BEYOND THE ANTHROPOCENE: EMERGENCE, MIGRATIONS AND PERSPECTIVISM

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Abstract

A critic of the concept of Anthropocene is proposed based on Viveiros de Castro's notions of "multinaturalism" and "perspectivism". The idea is that the biopolitical concepts of "emergence" is completely inadequate to understand the intrinsic dynamics of nature. On the contrary, life is intrinsically infectious, that is, life is nothing but a continual process of migration between life forms.

Keywords: Anthropocene, Multinaturalism, Perspectivism, Infection, Involution.

> Against positivism, which goes no further than the phenomenon and says, 'there are only facts', I would say: no, facts are precisely what there are not, only interpretations. We can establish no fact 'in itself'; perhaps it is nonsense to desire such a thing. 'Everything is subjective', you may say, but that is already an interpretation; the 'subject' is not something given, but an embellishment, an interpolation. Is it necessary to postulate the existence of an interpreter behind the interpretation? Even that would be a piece of fiction, a hypothesis. In so far as the word 'knowledge' has any meaning at all, the world is knowable. It may however be interpreted differently; it has no meaning hidden behind it, but rather innumerable meanings which can be assigned to it. Hence 'perspectivism' (Nietzsche 2017, p. 287).

1. *The Anthropocene has already ended*

What the current outbreak[1] of SARS-CoV-2 clearly demonstrates is that Anthropocene has either already ended, or it actually never began. In the

1 I am writing this paper in Rome, April 2020, at the height of the Covid-19 epidemic.

first case, this means that we have already left Anthropocene behind us. Take the 'official' definition of "Anthropocene" as "the present, in many ways human-dominated, geological epoch" (Crutzen 2002, p. 23). Even if such an epoch "could be said to have started in the latter part of the eighteenth century", approximately "with James Watt's design of the steam engine in 1784" (ibid.) the present and especially the near future situations are clearly *not* "human-dominated". Quite the contrary, our time is virus-dominated (Crawford 2002; Oldstone 2009; Dhingra *et al*. 2018). That is, even if we like to think of ourselves as the 'dominators' of the planet, the SARS-CoV-2 pandemic obviously shows the contrary. The point of viruses is particularly relevant because the present situation is nothing but exceptional, that is, an extraordinary situation that will soon be overcome so we may go back to the 'normal' "human-dominated" situation. In particular, in the last decades "we assist microbes to occupy new ecological niches and spread to new places in ways that usually only become apparent after the event. And to judge by the recent run of pandemics and epidemics the process seems to be speeding up. If HIV and SARS were wake-up calls, then Ebola and Zika confirmed it" (Honigsbaum 2019, p. 261). The usual anthropocentric way of describing these epidemic events is to place responsibility on us humans. For example, "urbanization and globalization would appear to be key factors. The mega-cities of Asia, Africa, and South America, like Athens at the time of Thucydides, provide ideal conditions for the amplification and spread of novel pathogens by concentrating large numbers of people in cramped and often unsanitary spaces" (*ibid*.). This is true, however many pandemics preceded the so-called anthropogenic age (Kelly 2006). We may think of the tremendous case of the medieval Black Death:

> Toward the end of the year 1347, a disease that was to become known as the Black Death was carried by trading vessels to the major ports in Sicily, Italy, and southern France. The disease probably originated in Central Asia, in the heart of the Mongol Empire, and spread westward along overland trade routes to the Crimea region on the north coast of the Black Sea, where it perhaps made its first contact with European (mostly Italian) merchants. But for most Europeans, their first experience of the plague's terror came in 1348, when the disease spread through Italy, France, Spain, and the Balkans, and invaded Switzerland, Austria, England, and perhaps Denmark. In the eastern Mediterranean, the plague seems to have pursued a similar course, first coming to Egypt, which had the greatest port in the Middle East, toward the end of the year 1347, and then spreading northward to Palestine and Syria by the spring and summer of 1348. Thereafter, in 1349 and 1350, the plague came to all of Germany and Eastern Europe, to the Low Countries, all of the British Isles, and all of Scandinavia. While the silence of the records indicates that it skipped

> over Poland and Bohemia, the plague finally arrived in Russia (probably by way of Sweden) in 1352. Overall, the Black Death killed up to 50 percent of the inhabitants of Europe in a little over two years and returned, with considerably lower mortality, in later outbreaks (Aberth 2005, p. VII).

Obviously, 1347 by definition precedes Anthropocene; nevertheless, the Black Death killed almost half of the European inhabitants of that period. In such an age there were no "mega-cities of Asia, Africa, and South America", the cities that according to Honigsbaum are one of the main causes of modern outbreaks. This does not mean that human beings do not participate in the spread of viruses. However, the Black Death reminds us that disastrous outbreaks existed well before Anthropocene. In fact, the idea that everything happening in the world depends more or less directly on human activity is a radical and unconscious form of anthropocentrism. What is at stake is not the denial of such human-related phenomena, such as global warming or air pollution; the point is that the concept of Anthropocene seems to imply a radical dualism between a worldly actor – *Homo sapiens* – on one side, and a passive receiver – nature, of its reckless actions – on the other.

Therefore, the Black Death in the past, and SARS-CoV-2 in the present and probable future, show us that there are many more agents in the world than the sole human species. This is the first point that I want to discuss in this paper: the concept of "Anthropocene" still conceals a humanist bias that must be deconstructed. In this context, the case of SARS-CoV-2 is particularly interesting, since there is still much scientific debate about the very nature of viruses: "first seen as poisons, then as life-forms, then biological chemicals, viruses today are thought of as being in a gray area between living and nonliving: they cannot replicate on their own but can do so in truly living cells and can also affect the behavior of their hosts profoundly" (Villarreal 2004, p. 101). To put it in extreme terms: are viruses mere *things* or are they *living* entities? What does the fact that nowadays science classifies them in such a "gray area between living and nonliving" mean if not that the usual distinction between what is alive and what is not alive is not as evident as we would like it to be? Let us consider the strange 'behavior' of viruses:

> A virus consists of nucleic acids (DNA or RNA) enclosed in a protein coat that may also shelter viral proteins involved in infection. By that description, a virus seems more like a chemistry set than an organism. But when a virus enters a cell (called a host after infection), it is far from inactive. It sheds its coat, bares its genes and induces the cell's own replication machinery to reproduce

> the intruder's DNA or RNA and manufacture more viral protein based on the instructions in the viral nucleic acid. The newly created viral bits assemble and, voilà, more virus arises, which also may infect other cells. These behaviors are what led many to think of viruses as existing at the border between chemistry and life (ivi, p. 102).

Notwithstanding such a weird metaphysical status, between chemistry and biology, a virus such as SARS-CoV-2 is actually upsetting what we all (at least those living in the happy and blind part of the world) considered the 'normal' way of living until only a few months ago; that is, a way of living that still allowed to think of life in a "human-dominated" world. The point at stake is that the virus is an independent *agent* even if it is not a human being or a living entity. To question the concept of "Anthropocene" means precisely to question this unthought metaphysical assumption according to which only *one* agent exists, and this agent is the *Homo sapiens* species. According to this unconscious thought, *all* other entities in the world are obviously destined to endure the consequences of human actions.

One of the major theoretical consequence of this way of thinking is the present insistence on what is now called "global ethics". According to a recent introduction to this field of study "global ethics will determine the framework of future global governance" (Widdows 2011, p. 1). It is not difficult to note the conceptual similarities between the idea of "Anthropocene" on one side, and "global governance" on the other. In both cases, there is only one actor on the stage, an ethically accountable and ecologically worried human being. In fact, what is at stake is a global approach that "will shape and limit the possible relationships and opportunities of all global actors" (*ibid*.). That such actors are human actors is so obvious that this fact almost does not deserve to be made explicit: in fact, what counts is the goal "of creating a world where human beings are treated ethically" (ivi, p. 2). The problem of such an approach is that it cannot help but privilege the human position with respect to the rest of the world. This is nothing but a direct consequence of considering human beings as the only real actors worth taking into account. The case of virus poses an insoluble problem to this approach: SARS-CoV-2 is evidently active in respect to human beings even if it does not have any of the metaphysical or juridical prerequisites that are necessary in order to be considered an ethical actor; it is not even a proper living entity. On the contrary, if one tried to take the question posed by a "global ethics" seriously then one would have to admit that a multitude of actors exist, human and non human, living and non living. Therefore, to question the humanistic and anthropocentric assumptions embedded in the concept of "Anthropocene" is pivotal.

2. *A multitude of agents*

What kind of world is that in which there exists not only one actor – the usual intrusive and cumbersome human one? The case of viruses is indeed challenging, because a virus presents itself as a non-human and non-living entity. Despite such significant ontological limitations, it is able to greatly affect human beings. To think beyond the Anthropocene properly does not imply to think the virus, moreover it implies to think *with* the virus. One of the best examples of such a way of thinking is the Actor-Network-Theory of Bruno Latour. According to this ontology, the stuff the world is made of is not as simple as we tend to think: us humans on one side (such an "us" is actually even narrower because it includes only the wealthy white part of humanity, typically the English-speaking fraction), all the rest on the other side. The first side of this dualism is the one active and ethically responsible; the other side undergoes the effects of the decisions of the first. The former is the subject; the latter is the object. What SARS-CoV-2 obliges us to re-think is such a dualism, which is simply false. The point is that there are many more other agents in the living world than we would like to admit. The case of the virus pushes us to adopt another perspective towards similar phenomena, such as earthquakes that destroy towns or an asteroid that falls on the earth burning down a forest. The usual way of considering such phenomena is to view them either as natural hazards, or as events that we are unable to predict. In both cases, we think of them as something that primarily has to do with us. Take the very interesting case of earthquakes.

The scientific debate around earthquakes is mainly dominated by the question of how, and when, science will be able to predict them. It also seems it is very difficult to admit that such an achievement might be impossible to reach (Matthews 1997). What is at stake is not the capacity of geophysics to formulate a scientific and accurate model of the dynamics of earthquakes; the point is that we assume that the possibility of such a model exists unquestionably. In fact, *Homo sapiens* is nothing other than such an unquestionable assumption. That is, according to our never questioned point of view an earthquake is only a very difficult *object* to understand. As if earthquakes were waiting for the moment scientists will be able to predict them. Exactly like our confident expectation of a vaccine that will make us all immune to the risk of contracting Covid-19. Take the case of the research for a vaccine for the retrovirus HIV. Despite more than three decades of intense and expensive work, such a vaccine has not yet been found; however, it is generally believed that such a vaccine will eventually be available. What I want to stress is not the obvious point that scientific

research is lengthy and difficult; the point is that we assume that earthquakes and viruses are (scientific) *objects*, that is, that they are at our own disposal. This is not a fact; however, this is an unquestioned and unchecked metaphysical assumption.

> If action is limited a priori to what 'intentional', 'meaningful' humans do, it is hard to see how a hammer, a basket, a door closer, a cat, a rug, a mug, a list, or a tag could act. They might exist in the domain of 'material' 'causal' relations, but not in the 'reflexive' 'symbolic' domain of social relations. By contrast, if we stick to our decision to start from the controversies about actors and agencies, then *any thing* that does modify a state of affairs by making a difference is an actor (Latour 2005, p. 71).

What Latour wants to focus on is the fact that such a world, which we call, almost without realizing it, 'our' world, is not at all at our disposal. In fact, what does SARS-CoV-2 show if not such an unavailability? One can say that this is an extraordinary case, a case that will be soon 'solved' by science and technology. The first thing to remember is that such a pandemic is neither the first – as we have already seen – nor will it be the last (Hsieh *et al*. 2006; Kilbourne 2008; Daszak *et al*. 2020). Obviously, we all hope there will be a rapid solution to the virus 'problem'. However, the main problem lies exactly in this same *concept* of 'problem'. A problem, by definition, is something that can be solved, at least in principle. Furthermore, to define something as a 'problem' implies that a possible solution already exists, that it is not far away or at least it is imaginable. To see the world as a set of 'problems' is nothing but another way of posing the exceptionality of the human position with respect to the rest of the world: we are the actors/subjects that can tackle any problem, immediately or at least in a reasonable span of time. It is in this context that the concept of "Anthropocene" is inscribed. In fact, such a concept has two interconnected aspects: the first is that we blame ourselves because we have devastated the whole planet Earth (what pride such a weak animal as the human one must feel because it is able to cause the ice of the North Pole to melt). The second aspect pertains to the ethical commitment to 'save' the planet and bring it back to its previous 'natural' state of harmony and balance. In both cases it is always *Homo sapiens* that plays the major role: as blind devastator and as wise physician. It is for this reason that the case of SARS-CoV-2 is so challenging, because by simply existing such an invisible entity 'declares' once and for all that in fact we do not live in a "human-dominated" world.

If we now assume the point of view that Latour presents us, we can look at earthquakes and asteroids in a different way. They are definitely non hu-

man nor are they living entities, however they are neither simple 'objects' waiting to be efficiently managed by humans. In the same vein, they cannot be merely considered as 'problems' that human beings have to solve. Latour proposes a simple example to illustrate this shift from a single-actor world – that of the usual old same human being – to a world where a multitude of actors is simultaneously present on stage: the case of a hammer and a nail. The usual metaphysical description of this situation is the following: there is an actor (a member of the *Homo sapiens* species), who actively uses an instrument, a hammer, to put an inert nail into a wall – the object that undergoes the action of the subject. The point Latour makes is simple: is the role of the nail simply that of passively receiving the blows of the hammer? Or does the nail in some way 'participate' in the action which is going on? Would the actor be able to hammer the nail without 'its' participation? If we imagine the case of a sponge nail, the whole operation would be impossible. To say that the nail is human-made, made of metal, so it can be easily hammered into the wall does not answer the previous question. The nail, whoever its 'maker' is, not only must not oppose the hammering operation, it must also cooperate effectively with it. On the other hand, who made the hammerer is equally not relevant in order to understand her role in such an operation. What matters is only that the relationship between the human being, the hammer and the nail is not linear and that a sharp division does not exist between an active subject on one side, and a passive object on the other side:

> This, of course, does not mean that these [non-human] participants 'determine' the action, that […] hammers 'impose' the hitting of the nail. Such a reversal in the direction of influence would be simply a way to transform objects into the causes whose effects would be transported through human action now limited to a trail of mere intermediaries. Rather, it means that there might exist many metaphysical shades between full causality and sheer inexistence. In addition to 'determining' and serving as a 'backdrop for human action', things might authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid, and so on (ivi, pp. 71-72).

This kind of world where agency is not a solely human prerogative is the world described in *Cannibal Metaphysics* by the Brazilian anthropologist Viveiros de Castro. In particular, it is the world-view of the populations that live in the Amazon rainforest. According to de Castro, these populations do not perceive themselves as being the only and unique entities endowed with agentivity and personhood. The forest is not the stage of only one kind of actor, human beings. In such a world the condition of personhood is not

exclusively human nor is it permanent. Personhood can be embodied by a 'person', a stone, a tree, an animal and even a place. At the same time to be human is not synonymous of being also a person: it is a "conception of the world as composed of a multiplicity of points of view. Every existent is a center of intentionality apprehending other existents according to their respective characteristics and powers" (de Castro 2014, p. 51). Therefore, the end – provided there is a beginning – of Anthropocene is precisely the end of a world where such a multiplicity of perspectives does not hold. According to de Castro what is peculiar of such a world-view is what he defines "multinaturalism"; translating it into Western concepts, there are multiple ontologies (natures) but only one "knowledge" (subjectivity). This is the opposite of what 'our' anthropocentric position presumes as obvious, that the world is only one while there is a multiplicity of point of views. The basic tenet of "multinaturalism" is a radical *ontological* pluralism – that is, such a pluralism is not relative to knowledge. There is a multiplicity of living worlds, because all entities of the world, animate or inanimate, are subjective, that is, they all are in some way endowed with agency. Such a stance implies:

> the redistribution of the predicates arranged in the paradigmatic series of "nature" and "culture": universal and particular, objective and subjective, physical and moral, the given and the instituted, necessity and spontaneity, immanence and transcendence, body and spirit, animality and humanity, and so on. The new order of this other conceptual map led us to suggest that the term "multinaturalism" could be used to designate one of the most distinctive traits of Amerindian thought, which emerges upon its juxtaposition with modern, multiculturalist cosmologies: where the latter rest on the mutual implication between the unicity of nature and the multiplicity of cultures – the first being guaranteed by the objective universality of bodies and substance, and the second engendered by the subjective particularity of minds and signifiers – the Amerindian conception presupposes, on the contrary, a unity of mind and a diversity of bodies. "Culture" or subject as the form of the universal, and "nature" or object as the particular (ivi, pp. 55-56).

3. *Perspectivism*

The concept of "Anthropocene" hiddenly implies that the entire world depends on human decision and action, for better or for worse. This is the main reason why much debate about such an issue is limited to ethics. In fact, only an (adult) human being can be considered as a full ethical subject – that is, someone who is capable of decision in juridical terms – while

all other participants in the ethical field are 'ethical' only in a derivative way. Take the exemplar case of non-human animals: for example, a rat is not properly an ethical *subject*; moreover, it can only be the *object* of a human ethical debate. Perhaps *Homo sapiens* has moral obligations toward a member of *Rattus rattus* species, no one expects the opposite. It is this unquestioned lack of reciprocation that shows what the underlying metaphysical problem is; such an approach cannot but perpetuate the anthropocentric human/nature dualism, even if according to eco-critical thinking the concept of "Anthropocene" was supposed to question exactly this. For this reason "multinaturalism" must be taken seriously, that is, the idea of a "universe inhabited by diverse types of actants or subjective agents, human or otherwise – gods, animals, the dead, plants, meteorological phenomena, and often objects or artifacts as well – equipped with the same general ensemble of perceptive, appetitive, and cognitive dispositions: with the same kind of soul" (ivi, p. 56).

Once again, the case of SARS-CoV-2 is prototypical. According to the latest researches, it seems that the virus derives from one 'originally' hosted in bats (Andersen *et al*. 2020, p. 450). At the same time, the spillover from non-human animals to human animals of such a virus probably develops through two different although connected biological "scenarios […]: (i) natural selection in an animal host before zoonotic transfer; and (ii) natural selection in humans following zoonotic transfer". Take the first scenario: "given the similarity of SARS-CoV-2 to bat SARS-CoV-like coronaviruses, it is likely that bats serve as reservoir hosts for its progenitor". What is a "reservoir host"? It is a living being "that is essential for the maintenance and transmission of an infectious agent" (Olival *et al*. 2012, p. 196). In this case it seems that the bat does not suffer harmful consequences from this virus. Moreover, "there are several types of reservoirs, characterized by their role in transmission cycles. Natural reservoirs are the species that maintain the infectious agent in nature. Incidental or accidental reservoir hosts are species that may get infected by the pathogen, and even transmit it, but are not part of the normal maintenance cycle of the pathogen (i.e., involved in a very small number of transmission incidents)" (*ibid*.). The overall picture that emerges is that of a natural condition where life-forms, or *quasi* life-forms such as viruses, continuously pass from a living being to another living being. That is, the *spillover* – a "pathogen spillover" is defined "as the driving of disease dynamics in one host population by contact with pathogen propagules (regardless of transmission mode) from another host population as a result of high pathogen abundance in this reservoir population" (Power,

Mitchell 2004, p. S79) – is all but exceptional. In this particular case, the existence of yet another "reservoir host" is hypothesized, the "Malayan pangolins (*Manis javanica*) illegally imported into Guangdong province" that also "contain coronaviruses similar to SARS-CoV-2" (Andersen *et al*. 2020, p. 450).

The second evolutionary "scenario" of the outbreak of SARS-CoV-2 is somewhat similar to the first one, with the difference that in this case the passage is from one human body to another human body: "it is possible that a progenitor of SARS-CoV-2 jumped into humans, acquiring the genomic features […] through adaptation during undetected human-to-human transmission. Once acquired, these adaptations would enable the pandemic to take off" (ivi, p. 451). In both cases, what seems to be the 'normal' situation is that in which genetic material spreads between living beings. Take the case of what is called "zoonosis". "Zoonosis" – a disturbing term derived from the composition of ζῷον, animal, and νόσος, disease – is defined as "an infection or disease that is transmissible from animals (vertebrates) to human beings. Sometimes there is also a vector involved in the transmission. Nevertheless, animals play a main role in maintaining the infections in nature. Zoonotic diseases are mainly due to bacterial, viral or parasitic agents although 'unconventional agents' such as prions could also be involved in zoonotic diseases" (Lorenzo-Morales 2012, p. IX). This is a disturbing definition for at least two reasons: because it links animals, especially those we eat and love, vertebrates, to danger and disease; and because it implicitly separates humans from animals. Indeed, the question arises as to whether this is a biological or biopolitical definition, that is, whether the concept of zoonosis relates to life or to the administrative and police governance of life. *Homo sapiens* is *sapiens*, but belongs to the genus *Homo*, which in turn belongs to the *Hominidae* family, which includes not only humans but also the so-called great apes (gorillas, chimpanzees and orangutans). From a zoological point of view, a human being is as much an animal as any other animal. If this is true, and it is indisputably true, why should an infection that passes from a bat to a human being be so different from one that passes from a bat to another animal? Not to mention those that pass from humans to animals (*Zooanthroponosis*; Messenger *et al*. 2014).The definition of zoonosis that we have just mentioned allows to identify a first cause of the current zoonotic SARS-CoV-2 "emergency": "a major factor contributing to the emergence of new zoonotic pathogens in human populations is the increased contact between humans and animals. This is mainly due to either by encroachment of human activity into wilderness

areas or by movement of wild animals into areas of human activity due to anthropological or environmental disturbances" (ibid.). The curious aspect of such an "explanation" is that it seems to assume that the contact between animals and humans is to some extent exceptional and recent, as if in a hypothetical 'normal regime' animals were in their place with other animals, while humans should be placed only or at least predominantly among other humans.

This is the unthought aspect of the so-called Coronavirus "emergency": in a 'normal' world animals are simply animals, i.e. they are bred, eaten and cuddled (in particular the animal subgroup of so-called "pets") but do not mix with us humans. If everyone remains properly closed up in her/his biopolitical bubble, everyone will be happy and safe. However, life is dirty and contaminated (Coccia 2018), it does not know what to do with administrative and health distinctions, let alone political and police ones. According to recent estimates, two thirds of virus species capable of infecting humans also affect other animals, in particular mammals and birds (Woolhouse *et al*. 2012). Infection, then, is not the exceptional state of life; on the contrary, life is nothing other than a continuous and unstoppable infectious process. In fact, what is at stake in the apocalyptic narratives of global infections is precisely the biopolitical notion of "individual". From a strictly biological point of view, in fact, there is no such thing as an individual, that is, as a biologically "pure" and self-sufficient entity, since every form of life is always to some extent "infected" by other organisms. Think, for example, of the decisive role played by bacteria within the eukaryotes, both from a phylogenetic point of view (according to the most accredited hypothesis mitochondria are nothing but bacteria incorporated within the cellular envelope) and in the daily life of every mammal; without intestinal bacterial infection we would not even be able to digest the food ingested (see McFall-Ngai *et al*. 2015).

If we now try to seriously assume the perspective of "multinaturalism", we come to realize that the SARS-CoV-2 outbreak highlights the basic biological fact that "we have never been individuals" (Gilbert *et al.* 2012). If living beings have never been self-sufficient individuals, then contagion is the 'normal' condition of nature, that is, a situation where living and non-living materials spread between organisms. "Multinaturalism" explicitly addresses such a point: contagion is nothing but the situation in which a super-point of view does not exist, our point of view, the human one; on the contrary, contagion is a situation in which a multitude of perspectives is simultaneously operative. In this regard, in her latest visionary book *Stay-*

ing with Trouble, Donna Haraway takes up and develops the concept of "*holobiont*", originally proposed by the biologist Lynn Margulis (1991):

> I use *holobiont* to mean symbiotic assemblages, at whatever scale of space or time, which are more like knots of diverse intra-active relatings in dynamic complex systems, than like the entities of a biology made up of preexisting bounded units (genes, cells, organisms, etc.) in interactions that can only be conceived as competitive or cooperative. Like hers, my use of holobiont does not designate host + symbionts because all of the players are symbionts to each other, in diverse kinds of relationalities and with varying degrees of openness to attachments and assemblages with other holobionts (Haraway 2016, p. 60)

Haraway's idea is that a holobiont does not result from the sum of pre-existing and self-sufficient elements, on the contrary, a "host-symbiont seems an odd locution for what is happening; at whatever size, all the partners making up holobionts are symbionts to each other" (ivi, p. 67). The holobiont, after all, is the deactivation of the biopolitical notion of infection. To make this point clear: according the Anthropocene model human life is the reference-point of the entire world. SARS-CoV-2 can be considered as an exception that threats human survival only in this anthropocentric context. However, if one takes into account the multiplicity of life perspectives, such an emergence is not an emergency at all; because life is by itself infectious.

In fact, the concept of "infection" – precisely because of its unthinkable biopolitical nature – is unable to account for the challenge that the case of the Coronavirus poses to our time: SARS-CoV-2 asks us to imagine a world in which the passage from one species to another, from one place to another, from one identity to another, is no longer the exception to be confined by means of immunization and sterilization practices (Esposito 2002; Cimatti, 2020). On the contrary, it is a question of seeing the case of the Coronavirus as the emblem of a wholly relational world populated by an irreducible multiplicity of agents, among which human agents are only a minor fraction.

Such a world definitely escapes human control (what else is the Anthropocene if not such an escape of the world from human grasp?). In this sense the concept most useful to think about this situation is that of "involution" (Hustak, Myers 2015), discussed by Deleuze and Guattari in *A Thousand Plateaus*: "for this form of evolution between heterogeneous terms is 'involution', on the condition that involution is in no way confused with regression. Becoming is involutionary, involution is creative. To regress is to move in the direction of something less differentiated. But to involve

is to form a block that runs its own line 'between' the terms in play and beneath assignable relations" (Deleuze, Guattari 1987, p. 238-239). Involution opens up the possibility of "unheard-of becomings" (p. 240), beyond human control, beyond the presumption of Anthropocene.

4. *"Purity is not an option"*

There is a very interesting example of such an "unheard-of becoming" in the recent book by the anthropologist Anna Lowenhaupt Tsing, *The Mushroom at the End of the World*. This book can be summarized with a short phrase: "thinking through mushrooms" (Tsing 2015, p. 285). That is, we need to start assuming a point of view that is not ours. A mushroom allows us to decentralize ourselves, to discover that we humans are not the only agents capable to modifying the world. In the end, this mushroom simply 'tells' us that the possible end of the *human* world does not at all imply the end of the *world*.

The mushrooms in question is the *Tricholoma matsutake*, a mushroom that lives and thrives in habitats that have been heavily damaged and compromised by human industrial or agricultural activity. The case of this mushroom is particularly interesting because it shows how the actual spread of life has nothing to do with anthropocentric concepts such as "equilibrium" or "natural habitat". Take the case of this mushroom: what is its own 'natural' habitat? One can find it in a multitude of places around the planet: the only thing these places have in common is that they have been devastated by human activity. Despite such a destruction they not only survive in these places, they actually thrive. That is, these mushrooms are the non-human agent of their own lives, even if according to our poor imagination these lives are supposed to be impossible.

> Western philosophers have shown us a Nature that is grand and universal but also passive and mechanical. Nature was a backdrop and resource for the moral intentionality of Man, which could tame and master Nature. It was left to fabulists, including non-Western and non-civilizational storytellers, to remind us of the lively activities of all beings, human and not human. […] interspecies entanglements that once seemed the stuff of fables are now materials for serious discussion among biologists and ecologists, who show how life requires the interplay of many kinds of beings (ivi, p. VII).

In her book, Anna Lowenhaupt Tsing follows the "interspecies entanglements" between the mushrooms and the human pickers on one side,

and the economic and historical happenings that led to their encounter on the other. Such "interspecies entanglements" are not programmed in advance, nor are they 'natural'. What is at stake is precisely to be rid of the idea of "nature" as something self-regulating and well-balanced. There is nothing 'natural' in such an entanglement between a stinky mushroom and an American Vietnamese refugee who picks it to sell it to a Japanese dealer. One cannot understand such an entanglement using the usual ethical categories, because ethics is still too human and anthropocentric to be able to convey the vital and dirty complexity of the "assemblage" between mushrooms and human beings: "this 'anthropo-' blocks attention to patchy landscapes, multiple temporalities, and shifting assemblages of humans and nonhumans: the very stuff of collaborative survival" (p. 20). The concept of "collaborative survival" is a concept that places itself beyond Anthropocene. A typical Anthropocenic concept assumes that any ecological problem requires the presence of a human agent who solves it; in this case, what is at stake is a "collaborative survival" between multiple agents. What is worth stressing is that such agents can be either animal or non-animal, like the mushroom. The concept at the origin of such a "collaborative survival" is the concept of assemblage developed by Deleuze and Guattari: "an assemblage is precisely this increase in the dimensions of a multiplicity that necessarily changes in nature as it expands its connections" (Deleuze, Guattari 1987, p. 8). The key character of an "assemblage" is that one cannot understand it in ethical terms, that is, in an anthropocentric way.

> Making worlds is not limited to humans. We know that beavers reshape streams as they make dams, canals, and lodges; in fact, all organisms make ecological living places, altering earth, air, and water. Without the ability to make workable living arrangements, species would die out. In the process, each organism changes everyone's world. Bacteria made our oxygen atmosphere, and plants help maintain it. Plants live on land because fungi made soil by digesting rocks. As these examples suggest, world-making projects can overlap, allowing room for more than one species. Humans, too, have always been involved in multispecies world making. Fire was a tool for early humans not just to cook but also to burn the landscape, encouraging edible bulbs and grasses that attracted animals for hunting. Humans shape multispecies worlds when our living arrangements make room for other species. This is not just a matter of crops, livestock, and pets. Pines, with their associated fungal partners, often flourish in landscapes burned by humans; pines and fungi work together to take advantage of bright open spaces and exposed mineral soils. Humans, pines, and fungi make living arrangements simultaneously for themselves and for others: multispecies worlds" (Tsing 2015, p. 22).

Life keeps on living beyond and despite Anthropocene. In this sense, Anthropocene has already ended, if it ever started. That Anthropocene never really began means that agency is widespread and it is not limited to the human; moreover, it is also not limited to the living. The case of the "collaborative survival" of mushrooms, damaged forests and humans highlights that the interconnected processes of migration and formation of new forms of life is continuous. From this point of view, migration is not at all a special case, let alone human migration from the poor global South to the rich global Nord of the world: in fact "billions of animals from groups as diverse as mammals, birds, fish, and insects undertake regular long-distance movements each year to track seasonal changes in resources and habitats" (Altizer *et al*. 2011, p. 296). Life is migration and contagion. According to the usual anthropocentric way of thinking, animals live in a specific habitat that is more or less delimited, while human beings are supposed to be the only living beings capable of colonizing different environments. Quite the contrary, migration is the basic phenomenon of life, both animal and vegetal: "the first characteristic of migrants is persistent movement" (Dingle 1996, p. 23). Life is movement that cannot be stopped: "migrant organisms are undistracted by those stimuli that would arrest their movements" (ivi, p. 24). Therefore, life is contagious: "staying alive – for every species – requires livable collaborations. Collaboration means working across difference, which leads to contamination. Without collaborations, we all die" (Tsing 2015, p. 28).

On other side migration and contamination means innovation, that is, any "assemblage" between different organisms and soils paves the way – as Deleuze and Guattari say – to "unheard-of becomings" (Bubandt, Tsing 2018): "contamination makes diversity" (Tsing 2015, p. 29). Not only is migration not a danger to life, quite the contrary, migration, as movement and opportunity, is intrinsic to the dynamic of life: "contamination. We are contaminated by our encounters; they change who we are as we make way for others. As contamination changes world-making projects, mutual worlds – and new directions – may emerge. Everyone carries a history of contamination; purity is not an option. One value of keeping precarity in mind is that it makes us remember that changing with circumstances is the stuff of survival" (ivi, p. 27). This is the point, "purity is not an option".

In the end, one can try to go back to ethics. However, what is at stake is not an anthropocentric ethics, that is, a human-centered ethics. Beyond Anthropocene, one can find a vital field where a multitude of agents exists, without a unique and superordinate intentionality. This is the major change in respect to the time of the unquestioned primacy of Anthropocenic na-

ivety, when *Homo sapiens* thought of itself as being the only actor on the stage, while the whole of nature was intended as a passive and timorous object. The time after Anthropocene is a time, as Tsing puts it, of "precarity":

> Precarity is the condition of being vulnerable to others. Unpredictable encounters transform us; we are not in control, even of ourselves. Unable to rely on a stable structure of community, we are thrown into shifting assemblages, which remake us as well as our others. We can't rely on the *status quo*; everything is in flux, including our ability to survive. Thinking through precarity changes social analysis. A precarious world is a world without teleology. Indeterminacy, the unplanned nature of time, is frightening, but thinking through precarity makes it evident that indeterminacy also makes life possible (ivi, p. 20).

Precarity means that we *all* – human beings and mushrooms, radioactive forests and advocates of happy degrowth, soils and bats – are entangled in a "collaborative survival" process. What SARS-CoV-2 – and all the unpredictable pandemics to come (Antoine *et al.* 2011) – tell us is that we live in a world that is outside our human control, a world that can keep on living only because it is a runway world: "precarious living is always an adventure" (ivi, p. 163).

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