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Against the Anthropocene: Pathways through the More-than-human Realms and Ontological Anthropology in Indonesia

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Abstract

We are now living in the epoch of Anthropocene—the epoch wherein human and nonhuman beings have become increasingly involved. The Anthropocene was also a mark to determine human existence begin to overwhelm biological and geological forms and displace the Holocene era. Indonesia is the one in many countries facing ecological crisis. The widespread of global monocultures such as sugarcane, cacao, oil palm and tea plantations are examples of providing an intolerance of diversity, meaning that only putting human *desires* above all of nonhuman species. The era also shows the struggles for social justice towards nonhuman beings. Hence, this paper expects to discuss conceptual and pragmatical levels of the Anthropocene in the more-than-humans' anthropological studies. Meanwhile, anthropology and any sub-disciplines take "ontological turn" into account. Talking ontological anthropology is also a way of rethinking and requestioning the division and dichotomy between nature and culture, technology and society, human, and nonhuman beings, and so on. So, our research question is how "ontological turn" contributes to making social justice towards multispecies and geological life. Justice has been a great deal to preserve only humans based on Eurocentric perception and thought. By giving social justice to more-than-human realms is also resolving both "epistemologies of ignorance" and indigenous-led decolonization. Alternatively, ontological anthropology provides the ability to give a "voice" to more-than-human beings in order to have equal footing as humans. Therefore, against the Anthropocene means collapsing 'the divide' between culture and nature, human and non-human, and so on. Besides, the turn to anthropology of ontology also means demanding collaborations and balance between humans and nonhuman beings in the Anthropocene. The introductory anthropology of ontology could potentially open pathways of future possibilities for methodological and theoretical standpoints towards more-than-human realms in Indonesia.

Keywords

Anthropocene, ontology, ontological anthropology, more-than-human realms, social justice

1 Introduction

Humans seem to be having a prominent role regarding their living in the world. As an active agent, they are also considered to be capable of changing their surrounding environments. So, it simply makes them more 'superior' than any other beings. As we commonly know, we are now entering into the Anthropocene epoch, a new kind of epoch in geological time scale marked by putting humans at the center stage over non-human others. Based on the current geological classifications, we live in the era of Holocene (Di Paola, 2017, p. 15). The era is a part of quaternary period of Cenozoic era (The Editors of Encyclopaedia of Britannica, 2020) which is located in the last of glacial period. Thus, the Holocene is an interglacial period, which is typically portrayed by the stable living circumstances on earth, especially about the climate-planetary atmosphere. This kind of stability consequently has proven to be remarkably consentient to do warmth of proliferation and reproduction towards critters who were later to be known as *homo sapiens.*

Even though, the Anthropocene epoch hasn't been considered officially as geological category, but it has already attracted many nature and social scientists (Di Paola, 2017, p. 16), willing to do interrogation and investigation towards a man who has the potentials to 'act alone' in terms of manipulating and changing the biotic and abiotic forces (Haraway, 2015; Povinelli, 2015). Meanwhile, reports from Subcommission on Quaternary Stratigraphy (SQS) and the International Commission on Stratigraphy (ICS) state that

Anthropocene Working Group (AWG) have finished a binding vote at the IGC Cape Town Meeting in 2016 (Zalasiewicz, et al., 2017). They agreed that the Anthropocene was treated as a formal chrono-stratigraphic unit as Global Boundary Stratotype Section and Point (GSSP) or so-called "golden spike". It simply says that the term 'Anthropocene', in the formal geochronologic unit of geological time, is believed to be the one of the stratigraphic signals in the mid-twentieth century.

> *Human impact has left discernible traces on the stratigraphic record for thousands of years—indeed, since before the beginning of the Holocene . . . The mid-20th century also coincides with the clearest and most distinctive array of anthropogenic signals imprinted upon recently deposited strata. Hence, the mid-20th century represents the optimal beginning of a potential Anthropocene Epoch (and, simultaneously, the base of an Anthropocene Series)* […] (Zalasiewicz, et al., 2017, p. 58).

In the year of 2000, Paul J. Crutzen and Eugene Stoermer used the term "Anthropocene" to point a geological time interval (Crutzen & Stoermer, 2000), which means that many conditions on Earth have been altered by human impact. The Anthropocene now has become a fancy word in the current situations. Scholars, academia, (environmental) activists, artists, and researchers are now often found putting their attention to the anthropogenic effects and changes. Slowly they started to recognize that every anthropogenic object (material) is always related to other beings. Hence, the Anthropocene opens awareness of the interactions taking place between human and other nonhuman beings. It also presupposes the radical reconceptualization between human and nonhuman others living together in the same new geological epoch (Baskin, 2015).

Besides, Indonesia and many other countries are currently facing ecological crisis. The crisis practically can be seen through anthropogenic activities, such as the agricultural monocultures or the plantations which can potentially provide an negative impact of environmental degradation in the billion hectares of land (Jones & Rowe, 2017). Vandana Shiva coined the term "*Monocultures of the Mind"* meaning that we are now living in the dominant-knowledge system based on western tradition of colonization, showing the idea of nature and culture acquired from commercially exploitable industrial models (Shiva, 2014, p. 88). Because of that, the local traditions of knowledge scattered around non-western societies are hardly to be seen as 'scientific' knowledge. Living In this "scientific" system, non-Western culture is hardly getting recognition compared to the Western system of knowledge that is also blind to alternatives. Hence, ecological crisis may presumably come out of the very basic idea and expression of 'The Great Divide' between them, namely, Western and non-western cultures, 'us' and 'them', self and other, human and nonhuman (Latour, 1993, p. 12), Life and Nonlife (Povinelli, 2016), and so on. Thus, dealing with ecological crisis is not merely about taking 'the nonhuman turn,' but also challenging the very foundation of the Division between the races, classes, regions (Povinelli, 2017, p. 6), and also species and non-life beings.

The discourse of the Anthropocene historically can be traced long way back to the era of Enlightenment. Alan Mikhail in his article, *Enlightenment Anthropocene,* provides historical narratives of humans becoming a geophysical force of planetary proportions at the beginning of 1800 to 2000s. In 1800 to 1945, there was a massive use of fossil fuel—coal, oil, and gas as primary characteristics of the industrial age. In 1945, the earth and its inhabitants entered the period of the so-called The Great Acceleration meaning that there were massive and drastic changes done by humans in just 50 years. In 1960, petroleum consumption has risen by a factor of 3.5, and by the end of the 20th century, the number of motorcycles increased significantly from around 40 million at the end of World War II to an almost 700 million, as soon as the world's population living in the urban areas grew from 30% to 50% and continues to grow sturdily (Mikhail, 2016, p. 221). Thus, through his article, it can be said that the Enlightenment is the period where we welcome the Anthropocene. Even though many geologists would be very comfortable to put the beginnings of the Anthropocene at around thousands of years ago, only few social scientists, historians, scholars may agree (Mikhail, 2016, p. 212).

The Enlightenment is also a period in the making of modernity. Hence, the Anthropocene of the Enlightenment shows a shift from humans extracting and subsisting in nature to humans being the most powerful engineer of nature. Consequently, humans started to believe that they are separate *from* and doing things *to* nature, which was eventually creating a dichotomy and strict separation between human (culture) and nature. Arguably, the belief—humans are separate from nature is presumably the inheritance of the Enlightenment. It also has now become a current ontological stance that is embedded in environmental law in Southeast Asian countries, including Indonesia (Wardana, 2022). According to Melinda H. Benson (2019, pp. 252–253), there are two ontological assumptions to Enlightenment-based thought of modernity. Firstly, the idea of agency means a capacity to *act,* is a believed capacity to belong

only to human beings. The second assumption is based on human exceptionalism in which unfortunately we form challenges to the environment in the end. Living within the frame of human exceptionalism paradigm (HEP) turns out to be providing ecological constraints. Consequently, it poses serious challenges for humans themselves and for disciplines such as anthropology and sociology. Hence, William Catton and Riley Dunlap propose a new form of paradigm called New Environmental Paradigm (NEP) meaning that attempts in sociologists (and anthropologists) to understand current societal changes by means of a non-anthropocentric paradigm (Catton & Dunlap, 1978).

Besides, many Western or Euro-American naturalists, especially the literary critics also react to the destructive capacities of human agency in the Anthropocene (Zhang, 2010) such as Jack London with his literary work entitled, *The Call of the Wild* (Zhang 2010, p. 196) and Frank Norris' literary work of *The Octopus,* tells a story about the Wheat farmers having a bloody disputes against the monopoly railroad (Norris, 2009). Suggestions and literary criticisms of the Anthropocene show how important and urgent the idea of the Anthropocene is. Nonetheless, both only react to the negative impacts of the Anthropocene and haven't provided further approach yet on exceeding the binaries and separation between nature and culture caused by the Enlightenment-based thought. Arguably, it shows that not only the Enlightenment, but also the Western, Euro-American cosmology of naturalism through the literary critics produces the division between human and nonhuman realms.

By reacting to certain ecological challenges in the Anthropocene, we argue that the Anthropocene also opens an alternative ontological approach by using new materialist perspectives. It offers ontological reconceptualization of the material world (Benson, 2019, p. 253). Simillar to new materialism, there is also an ontological approach through existential analysis from Martin Heidegger and his concept of *Dasein* as *being-in-the-world.* It provides an alternative insight to a post-humanistic approach which means that there is a relationship between human and *being-in-the world* (Hogue, 2016). It can also mean that an organism is not independent in its own right, but adapts itself to certain environments (Engelland, 2015). So, organisms (human and nonhuman plants/animals) and the environments are inextricably linked to one another. Thus, humans can no longer be located at the center stage over other beings, but together they have equal footing. "Similarly, humans are actors within the system, but not necessarily at the center" (Benson 2019, p. 253).

By doing this, it presumably could provide justice for more-than-human realms such as nonhuman animals, plants, and geological life. As we commonly know, the term justice is a European-based thought at least to preserve only humans as subjects of justice (Winter, 2022). But lately, environmental activists and scholars recognize that putting inflicted animals and plants in dangerous situations can also be considered as *inhumane* or *injustice.* Erik Kojola and David Pellow (2020) propose new directions to a bit more concern on the issue of environmental justice. Concerning environmental justice is also linked up to the marginalized communities and social class status in the regions. Pellow (Pellow, 2016, p. 222) provides cases of environmental injustice that are pretty much tied to the communities of colors and working class communities in the United States. For instance, in 1982, during the Great Acceleration, the majority of the African American community of Warren County, North Carolina, protested a toxic waste dump (Pellow 2016, p. 222). Because of that, it stimulates environmental studies to make connections with the racial inequality, colonialism, the afterlives of enslavement that is not only taking place in the United States, but also around the globe. Therefore, the problem of social justice is inseparable from environmental justice. Considering only social justice without environmental justice is only a hollow promise (Winter 2022, p. 252). Therefore, Christine J. Winter proposes the idea of Multispecies Justice (MSJ) as the potential foundations of justice beyond "epistemologies of ignorance" (Winter 2022, p. 252), a term used by Charles Mills to see the West, Eurocentric perception, or specifically white racial domination in the global realms of social epistemology (Mills, 2007). Alternatively, recognizing environmental justice and multispecies justice is a part of the struggle for indigenous-led decolonization and liberation of the communities of colors. By bringing the idea of environmental and multispecies justice is also presumably collapsing ontological divide (Western-based cosmology) between human and nonhuman realms (Kirksey & Chao, 2022).

Compared to Gregory Bateson in "*Ecology of Mind"* meaning that human are incapable of grasping the issue of ecological crisis due to epistemological fallacies embedded in the nature of mind (Bateson, 1972), "*Monocultures of the Mind"* is a 'mind' that is deeply embedded in the models of production which exterminate diversity in the name of progress, 'improvement', and growth (Shiva, 1993, p. 239). As we commonly know that monocultures already existed since the beginning of the Neolithic Revolution when humans did agriculture and the population became increasingly congested (Povinelli, 2017, p. 1). Since then, we have already seen much of the human intervention of monocultures on earth. It makes some

scholars consider that we are now not only living in the era of Anthropocene, but *plantationocene* (Haraway, 2015, p. 160).

Accordingly, the ecological crisis and the loss of biodiversity could actually be traced back to the colonial period when the Western-European put their interest of making plantations (e.g., sugar cane plantations) in the so-called "The New World" or colonized regions (Mintz, 1985, p. 32). Indonesia has a long history of colonialism and market liberalization (Kadir, 2017) by exporting global commodities such as coffee and sugar for the Netherland-Indies government (Wolf, 2010, p. 334). Until then, we are still able to witness the lives of the plantations in many post-colonial regions such as Indonesia with the oil palm monocultures (Chao, 2022; Li & Semedi, 2021), India with the tea plantations along with the cheap labour (Besky, 2019), and "*soy kill"* in Paraguay (Hetherington, 2020). Hence, the existence of plantations indicates that humans are a single entity who only fulfil his own desires for certain agricultural products (Besky, 2017). Thus, monocultures (plantations) and colonial occupations are inextricably linked to one another. It also means that colonialism brings promises of so-called 'modernity', such as, rational planning, productive and technical mastery over the lands, development, improvement, and progress to 'colonized' groups. Anthropocene is also heavily related to Eurocentric view that can be traced long way back to the year of 1492 regarding the America's conquest and the year of 1610 Colombian Exchange, which means the transfer of humans, animals, plants and technologies between Americas and Europe that was stimulated by colonialism (McEwan, 2022, p. 79). On the contrary, the idea of 'modernity' which is considerably coming from Western world-view (*weltanschauung*) (McEwan, 2022, p. 77, 79) turns out to be more deprived their living conditions and basic needs of their livelihood (Li & Semedi, 2021, p. 9). Therefore, against the Anthropocene is also a way of decolonizing the 'modernity' of science.

Mining is another example of anthropogenic activities by exploiting nonlife beings, such as coal, gold, copper, uranium, *et cetera.* Elizabeth Povinelli in her ethnographic work towards the indigenous Aboriginal-Australians in the Northwest coast of the Northern territory of Australia, provides the concrete evidences within the indigenous people themselves having different opinions regarding the mineral explorations in inert life of the desert (Povinelli, 2002). It shows the 'noble savage' problematics under the late liberal regimes which turned out to be more vastly opening the possibility of capitalism's discovery of life in "dead matter, or life in the remainders of life: namely, in coal and petroleum" (Povinelli, 2016, p. 180). Hence, the Anthropocene doesn't only consider the governance through beings (Life and Nonlife), but also becomes indecisive towards the indigenous people in terms of conservation and preservation of lifeworld.

With all the concrete evidence of environmental crisis happening in the era of Anthropocene, we here discuss the turn to ontology in the discipline of anthropology as reactions of the bugbear of ecological crisis throughout regions. Ontological anthropology also radically challenges modern epistemologies and modern science in which they tend to eliminate beings and their interactions in the social realm (Sprenger & Großmann, 2018). Ontology can also be meant as "reality" and/or even "culture." But, the reality itself is beyond human terms (Kohn, 2015). The "ontological turn" in sociocultural anthropology may also be considered as giving "voice" to nonhuman other beings. But it never fully leaves the human behind. Ontological anthropology thus provides alternative ways of seeing humans engaging with the world (Kohn, 2015, p. 313). Ontology then may refer to existential analysis which tends to see human's engagement towards the environments surrounding them. Hence, the word "metaphysics" is also involved in the ontological debates. There are varied anthropological analyses using ontology that are "metaphysical". Therefore, ontological anthropology provides both approaches so far there is an extension of relationality to nonhuman beings. For instance, Phillipe Descola (1996) in his ethnographic work among the lives of Amazonian Achuar and animism, it provides variations of ontological argumentations regarding the border between human and nonhuman beings through the animist (Povinelli, 2016: 17). Therefore, the turn to ontology provides the discipline of anthropology a way of thinking beyond humans and making "space" for nonhuman others to "speak."

2 Method

By doing ontological anthropology, in this paper, we expect to answer our research question, how the "ontological turn" contributes to making social justice to nonhuman others. Firstly, we discuss "the ontological structure" of anthropology in the Anthropocene developed by certain anthropologists, namely, Bruno Latour, Philippe Descola, and Elizebeth Povinelli. Secondly, we discuss the criticism of the Anthropocene through ethnographic works with the variants of anthropological analysis using ontology

that are "metaphysical" and ontological. Third, we point out the contributions of ontological anthropology for cross-disciplinary discussions in terms of projecting the future of humanity.

3 Povinelli and the Governance of Life and Nonlife in the Anthropocene

Elizabeth A. Povinelli is an anthropologist who is best known for her work with the indigenous community in Northern Australia. Her book entitled *Geontologies: A Requiem to Late Liberalism* (2016) provides an interesting theoretical debate and also ethnographic practices especially for anthropologists who want to do a research regarding the "Other" which are not limited to human, plants, and nonhuman animal, but also Nonlife. In her first chapter, even though she doesn't explain explicitly about her influences in constructing argumentation about the importance of Nonlife, but she seems to be inspired by many philosophers, such as Gilles Deleuze, Baruch Spinoza, Martin Heidegger, and Quentin for her to build the idea of "being" that is beyond human. In this paper, we would like to examine her work of geontologies and *geontopower* that is a useful framework for ontological anthropology who are interested in doing research regarding climate change, biological metabolism, carbon cycle, and all geological life.

In her first instance, she talks about the changes in the governmental regime. She mentions the idea of biopolitics becoming an emergent issue in the current regime of the government. It shows that biological features of the human species now became the object of political strategy from the 19th century until 1970. "We do not see kings and their subjects, or bodies hacked into pieces, but states and their populations, individuals and their management of health, the Malthusian couple, the hysterical woman, the perverse adult, and the masturbating child" (Povinelli, 2016, p. 2). Besides that, Foucault's three formations of power, namely, sovereign power, disciplinary power, and biopower, according to Povinelli, doesn't mark ontological projection when it comes to the distinction between Life and Nonlife. It seems that Foucault only focuses on humans as living beings, and it merely declares the drama of life and death of individual species.

> *The once unremarkable observation that all three formations of power (sovereign power, disciplinary power, and biopower) work only "insofar as man is a living being" . . . This once perhaps not terribly belabored phrasing is now hard to avoid hearing as an epistemological and ontological conditional: all three formations work as long as we continue to conceptualize humans as living things and as long as humans continue to exist. Yes, sovereignty, discipline, and biopolitics stage, aestheticize, and publicize the drama of life and death differently* (Povinelli, 2016, p. 8).

Because of the limitation in the concept of biopolitics, she proposes a new drama or new alternative, not merely the drama of life and death, but beyond that. Death as a thing that starts and ends in Nonlife, such as the extinction of human and many other biological lives, which could take us back to the time before the life and death of the species. She called it a time of *geos,* of soulessness. It is one of the reasons that she thinks "the concept of biopower is hiding and revealing another problematic—a formation for want of a better term I am calling *geontological power, or geontopower*" (Povinelli, 2016, p. 4). She says that biopower only operates through the management of life and certain tactics of death, while *geontopower* does provide a set of discourse, affects, and tactics in late liberalism to preserve or form the relationship of the distinction between Life and NonLife. She puts it,

> *From a geological point of view, the planet began without Life, with Nonlife, out of which, somehow, came sorts of Life. These sorts evolved until one sort threatened to extinguish not only its own sort but all sorts, returning the planet to an original lifelessness. In other words, when the abstraction of the Human is cast as the protagonist of the Anthropocene, a specific set of characters crowd the stage—The Human, the Nonhuman, the Dead, the Never Alive . . . the end of humans excites an anxiety about the end of Life and the end of Life excites an anxiety about the transformation of the blue orb into the red planet, Earth becoming Mars, unless Mars ends up having life . . .* (Povinelli, 2016, p. 12).

She also notes that the concepts of geontology and geontopower are not a way of finding a new ontology, but rather help see the ineffectiveness of *biontology* and distribution of power that crumbles in the late liberalism. Hence, the problems of humans and nonhumans are not merely about biopolitical and biological issues, but now geological ones. Anthropocene and its companion of climate change show us the perishing

of self-evident the distinction between Life and Nonlife. Hence, the issue of climate change, as one of the examples of Nonlife beings, poses challenges in the geological era of the Anthropocene. Climate change is also one of the reasons she says the concept of geontopower is not a new conceptual consequence of a new geological era of the Human epoch. But, because of the Anthropocene and climate change have made geontopower more visible to us, to humans who were previously not affected by it.

Same as Foucault who proposes four figures of biopower, "The hysterical woman (a hystericization of women's bodies), the masturbating child (a pedagogization of children's sex), the perverse adult (a psychiatrization of perverse pleasure), and the Malthusian couple (a socialization of procreative behavior)" (Povinelli, 2016, p. 15), she proposes three figures of geontopower, namely, the Desert, the Animist, and the Virus. These figures are believed and considered as useful tools for *diagnostic and symptomatic* of the present way in the late liberal governance. These figures are also used to displace the separation or dichotomy of Life and Nonlife. It can also mean that other forms of existence (Nonlife/other existents) cannot be understood as the quality of being and Life, but we need to define and unify both Life and Nonlife. From the figures, we become more aware that it would be more difficult now to differentiate between the two.

First, the Desert is a discourse that can make a new kind of imagination regarding the stability in the distinction between Life and Nonlife. The Desert also dramatizes the possibility of life that is always threatened from the desiccating sands of Nonlife. It also provides the idea of hostile living conditions of Life due to lack of water and biotic lives. But, on the contrary, it can motivate beings to do something to improve their own lives. "The Desert is the affect that motivates the search for other instances of life in the universe and technologies for seeding planets with life" (Povinelli, 2016, p. 17). But, at the same time, on the contrary, it can also drive fears and anxieties to our dystopian imaginary that soon all places on earth will be nothing but soullessness of Nonlife.

Compared to Desert, the Animist is a figure that "the difference between Life and Nonlife is not a problem because all forms of existence have within them a vital animating, affecting force" (Povinelli, 2016, p. 17). The Animist also provides artistic discoveries of inorganic and nonhuman modes of agencies. She provides the theoretical foundation of Animist that is mostly developed in critical philosophies of vitalism. She mentions Spinoza's principles of *conatus* (living and non-living things that exist) and *affectus* (the ability to affect and be affected) to crumble the division between Life and Nonlife. Thus, the Animist also indicates the struggle for recognition of political others. Hence, not just Life, but Nonlife beings are also important entities in the late liberal governance.

Even though John Carriero (2011) and Michael Della Rocca (Roane, 2011, p. 5) are scholars who critically see that Spinoza deny the difference between rocks and humans because "there is more to living things than to rocks" (Povinelli, 2016, p. 18). Regardless of the criticism, the concept of *conatus* inspires Povinelli to look further Nonlife (rocks) who also has such *endeavors* to preserve and stay in existence. Everything that exists—rocks, woods, people, dogs, cats, *et cetera*—are striving to survive for keeping in existence (Koistinen, 1995, p. 6, 194). Spinoza also provides the idea of *affect*, which is used by Povinelli as conceptual groundings not only for humans, but Nonlife as well. "Focus instead on the fact that Nonlife is affect without intention and is affected without the international agency to affect" (Povinelli, 2016, p. 45).

Lastly, the Virus is a figure that is suitable for representing the late liberal government nowadays. The Virus is an example of the disruptions and the arrangement of Life and Nonlife, "by claiming it is a difference that makes no difference *not because* all is alive, vital, and potent, nor because all is inert, replicative, unmoving, inert, dormant, and endurant. Because the division of Life and Nonlife does not define or contain the Virus, it can use and ignore the division for the sole purpose of diverting the energies of arrangements of existence in order to extend itself" (Povinelli, 2016, p. 19). The Virus can also be related to the speculative future of humans, so-called zombies which can be found in many fictional stories, games, and films. The figure of virus is also considered being located "in-between" Life and Nonlife. Thus, we can't separate rigidly between both due to the existence of the virus. Hence, it also indicates the importance of the governance between Life and Nonlife in late liberalism.

Besides, Povinelli also introduces the idea of the Carbon Imaginary. It lies "in-between" the superiority of Life into merely being by exchanging the concept of biology to the ontological concepts, such as, events (becoming), *conatus/*affect, and finitude (Heidegger) (Povinelli, 2016, p. 16). The carbon imaginary is also considered as an attempt to displace the distinction between Life and Nonlife. She thinks that the concept of "being" has always been dominated by Life and its desire for Life. Hence, the carbon imaginary is a concept that provides the dissolution and Life and Nonlife. At first, she criticized the homology of such science as biology and many other disciplines. It is as if Life and Nonlife are treated rigidly differently, making the separation even more obvious. Therefore, the carbon imaginary provides "a scar" against homology to rethink the unnecessary separation and dichotomy between Life and Nonlife.

The image of the scar would probably be a better image of the homologous productivity of the space between natural life and critical life and the nature of the Carbon Imaginary. The Carbon Imaginary would then be the pulsing region between Life and Nonlife—an ache that makes us pay attention to a scar that has, for a long time, remained numb and dormant, which does not mean unfelt (Povinelli, 2016, p. 38).

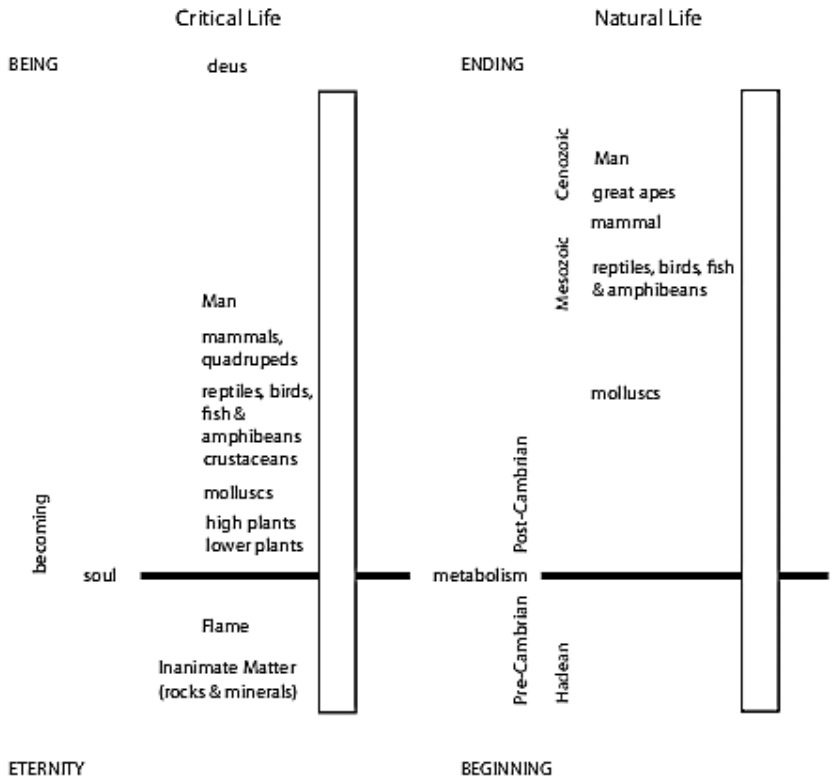

Fig. 1 The Explications between Critical Life and Natural Life (Povinelli, 2016, p. 48).

She provides an example of "respiration" through the mechanism of lung function in human bodies and photosynthesis done by plants. The latter, she sees that there are biochemical reactions when photosynthesis taking place. Plants use solar energy (usually from the Sun) to alter carbon dioxide (CO_2) and water (H_2O) into glucose ($C_6H_{12}O_6$). Then, the glucose is eventually deposited inside the plants. The enzymes function by removing the hydrogen from the glucose and are used as energy for reproduction. Meanwhile, lungs also work "similarly different" to the plants, by bringing oxygen inside (inhale) and expelling carbon dioxide and the moisture in breath (H_2O) out of the human body (exhale). Thus, the system of respiration shows that there is entanglement between Life and Nonlife beings. "the natural science to distinguish between the categories of life also demonstrates not merely the interdependent entanglements of Life and Nonlife but the irrelevance of their separation (Povinelli, 2016, p. 42). Hence, it shows that Nonlife is internal to the very nature of life.

If we focus on the difference between Life and Nonlife, we won't be tempted to wonder what if the miracle was not Life, the emergence of a thing with new forms and agencies of potentiality, but Nonlife, a form of existence that had the potential not merely to be denuded of life but to produce what it is not, namely Life? Nonlife has the power self-organize or not, to become Life or not (Povinelli, 2016, p. 45).

From Povinelli, we know that there are entanglements between Life and Nonlife. In chapter four, she provides how anthropology of Nonlife ontologies is done in the ethnographic works. It is interesting to see what she called Tjipel as creeks located in the coastal tidal creek in Northern Australia. She writes about creeks as if Tjipel is a "'lively dormant" who has prominent role to preserve organisms living surrounded by it. By looking through the "lives" of the creek, Povinelli then provides the idea of assemblage, which

means that many things, people, animals, and other things that Tjipel encountered, have to do with endeavor of preserving in its own beings. Tjipel sees many activities done by other things surrounding her such as digging waterholes, raising mountains, making color of red in the swamps, etc—thus "Tjipel is something other than a synthetic self-determining structure, because it is the assemblage composing her that has normative force—it is the assemblage that strives to persevere and expand . . . She may not be an organism but she seems to be an assemblage (a condensation and congregation) of living and non-living substances—what the term "ecological" is meant to cover" (Povinelli, 2016, p. 100).

By learning from Tjipel, in Indonesia we can see many different forms of geological life. Given that Indonesia is surrounded by massive volcanic mountains, geological life has a fundamental role which is often to be overlooked in the late liberal governance. One of the examples of ethnographic works towards geological life is the Mountain of Bromo located in Eastern Java. Many anthropologists have done their ethnographic works in the area. Robert Hefner in his book entitled *Hindu Javanese: Tengger Tradition and Islam* (1985) provides the depiction of the annual *Kasada* festival held by the Community of Tengger. It is such interesting ethnographic work that the local community see the mountain as a spirit, making the Nonlife become lively in their own interpretation.

Fig. 2 People of Tengger throwing "sesajen" (offerings) such as vegetables, chickens, seven kinds of flowers, even moneys to the crater of Bromo during the ceremonial Kasada (Atmaja, 2021).

Another mountain such as Merapi located in Yogyakarta also provides a glimpse of the story of the *juru kunci* Merapi. It is the story of the guardian of the Mountain Merapi. Agustinus Sutiono (2014) in his dissertation is mostly talking about Javanese shamans and their relations with the "living" mountains. He proposes the idea of general offerings done by the community. Making an offering is a kind of sacrifice supposed to be done by humans to prevent plague or dangers by natural factors. Sometimes, the offerings can also be considered as *ruwatan* (the rite of purification), a kind of ritual that is meant to do public redemption due to human sins on the earth and prevent them from doom and evil spirits (Sutiono, 2014, p. 171). All these kinds of celebrations, festivals, and rituals done by humans towards nonlife beings remind us about the importance of entanglements between Life and Nonlife. The belief of mountains' spirits also indicates the struggle for political recognition of local or indigenous people living within multicultural society in this late liberal governance.

4 Latour and the Importance of Nonhuman Agency

We would like to start with the empirical evidence in Latour's book entitled, *The Pasteurization of France* (1988) because it is the best way to understand the reason that the nonhuman has a significant role in shaping the Anthropocene. Like Povinelli who is inspired by Baruch Spinoza, Latour also, at first, mentions Spinoza's work entitled, *Tractatus Theologico-Politicus,* is offering the "solution" that is different from the belief (religion) and science (natural laws). Whereas Latour introduces his *Tractatus Scientifico-Politicus* meaning that we don't necessarily need to divide between science (technology) and society, reason from force (*potencia* in Spinoza's word), nature and culture, *et cetera*, which clearly makes no distinction at all among the various *allies* that are addressed during the struggle for constructing the epoch of Anthropocene.

He starts with the inspiring idea from Leo Tolstoy's book, *War and Peace,* which tells a story of Mikhail Kutuzov who won the battle against Napoleon. Latour is presumably intrigued by Kutuzov who won the war with no strict order and interestingly also with no intentions wanting to fight in Tarutino, Russia

against the *Grande Armée* led by Napoleon. "After Kutuzov had been forced to act against his better judgement, his signed order kept being diverted. The young officer who held it got lost and could not find the generals; eventually he arrived late at night at a mansion between the front lines where, to his surprise, the high staff were carousing. When in the morning Kutuzov got up to fight a battle did not want to fight, he discovered to his fury that not a single soldier was prepared. No officer received any marching orders. On the whole, however, Tolstoy considered that the battle—though not planned, not decided upon, and not fought—was a success from the Russians' point of view" (Latour, 1988, p. 4).

From this perspective, Latour points out that the idea of leader, strategy, and commands are not the only things that are necessary. But learning the "enemy" is also important. It is to see their movements, their forces, and their behaviors in order to find the weakness within them and ourselves, and then turn it into strength, which is eventually, "The enemy may then be crushed" (Latour, 1988, p. 44). Making the "enemy" visible is also used up during *war* in the laboratory. Additionally, the enemy in Louis Pasteur's laboratory is invisible such as microbes. Latour wants to point out that the definition of *war* is not merely applied to concrete war and clash along with the armies and soldiers. But the *fundamentals* of *war* can also be found anywhere.

The basic idea of *war* also takes us back to epistemologies in general. The problem of epistemologies usually regulates science apart from noise (politics) and disorder (society). ". . ., others would still like to provide a rational version of scientific strategy, to offer clear-cut explanations of how it develops and why it works" (Latour, 1988, p. 6). Meanwhile, Povinelli also has the same concerns as Latour. She sees that every discipline in science is usually separating to one another, "The distinction between Life and Nonlife is, of course, foundational to the separation of the geosciences and the biosciences, geochemistry, and biochemistry, geology and biology" (Povinelli, 2016, p. 38). Hence, she proposes textbook "biogeochemistry" which means combining both disciplines into one to make no-*a priori* distinction among the various disciplines. Latour also doesn't have intentions to differentiate between bacteriology and sociology. But he is willing to explain bacteriology in sociological terms to make some arguments on what Pasture success is not all by himself, but many actors also have roles to succeed Pasteur's inventions.

> *Pasteur's contemporaries, the Pasteurians, and French historians were not unaware of this problem. They all admitted that Pasteur did not do everything "alone", but they quickly went back on this admission by supposing that Pasteur did everything "potentially" or that the rest was to be found in Pasteur's idea in potentia* (Latour, 1988, p. 15).

Latour explains meticulously how he builds his argument by dividing the analysis into three periodicals, namely, *Revue Scientifique, Annales de I'institut Pasteur, and The Concours Médical.* The first one, he was collecting *Scientific American* and the articles of *Science* from 1870, a year of France defeat, to 1919, where the influenza taking place. He collected all the references from the authors of biology, diseases, microbes, hygiene, doctors, and many more. By collecting articles according to historical trajectories, he was able to see the difference before and after the Pasteur inventions. The second one was the moment of Pasteurism, the moment of a change in the year of 1887, when all the scientific journals already recorded prior to Institut Pastuer established, had been treated and categorized based on its specifications. Then, the latter was, to Latour, the moment of "explicit allusions" to Pasteurism. These trajectories, according to Latour, help see the difference in rhetoric, especially about the discourse of hygiene throughout periods.

Latour, in his first instance, is really concerned about the idea of hygiene taking place in different historical periods. Hygiene in *Revue Scientifique* can be considered as only a *trend* (or a *style*). Even though many scientists put their attention to the importance of hygiene, but still has no central argument. The scientific articles only provide guidance, recipes, opinions, remedies, case studies, and anecdotes towards the rhetoric of the hygiene. But, at least, for Latour, the hygienists seemed to be aware of the importance of taking care of health by doing something such as using disinfectants before spending hours of sleep. Thus, disease/illness is something that hygienists are aware of. They know that disease/illness can be caused by anything that comes around. But taking precautions, remedies, and the details don't fix anything yet. "The fundamental problem of the hygienists is this multiplicity, so short on remedies and details, did not protect them against failure. However much they might take precautions against everything and observe everywhere, disease returned, as if no fixed causes could be attributed to it" (Latour, 1988, p. 21).

During *Revue Scientifique,* Latour proposes the idea of "morbid spontaneity", which means a kind of doxy which is to be a joke for scientists today. It means that disease can appear almost anywhere. "Sometimes at one season, sometimes at another; sometimes responding to a remedy, sometimes spreading, only to disappear as suddenly" (Latour, 1988, p. 21). He evaluated the major science in the mid-19th century that disease/illness is an imperceptible phenomenon. The lives of microorganisms (microbes) as an external

cause were still considered inadequate (or even derisory) to examine disease. Hence, the scientific journals/articles produced during the *Revue Scientifique* are mere accumulation of advice, precautions, and opinions.

The authors of *Revue Scientifique,* to Latour, can be summarized into the awareness of other entities other than human. For instance, microbes, which were previously not really a thing, tended to be ignored and undermined before Pasteurism, apparently having significant roles in shaping culture and society. After 1887, the Institut Pasteur established, Latour cites Stéphanie Leduc who says, "Ignoring the danger of the microbe awaiting us, we have hitherto arranged our way of life without taking any account of this unknown enemy" (Leduc in Latour, 1988, p. 35). Thus, microbes as microorganisms become more prominent and visible species after "scientific revolutions" done by Louis Pasteur. Thus, semiotically, Latour sees "new translation" of what matters in the world which are not only humans but many other visible species to humans.

> *We may inspect pure water, milk, hands, curtains, sputum, the air we breathe, and see nothing suspect, but millions of other individuals are moving around that we cannot see . . . There not only "social relations", relations between man and man. Society is not made up just of men, for everywhere microbes intervene and act. We are in the presence not just of an Eskimo and an anthropologist, a father and his child, a midwife and her client, a prostitute and her client, a pilgrim and his God, not forgetting Mohammed his prophet* (Latour, 1988, p. 35).

Making the "invisible" enemy such as microbes becoming visible is just the beginning to make "social" connections with the nonhuman others. After Pasteurism, the lives in the laboratory went even further. As soon as Pasteur's discovery of anthrax which has been reproduced in the laboratory, it developed notions of 'infection', disease, and illness that appears to be coming out of the walls of the laboratory. Thus, the laboratory is only seen as a place where there is no real connection to the outbreak of anthrax disease. *Bacillus anthracis* is only a bacterium which has been discovered in the laboratory. Yet, Pasteur went further. He performed the bacterium injection inside animals in the laboratory as his experimental instruments. "He made them ill. He in effect stimulated the epidemic. With the laboratory-made statistics he counted the sick and the dead and those that underwent spontaneous cure. He performed in dogs, chickens, sheep, what the hygienists did with the help of nationally made statistics on real populations" (Latour, 1988, p. 63).

This so-called "experimental illness" turns out to be reaping criticism on humans due to the arbitrary scientific experimentation towards nonhuman animals. Humans seem to be more superior than visible animals and invisible microbes who merely ended up being "guinea pig". Hence, seeing Pasteur with his laboratory is strongly related to the *Dasein* in Heidegger's words. Some philosophers also may accuse Heidegger and his concept of *Dasein* are anthropocentrism (Calarco, 2008). Accordingly, the power of human minds and their rationality can apparently make an improvement towards the lives of human-society. Latour also adds that it is not merely the discovery, but also the great man who can transform society by the power of his mind all by himself. "Pasteur did everything, by his own power, or at least through the power of his ideas" (Latour, 1988, p. 14). Additionally, Engelland discusses the human difference in Heidegger's concept of *Dasein.* He mentions that only man can apprehend thing as being, while animal cannot. Hence, according to Heidegger, "the animal is separated from man by an abyss" (Engelland, 2015, p. 184).

The ability to make changes from *ontic* conditions to the ontological one thus can only be done by humans. Pasteur is one of humans as *Dasein* who is not only able to transform ontic into ontological ones, but also make a revolutionary idea about his inventions in modern science, such as microbiology. Thus, humans are the ones who can make revolutionary changes in science. Heidegger would agree that there would be no rationality without *Dasein.* It is because *Dasein* is not just living organism, but also considered as agent looking for "truth", "Man can never be an animal, i.e., can never be nature, but is always either over the animal, or, precisely as human, under it (whereupon we say that man becomes 'like an animal'). Since nature does not have the inner elevation of *existence* which belongs to being-human *as being out beyond oneself* [*Über-sich-hinaus-sein*], it is incapable of falling (Heidegger in Engelland, 2015, p. 187). Hence, Latour and Heidegger would be properly suited when it comes to building the culture in the Anthropocene.

Meanwhile, Heidegger and his concept of *Dasein* as being-in-the-world is a way of understanding beings ontologically. Without *Dasein,* the *ontic* would only be *ontic*[1]*.* While "*Da-sein* possesses—in a manner

[1] *Ontic* is the roots or basics of existential analysis. It is real, factual, physical, and existence.

constitutive of its understanding of existence—an understanding of the being of all beings unlike itself . . . *Da-sein* has proven to be what, before all other beings, is ontologically the primary being to be interrogated" (Heidegger, 1996, p. 14). The definition of *world* in the *being-in-the-world* is also delimited. It is due to the various and the multiplicity of meaning of the *world* according to the respective ontologies of *Da-sein.* He explains, "World functions as ontological term and signifies the being of those beings . . . Indeed, "world" can name the region which embraces a multiplicity of beings. For example, when we speak of the "world" of the mathematician, we mean the region of all possible mathematical objects" (Heidegger, 1996, p. 61). Hence, all ontologies seem to be delimited according to the respective fields of science. Therefore, he puts it,

> *All ontology, no matter how rich and tightly knit a system of categories it has at its disposal, remains fundamentally blind and perverts its innermost intent if it has not previously clarified the meaning of being sufficiently and grasped this clarification as its fundamental task* (Heidegger, 1996, p. 9).

Hence, the various domains or fields of science of knowledge are somehow ontologically secluded. It is not because of the ontology, but, for Heidegger, because of the problem of "being" itself. He explains that "being" as *exsistentiell* is indefinable. It is due to humans' limitations to define the existence of being. "The being of beings "is" itself not a being. The first philosophical step in understanding the problem of being consists in avoiding the *mython tina diēgeisthai,* in not "telling a story," That is, not determining beings as by tracing them back in their origins to another being—as if being had the character of a possible being" (Heidegger, 1996, p. 5). Hence, looking for the "absolute" or totality of being requires various domains of knowledge and fields such as history, nature, language, space, and so on—to do scientific investigation.

Perhaps, one of the ethnographic works written by Annemarie Mol entitled, *The Body Multiple: ontology in medical practice* (2002) could show the empirical evidence regarding the multiplicity of ontological domains of knowledge dealing with particular disease altogether. Mol generally talks about a disease which has been enacted by multiple actors. "Reality is multiple", said Mol (2022, p. 19). She provides an interesting case of atherosclerosis. It is a disease that has been enacted by many. For instance, the pathologist takes amputated legs in the freezer, and then slices it out to have a piece of sample. Then, put the piece of the sample in the laboratory, and place it under the microscope. For pathology, they only see the thickness located in the inner part of artery. Meanwhile, it would be different when doctors see atherosclerosis. Doctors usually would neglect the psychological conditions of the patients (Mol, 2022, p. 22), and they will primarily concern themselves with the blood pressure taking place in the patients' leg. Hence, pathologists, nurses, clinicians, doctors, patients, technicians, and researchers in the hospital turn out to have different realities when it comes to seeing the same disease of atherosclerosis. Therefore, different people may hold different ontologies. It can also be called "multiple ontologies" (Harris & Robb, 2012). Hence, Pasteur has ontology as his expert in microbiology.

From the discussion above, going back to Latour, it seems that he presumably holds an anthropocentric view by looking through the phenomena of Louis Pasteur. Thus, humans are the only living organisms who have the capability to construct ontology. But Graham Harman is saying otherwise. His book entitled, *The Prince of Networks: Bruno Latour and Metaphysics* (2009), provides the depiction of his interpretation about Latour's works regarding the nonhuman agency. He considers Latour as not Heideggerian due to their different meanings of ontology. Harman sees Latour as not tending to demonstrate the superiority of humans. On the contrary, Latour wants to show us that is not only Louis Pasteur who invented the anthrax vaccine, but there are many actors who also made their contributions into the discovery of a vaccine. Latour's popular conception of actor-network-theory (ANT) can be applied here. Actor-network-theory doesn't only mean about the works of actors, but there are interactions, politics, and representations between actors which also create mixed narratives (Latour, 1993, pp. 10–11). Marilyn Strathern also adds it,

> *"Thus Pasteur's discovery of the microbe for anthrax depended on a whole series of statistical, rhetorical and operational factors that had to be held together in order to sustain, within a continuous network of effects, the crucially demonstrative links between bacillus, disease, laboratory, field experiment and the life of death of individual animals […] Latour suggests we follow what Pasteur did and what his invention depended on"* (Strathern, 2014, pp. 403–404).

Harman examines the original Latour's ontology into four key concepts, namely, *actants,* irreduction, translation, and alliance. These main concepts are helpful to some extent, for developing ontological

anthropology. Compared to Heidegger, these four ontological concepts coined by Latour provide a bit more practical approaches for guidance and development of ontological anthropology. Firstly, Actors are not only humans. In the ontological concept of *actants,* actors can be many things. It can be raindrops, rocks, cats, dogs, atoms, *et cetera.* "All entities are on exactly the same ontological footing" (Harman, 2009, p. 14). Secondly, the concept of *irreduction.* It means that *actants* cannot be reduced to anything else. But, paradoxically, *irreduction* shows that anything can be reduced to anything else. For instance, *the actor* of water can be reduced into atoms (chemical compound of H_2O). Thus, we may think that all beings consist of particles and atoms. But, at the same time, water cannot be reduced to anything else because of the characteristic of water itself realistically different from any other beings. "This two-faced *irreduction* is less paradoxical than it seems, since both faces stem from the same basic insight" (Harman, 2009: 18). Hence, we cannot bluntly equate being with other beings or anything else because of the different characteristics between them.

The third is the concept of *translation.* It means ways of making sense between *actants* by linking them to one another. In translation itself, Latour sees it as a way of looking for 'truth'. "By showing that the relation between actors is always a form of translation . . . "(Harman, 2009, p. 120). But Translation, in some ways, can also be considered as a risky ontological principle due to the fragility of translation itself. The separations of *actants,* the combination of *actants,* and the role of each *actants* are mediated by the work of translation. Thus, the work of translation can be wrong or there would be a distortion in some ways. Regardless of that, the relations between actors always require the work of translation. Lastly, the principle of *alliances,* which means that *actants* "gain in strength through their alliances" (Harman, 2009, p. 15). From the alliance itself, Latour's intentions are presumably dissipating the division between nature and culture; human and nonhuman; and technology and society. For instance, humans need plants for respiration and the other way around. Thus, humans, nonhuman animals, plants, and Nonlife beings (such as carbon dioxide, oxygen, water, etc) become *allies*.

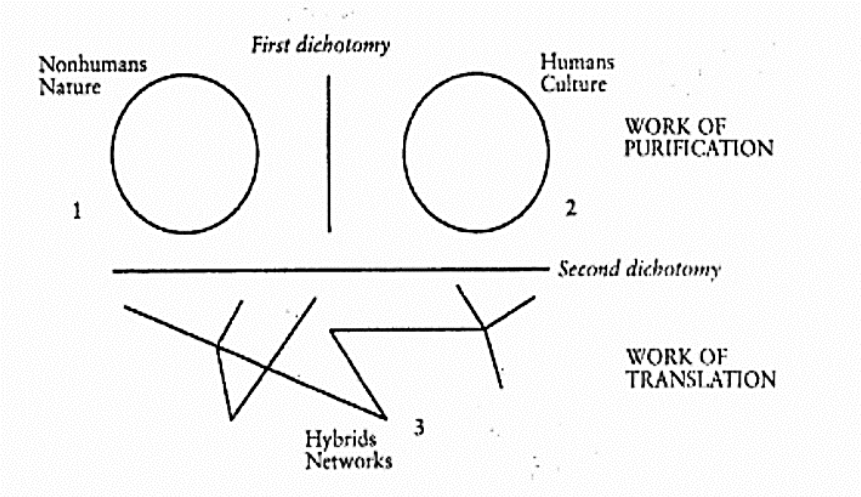

Fig. 3 Displacing the dichotomy and separation between nonhumans and humans through the work of translation (Latour, 1993, p. 11).

Besides, His other books such as *We have never been modern* (1993) and *An Inquiry into Modes of Existence* (2013) demonstrate his attempts to fight against the Anthropocene. From the *Pasteurization of France,* we already see that his intention is to reveal microbes as a nonhuman agency who apparently have roles in shaping the better lives of humans' and also better understanding of nonhuman animals' conditions. It also shows that Pasteur is not doing biological experimentation alone, but there are nonhuman agents who also succeeded Pasteur in making inventions to improve humans' health conditions. "To convince someone that an experiment has succeeded, that a technique is effective, that a proof is truly decisive, there must be *more than one actor"* (Latour, 1988, p. 15).

Another example can be found in the making of cheese. Heather Paxson in her article entitled, "Post-Pasteurian Cultures: The Microbiopolitics of Raw-Milk Cheese in the United States (2008), provides ethnographic work about the lives of microbes in unpasteurized milk (raw milk). She proposes the concept of microbiolopolitics to tackle the negative stigma of microbes, germs, and bugs who are actually not always as bad as humans think. On one hand, the demand for antibiotics, pasteurized milk, and the campaign on hand sanitizer turn out to be more following Pasteurism, which means prioritizing the food safety and

medicalization (hygiene) of food. On the other hand, post-pasteurism refers to bringing about the potentialities of collaborative living between humans and microorganisms.

> *"Microbiopolitics, then, is not about using molecules as metonyms for individual or population characteristics (race, disability). Rather, it concerns the recognition and management, governmental and grassroots, of human encounters with the vital organismic agencies of bacteria, viruses, and fungi. Placing microorganisms such as bacterial cultures and cheese mold at the center of accounts of food politics can show us how public understandings and appropriations of scientific knowledge are reshaping how people think about food, its production, its nutritional and cultural value, and the regulation of its safety"* (Paxson, 2008, p. 18).

Fig. 4 Adi Utarini as the first author in the article about *wolbachia*-infected mosquito has become known as 100 most influential people in TIME Magazine (Gates, 2021).

One of the interesting cases in Indonesia is coming from the invention of *Wolbachia* inoculation into the *aedes aegypti* mosquitoes. This case would presumably make us think a little less anthropocentric. Just like in the first periodical of hygiene in the *Revue Scientifique,* we (people) used to manage or control the population of microbes or dengue by spreading insecticides or doing mosquito fogging which turns out to be not quite efficient. Even though many scientists and hygienists are aware of the danger of microbes, they seem to be not doing much further to learn the invisible "enemy." Another article written by (Utarini, et al., 2021) entitled, *Efficacy of Wolbachia-Infected Mosquito Deployments for the Control of Dengue,* shows their research results regarding *Wolbachia pipientis who* infects the insect of *A. aegypti* mosquitoes which turn out conferring resistance to disseminated infection by DENV (four stereotypes of dengue virus). Thus, dengue who are already infected by *wolbachia* no longer have the capability to disseminate the dengue fever. Hence, these inventions show how we do ontological *translation* through the lives of the "enemy" (dengue mosquito) to get their life patterns along with other actors such as *wolbachia* and other insects.

Fig. 5 She is also known as Mosquito Commander (*Komandan Nyamuk*) due to her act of activism eliminating dengue fever by multispecies research in Indonesia (Herlina, 2020).

From the case above, the ontological concepts provided by Latour helped to make an awareness for us that there are many actors surrounding humans. It also opens another branch of study in anthropology. It is usually called multispecies ethnography. Eben Kirksey and Stefan Helmreich in their article, *The Emergence of Multispecies Ethnography* (Kirksey & Helmreich, 2010), provides a-new-fresh-air perspectives especially for anthropology to do ethnography beyond human. Thus, ontological anthropology

also makes a space for the study of more-than-human becoming. It also implicitly shows the awareness of anthropology as a discipline that is not really anthropocentric in the study, such as multispecies ethnography provides ethnographic works that are not anthropocentric. For instance, Frederic Landman in his exhibition on multispecies salon, he shows fruit flies (*Drosophila sp.*) who are always attached to *wolbachia.* According to him, *wolbachia* are old bacteria who have been in the world for around 100 million years*. Wolbachia* are microbes who are already infecting 76 percent of invertebrates such as spiders, mites, crustaceans, insects, etc (Jeyaprakash & Hoy, 2000), and even mosquito through Adi Utarini inventions of *wolbachia*-infected mosquito which turns out to be effective reducing high rates of dengue fever, rather than killing the mosquitoes by control and management of fogging and insecticides.

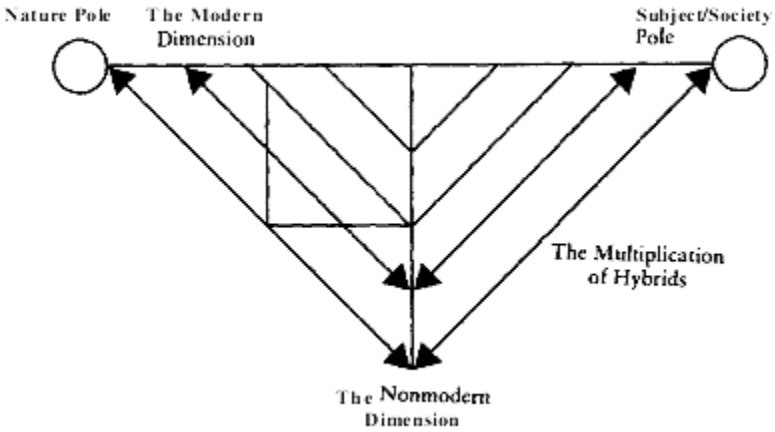

Fig. 6 Latour's intention putting society (humans) and nature on the same page to make no a priori distinction between them. All cultures are presumably in the hybrid forms (Latour, 1993, p. 51). Humans belong to nature, and the other way around.

By doing multispecies ethnography along with the ontological concerns, anthropology as a discipline is no longer considered as a study of only humans with the cultures, but also a study of nonhuman agency. Ontological anthropology then can shift 'paradigms' and/or epistemologies who previously neglected the Other such as, nature, nonhuman animals, plants, Nonlife, and so on. Therefore, by doing ontological anthropology is a way of eliminating the division between nature and culture, human and nonhuman, Life and Nonlife, nonhuman plants and nonhuman animals, and so on. By using this conceptual framework, we eventually see that is not only humans themselves who are inhibited the worlds, but many other beings as well. Therefore, doing ontological anthropology provides a way to make criticism an anthropocentric view that every invention (Pasteur, Utarini, etc) is supposed to be more than one actor. It can also mean that there is no 'pure' form of cultures, but the culture is always in hybrid mode due to the combination of many actors bringing about the definition of "cultures". The idea of hybrid in Latourian lays on the critique of a pure form, the critique of the separation and dichotomy between science and society, culture from nature, human and nonhuman (Strathern, 2014: 403).

5 Descola and the Metaphysical 'Other'

The idea of "Other" is pretty much common in anthropological discourse. The emergence of discourse as "the Other" is due to epistemological problems in anthropology. It is based on the idea of differences. Gregory Bateson also says through the principle of *creatura* by Carl Jung, "*a difference is (mere) an idea"* (Bateson, 1972, pp. 323,339). Especially when it comes to Western people doing ethnographic and field works, they usually begin to alienate and contrast themselves to human others. In the old days, the main role of anthropology was the process of inventing humans to develop social theory. As a matter fact, non-western people also tended to be seen as a "living fossil" from primeval West (Sarukkai, 1997, p. 1406). Sundar Sarukkai also gives his opinion regarding the method of participatory observation by Bronislaw Malinowski, which still does not address fundamental problem of otherness,

> *Malinowski who emphasized the importance of studying alien cultures in the form of participant-observation. But Malinowski's ethnography still remains a categorization of difference, a taxonomy of human objects [...] In participant observation, the 'distance'; of the native from the observer is sought to be reduced by becoming one of the natives. The dress, the customs, and language are borrowed, however imperfectly, to fit the gaze of the observer. But after all the attempts at assimilation, the gaze is still not lost. Here the other is understood differently. By simulating the otherness of the native, the observer constructs his self as 'not-other'. Although in opposition to constructing the other as not-self . . . The observing self continues to remain the epistemological 'not-other'* (Sarukkai, 1997, p. 1407).

Thus, the categories in the epistemology of the other are still considered 'not-self' and the self also remains 'not-other'. Self and other divide is only one of the Divisions which modern science is willing to resolve such gap or distance. Back to the idea of the Anthropocene is also a way of humans separating themselves against the others. Latour thus has similar interests with Sarukkai through his explanation of Tolstoy's work of *war.* It can be said that 'enemy' in Latour's term and 'Other' in Sarukkai's term show the very basic idea of 'the Great Divide' introduced by Bruno Latour in the *We have never been modern.* Latour provides intriguing statements in his book, it says," *'We Westerners are absolutely different from others!'—such is the moderns' victory cry, or protracted lament. The Great Divide between Us—Occidentals—and Them—everyone else, from the China seas to the Yucatan, from the Inuit to the Tasmanian aborigines—has not ceased to obsess us"* (Latour, 1993, p. 97). It shows that the Division is merely coming from the idea of the superiority of Western cosmology in order to separate themselves from the inferior community outside the Western society.

We may want to immerse ourselves into the thought and ontological perception of Phillipe Descola in order to resolve the problems of the Great Divide. He is considered as a post-structuralist anthropologist who is also known for his work towards the community of Achuar, Amazon. His books also contribute to the ontological debate in the study of Anthropology. Like many other social scientists, not limited to anthropologists such as Bruno Latour and Elizabeth Povinelli, he traces back the regime of 'The Great Divide' which is coming from Euro-American naturalism—providing historical product of strict separation between cultural worlds of human beings with nonhuman natures. In his book entitled, *Beyond Nature and Culture* (2013), provides critical and historical analysis regarding the binary between nature and culture. In this section, we would like to examine his works of collapsing the separation between nature and culture as an attempt to fight against the Anthropocene.

Firstly, we may want to start examining Descola's book entitled, *The Ecology of Others* (2013b) to look for the positionality between human and nonhuman others in a structuralist paradigm. The strict separation between the sciences of nature and culture can be traced back to the second half of the 19th century. At first, Descola examines Lévi-Strauss' book in his *Savage Mind.* Descola sees norms and rules of society coming from mythic structure. The myths themselves are apparently originating from tribes who use diverse properties of flora and fauna surrounding them. Lévi-Strauss emphasizes the symmetrical relations between environmental determinism and mental determinism that of fulfilling mythic thought (Descola, 2013b, p. 21). But Descola sees the structure of myths somehow create unequal positions between humans and nonhumans through the operations of human mind,

> *Lévi-Strauss often refers to the organic nature of our species, which guarantees the homogeneity of mental process in all humans, holding out the promise that we will one day be able to elucidate their mechanisms. While nature as a collection of non-human is reduced to a marginal position—that of fueling thought—the organic nature of humans becomes endowed with an eminent function, that of structuring the operations of the mind in resonance with the properties of matter* (Descola, 2013b, p. 22).

Descola considers Lévi-Strauss through Edwin Ardener as putting the binary oppositions between nature and culture is "deeply seated in the order of things" (Descola, 2013b, p. 25). It was due to the thought process of humans calculating both types of divides between structures of human and nonhuman anatomies, sexes, and many other things. Thus, dichotomies, the separation, the division, or the oppositions have become fundamental to see how varied societies organized the distinctive division to mediate their relationship with the nonhuman others.

The structure of myths which Lévi-Strauss investigated is in the study of "suprastructure" as an extension of what Marx had only scratched on the surface. Putting nonhumans in a marginal position is not

merely in the realms of thought process of humans' mind in structuring myths. But it can also manifest in capitalist relations under the strict division of humans and nonhumans. Bram Büscher in his article entitled, *the nonhuman turn: Critical reflections on alienation, entanglement, and nature under capitalism* (2021), provides an interesting analysis of the relations between humans and nonhumans under capitalist regimes. He suggests that capitalism as a system of domination practically is inherently entangled with nonhuman lives. So, capitalism cannot be properly apprehended by only taking humans as an analysis. Büscher is mostly concerned with Marx's idea of alienation. At first, alienation refers to humans who are alienated by 'nature'. But, additionally, the basic alienation itself that, in fact, creates the division between humans and nonhumans. Thus, he argues that "we must see 'acts of nonhuman resistance as agential rejection of the economic structural conditions that renders animals (plants) ownable and commodifiable" (Büscher, 2021, p. 9). His article leaves the ontological questions regarding how nonhumans could actually "speak" or "act of resistance".

Inspired by Gayatri Chakravorty Spivak in *Can the Subaltern Speak?* Fayaz Chagani in the article entitled, *Can the Postcolonial Animal Speak?* (2016) proposes the importance of relations between humans and nonhuman animals in the postcolonial period. The comparison between human and nonhuman animals is just the same as in the discourse of colonialism. Animals as subjects have been transliterated as "sub-human". Chagani's intention in the article is to point out that the life of colonialism remains happening in different forms of postcolonial period. He then suggests the idea of humans suffering from Dipesh Chakrabarty. "Nowhere in this passage or in the chapter more generally are there intimations of the fact that a "subject of suffering" could be grounded in anything other than a human body. Moreover, there is not an attunement to the possibility that an observer of suffering might identify with or extend sympathy to a nonhuman sufferer" (Chagani, 2016, p. 628). By feeling of suffering, we could be able to imagine our bodies in terms of theirs (animals). Even though there already is recognition of the relations between humans and nonhuman animals through empathetic suffering, but the article hasn't been discussing the central argument on how exactly to see the 'Other's world point of view.

Descola provides ontological principles which are generally different from Povinelli and Latour. He suggests four ontological regimes, namely, *animism, totemism, analogism,* and *naturalism.* These four ontological regimes are developed according to the basic idea of physicality and mentality between humans and nonhuman beings. The ontological regimes suggested by Descola can be considered metaphysical. He builds these ontological principles based on his ethnographic research in the Achuar, Amazon. He sees the system of spiritual belief (such as *an animist* system) regulates daily life human intercourse with other living beings. The first ontology is *animism.* The system of *animist* is considered to be a system employed as complementary categories to think through humans and natural beings (Descola, 2013a, p. 68). His argument of animist system came from the community of Achuar when they treat their plants in the garden. "During the night, *Nunkui*, the spirit of gardens, has appeared to him in the form of stocky little female dwarf with her face painted with rocou" (Descola, 1996, p. 92). This glimpse of sentences in his ethnography provides an idea of the spirit that existed in the plants. *Nunkui* is kind of maternal authority who practices towards plants progeny, and the women of Achuar as ones who maintain the good relations with her (*Nunkui*).

Table. 1. Four Ontologies of Descola (2013, p. 67)**.**

<table>
<tr><td>Similar Interiorities</td><td rowspan="2">Animism</td><td rowspan="2">Totemism</td><td>Similar interiorities</td></tr>
<tr><td>Dissimilar physicalities</td><td>Similar physicalities</td></tr>
<tr><td>Dissimilar interiorities</td><td rowspan="2">Naturalism</td><td rowspan="2">Analogism</td><td>Dissimilar interiorities</td></tr>
<tr><td>Similar physicalities</td><td>Dissimilar physicalities</td></tr>
</table>

Descola considers *animism* as something opposite to *totemism.* Many anthropologists would be more familiar with *totemism.* The concept of *totemism* was introduced by Lévi-Strauss. *Totemism* is basically how humans manage qualities of nonhuman beings (plants and animals) perceptibly. *Totemism* is also a way of human thinking towards the world they inhabit. "Nature thus provides a guide and a framework—what

Lévi-Strauss calls "a method for thinking"—that helps the members of certain cultures to conceptualize their social structure and to offer a simple iconic representation of it, one similar to that used by European heraldry" (Descola, 2013a, p. 68). Hence, *totemism* is not merely applied to tribal societies, but *totemism* can be considered as a universal expression of humans' logic that uses nonhuman plants and animals to reflect certain social structures. Therefore, totemism is a basic or fundamental characteristic of human's mind.

Animism is related to *naturalism* in several ways. From table *1.* above, naturalism is, to Descola, a belief or even dogma which is believed to 'absolute' uniqueness of every species. Descola is inspired by Viveiros De Castro's thought on *animism* and *naturalism,* "So when Viveiros De Castro commented upon my incomplete distinction between naturalism and animism, he was quote right . . . animism is "multinaturalist", since it is founded upon corporeal heterogeneity of classes of existing beings that, however, are endowed with identical souls and cultures. Meanwhile, naturalism is "multiculturalist" in that it uses the postulate of the oneness of nature to support recognition of the diversity of both individual and collective" (Descola, 2013a, p. 89). Naturalism is thus putting its analysis to fundamental physicality. For instance, birds and monkeys who are quite distinctive to one another is to turn back to the idea of universality of nature. Meanwhile, *analogism* is precisely related to *totemism. Analogism* is a way of identification just as the same as *totemism* that separates existing beings into multiplicity of meanings segregated by small distinctions into the network of analogies (Descola, 2013a, p. 102). Hence, these four ontological regimes cannot be understood separately, but they are inevitably linked to one another.

Besides, Descola is, in fact, a bit more interested in *animism.* He says that animism is attribution that "humanizes plants and, above all, animals, since the soul with which it endows them allows them not only to behave in conformity with the social norms and ethical precepts of humans but also to establish communicative relations both with humans and among themselves" (Descola, 2013a, p. 70). Eduardo Visceiro De Castro in his article entitled, *Cosmological Deixis and Amerindian Perspectivism* (1998) provides the idea of 'perspectivism' within local communities in viewing nonhuman beings. Through perspectivism, nonhuman beings become livelier just like humans. "Animals are people, or see themselves as persons . . . This internal form is the 'soul' or 'spirit' of the animal: an intentionality or subjectivity formally identical to human consciousness, materializable, let us say, in a human bodily schema concealed behind an animal mask" (de Castro, 1998, p. 471). Animals (and plants) thus are only different to humans by physical appearances. Therefore, the ontology of *animism* can show the social connections between humans and nonhumans, a realm between nature and society is thus, in fact, social. Additionally, Sophie Chao (2022) provides her interesting ethnographic works of Marind-Anim people located in the Western Papua, Indonesia. They hold the system of *animist,* such as ancestral spirits of the forest called *dema,* plants and animals called *amai,* and humans as *anim* (Chao, 2022, p. 171)*,* all these kinds of beings create what might be called as *multispecies kinship* (Chao, 2022, p. 93). Through local communities such as Marind-Anim, it shows their attempts of "making kin" with nonhuman others in order to cut the Anthropocene (Haraway, 2016).

Thus, latest discourse of ontology in the discipline of anthropology is the ontology which is not the same as ontology based on the Enlightenment and the Western, Euro-American naturalism. The ontology provided by ontological anthropologists (Descola, Latour, and Povinelli) have intentions to rethinking and requestioning the positionality of humans in the social and natural realms. Hence, ontological anthropology provides alternative ontological assumptions based on new materialist and post-humanist approaches by treating humans and nonhuman agencies as equal actors who interact, negotiate, and make some connections to each other. Ontological anthropology thus demands collaboration between them, humans, and nonhuman others to sustain the lives of both agencies in the current geological epoch of the Anthropocene. Therefore, against the Anthropocene means against the ontological assumptions of dichotomy and separation between humans and nonhuman beings brought by the legacy of the Enlightenment and the Western naturalism. It also challenges the term of justice based on European thought to preserve only humans as subjects of justice, which is apparently considered to be "epistemology of ignorance", neglecting the fact of violent act towards nonhuman beings for political economic motive of neocolonial agenda. Therefore, bringing social justice to nonhuman beings is also a way of recognizing the rights of indigenous people-led decolonization. Thus, ontological anthropology presumably takes ontology as a response to unequal relations between both humans and nonhuman beings. Creating justice to more-than-human realms is to recognize them as a part of the struggle against the Anthropocene.

6 Conclusion

Living in the epoch of the Anthropocene faces certain challenges both for humans and nonhuman beings. In the current geological epoch, the Anthropocene simply means putting humans at the center stage over nonhuman entities. It evidently provides negative consequences towards the ecological crisis. Indonesia is one the examples of many countries facing such ecological challenges. Many scientists are currently re-questioning modern epistemologies and modern science who tend to make a strict separation or division between humans and nonhuman beings, culture and nature. And so on. The Division can be traced long way back to the second half of the 19th century which was brought about by the Enlightenment and the traditions of Euro-American naturalism. Many anthropologists are aware of these challenges. They make attempts to bring anthropology back to reconsider the importance of ontology. Just like Povinelli, Latour, Descola are three of many anthropologists who mostly put their attention to the "ontological turn" for the development of sociocultural anthropology. So, basically, ontological anthropology provides alternative ways to do ethnographic works both ontologically and metaphysically. Thus, ontological anthropology has appeared as a response to the challenges that we are currently facing today in the era of Anthropocene, such as climate change, large-scale monocultures of global commodities, and the expansion of extractive industries. Hence, against the Anthropocene means displacing 'The Great Divide' between them, such as western and non-western, self and others, human and nonhumans, and Life and Nonlife. These attempts against the Anthropocene are also considered as the struggle for social justice towards more-than-human beings and geological life. It also demands collaboration and balance between humans and more-than-human realms to sustain their lives in the Anthropocene. Hence, the issue of justice can no longer mean only humans, but also nonhuman beings who have the equal footing as humans. Giving a "voice" to more-than-human realms is one of the breakthroughs done by ontological anthropology in order to make not only critique of the Anthropocene, but also open the development of ontology in the study of anthropology beyond human. Lastly, anthropology of ontology also opens pathways with various possibilities, conceptual and methodological challenges for the future of humanity not only in Indonesia, but many other countries elsewhere amid the Anthropocene epoch.

References

Atmaja, O. (2021). *Upacara Yadnya Kasada di Kawah Gunung Bromo*. Suara.Com. https://www.suara.com/foto/2021/06/27/052000/upacara-yadnya-kasada-di-kawah-gunung-bromo.

Baskin, J. (2015). Paradigm dressed as epoch: The ideology of the anthropocene. *Environmental Values*, *24*(1), 9–29. https://doi.org/10.3197/096327115X14183182353746

Bateson, G. (1972). *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*. Jason Aronson Inc.

Benson, M. H. (2019). New Materialism: An Ontology for the Anthropocene. *Natural Resources Journal*, *59*(2), 251–280. https://digitalrepository.unm.edu/nrj/vol59/iss2/18

Besky, S. (2017). *Monoculture*. Theorizing the Contemporary, Fieldsights. https://culanth.org/fieldsights/monoculture

Besky, S. (2019). Exhaustion and Endurance in Sick Landscapes: Cheap Tea and the Work of Monoculture in the Dooars, India. In *How Natures Works: Rethinking Labor on Troubled Planet*. University of Mexico Press.

Büscher, B. (2021). The nonhuman turn: Critical reflections on alienation, entanglement and nature under capitalism. *Dialogues in Human Geography*, 1–20. https://doi.org/10.1177/20438206211026200

Calarco, M. (2008). *Zoographies: The Question of the Animal from Heidegger to Derrida*. Columbia University Press.

Catton, William R. & Dunlap, R. R. (1978). Environmental Sociology: A New Paradigm. *The American Sociologist*, *13*, 41–49.

Chagani, F. (2016). Can the Postcolonial Animal Speak? *Society & Animals*, *24*, 619–637. https://doi.org/10.1163/15685306-1234142

Chao, S. (2022). *In the Shadow of the Palms: More-Than-Human Becomings in West Papua*. Duke University Press.

Crutzen, P. & E. F. S. (2000). The "Anthropocene." *Global Change Newsletter*, *41*, 17–18. http://www.igbp.net/download/18.316f18321323470177580001401/1376383088452/NL41.pdf

de Castro, E. V. (1998). Cosmological Deixis and Amerindian Perspectivism. *The Journal of the Royal Anthropological Institute*, *4*(3), 469–488.

Descola, P. (1996). *The Spears of Twilight: Life and Death in Amazon Jungle*. New Press.

Descola, P. (2013a). *Beyond Nature and Culture*. The University of Chicago Press.

Descola, P. (2013b). *The Ecology of Others*. Prickly Paradigm Press.

Di Paola, M. (2017). *Ethics and politics of the built environment : gardens of the anthropocene*. Springer.

Engelland, C. (2015). Heidegger and the Human Difference. *Journal of American Philosophical Association*, 175–195. https://doi.org/10.1017/apa.2014.25

Gates, M. F. (2021). *Adi Utarini*. Time Magazine. https://time.com/collection/100-most-influential-people-2021/6095805/adi-utarini/

Haraway, D. (2015). Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin. *Environmental Humanities*, *6*, 159–165.

Haraway, D. J. (2016). *Staying with the Trouble: Making Kin in the Chthulucene*. Duke University Press.

Harman, G. (2009). *Prince of Networks: Bruno Latour and Metaphysics*. re.press.

Harris, Oliver J. T. & Robb, J. (2012). Multiple Ontologies and the Problem of the Body in History. *American Anthropologist*, *114*(4), 668–679.

Hefner, R. W. (1985). *Hindu Javanese: Tengger Tradition and Islam*. Princeton University Press

Heidegger, M. (1996). *Being and Time: A Translation of Sein und Zeit*. State University of New York Press.

Herlina, N. (2020). *Mosquito Commander (Komandan Nyamuk)*. Kabar Dikti. http://dikti.go.id/kabar-dikti/kabar/mosquito-commander/

Hetherington, K. (2020). *The Government of Beans: Regulating Life in the Age of Monocrops*. Duke University Press.

Hogue, A. (2016). *Heidegger, Martin*. Geneology. https://criticalposthumanism.net/heidegger-martin/#_edn2

Jeyaprakash, A & Hoy, M. A. (2000). Long PCR im-proves Wolbachia DNA amplification: wsp sequences found in 76% off six-three arthropod species. *Insect Molecular Biology*, *9*, 393–405. https://doi.org/doi:10.1046/j.1365-2583.2000.00203.x

John, C. (2011). Conatus and Perfection in Spinoza. *Midwest Studies in Philosophy*, *35*, 69–92.

Jones, D. L. & Rowe, E. C. (2017). Land Reclamation and Remediation, Principles and Practice. *Encyclopeadia of Applied Plant Sciences (Second Edition)*, *3*, 304–310. https://doi.org/https://doi.org/10.1016/B978-0-12-394807-6.00014-9

Kadir, H. A. (2017). Komparasi Munculnya Liberalisme Ekonomi di Indonesia dan Burma. *Lembaran Sejarah*, *13*(2), 163–185.

Kirksey, Eben & Chao, S. (2022). Introduction: Who Benefits from Multispecies Justice? In E. Chao, Sophie, Bolender, Karin & Kirksey (Ed.), *The Promise of Multispecies Justice* (pp. 1–21). Duke University Press.

Kirksey, S. Eben & Helmreich, S. (2010). The Emergence of Multispecies Ethnography. *Cultural Anthropology*, *25*(4), 545–576. https://doi.org/10.1111/j.1548-1360.2010.01069.x

Kohn, E. (2015). Anthropology of Ontologies. *Annual Review of Anthropology*, *44*(1), 311–327. https://doi.org/10.1146/annurev-anthro-102214-014127

Koistinen, O. (1995). *The Cambridge Companion to Spinoza*. Cambridge University Press.

Kojola, Erik & Pellow, D. N. (2020). New directions in environmental justice studies: examining the state and violence. *Environmental Politics*, 1–19. https://doi.org/https://doi.org/10.1080/09644016.2020.1836898

Latour, B. (1988). *The Pasteurization of France*. Harvard University Press.

Latour, B. (1993). *We Have Never Been Modern*. Harvard University Press.

Latour, B. (2013). *An Inquiry into Modes of Existence: Anthropology of the Moderns*. Harvard University Press.

Li, Tania Murray & Semedi, P. (2021). *Plantation Life: Corporate Occupation in Indonesia's Oil Palm Zone*. Duke University Press.

McEwan, C. (2022). Decolonizing the Anthropocene. In D. Chandler, David, Müller, Franziska & Rothe (Ed.), *International Relations in the Anthropocene: New Agendas, New Agencies, and New Approaches*. Palgrave Macmillan.

Mikhail, A. (2016). Enlightenment Anthropocene. *Eighteenth-Century Studies*, *49*(2), 211–231.

Mills, C. W. (2007). White Ignorance. In N. Sullivan, S. & Tuana (Ed.), *Race and epistemologies of ignorance* (pp. 13–38). State University of New York Press.

Mintz, S. W. (1985). *Sweetness and Power: The Place of Sugar in Modern History*. Penguin Books.

Mol, A. (2002). *The Body Multiple: ontology in medical practice*. Duke University Press.

Norris, F. (2009). *The Octopus: A Story of California*. Cosimo, Inc.

Paxson, H. (2008). Post-Pasteurian Cultures: The Microbiopolitics of Raw-Milk Cheese in the United States. *Cultural Anthropology*, *23*(1), 15–47. https://doi.org/10.1111/j.1548-1360.2008.00002.x

Pellow, D. N. (2016). Toward Critical Environmental Justice Studies: Black Lives Matter as an Environmental Justice Challenge. *Du Bois Review*, *13*(2), 221–236. https://doi.org/10.1017/S1742058X1600014X

Povinelli, E. A. (2002). *The Cunning of Recognition: Indigenous of Alterities and the Making of Australian Multiculturalism*. Duke University Press.

Povinelli, E. A. (2015). The rhetorics of recognition in geontopower. *Philosophy and Rhetoric*, *48*(4), 428–442. https://doi.org/10.5325/philrhet.48.4.0428

Povinelli, E. A. (2016). *Geontologies: A Requiem to Late Liberalism*. Duke University Press.

Povinelli, E. A. (2017). Geontologies: The Concept and Its Territories. *E-Flux*, *April 2017*, 11. https://www.e-flux.com/journal/81/123372/geontologies-the-concept-and-its-territories/

Roane, E. D. (2011). The Reemergence of Spinoza's Conatus in the Political Sphere. *Southwest Philosophical Studies*, *33*.

Sarukkai, S. (1997). the "Other" in Anthropology and Philosophy. *Economic and Political Weekly*, *32*(24), 1406–1409.

Shiva, V. (1993). Monocultures of the Mind--Understanding the Threats to Biological and Cultural Diversity. *Indian Journal of Public Administration*, *39*(3), 237–248. https://doi.org/doi:10.1177/0019556119930304

Shiva, V. (2014). Monocultures of the Mind. In V. Shiva (Ed.), *The Vandana Shiva Reader*. University Press of Kentucky.

Sprenger, Guido & Großmann, K. (2018). Plural Ecologies in Southeast Asia. *Sojourn: Journal of Social Issues in Southeast Asia*, *33*(2), ix–xxii.

Strathern, M. (2014). Cutting the Network. In H. L. & T. S. Moore (Ed.), *Anthropology in Theory: Issues in Epistemology*. Wiley-Blackwell.

Sutiono, A. (2014). *The roles and significance of wong pinter, the Javanese shaman* (Issue April). The University of Leeds.

The Editors of Encyclopaedia of Britannica. (2020). *Geologic Time*. https://www.britannica.com/science/geologic-time

Utarini, A., Indriani, C., Ahmad, R. A., Tantowijoyo, W., Arguni, E., Ansari, M. R., Supriyati, E., Wardana, D. S., Meitika, Y., Ernesia, I., Nurhayati, I., Prabowo, E., Andari, B., Green, B. R., Hodgson, L., Cutcher, Z., Rancès, E., Ryan, P. A., O'Neill, S. L., … Simmons, C. P. (2021). Efficacy of Wolbachia-Infected Mosquito Deployments for the Control of Dengue. *New England Journal of Medicine*, *384*(23), 2177–2186. https://doi.org/10.1056/nejmoa2030243

Wardana, A. (2022). A quest for agency in the Anthropocene: Law and environmental movements in Southeast Asia. *Review of European, Comparative & International Environmental Law*, 1–10. https://doi.org/10.1111/reel.12467

Winter, C. J. (2022). Introduction: What's the value of multispecies justice? *Environmental Politics*, *31*(2), 251–257. https://doi.org/https://doi.org/10.1080/09644016.2022.2039001

Wolf, E. R. (2010). *Europe and the People Without History*. University of California Press.

Zalasiewicz, J., Waters, C. N., Summerhayes, C. P., Wolfe, A. P., Barnosky, A. D., Cearreta, A., Crutzen, P., Ellis, E., Fairchild, I. J., Gałuszka, A., Haff, P., Hajdas, I., Head, M. J., Ivar do Sul, J. A., Jeandel, C., Leinfelder, R., McNeill, J. R., Neal, C., Odada, E., … Williams, M. (2017). The Working Group on the Anthropocene: Summary of evidence and interim recommendations. *Anthropocene*, *19*, 55–60. https://doi.org/10.1016/j.ancene.2017.09.001

Zhang, X. (2010). On the Influence of Naturalism on American Literature. *English Language Teaching*, *3*(2), 195–198.