

Zt.Zzt in the Anthropocene: Arthropod Flesh, Solar-Strip Skin and Anthropocene Time in *The Old Drift*

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Abstract

While Namwali Serpell's novel *The Old Drift* can be read as a fictional account of colonial and post-colonial Zambian history, this article focuses on the text's exploration of Anthropocene time—geobiochemical and planetary temporal scales that predate human histories, while also gesturing towards futures where *Homo sapiens* may be absent. This article focuses on deep temporality in the novel via the use of mosquito and Moskeetoze (mosquito-like microdrones) narrators. While mosquitoes facilitate encounters with the deep past and of entangled human-nonhuman histories, the Moskeetozes enable representations of the vicissitudes of the “Anthrobscene” (Parrikka) and the creative potentialities of improvised life that emerge in hazardscapes in the Global South. Additionally, *The Old Drift* gestures towards a speculative planetary future where mosquitoes and Moskeetozes integrate to evolve new modalities of swarm intelligence and forms of life.

Keywords: Anthropocene time, arthropods, drones, planetary, Anthrobscene.

Resumen

Mientras que la novela *The Old Drift* de Namwali Serpell puede leerse como un relato ficticio de la historia colonial y postcolonial de Zambia, este artículo se centra en cómo la obra explora la era del Antropoceno—las escalas temporales geobioquímicas y planetarias que preceden las historias humanas, a la vez que hacen un gesto hacia los futuros en los que el *Homo sapiens* puede estar ausente. Este artículo se centra en la profunda temporalidad en la novela por medio del uso del mosquito y del *Moskeetoze* (microdrones que parecen mosquitos) como narradores. Mientras que los mosquitos facilitan los encuentros con el pasado profundo y de historias entretejadas de humanos y no-humanos, los *Moskeetozes* permiten representar las vicisitudes del “Antrobsceno” (Parrikka) y las posibilidades creativas de la vida improvisada que surge en los paisajes peligrosos del sur global. Además, *The Old Drift* hace un gesto hacia un futuro planetario especulativo en el que los mosquitos y los *Moskeetoze* se integran para desarrollar nuevas formas de inteligencia de enjambre y nuevas formas de vida.

Palabras clave: Era del Antropoceno, artrópodos, drones, planetario, Antrobsceno.

Discussing Anthropocene time, Sarah Nuttall writes: “If the Anthropocene invites a speculative future perspective, it...demands a reawakening of what is old” (471). In the Anthropocene epoch, deep time—both the deep past and the near/distant future—make insistent demands on the present, asking for the adoption of heterotemporal, multiscalar lenses of analysis. This shift impacts a genre dominant in postcolonial literature—the fictionalization of the narrative of modern nationhood. Several postcolonial novels have juxtaposed national histories with the deep past of a locale. Afrofuturist, Africanfuturist,

Arab Futurist and South Asian Futurist works have adopted speculative future perspectives fruitfully. Recently, a small subset of the contemporary postcolonial novel, while simultaneously probing the history of a particular post-colonial nation, considers the multiple dimensions of Anthropocene time encompassing reawakened (deep) pasts and speculative futures *together*. These novels—Namwali Serpell’s *The Old Drift*, Numair Atif Chowdhury’s *Babu Bangladesh!*, Rita Indiana’s *Tentacle*, and Pitchaya Subanthad’s *Bangkok Wakes up to Rain*—are comparable because they depict the entanglement of human and nonhuman perspectives, allied with the mixture of generic modes.

Babu Bangladesh! begins in the year 2028. Narrative perspectives shift between human viewpoints and nonhuman entities like trees, tides and the tidal country, encompassing the bloody birth of Bangladesh as a nation in 1971, the deep history of the Bengal archipelago, and the impact of climate change on Bangladesh’s present and future. The primary timeline of action in Dominican writer Indiana’s *Tentacle* are the years 2027-37. A massive chemical leak destroys all life in the Caribbean Sea in 2024. The transgender woman protagonist, Acilde, is sent back in time in 2027 to stop this catastrophe from happening via a Santeria ritual involving a ghost species—the ball anemone (*Condylactis gigantea*). The time travelling Acilde is spiritually split into two male figures by the ritual: Giorgio who travels to the neoliberal 1990s and Roque to the colonial 1600s. Through this portrayal of time travel and spiritual splitting of the primary transgender character, Indiana explores the deep history of the Caribbean Sea, the depredations of the colonial era, the modern history of the Dominican Republic and the impact of climate change on the island nation’s present and future. Thai writer Subanthad’s *Bangkok* includes a large cast of characters scattered across an expansive timeline ranging from the nineteenth century to the future. Characters from the past and the future are connected to one plot of land in Bangkok through memories embedded in that place. The novel consists of episodic snapshots that combine to create a collage-like biography of a frequently flooded city. Bangkok city becomes metonymic for the ecological history of a nation. Space is provided for the perspectives of nonhuman entities like Sarus cranes and the Chao Phraya River.

Besides writing a fictional history of the Zambian nation from the period of colonization to the post-colonial period, Serpell’s *The Old Drift* (henceforth *OD*) depicts climate change as the time of “The Change” set in 2023 (533-61), while also gesturing towards the planet’s “warm and wet future” (563). *OD* displaces anthropocentrism by deploying mosquito swarms, Mosketozee drones (drones mimicked on mosquito physiognomy), and a hybrid cyborg futuristic species that emerges through the co-evolution of mosquitoes and Moskeetozes, as primary narrative agents. *OD* institutes multiple connections between “arthropod flesh,” “solar-strip skin” and human histories (564). A persisting connection is instituted through the sonic medium.¹ Onomatopoeic *zt.zts*, buzzings, zinging and massing activity like swarming connect arthropods like

¹Bombs and bombard draw from the Greek *bombos*, which signifies both the bee and sonic aspects such as humming, buzzing and booming (Lockwood 24). Similarly, the word “drone” could mean “both an insect and a sound” (Chamayou 26). Drones are male bees without stingers that are eventually killed by other bees.

mosquitos and products of biomimicry such as the drones. *OD* deploys insectile acoustics to show how human and nonhuman domains are porous. Acoustic language that connects human worlds to insect domains proliferate. When Ronald Banda first meets Agnes Clark, he hears an “insect hum followed by a hollow pock” (88). When Sylvia Mwamba smokes a cigarette, the “buzz hit her like a swarm” (234). Beyond the sonic equivalences, the two narrator-figures—the mosquitoes and the microdrones—first come-together in an ecology of waste and disposable trash, the e-waste dumping ground in the Kalingalinga settlement in Lusaka. Tech-wizard Jacob Mwamba develops his plans based on biomimicry—microdrones modeled on insect physiognomy—in these dumping grounds for e-waste as he salvages disposable parts of electronic and digital machinery. Eventually the mosquitoes and microdrones co-evolve into a cyborg species in the future. The presence of these swarming, buzzing nonhuman entities and the heterotemporal nodes they open portals to shows that *OD* can be read simultaneously via linear (the three-stage model of the national narrative: colonization, nationhood, post-colony) and nonlinear (intersecting, web-like family stories and their connections; multiscalar, porous correspondences instituted by the interdependency of acoustic and insectile metaphors) modes.

I argue that *OD* is the quintessential postcolonial novel about Anthropocene time as it goes even further than *Babu Bangladesh!*, *Tentacle* and *Bangkok* in its depiction of entangled heterotemporalities. In the brief representation of the climate-changed future, the depiction of the newly evolved cyborg species (both mosquito and Mosketozee), and the reflections on planet Earth’s position in an interplanetary cosmic system during *OD*’s closure, the novel reflects not only on the entanglement of human, nonhuman and inhuman entities, but broaches the possibility of human obsolescence and the deconstruction of anthropocentrism in the Anthropocene epoch. *OD* not only conducts a brief thought experiment on the times-to-come of species finitude, extinction and “the world without us” (Weisman), but also reflects on the fragile positioning of Earth in an interplanetary cosmic system. The importance of comparative planetary studies for the Anthropocene has been emphasized by Dipesh Chakrabarty who notes that both James Lovelock and Jan Jalasiewicz began their careers as planetary comparativists. Chakrabarty continues:

Planet emerged from the project of globalization, from ‘destruction’ and the futile project of human mastery. . . Yet it is neither the globe nor the world and definitely not the earth. It belongs to a domain where this planet reveals itself as an object of astronomical and geological studies and as a very special case containing the history of life—all of these dimensions vastly out-scaling human realities of space and time. (3)

OD continuously out-scales humanist comprehensions of space-time via its arthropod, technological and cyborg narrator(s). It evinces planetary and inter-planetary dimensions simultaneously.

The reading here will proceed in three stages or “sequences” (in a playful nod to the subtitles of the insectile horror trilogy, *The Human Centipede*): First Sequence, Full Sequence and Final Sequence. “First Sequence” draws on human-animal studies and multispecies ethnography to trace a miniature cultural history of mosquitoes. On the one

hand, colonial anthropocentric epistemologies depict mosquitoes as absolute enemies of human forms of life; on the other hand, a more ambiguous relationship to mosquitoes can be traced in colonial/post-colonial locales and postcolonial fiction. I also look at the specificity of how mosquito *umwelten* has been represented in postcolonial fiction and how *OD*'s representation of the arthropod both draws on and extends these depictions of insect life and deep time.

The key concept that underpins "Full Sequence" is the media scholar Jussi Parikka's "Anthroscene"—"the unsustainable, politically dubious and ethically suspicious practices that maintain technological culture and its corporate networks" (Parikka, *The Anthroscene* 11). The Anthroscene includes both the processes of extractive capitalism via which minerals like Coltan are extracted from the African continent and end up in commodities like our iPhones, and the practices of shipping e-waste back to the same continent from where the materials were extracted. Africa becomes the ground zero for both the extraction and disposal of raw materials and electronic waste. However, locales for the disposal of waste in the Global South also become the locus for creative, improvisational economies. This is crucial for *OD* as a mosquito bite in an e-waste graveyard in the Kalingalinga settlement in Lusaka becomes the catalyst for Jacob Mwamba improvising and developing the insect-like Moskeetoozee via biomimicry. The focus in "Full Sequence" is on forms of life that develop in hazardscapes in the *contemporary* period where mosquito and Moskeetoozee make their joint appearance.

The gaze shifts to the future in "Final Sequence" where *OD* explores speculative what-if scenarios when the course of evolution cannot be plotted per predetermined linear teleologies but occurs contingently and unpredictably. *What if* the plastic bodies of mosquitoes and drones equipped with Artificial Intelligence were to merge in a climate-changed future? Through the depiction of chance, error and contingency, Serpell mines this what-if possibility to reflect on the eventual irrelevance of illusions of anthropocentric superiority, and simultaneously explore times of human obsolescence. But she throws the gauntlet further to close with a reflection on the precarious position of the Earth in the geo-cosmos, thus rendering *OD* one of the most far-reaching fictional explorations of the paradoxes of Anthropocene time.

First Sequence: Mosquitoes and Meandering Narrative Pathways

Animal theorist Neel Ahuja writes: "It is no surprise that companion animals, farmed animals, and charismatic "wildlife" species—physiologically close enough to humans for us to imagine certain interests—appear most often in animal studies" ("Abu Zubaydah" 144). Much has changed between 2011, when Ahuja penned these lines, and now. The increasing prominence of multispecies ethnography has helped probe a wide variety of affective responses to a panoply of animal forms, big or small. Insects, too, have been studied with greater interest (Raffles; Kosek). Furthermore, the alignment of multispecies ethnography with discourses on the Anthropocene has also helped reconsideration of smaller animal forms: not only are indistinguishable earth others

important for the sustainability and maintenance of biomes and microbiomes, but they open portals to the deep time of the planet, as smaller life-forms are more likely to survive in the distant future.

While it is possible to imagine interests in common with insects like butterflies or bees, Ahuja's reflections are pertinent to the mosquito, a being with which we are often in conflict. Hostility seems to be defining affective response to the mosquito. Consider the first sentence of Timothy Winegard's *The Mosquito*, a work that while critiquing anthropocentrism eventually falls back into a dualist rather than a relational framework: "We are at war with the mosquito" (1). Winegard continues: "As the pinnacle purveyor of our extermination...(the mosquito)...has consistently been at the front lines of history as the grim reaper, the harvester of human populations, and the ultimate agent of historical change" (3). The martial metaphors continue in Winegard's chapter titles—"General Anopheles" (in a chapter on Alexander), "Mosquito Legions" (a chapter on Rome) and "Mosquito Hordes" (a chapter on the Mongols).

While Winegard displaces human centrality in the making of history, his casting of mosquitos as the absolute enemy and the apex predator of humans is reductive. Mosquitos open portals to the deep past (mosquitos emerged around 190 million years ago) and to the deep future (hardy and small life forms like mosquitos are more likely to adapt to a climate changed planet). More importantly, an important chapter in the history of the mosquito is its co-evolution with humans. Discussing this co-evolutionary entanglement, JM McNeill writes that "the links between human history and ecological history are robust, sometimes to the point where mosquitos and viruses infringe on the fortunes of humankind in ways that seem unflattering to our species, making us seem mere playthings in dramas wrought (not directed) by tiny...creatures" (7). McNeill's insistence on wrought and not directed reduces the focus on mosquitoes as the arch-villains of history and shifts the focus to co-evolution.

Beyond human-mosquito entanglements, the arthropod form is also interesting autonomously. First, not all mosquitos are carriers of viruses. Discussing the Plasmodium parasite that is central for the spread of malaria, Sonia Shah writes: "The parasite's shtick fails in most of the world's 3,200 species of mosquito. It works only in a single genus, called *Anopheles*...most likely because of that mosquito's strangely tepid defenses" (15). Even among the 430 known species of *Anopheles*, only around 70 carry malaria. Furthermore, mosquitos are remarkably adaptable and mobile—two characteristics Serpell highlights in *OD*. All they sometimes need to survive (and thrive) is small amount of stagnant water in a recipient—no wonder then that mosquitos were co-travelers with humans in ships, most notably in the Columban exchange and the trans-Atlantic slave trade (McNeill; Ahuja, "M is for Mosquito"; Winegard 142-213), and, more recently as "tiny stowaways in aeroplanes, in tyres, in soil" (Spielman and D'Antonio 31-42). Mosquitos adapt flexibly—the evolution of their resistance to DDT is a case in point (Kinkela; Shah 139-169).

Apart from a few short stories in the Canadian-Tamil science fiction writer Kuzhali Manickavel's *Insects are Just Like You and Me Except Some of Them Have Wings*, *OD* is arguably the only contemporary postcolonial fiction that treats mosquitos as major

character-narrators, dwells in detail on their physiognomy and life cycles, deliberates on the “democratic,” nonhierarchical nature of insects [“Loafer, lord and lout were treated with strict impartiality in these parts, for the mosquito is a true democrat...” (9)],² and considers them as plastic, adaptable beings. In colonizing discourses in general, and colonial fiction in particular, mosquitos are hostile *objects* that must be eliminated if colonial society must be defended. Colonial discourses figure the arthropod by deploying the metaphor of war. The mosquito becomes a stand-in for barbarism and lack of civilization—unsurprising because colonialism is also predicated on a dualist anthropocentrism where the other is animalized or thingified. In his 1902 Nobel Prize acceptance speech, the controversial “conqueror” of malaria, Ronald Ross said:

Malarial fever is important, not only because of the misery which it inflicts on mankind, but because of the serious opposition which it has always given to the march of civilization in the tropics. Unlike many diseases, it is essentially endemic, a local malady, and one which haunts more especially the fertile well-watered and luxuriant tracts—precisely those which are of the greatest value to man. There it strikes down not only the indigenous barbaric population, but with still greater certainty, the pioneer of civilization—the planter, the trader, the missionary, and the soldier. It is therefore the principal and gigantic ally of Barbarism (qtd. in Jones 98-9).

Malaria and its vector, the mosquito, are figured here as allies of barbarism that civilization and its pioneers are at war. The summation of this colonialist view is provided by Fanon: “A hostile, ungovernable, and fundamentally rebellious Nature is in fact synonymous in the colonies with the bush, the mosquitoes, the natives and disease. Colonization has succeeded once this untamed Nature has been brought under control” (182). Mosquitoes figure as a crucial part of an “untamed Nature” that anthropocentric colonial sovereignty must conquer, tame or destroy. That is why, in “On Violence,” Fanon writes that “we should place DDT, which destroys parasites, carriers of disease, on the same level as Christianity, which roots out heresy, natural impulses” (7).

I juxtapose the colonial Ross with the anticolonial Fanon because it reveals a persisting theme of war with the mosquito-as-other that characterizes colonial fiction. As Jessica Howell argues, works of the colonial era “malarial Gothic,” like the colonial discourse and fiction of H. Rider Haggard, “displaces visions of illness onto racial and national others,” while presenting the African adventure as a rite of passage for the healthy, heroic, white colonial-masculine self (9). The horror of contamination by the “morphic, abhuman nature” of the mosquito also recurs, in a displaced fashion, in the gothic “puncture scene” of Victorian vampire fictions (174).³

Instead of looking at the mosquito as object, can we initiate projects of making the “mosquito speak” (Mitchell) or of “decolonizing mosquitos” (Garriga-Lopez), in line with recent postcolonial and decolonial approaches? Anthropologists like Mitchell and Garriga-Lopez consider medical and infrastructural discourses and practices. I will mine the resources that postcolonial fiction offers. While the metaphor of war recurs in

²For bees and democratic decision making, see Seeley.

³A counter-tradition that satirizes the metaphor of war can be found in Bengali fiction. Mosquitoes are often treated as “ubiquitous objects of fun, satire and irritation” (Deb Roy 247), an example being Premendra Mitra’s short story “Mosquito.”

postcolonial works, significant displacements can be noted, especially in the representations of the insects as characters in fiction. It would not be amiss to suggest that while colonial/post-colonial biopolitical discourse and cultural production on the management of mosquitoes has “human control *over* life at its core,” many postcolonial fictions that represent mosquitos emphasize “a relational knowledge *of* life” (Nading 15-16). Many postcolonial works treat the mosquito as *subject*, not object. I am not talking about “subject” purely in the sense of anthropomorphism, although I believe that anthropomorphic representation can have critical value as it enables us to “think with” (Daston and Mitman) animals. I also consider subject from the standpoint of Jacob von Uexküll’s biosemiotic theory of environments (*Umwelten*). As opposed to a purely mechanistic interpretation of animals, the Estonian biologist argued that the *Umwelt* combines a particular animal form’s “perception world [*Merkwelt*]” and its “effect world [*Wirkwelt*]” (42). In a Kantian vein, he argues that there is no time and space without a living subject. While we may naively believe that the same meadow is open to both humans and bees, the bees’ *Umwelt* is different from that of the human:

The sight of flitting insects...which cavort in a meadow full of flowers, always awakens in us the impression that the whole world would be open to these enviable creatures...This impression is misleading. The truth is that every animal, no matter how free its movements is bound to a certain dwelling-world, and it is one task of ecologists to research its limits. (139)

Works like *OD* combine both anthropomorphic representation and foray into the alterity of the mosquito’s dwelling-worlds. This dual move by Serpell has some noteworthy fictional precedents.

The shift to being a subject is evident in the representation of the mosquito as a figure chastised for lying in West African folktales like *Why Mosquitos Buzz in People’s Ears*. Folk wisdom is about the relationality of nonhuman with human worlds. Another representation recurs in the folktale about the spurned insect that buzzes near Ear who refuses marriage with him in Chapter 9 of Chinua Achebe’s *Things Fall Apart*. Okonkwo remembers this “feminine” folktale only to disavow it as he desires to abjure anything that seems “weak” and unmasculine. However, as Neil ten Kortenaar argues, Okonkwo’s act of remembering this folktale also functions in sync with a crucial event in the novel—Ezinma’s *iba* which roughly translates as fever, but whose semantic range also captures spiritual disorders such as the “mischief of the *ogbanje*” (128). Ezinma’s fever, and by extension the deaths of the *ogbanje*, could possibly be medically diagnosed as malaria. But this knowledge is not available to Okonkwo and his kinspeople as the recognition of the mosquito as a disease vector belongs to a “foreign *episteme*” (128). Chapter 9, “by making mosquitoes and *iba* contiguous, even if not explicitly linking cause to effect, acknowledges a connection where the characters themselves do not see one” (128). This connection is not instituted by Achebe for ironic exchanges with the readers, but to show the relationality of the arthropod and the human in becoming hosts for malarial parasites. Mosquito and human are entangled in the novel, and this entanglement is recognized in the Ibo worldview.

There are also explicit attempts at imaginatively exploring the alternative *Umwelt* of mosquito “subjectivity.” In Amitav Ghosh’s science fiction novel *The Calcutta Chromosome*, as one of the primary characters, Murugan, prepares to go to sleep, we briefly foray into the arthropod’s subjective viewpoint:

It was strangely intimate to lie there like that, against damp cloth, spread out in that elementally open posture of invitation, of embrace, of longing. When he looked down at his body, lying flat on the bed, he could not tell whether he was waiting for them to show themselves to him, or whether he was showing himself to them: displaying himself in those minute detailed ways that only they were small enough to see, to understand, because only they had the eyes that were designed to see not the whole, but the parts, each in its uniqueness. Involuntarily he flexed his shoulders, arching his back, waiting to discover where they would touch him first...(156)

Via manifestly erotic language and a reversal of the motif of the mosquito as an object observed under a microscope, the spatial boundaries between human-self and insect-other are momentarily rendered porous as Murugan imagines himself being seen by mosquitoes and then, through an invocation of the haptic, opening his body for tactile interspecies contact. The passage from Ghosh’s novel and the sections in *OD* about the mosquitoes’ “hundred eyes” (318) are good examples at representing the parallel worlds of an animal form.

The originality of its deployment of the mosquito swarm-as-narrator in *OD* lies in the fusion of two aspects—i) mosquitoes as cautionary folkloric figures or as anthropomorphized nonhuman witnesses of the action [“thin troubadours, the bare ruinous choir, a chorus of gossipy mites”] (19), and, ii) the attempt to represent the *Umwelt* of the animal other, most crucially through the representation of swarming.⁴ Furthermore, mosquitoes in *OD* are both accidental—by transmitting cerebral malaria to the charismatic anticolonial figure, Alice Lenshina, they play an inadvertent part in post-colonial Zambian history (139)—and co-constitutive—as “tiny stowaways in aeroplanes, in tyres, in soil” (375), they leave their mark on human lifeworlds—agents of human histories. They are also the witnesses of an inhuman history prior to the time of *Homo sapiens*. I quote two segments here in the swarm narrator’s voice, one from the beginning and the other from the end:

I: We have been needling you for centuries untold. Or perhaps we should say centuries told...Your earliest tales were of animals, of course, beastly fables carved into cave walls. Well, it’s time to turn the fables, time for us to tell you what we know. (18)

II: Oldest friends, ancient enemies, neighbourhood frenemy foes. We are perfectly matched, Mankind and Moz. We’re both useless, ubiquitous species. But while you rule the earth and destroy it for kicks, we loaf about, unsung heroes. We’ve been around here as long as you have—for eons before, say the fossils. (545)

There is a turning of the fables (and tables) from anthropogenic time to times before that of humans. The swarm here becomes the nonhuman witness narrating both human and inhuman histories. While the narration of human histories is usually characterized by an illusion of species sovereignty and human centrality, the swarm narrator(s) remind their audience about the fact of entanglement. Finally, there is irony in “useless, ubiquitous

⁴*Anopheles gambiae* (“no profit”) are the dominant vector of mosquito borne diseases in Africa.

species,” as mosquitos are often considered dispensable because of their perceived “uselessness.”⁵

Furthermore, this reversal from the human you-as-addressee to the collective “we” narrator also implies a shift into the *Umwelten* of the animal other. Key here is both the noun “swarm” and the verb “swarming.” Nuttall writes: “Most vitally, like a mosquito swarm, the narrative hovers, drifts, and turns elliptically to the same places...” (465). While this description captures the narrative movement of *OD*, what is also important is the development of swarm intelligence, a term that signifies a nonhierarchical, noncentralized and multitudinous collective in cultural theory.⁶ Parikka’s *Insect Media* provides us with a cultural genealogy of this term. While swarming could signify “horrors of nonindividual groups,” Parikka shows that cultural theorists, philosophers, literary writers and mystics from around the 18th century were fascinated by this term as an “alternative lesson on organization” and as “something akin to an uncontrolled (by a unity) but still concerted organization” (Parikka, *Insect* 48). Serpell’s passages below plays with the possibility of inhabiting an alternative *Umwelt*:

A swarm is but a loose net of knots. We hang, an elastic severalty...

All together at once is how a swarm sees but you humans go beginning to end. And so we recount each act in its turn: pace by pace, cause and effect, each and every flutter and tumble. (19)

And later: “Our essence is somewhere between or besides. We flee but our flight is unruly and tangled, a haphazard hover, a swarm. We loiter a lot but we move over time, we do best when we choose to meander” (486). A key for reading narrative temporality in *OD* kaleidoscopically emerges here. Imaginatively inhabiting the *Umwelt* of the swarm is an invitation to encounter narrative through intertwined temporalities and narrative pathways—not simply cause and effect, but in multiscalar fashion “all together at once.” Encounters with planetary history and the deep past and the future occur through “tangled” and “haphazard” pathways. As Nuttall observes: “The swarm augments and intensifies itself as it goes along, working to “dramatise the issue,” to overcome the “passive nihilism” of the present, and to bring the ecological into the political” (466). I will turn to one such contemporary entanglement of the ecological with the political in the next section—the representation of the Anthroscene in the Kalingalinga settlement in Lusaka.

⁵The latest attempt to eliminate mosquitos is CRISPR (Clustered Regularly Interspersed Short Palindromic Repeats) patented by biochemist Jennifer Doudna and her team at UC-Berkeley in 2012. CRISPR is a genetic procedure “that snips out a section of DNA sequencing from a gene and replaces it with another desired one, permanently altering a genome, quickly, cheaply and accurately” (Winegard 428). CRISPR could potentially exterminate “mosquitos by way of genetic sterilization” in less than two generations (430).

⁶For swarm intelligence, see Hardt and Negri (91-3); Connolly (124-29). Seeley compares the hive superorganism to the human brain and body as superorganisms (25). This comparison is reflected in *OD* when Joseph Banda says: “...if the physical activities of the mind are like insects, then consciousness is the swarm” (512).

Full Sequence: The Anthrobscene and Insect/Technological Plasticity

Parikka's works are part of not only of media ethology, but of a geology of media approach. This approach moves against dominant tendencies in media philosophy that are based on "the idea of inexorable, quasi-natural, technical progress" (Zielinski 3). Focusing both on the geological material that media products are constructed of and the rubbish and technofossils that discarded media are transformed into, a geology of media approach has two temporal dimensions—first, a "metallic materiality that links the earth to media productions" and second, a deep time aspect encompassing both "nonhuman earth times of decay and renewal but also to the current... obscenities of the ecocrisis—or to put it in one word, the Anthrobscene" (Parikka, *Geology* 44). These approaches transform geology "into a contested technologically conditioned object of research" and converts "issues of deep times from a merely temporal question of pasts to futures of extinction, pollution and resource depletion, triggering a huge chain of events and interlinked questions: the future landscape of media technological fossils" (51). Particularly relevant here is the "'paleontological' record" left by dead electronics and e-waste (Gabrys 5). These records leave its stratigraphic mark on the planet.

However, *OD* complicates Parikka's temporal framework of the "future landscape of media technological fossils." By projecting technofossils onto a yet-to-arrive future, Parikka participates in the default mode in the Global North via which such Anthrobscene futures are imagined: the narrative genre of "eco-apocalypse" (Wenzel 31). However, in e-waste graveyards in cities like Abidjan or Accra, this imagined future is a present and palpable reality. In such locales, the unregulated disposal of e-waste contaminates "soil, groundwater and air, as well as affecting all those involved in their end-of-life processing and the nearby communities" (Oteng-Ababio 192). As Iheka writes, the African continent is hardly considered in such future reckonings. There is an urgent need, he says, to relocate Africa "at the origin and conclusion, at the beginning and end, of media matter..." (8). This critical move will shift the gaze away from the stereotypical binary of "sites of energy production in Africa" and "scenes of consumption in the West" (11). It will also rethink Africa "not only as a site of ecological degradation but also as a generative site for apprehending the ecologies of media alongside alternative media practices and modes of ethical living" (10).

Iheka's observations chime with insights from urban studies of the Global South (DeBoeck and Baloji; Rai) that emphasize the creative, agential and improvisational potentials at "hacking" the neoliberal everyday through practices like piracy or secondhand consumption. By hacking, Rai means a "global but inchoate movement of workaround, informal...extralegal, democratic, subaltern, collective repurposing of found materials shifting ecologies from relative stasis to absolute flux...in innovative and 'game-changing' ways" (x). These improvisational and "game-changing" modes of life and living gesture towards alternative, and even energy-efficient uses of technology as in the case of the Moskeetozes (run by solar power) in *OD*.

OD refers to such hazardscapes with a twist about the improvisational and informal economies that swarm around such "wastelands":

So-called e-dumps had started to spring up all over Lusaka. These housed leftover gadgets, not from the rich...but from places they had been to: America, South Africa, China, all of the countries that had run out of room to discard their obsolete and broken tech. These nations were now paying to ship their 'e-waste' to what they considered the trash heap of the world. Little did they realise that they were jumpstarting a secondhand tech revolution. (442)

We can read the passage through the modality of eco-apocalypse, as Kalingalinga becomes one of the endpoints for the consumption economies of richer nations and of the Zambian elite. However, the last sentence gestures towards the game-changing potentialities that hacking facilitates in such informal salvage economies. Jacob Mwamba finds a discarded “white and spindly, about the size of a dove” toy chopper in a “spiky hill of plastic and glass” in a Kalingalinga junkyard (444).⁷ Jacob, while not formally educated, is obsessed with aviation machinery from childhood, a fascination fueled by his realization that his *gogo* (grandmother), Matha, had been a cadet in Edward Makuka Nkoloso’s Zambian Space Programme—“Who knew technology was a family tradition—in his very blood” (444).⁸ His technical *nous* enables him to improvise forms of lightweight, remote-controlled aviation machinery from the junk choppers disposed in Lusaka’s e-wastelands. The episode at everyday hacking with the toy chopper culminates in him attaching an “eyeball camera” to the contraption and controlling its flight with an app that he downloads into his salvaged iPhone (459-60).

Jacob moves on to “fry bigger fish, or rather, smaller ones”—drones (466). He constructs miniature versions of drones based on biomimicry—from small bird-sized ones to pigeon-like machines (473, 478). However, the catalyst for going even more miniature is a mosquito bite that interferes with the circuit of the Bead inserted into his hand.⁹ This bite creates a “zinging feeling” which leads to the genesis of the Moskeetozes. The bite makes him recognize that technological multifunctionality is “more like the splayed network of nerves in his hand...” (482). Mimicking a natural form, Jacob designs the Moskeetozes as an autophagous swarm:

Insect wings are flexible but have a built-in web of nerves, veins and arteries—this makes them stiff enough to flap. The nerves transmit signals for the wing to stroke and bend... The veins and arteries carry blood—energy. The wing also has tiny hairs that help the insect navigate through touch. To make his microdrone, he would replace blood with fuel, nerves with circuits, and tiny hairs with antennae that would brush the planes of the world and send Wi-Fi signals to the cloud—and to other microdrones. Together, Moskeetoze would move in concert, and if they ran low on energy, one could be sacrificed for fuel. It would be a swarm that ate itself once in a while to stay afloat. (483)

Jacob’s ruminations gesture towards the fact that animal bodies themselves can be reconceptualized as forms of media attuned to their respective environments. If the animal body is a kind of medium, in terms of both an apparatus and an interface, then “zoology becomes the open book of comparative media studies” (Peters 112). Peters adds:

⁷Kalingalinga is an older area and poor settlement in Lusaka. (Hansen 80-85).

⁸While Nkoloso is a character in *OD*, see Serpell’s essay in *The New Yorker* for a discussion of the utopian dimensions of his space program.

⁹The Beads are digital devices embedded in human hands.

The bodies of living creatures, with their carapaces and antennae, heat regulation and geomagnetic sensing, high-frequency hearing and ultraviolet vision, fluid retention, secretion of silk and venom, production and sensing of pheromones, and immune systems are historically rich solutions to the problem of interacting with environments...Animals provide alternate modes of being...As a treasury of the varieties of bodily shape and size, zoology is media theory *sans le savoir*. (112)

Jacob's eureka moment emerges through a reflection on the way in which insect physiognomy interacts with its *Umwelt*—the technological form he develops reveals the mediated forms of insect physiognomy.

Further, if we reconceptualize insects as forms of “plastic life,” they reveal “their ability to mutate and reinvent new forms...” (Mawani 161). Insects display their plasticity through their “fecundity, ferality and inscrutability” and by “constantly evolving, transforming, and innovating” (163). The plastic transformation of insect corporeality into machinic parts show the porousness of natureculture formations, emphasized by the sonic contiguities between insects and drones in *OD* (like the zinging feeling that leads to the genesis of the Moskeetozes). Further mutations are in store when the novel mines the plasticity of insectile and technological bodies as they evolve in the future—the focus of my concluding section.

Final Sequence: Plasticity, Errors and Evolution

Plasticity is not just the ability of insects to mutate and metamorphose. Mawani points out two other dimensions—annihilation and evolution. The appropriation of insects as military prototypes (drones, new nanotechnologies) reveals that “plasticity is not only the ability to give and receive form but also its explosion and annihilation...” (168). There is a fascinating and grisly history of how insects have been utilized as weapons of war from ancient times (Kosek; Raffles; Lockwood). A new development is the invention of insect-cyborgs—or what the US-based DARPA (Defense Advanced Research Projects Agency) calls “vivi-systems” (Lockwood 287)—for the purposes of warfare and surveillance. The DARPA has progressed far in the conceptualization and construction of MAVs (Micro Air Vehicles) like the entomopter (Lockwood 295), which bears similarities to imagined vivi-systems like the Moskeetozes. Lockwood describes a strange report featuring vivi-systems that bears uncanny similarities with *OD*:

A *Washington Post* article in October 2007 reported that people gathered at political rallies have been describing the appearance of insectlike flying devices since as early as 2004. One individual at the Republican National Convention in New York described a ‘jet-black dragonfly hovering about 10 feet off the ground...’ Perhaps the person was paranoid...or simply saw an actual dragonfly. However, several people at an antiwar rally in Washington, D.C., independently described large dragonflies trailing strings of small berrylike spheres and flying in formation. Not surprisingly, government agencies have declined to discuss the topic. (296)

This episode finds its echo in *OD*, emphasizing Nuttall's point that Serpell's “near-future is again embedded in near-fact or, at least, in scientifically enhanced prediction” (464). Jacob sells his Moskeetoze technology to the government. The government utilizes the

vivi-systems to deliver a vaccine shot against a deadly AIDS-like virus to a revolutionary crowd that gathers in 2019 in Kalingalinga (542-44). Unlike the trend in postcolonial literature and theory that looks at drone technology through its necropolitical aspects alone, *OD* reverses the gaze and looks at the “affordances...the possibilities that things offer for action” (Choi-Fitzpatrick 28). Choi-Fitzpatrick considers how drones can be used by social movements and civil society groups to democratize surveillance—a point concretized in *OD*’s closure when Naila, Jacob and Joseph use the Moskeetozes to disable the grid that powers the government AFRINET servers. This server connects the Beads and enables government surveillance. Disabling the server could help the revolutionaries to communicate directly with solar-powered microdrones instead. However, things do not go according to the dictates of anthropogenic calculations of means and ends, and this leads us to a discussion of the second sense of plasticity in terms of evolution and error.

Re-reading Bergson’s vitalist philosophy of life as a form of plasticity, Renisa Mawani writes that as an animating force, life, both human and nonhuman, carries plastic qualities as “its ever-changing conditions open the possibility to form, transform, and respond to change itself” (177). Plasticity:

...is a force that animates and permeates human and nonhuman life-forms, connecting the most elementary to the most complex. It interconnects and unifies these forms of life, unraveling their distinctions and hierarchies...all the while demonstrating that evolution is successive but never linear or predetermined...this creative capacity of life, its ability to evolve across divergent lines, is what repudiates...mechanistic and teleological understandings...and...opens possibilities for creative bursts and transformations. (177)

Life’s creative elements are always in a process of becoming and beyond the pale of predetermined teleologies. This notion of plasticity has the potentiality to rupture binary oppositions such as human/animal or insect/machine (181).

The “elastic severalty” of the mosquito swarm in *OD* is characterized by this quality. Consider this passage about how holometabolous insects like mosquitoes demonstrate their plasticity by the “ability to give, receive, and annihilate form as evidenced in the process of metamorphosis...” (Mawani 164):

We are like Russian dolls of metamorphosis, each phase of us hatched from the previous. Split the shell, breach the slit, then shed the old husk. From egg to larva, the comma-shaped pupa, then the winged and wobbly imago. Step into the water with delicate feet. Pause as the spine stiffens. (261)

This “insect-within-an-insect phenomenon” which characterizes an adult mosquito’s entrance in the world, was noticed first by Rickard Christophers in the 1920s (Spielman and D’Antonio 7). Add to that the remarkable ability of mosquitoes to breed wherever there is standing water—“You like to treat us like beasts of the wild, but civilization suits us fine” (*OD* 78). Navigating the fluid interfaces between naturecultures, mosquitoes are plastic beings *par excellence*.

The other dimension of Bergsonian plasticity—“evolution is successive but never linear or predetermined”—accelerates as the narrative progresses. Key here is the ontoepistemological category of “error.” This category is emphasized at the beginning—“Error, n., from the Latin *errare*: to stray or to veer or to wander”(2). This elaboration

connects with the operations of the swarm *Umwelten*—instead of cause and effect, *OD* can be read following haphazard pathways. *Errare* also emphasizes correlations between human and more-than-human worlds and illustrates the contingency, creativity and unpredictability of evolution. This aspect emerges below where the contingency of mosquito evolution is correlated with the operations of error and chance in *OD*'s plot:

Your beastly old tales know it all too well: we are Nature's great superfluity...We pollinate little and feed very few, and no predator needs us to live...We're an asterisk to nature, a flaw, a digression, a footnote if ever there was one. We are not just an accident, but issue it too. Extermination trials go wonky. *Toxorhynchites*, they thought, would devour us, but they released the wrong species and we did not just survive, we thrived!

Joseph himself has learned this the hard way: his vaccine, founded upon a mutation, has foundered on capital's reef. But all sorts of things can slip through the cracks, especially genetically tweaked ones. Evolution forged the entirety of life using only one tool: the mistake...(431)

The passage begins with the anthropocentric fantasy that “useless” species can be eliminated with no harm to ecosystems. “Useless” species are viewed as errors, as forms of superfluous luxury—straying or wandering from evolution's presumed teleological path towards increased progress, maximization of utility and perfection. Such positivist teleological views of evolution, unfortunately, have led to the elimination not only of other species, but humans conceived as other “species.” The shift to mosquito POV emerges in the sentence: “We are not just an accident, but issue it too.” The spotlight shifts to the “useless” species. Mosquitoes have had remarkable resistance to agents designed to eliminate them, like DDT. *Toxorhynchites*, species of mosquitoes that don't suck blood, but cannibalize the larvae of other species like *Aedes aegypti* have been introduced as biocontrol agents in places like Hawaii and Samoa, with mixed to little success (Peterson Jr.). Anthropogenic efforts at arthropod control have often been unsuccessful or led to unanticipated consequences—things “slip through the cracks.” Hence, the bestowal of mosquito “wisdom”: “To err is human you say with great sadness. But we thinfal singers give praise! To the drift, the diversion, that motion of motions! Obey the law of the flaw!” (545)

If ontoepistemological categories like error show that processes of evolution are never predetermined and progressive, what might happen in the future? This is where *OD* enters speculative territory with its final tableau where mosquito and Moskeetoze swarms integrate to form a multispecies-cyborgian alliance. The inability of humans to control consequences of plastic bodies was demonstrated when Naila and company's plan to sabotage the electric grid at Kariba Dam leads to unprecedented consequences. Because of their “Error of errors...simply forgetting the weather,” the drones block the sluices of the dam and cause the Zambezi to overflow drowning almost the entire country (563).

But something slips through the cracks creating an unanticipated “what-if” evolutionary possibility, signaled not only by the coda that closes the diegetic space, but by the only visual representations of *two* mosquito-like entities on the last page (each narrative section otherwise is bookended by a single mosquito) (563). The indistinguishable mosquito/Moskeetoze narrators say:

Are we truly man's enemy, *Anopheles gambiae*, or the microdrones Jacob designed? If that's who we are, then this tale has explained our invention. The problem is that we'll still never know because...we've joined up with the local mosquitoes. We get along fine, but can't tell us apart in this loose net of nodes in the air. We just buzz about and follow commands and lead lives of tense coordination. Half insects, half drones; perhaps all drones or none; maybe something between will emerge. But...What an error!...A semi-cyborgian nation! (562)

Indeed, in this “warm, wet future” ancient “arthropod flesh” and hi-tech “solar strip skin” evolve into an unprecedented form of swarm hivemind. Further unimaginable mutations induced by “error” could be in store—something “in-between,” signaling not the post-colonial, but a “semi-cyborgian” nation. This is a portal to times beyond *our* species-history that the Anthropocene opens imaginatively, worlds without us that simultaneously look back to the forbidding epochs of inhuman entities. But, in the concluding sentences—“...outer space too, that celestial gyre, turns inward and outwards...And so we roil in the oldest of drifts...” (563)—*OD* looks beyond climate changed futures and fast forwards to the placement of our lonely planet in the abyssal temporalities of the geo-cosmos. *OD* closes by accounting for Anthropocene time in its kaleidoscopic multiplicity. The narrative meanders through intertwined temporalities and narrative pathways, and in multiscalar fashion makes us think of everything “all together at once.”

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