2011), reading of the philosophy of Darwin, points out how the term “evolution,” derived from Latin, means “to roll out,” to unfold. This refers to becoming-with and difference that is never based on a given unity but on a broader community-in-difference and common history, in which temporal and durational entwinements matter. Grosz writes that if we really employ the concept of life that sees the human as one among many species—if the human is simply one among many of the trajectories that life on earth has elaborated—then many of the most cherished beliefs about humans will be thrown open to “new

lines of development, new kinds of practice, and new modes of thought” (Grosz, 2011, pp. 2–3).

Through engaging with mosquito and cockroach encounters in various locations, our insect-thinking so far has highlighted our inherent relatedness with insects. However, some critical animal scholars have been hesitant toward relational ontologies, reminding us not to forget violence and power in the enthusiasm of entering vibrant, ever expanding more-than-human relationalities (Pedersen, 2013). When we re-turn anew to child–insect relations with critical animal scholarship, new questions about patterns of power and privilege fold in. The approach described by multispecies scholars as “passionate immersion” in relations (Tsing, 2012; van Dooren et al., 2016) is completed with another earth-worm turn to alterity.

Lorimer (2014) describes the strange space of studying beings that are very different from us as a literal and figural area of darkness that is worthy of “a lifetime’s contemplation and modest activism” (p. 203). For him, the conceptual discomfort of such darkness can offer a shock to thought, an imperative to think life otherwise to human norms. Similarly, our inquiry into child–insect relations takes us to insecure territories, both in terms of the complexity of multispecies relations and of the inherent otherness of the animals we are in relation to. The impossibility of *knowing* swarming insects in ways we can claim to know our pet dogs, for instance, undermines the colonial, possessive attitudes of the educational researcher. All we know is that our homes and our environments were never just “ours” to know, to protect, or to exploit at will (Stengers et al., 2013).

The re-turning methodology (Barad, 2014) thus forces us to leave the utopia of scientific mastery and to move onto the territories of “low theory” of the amateur (Halberstam & Halberstam, 2011). The greedy earth-worm movement of this research connects us with scientific articles on fields we are not experts on, as well as with all kinds of mundane sources in internet and social media. Multispecies scholars speak about “arts of attentiveness” (van Dooren et al, 2016), which develop when one immerses in more-than-human relationality. As insect-thinking amateurs, we begin to see insects in places there previously was seemingly nothing, and to “ingest” all kinds of images, stories, and pieces of knowledge we can find on mosquitos and cockroaches—and we find more and more of them. Doing insect-thinking means to turn these materials and encounters over and over, “aerating the soil” (Barad, 2014, 168) from which a new awareness of connections, dependencies but also conflicts between species grows.

Transcorporealities of Class and Poverty

“When I grow up, I will be a mosquito.”
(An anonymous child, 3 years)

Cockroaches and mosquitoes are not chosen by humans to be their companion animals; rather, they have chosen us. Insects ignore the boundaries of human houses, homes, and even human bodies: they refuse to acknowledge the hyper-separation (Plumwood, 1993) of humans from the rest of nature—a fact that makes them powerful irritations to human exceptionalist thought. Somerville (2019) draws attention to the ways small animals in particular disturb the masterful attitudes of the human. Their endless variation proposes that each species might deserve a theory of its own, instead of one anthropocentric theory based on the loose pan-categories “human” and “animal.” (This article, for example, addresses only one of 4,600 existing cockroach species, a number that comes close to the number of all mammal species in the world.) We will now re-turn from our “animalized” childhood places and times to focus on the intimate contact between human and insect bodies, onto our own skin, and beyond. When we pay attention to how insects share our food, or feed upon our bodily waste or our very bodies, we are drawn to consider interspecies relationality in its intra-active extreme.

Sometimes R lets the mosquitoes land on her arm and pierce her skin. After a while, the bloated mosquitoes lift their proboscises, and fly as if drunk to the wall nearby. Sometimes R slaps a mosquito dead at that point, watching her own blood spurt from the insect body. There are bloodstains on the book pages and the wallpaper. The bed slowly gets covered with tiny bodies and body parts. They are like a second bed cover made from some strange organic material.

Transcorporeal feminism (Alaimo, 2016; Neimanis, 2012) foregrounds materials and material flows, and exposes chains of relations and interdependencies beyond the boundaries and the integrity of the human. In her “hydro-feminist” account, Neimanis (2012) follows chains of “watery” bodies: “the human infant drinks the mother, the mother ingests the reservoir, the reservoir is replenished by the storm, the storm absorbs the ocean, the ocean sustains the fish, the fish are consumed by the whale” (p. 105). A transcorporeal encounter between R and a mosquito involved similar kinds of exchanges of fluids—water, blood, and saliva. In R’s childhood home in Finland, female mosquitoes needed to get human blood into their bodies because of a specific protein they needed to reproduce. In tropical countries, a mosquito bite often involves, through the transfer of a small amount of fluid from the mosquito to the human body, transmitting vectors of serious diseases such as malaria and Zika. Previously, we discussed places as shared and storied by species other than humans only. From the transcorporeal perspective, human–insect encounters not only dissolve animal bodies into each other, but through flows of materials, they complicate the separation of bodies and place, as “bodies extend into places, and places affect or, indeed, constitute bodies” (Alaimo, 2016).

These relations of “queer kin” are illustrated in the quote by an anonymous 3-year-old (above), which has gone viral: *When I grow up, I will be a mosquito.*

The border zone of transcorporeality is, according to Neimanis (2012), a zone in which we can open to alterity—to other bodies, other ways of being and acting in the world—in the simultaneous recognition that this alterity also flows through us. “Water does not ask us to confirm either the irreducibility of alterity or material connection.” (Neimanis, 2012pp. 102–103) Instead of inarticulate relationality, the transcorporeal approach weaves in new details:

– the two spruces by the house, their need of rain, their ways of binding humidity, the shelter they give to mosquitoes, the swarms of insects just before rain when they are particularly vicious. The spring in the woods, the lake, the dim daylight that barely pierces the thick branches of the trees, the child who has little say as to where and how to spend the summer days –

Doing insect-thinking with transcorporeal theorization adds a new level of awareness of material connectivity between species, place, and time. At the same time, transcorporeality enables us to pay attention to the hidden ways materialities and nonhumans can play a role in the making of societal differences, gesturing to new kinds of interstices between class, poverty, and human and nonhuman animals. In a similar fashion, Horton and Kraftl (2018) wrote about their experience of returning to data with an interest on previously neglected beings and materials such as rats or dirt/litter/poo. They argue that these can help us to find “lay narratives” of childhood that complement the more common sociological or intersectional analyses of race or class.

One morning, M is up early. She switches on the overhead light in the living room and is transfixed by the sight of a pulsing mass of glistening black beetles. She slams the door shut and is back in her bedroom before she is aware that her feet have moved. Half an hour later, when she plucks up the courage to open the living room door again, the cockroaches have gone.

The blackish tenement beetles M remembers were probably Oriental cockroaches, *Blatta orientalis*. Unlike the fastidious mosquito, cockroaches that dwell among humans will feed on any bodily discharge or debris. They prosper in the conditions under which the urban poor live—damp, mold, high-density housing, shoddy building maintenance, lack of access to efficient waste disposal, and pest management. Whereas mosquitos, “the most dangerous animals in the world,” kill nearly one million people every year, most of whom are children living in the poorest areas of the world, the threat to human life posed by cockroaches is much lower. Nevertheless, cockroaches can contaminate food, transmit intestinal diseases, trigger asthma attacks, and spread drug-resistant bacteria in hospitals (Brown &

Alhassan, 2014). Their preference for living among the poor contributes to the inequitable social distribution of these diseases. They are implicated, for instance, in the incidence of severe asthma among children living below the poverty line (Allies for Reaching Community Health Equity [ARCHE], n.d.). Cockroaches traveled from Africa to America and Britain on the slave ships (Garcia, 2017), inaugurating that still-prevalent association of cockroaches with poverty, race, filth, and shame. Our transcorporeal relating to insects has enabled us to make them our companions in the misadventures of colonialism, the extractive logic of science, and the exterminating impulse of the human species. Insects not only form an irritating backdrop to or a contaminating residue of the big human adventure, but are themselves caught up in it.

In R’s rural childhood home, in the 1970s exclusively white Nordic welfare country, class, race, or the macro-political legacies of colonization and the Anthropocene were invisible to the extent they could be thought non-existent. The house surrounded by clean waters and dim woods did not count as “damaged” or wrought the way urban cities do in Taylor and Pacini-Ketchabaw’s (2017) study, and in M’s proletarian cockroach memoir. Thinking with insects, however, we re-turn to ways in which this setting, too, was implicated in precisely the political processes mentioned above. For example, the lifestyle set up by Grandmother to leave nature untouched was in fact due to the classed habit of retreating to voluntary primitive conditions “back in nature” during holidays. Even if the family was hardly exploiting land themselves, they were using nature as a source of recreation, which was possible only thanks to industrial food production taking place somewhere else. This offers us one example of hidden intersections, or “extrasections” (Horton & Kraftl, 2018), which, if not articulated, allow us to linger in beliefs such as a depoliticized, and generically pure natural domain of childhood outside global processes of inequality and environmental damage (see Taylor, 2011).

The Inhuman in Insect–Human Connections

During the summers spent in Visala, R’s family univocally wished mosquitos dead. Attempts to kill mosquitos, whether chemically using repellents or by swatting them, however, were rendered useless. Helplessness in the face of “the swarming other” is still one of the strongest affects R remembers from her childhood animal encounters. The wish for total extermination drives much of the scientific research around mosquitos, too, where the aim is to control tropical diseases such as malaria, Zika, and dengue fever, and thus also the accompanying economic and social burden of these diseases (Sachs & Malaney, 2002). Experiments include RNA interference that kills female *Aedes aegypti* by

promoting a kind of cell suicide, and irradiating mosquito pupae, which then grow into sterile males (Fang, 2010).

Cockroaches, too, have become entangled in many human exploits, from science, engineering, warfare, and robotics, to fashion, folklore, and literature. Their size and decentralized nervous system make them convenient subjects for experiments in neurobiology, locomotion, and metabolism. They have been controlled by neural implants in the hope that they might be deployed in military reconnaissance and search-and-rescue operations (Anthes, 2013). (This hope is still largely unfulfilled.) They provide undergraduates with a cheap, hands-on (and heads-off) experience of simple nervous systems. High school students can build their own “RoboRoaches” (Backyard Brains, 2020). Beetles have long been modified for fashion too: tethered and encrusted with gems to serve as living jewelry (Tollini, 2002). In their services to human curiosity and vanity, it is notable how frequently live cockroaches have been subjected to sedation, mutilation, and extreme body modification.

The above-described scientific experiments give us just a few of myriad examples of the legacy of human exceptionalism in education and science—the attitude that the rest of the nature is there for humans to use as a resource, to learn from, to exploit, to destroy, or to conserve at their will. In addition to the fact that human lives depend on insect pollinators, there are many more ways humans have benefitted from insect worlds, for instance, by drawing inspiration and imagination from them. Swarms, metamorphoses, and the weird sensations of the autonomous affect of insects have become features of technological, philosophical, and artistic work (Parikka, 2010). Research on swarms in particular has influenced technoscientific advances in the digital era, beyond the original models based on the physical abilities of the human, or powerful animals such as horses (Parikka, 2010; Wilcox, 2017). Insects are often associated with monstrous or inhuman figures such as aliens, robots, automata, cyborgs, or zombies. These are creatures that inhabit the margins between life and death, organic and inorganic, human and nonhuman, conscious and unconscious.

Cockroaches do not sting and rarely bite, but they nevertheless get under the skin, moving, and moving in, the viscera, the nerves, the muscles, the pulse. Braidotti (2002) writes, “Insects pose the question of radical otherness not in metaphorical but in biomorphic terms, that is to say, as a metamorphosis of the sensory and cognitive apparatus” (p. 184). The radical otherness of insect relations compels us to engage with affects that exceed human experience and the conventional bonds of kinship or companionship.

In re-turning to her encounter with the mass of cockroaches in the night-time kitchen of her childhood home, M does not “recollect” the event. She is

transported. She is immediately, without interval, inside the event. She is in that flat again, with the 1950s tiled fireplace and patterned carpet, seeing the beetles from the original point of view at the door.

M is re-experiencing the *same* disgust—the same lurch in the gut; the same instantaneous recoil. But she is simultaneously elsewhere, hovering somewhere outside or above a scene that is now contaminated by what will have been. The cockroaches mobilized, and immobilized, M’s body in strange ways therefore. They messed with linear time and sparked flight in advance of thought. Massumi (2002) calls this “visceral sensibility” (p. 60), where the jolt to the senses registers before the brain can process it, inducing a “spasmodic passivity.” For Shaviro (1995, p. 47), the “enthralled disgust” that insects provoke is the experience of limits: “the flesh of the squashed bug is *sacred* . . . because it is primordially ambivalent: it arouses both disgust and desire, at once repelling and demanding our intimate contact” (p. 47, emphasis in original).

Insect encounters may therefore transport us beyond language, representation, time, and decision. The irreparable gulf between human and insect sociality is coupled with an intimacy that is excessive, excremental, and bloody. We are forced into relations that are intense but unspeakable, teeming with significance yet inexplicable. We experience intimations of speeds and scales that exceed our grasp and our capacity for rational action.

Bergson drew on one of the cockroach’s insect predators when he developed his theorization on instinct. The parasitoid jewel wasp (*Ampulex compressa*) converts its cockroach prey into a living food source for its larvae. Neuroscientists are interested in such wasps too, anticipating that they may lead us to new drugs and even insights into human decision-making (Libersat & Gal, 2013). Bergson asked: what do the wasp and the scientist, respectively, know about their chosen insect? For him, it seemed that the entomologist knows “from the outside, and without having on his part a special or vital interest” (Bergson, 2012, 173). The wasp, by contrast, knows its host from within, “by an intuition (*lived* rather than *represented*)” (175; emphasis in original). The wasp’s knowledge is instinctual in Bergsonian terms—immanent, relational, non-representational, and connected to the vital impulse (*élan vital*) of life itself. Bergson called it “divining sympathy.” A vestige of this kind of instinct lives on in humans, Bergson argues, as an indeterminate “fringe” around conceptual thought, which connects human intelligence to the tumultuous creativity of life from which it has been condensed.

In their marginality and their monstrosity from the perspective of humans, in addition to being vectors of disease and affect, insects thus have had the misfortune to act as vectors of thought for humans interested in exploring or dreaming their own nature and its limits. Arguably, this

article replays this appropriation of insect life, this time to rethink the limited conceptions of childhood, place, and time which underpin and shape educational thought. Insects not only question our bodily human intactness but they also can call into question our ownership of our “own” thoughts. Shaviro (1995) writes that we are always already contaminated, constituted, and connected by fragments of alien stuff. Language itself is a virus, and every discourse “an unwelcome guest that sponges off me, without paying its share of the rent” (Shaviro, 1995, 44). Deleuze (1994), in a similar vein, thinks of ideas in terms of insect invasion: “What, after all, are Ideas, with their constitutive multiplicity, if not these ants which enter and leave through the fracture in the I?” (p. 277).

Both Braidotti and Shaviro advocate that we embrace the cockroach life in us, to apprehend, if not comprehend, the nonhuman forces that traverse and compose us, and the extent to which we are always *already* animated by alien affect. To embrace the cockroach life—in research as in art—would be to mobilize our curiosity about the vestiges of inhuman knowledge, alliance, and inclination that persist within us, and the part that these play in the accomplishment, and frustration, of our all-too-human interests. This curiosity would inevitably challenge the judgemental, language-dominated, pattern-seeking methodologies of conventional qualitative research, that confine us to imaginaries of the future that can only, as Shaviro (1995) notes, “comfortingly resemble the present or the past.” The political payoff of acknowledging our insect affinities is that they might “provoke innovations far stranger and more radical than anything we can produce on our own” (p. 53). Insect affects, writes Braidotti (2002), “melt down the cohesion and unity of the body, allowing for the cricket in you to sing, and the cockroach in you to endure” (p. 159). “So cultivate your inner housefly or cockroach,” Shaviro (1995) advises, “instead of your inner child” (p. 53).

Insect-Thinking: Relationality and Cuts in More-Than-Human Worlds

Engaging with difficult and troubling animal worlds in research has not ruptured the ontological commitment to relationality *per se*. Rather, these engagements and provocations have urged many scholars to develop an even broader ethics of encounter, within which children or adult humans should learn to appreciate *all* beings as their co-beings, or withling(s) (Tammi et al., 2020). For example, Taylor and Pacini-Ketchabaw (2017) have examined children’s encounters with nonhuman animals that are unloved, awkward, or actively vilified, which, for them, have the potential of unsettling the assumptions of natural, unproblematic, biophilic relationality between children and animals. The relationships between children and animals such as raccoons and kangaroos, for these scholars, call for a

specific ethics of conviviality, which they describe as a grappling ethics that prompts us to persist with multispecies belonging even if there is no ultimate solution or final peace. According to Lorimer (2014), the awkwardness we feel in connection with some animals indicates our specific relation to another being that is corporeally, socially, and ecologically strange to us. Hatley (2011) focuses on ticks, asking how we can endure our unwillful participation in the survival of ticks and the mothering of their next generations—how to love someone that causes us suffering. Here, too, there is no alternative to relationality, which according to Hatley can be sustained through a mindfulness of and openness to our kin in all of the dimensions of relation they afford (see also Valtonen et al., 2020). In the domain of education, more-than-human scholars have recently argued that by reproducing anthropocentrism, Western educational thought has become complicit in the present environmental catastrophe. The only way out would be to reconceptualize education based on relational ontology and a deeper understanding of multispecies co-becoming (Common Worlds Research Collective, 2020). Most of the emerging multispecies research, too, assumes relationality, illustrated in how the human is defined not through separation but through relations and interdependency: “Human nature is an interspecies relationship” (Tsing, 2012).

At the time of writing, a virus we know by the name of COVID-19 has had a hold on our lives for one and a half years, interfering with species hierarchy and supposed human control over the rest of nature. In the pandemic, we have witnessed a reinforced, techno-enhanced control of boundaries between nation states and human and nonhuman animal bodies. In many countries, school buildings have been closed for more than a year. This brings to mind Ruddick’s (2017) observation that when disasters strike and conflicts between life modes surface, all-encompassing inclusive relationality is rendered fragile. She brings out how issues such as environmental crisis, interspecies competition and survival, and food production to sustain today’s urbanized life modes all highlight the need to attend to the ambivalences and cuts in the communicative webs of nature, instead of leaving them hidden behind connections and flourishing. Therefore, Ruddick says, relationality and becoming as the stock in trade of post-humanist research has to be engaged with critically. For some critical animal scholars, too, the notion of unbounded, multispecies relationality poses inextricable ethical and ontological problems. Pedersen (2013) argues that the asymmetrical power relations and violence in human–animal relations create an ontological distance that forces education theory and praxis toward its edges or sites of confrontation, not only with animals, but also with itself. Accordingly, to make education “accountable to its animals of all species” (Pedersen, 2013, p. 727) would require abandoning our safe and privileged position. Colebrook (2019, p. 175) detects colonial violence

and an “implicit moralism” in Western imaginaries of unconstrained relationality and a global (post)humanity united by common interests. Drawing on the anti-colonial work of Tuck and Yang (2012) she elaborates an ethics of incommensurability that recognizes a radical “cut” in relationality, allowing for the existence of multiple, “incompossible” worlds (after Deleuze, 2001).

We will bring our insect-thinking to a conclusion by drawing attention to a cut in the humanized version of relationality that we find at the core of much of the work done in childhood studies and educational research, including our own. This is not to say relations and interdependencies do not exist. On the contrary, the re-turning methodology we have applied in this article has helped us to develop attentiveness toward more-than-human relations in their endless variation, rich with rhythms and a/synchronies as well as affect affects and intuitive connections. Thinking about our childhoods with insects urged non-traditional engagements with time and place, interfering with linear inquiry. But it is by bringing us to think about violence and noncommunication in more-than-human relations—a cut in relationality (Colebrook, 2019)—that insects most effectively interfere with human mastery and control. Insect-thinking rejects the colonial dream that the more-than-human world is accessible for us as a source of endless scientific knowledge production and accumulation. In letting go of master fantasies, insect-thinking suggests methodological directions that are not necessarily based on affirming relationality, but would involve getting ourselves exposed to forces that we know little of, that are not controlled or surveyed by ourselves, and perhaps will always remain strange to our human understanding. This could offer us means of avoiding those “too easy” inclusions of nonhuman animals in our human research paradigms, which risk making the “more-than-human” apolitical and numb as an analytic.

Colebrook (2019) suggests that thinking about “cut in relationality” opens the possibility for something radically new. Acknowledging this cut would mean “ending the world” as we imagine it—a world of unbroken human or interspecies inter-connection and “transcendental relation to the globe” (p. 187). But this would be an opportunity to develop, in Colebrook’s terms, “nomadic” forms of inquiry that allow us to be diversely more-than-human, outside of the colonization inherent in a homogeneous orientation to the world. We offer the insect irritations of this article as provocations to this kind of nomadism, to further unsettle the sedimented institutions of childhood studies and educational research with their underpinning notions of humans’ all-encompassing role in the world. The blind spots of human exceptionalism can be risky sites for new relationalities, to paraphrase Lather’s (2016) formulation, but they might also be spots in which human mastery and the endless urge to know stands still and acknowledges more-than-human worlds as both shared and incommensurable.

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