NO-ONE'S EARTH: AN ARENDTIAN INTERPRETATION OF THE TRAGEDY OF THE COMMONS AT THE BEGINNING OF 2020

Mirka Muilu

The article conceptualizes the relationship between human action and material reality by interpreting the commons in the light of philosopher Hannah Arendt's theorization. It approaches Arendt as a new materialist thinker of science and technology and completes her view of the dynamic of the world and the earth with critical posthumanist perspectives. This leads to the theoretical basis for understanding the interrelationship between human and non-human agency in the construction of the commons at the time when technologies are increasingly intervened in biological and social processes. Arendtian vantage point of the commons emphasizes humans' conditionality on their environment and, thus, on the fabricated technology, which, in turn, becomes part of the environment. This interpretation puts forth a perspective for the discussions that seek to approach the commons from less anthropocentric perspectives, without forgetting the responsibility that comes with the unique human action.

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ABSTRACT

The article conceptualizes the relationship between human action and material reality by interpreting the commons in the light of philosopher Hannah Arendt's theorization. It approaches Arendt as a new materialist thinker of science and technology and completes her view of the dynamic of the *world* and the *earth* with critical posthumanist perspectives. This leads to the theoretical basis for understanding the interrelationship between human and non-human agency in the construction of the commons at the time when technologies are increasingly intervened in biological and social processes. Arendtian vantage point of the commons emphasizes humans' conditionality on their environment and, thus, on the fabricated technology, which, in turn, becomes part of the environment. This interpretation puts forth a perspective for the discussions that seek to approach the commons from less anthropocentric perspectives, without forgetting the responsibility that comes with the unique human action.

INTRODUCTION

In recent years, commons scholars have been striving to think the commons beyond dichotomies, such as the market versus the state or the ecological versus the social, by reconsidering the relationship between humans and their environment. In my article, I offer a perspective on this discussion based on the philosopher Hannah Arendt's thinking in her books *The Human Condition* (HC; 1958/1998) and *The Life of the Mind* (LM; 1978). By approaching Arendt as a theorist of science and technology and complementing her understanding of the common world with critical posthumanist perspectives, Bruno Latour's (1993, 2004a) notion of matters of concern and N. Katherine Hayles's (1999, 2017) idea of non-conscious cognition, the article offers a way to consider the commons on a planetary level. This theoretical basis makes it possible to comprehend human conditionality as well as our species' responsibility for the common world at a time when sophisticated technologies are becoming

increasingly intertwined with nature and society. Instead of separating resources and individual actors, the focus of the analysis is on planet Earth as a commons. My main argument is that to understand the idea of the commons on a planetary scale, we must expand our view of community to incorporate non-human agency. This is an important task, not only philosophically but also from the perspective of practical policy, in resolving the tragedy of the commons – that is, the current planetary emergency.

The structure of the text is divided into two parts. In part one, I conceptualise the commons by defining the relationship between human activities and the environment based on Arendt's thinking. First, I outline the debate on the tragedy of the commons and highlight some of its conceptual intricacies. Next, I briefly justify my interpretation of Arendt as a theorist of science and technology before turning to explain her concepts of earth and world and suggesting that they can capture the dynamics of the commons between nature and human actions without falling into anthropocentrism. I complement this interpretation with Arendt's concept of common sense, which emphasises the earthly nature of being human. In the second part, I look at technology as part of the commons by supplementing Arendt's framework with posthumanistic perspectives. More specifically, I supplement the Arendt-based understanding of the commons with Bruno Latour's notion of the gatherings of non-human agency. I suggest that Arendt's and Latour's descriptions of alienation from the common world have many previously unnoticed similarities and that through their analysis it becomes possible to perceive the disappearance of the commons as a result of the scientific, technological and economic revolutions. As a sort of a culmination of the developments Arendt and Latour criticised, I address the current nano, bio, information and cognitive (NBIC) technologies and especially the transhumanist goals and aspirations associated with them. In contrast to the transhumanist orientation that reduces life, thinking and politics to mere information, I consider the human as a being that fabricates technology

and thereby creates new conditions for itself. To illustrate the role of the human as a shaper of the planetary commons, I will combine, though very briefly, Arendt's view of the conditioning power of technology with the anthropological analysis by André Leroi-Gourhan and with N. Katherine Hayles's idea of non-conscious-cognition.

THE COMMONS BEYOND ANTHROPOCENTRIC DICHOTOMIES?

The Tragedy of the Commons (1968/2009) by the ecologist Garrett Hardin is the most debated source for understanding the various commons and their resource allocation. In his pamphlet, Hardin illustrates the tragedy through his well-known hypothetical example whereby farmers' aspirations to increase livestock eventually lead to the overuse of resources. The tragedy arises when no herder is able to pasture the field due to overconsumption. According to Hardin, this damaging progress is a result of the rational and individual-centred thinking according to which the benefits of adding animals accrue to the farmer alone while the costs are shared among all the farmers of the area (Hardin 2009).

Among commons scholars, Hardin has been widely criticised for his individualistic idea of man and has often been regarded as an eco-authoritarian thinker who reduces society to the interactions between competing and calculating individuals (see Hess & Ostrom 2007, 11; Ostrom 2015, 19–43). The critics have argued that history contains numerous examples where the tragedy is prevented when communities adopt agreements for the sustainable use of land. As E. P. Thompson observed, Hardin failed to grasp "that commoners themselves were not without common sense" (Thompson 1991; Rowe 2012). The real tragedies did not arise due to the inherent problem of collective action but because of the changes in external conditions that led to the disintegration of the prevailing governing system. The point of the critics is to show that Hardin does not speak of the commons in the true sense of the term, as a matter of common concern.

Due to being intertwinement with conflicting historical developments and different academic discourses, the word "commons" may refer to a wide variety of resources, reserves and commodities, whether tangible or intangible. However, most definitions include certain means to share and govern the given resource. Thus, the concept partly points to some kind of resource and partly to cooperation concerning that same resource. This is also etymologically evident: in the original Latin, the term *res communis* refers to thing (*res*) and community (*communis*). Therefore, the literal meaning of the commons is "the thing of the entire community" (Fellmeth & Horwitz 2011, 250). The implementation of the commons always requires boundaries, rules, social norms and decision-making procedures based on the equality of the members of the group.

In fact, the description of tragedy in Hardin's sense is a description of a situation in which the community does not exist. In other words, it tells more about the tragedy of *terra nullius*. Unlike *res communis*, *terra nullius* (or the connected term *res nullius*), is a term derived from Roman law, whereby the thing (*res*) or land (*terra*) is not yet an object of the rights of any specific subject and hence is counted as property that is to be acquired by means of *occupation* (Fellmeth & Horwitz 2011, 253). In the 16th and 17th centuries, European conquerors treated the seized territories in America and elsewhere as *terra nullius*, and the term was used to justify the exploitation of nature and the indigenous peoples. Colonialism established its position in national constitutions and cultural norms around the world, maintaining an unsustainable relationship with nature and its processes (Hendlin 2014, 141–157).

This article does not address in any detail the discussions concerning the interpretations of Hardin's assumptions about being human. The reason I opened my discussion with Hardin is simply that the tragedies of commons, as he defines them, are not yet overcome on the global scale. The

international political community has been incapable of addressing and resolving these issues within the free-market and national legislations concerning, for example, water, air, energy or information and the internet (see Quilligan 2010). Despite the existence of thorough critique, neoliberal economists have often interpreted and exploited Hardin's notion of tragedy as an example of the impossibility of collective action to justify the free-market ideology and the enclosure of common resources (Bollier & Helfrich 2012; Rowe 2012). The global tragedies have been addressed through market-based privatisation or state legislations that also are often tied to the global trade policy. However, solving the problem of overuse through the privatisation of resources is not about solving the tragedy of the commons but about destroying the commons itself and the possibility of democratic collaboration that is inherent to it. As David Bollier says in the introduction of his book *Think like a Commoner* (2014), "The biggest 'tragedy of the commons' is the misconception that commons are failures—relics from another era rendered unnecessary by the market and state."

A significant part of the conceptualisations dealing with the commons is based on a dualist view of subjects and objects, society and nature (see Bollier & Helfrich 2012). These simultaneously anthropocentric positions can be seen as implicitly reflecting the modern understanding of people as primarily speaking creatures that utilise and control nature through technology and politics. In the past few years, however, wide-ranging research in science and technology studies (STS), anthropology, posthumanism and environmental and infrastructure studies has questioned the dichotomous boundaries that lie at the heart of modern liberalism and the Enlightenment, trying to create, instead, new conceptions about knowledge, time, agency and politics (see Jasanoff 2004a, 2–3; Latour 2005; Jensen 2015).

These dichotomies are not only theoretically blurred. Lately, the dwindling of global resources has forced humanity to admit the irrevocable mutuality of

natural processes and human actions and to agree that society cannot be separated from an unfathomable nature. The changed relationship between humans and other living matter manifests itself in the present-day multimedia hybrids composed of the NBIC. These hybrids are already capable of expanding and renewing life in biological, synthetic and cybernetic terms. As the human condition is increasingly determined by technology, the previously secure dualistic oppositions between reason and body, culture and nature and constructivism and essentialism become problematic (Tirosh-Samuelson 2009). While giving us seemingly better opportunities to do what we want, technologies also limit the richness of our actions and carry unpredictable consequences. They create dependencies by introducing functions that are connected to other technologies and biological organisms. As it is customary to say in critical technology studies, we are living in techno-social systems through and through.

The fundamental changes in the historical self-understanding of us humans do not mean that the commons have become an outdated and unnecessary concept. On the contrary, by providing an existential opportunity to reconsider the humans' relationship to their environment, the commons appears as one of the most important concepts of our time. The recent commons scholarship has grappled with the issue and sought to think of the commons beyond the market and the state. For example, the biologist Andreas Weber contends that commons not only concerns politics or economics, but it is a condition of life and all its forms, from cellular matter to human beings. The idea of the commons provides a unifying principle that dissolves the supposed opposition between nature and society and cancels the separation of the ecological and the social. (Weber 2012.) The commons challenges to consider what it means for something to be owned by no-one but shared by everyone.

In what follows, I address this question with the help of the philosopher Hannah Arendt and her books *The*

Human Condition (HC; 1958/1998) and *The Life of the Mind* (LM; 1978). By interpreting Arendt as a theorist of science and technology and complementing her understanding of the common world with posthumanist perspectives, I offer a way to conceive the commons on a planetary level. On this theoretical basis, I suggest, it becomes possible to comprehend both human conditionality and the responsibility for the common world at the time of highly sophisticated technologies, the most transformational of which is probably the ability to shape the heritage of biological organisms by splicing DNA molecules.

ARENDT AS AN STS THINKER

With reference to the technological innovations of her own time, such as the launching of the first Sputnik satellite in 1957, splitting the atom and the rise of automation, Arendt asked, in the preface to HC, a simple but important question: "What are we doing?" Obviously, Arendt's point was not to query how the mentioned innovations were technically realised but to challenge the readers to consider the ethical implications and political consequences of these technologies. Writing in the preface to HC, Arendt also makes clear that what she has in mind is not just a general analysis of human activity but "a reconsideration of the human condition from the vantage point of our newest experiences and our most recent fears" (HC, 5).

Despite her interest in technological developments and engineering practices, Arendt is rarely included in the domain of STS, or in that of the philosophy of technology, for that matter. One significant reason for this neglect may be that, to date, Arendt has been mainly considered to be a political theorist. Academic discussions in the 1990s on Arendt's thought tended to focus on her tripartite division of *vita activa* – that is, the analytical distinction she made between the fundamental dimensions of human activity – into *labour*, *work* and *action*. According to the "standard" interpretation of HC, Arendt wanted to protect the realm of free public action against the necessity of labour and the

instrumentality of work (see e.g. Markell 2011, 24). Such an interpretation can be justified, but the problem is that it ignores the importance of fabrication in Arendt's analysis, thereby leading easily to mistake her as a dualist thinker.

In contrast, my take on Arendt is to see her primarily as a theorist who stresses the collapse of old categories of *vita activa* that followed from the development of modern technologies and the industrial revolution. A historical description shows how advances in science and technology render problematic the role of human agency in modern times by initiating a process of alienation from both the natural earth and the humanly created world. Hence, the interpretation I present here resonates with some of the more recent readings of Arendt, such as Marieke Borren's (2013) recognition of Arendt as a hermeneutical phenomenologist, Philip Walsh's (2011) reading of social ontology in HC and Laura Ephraim's (2018) spotting of Arendt's "worldly" turn. These interpretations do not negate the value of the earlier approaches, but they do emphasise the internal coherence and integrity of Arendt's conceptualisations and pay attention to her interest in science and technology (see also Tijmes 2008; Yaqoop 2014; Canovan 1998; Undurraga 2019).

The aspiration of this article is not to develop a new reading of Arendt's HC. Rather, the aim is to create a less dualistic understanding of the commons based on my interpretation of Arendt and to think with her the prospects of the global commons at the beginning of 2020. Proceeding from this starting point, HC is not so much a book about human action as it is a work concerning the ontological conditions and the historically changing dynamics of this action. Such a take on HC helps us to understand more precisely how political subjects are conditioned by technology in the modern world. It also offers a fruitful theoretical background to re-examine the conception of the commons in a new situation where the modern definitions of the human, the natural and the relations between these two categories are profoundly challenged. In the

next section, I scrutinise Arendt's understanding of the dynamic between her concepts *earth* and *world*, which broadly refer to nature and society, respectively. I will argue that it allows us to perceive the commons as a form of collaboration that focuses on building a common world rather than conceiving of it as mere resource management.

EARTH AND *WORLD* IN ARENDT'S THINKING

For Arendt, the worldly nature of being a human consists of inhabiting both the *earth* and the *world*. In this dual view, the earth refers to the natural realm, which provides the necessary material conditions, such as nutrition, oxygen, water and favourable temperatures, for the process of biological labour, that is the metabolism of life. At the same time as humans live on planet Earth, they also, so to speak, "world" it by fabricating durable things and acting among and relating to other people. This capacity to build a lasting world, which exceeds the life span of individuals, distinguishes humans from other animals (HC, 2). *The world* is thus formed by the *works* of *homo faber* and the *actions* of *zoon politikon*.

In Arendt's tripartite distinction between labour, work and action, *homo faber* points to the dimension of *vita activa* that enables humans to work their earthly environment by making tools, buildings, institutions and art. These fabricated things are, metaphorically speaking, like a table: artefacts that simultaneously bring people together but also separate them from each other (HC, 52–53). The metaphor of the table refers to the materiality of the in-between or the mediating things, but it also extends to cover more than human-made artefacts: the world also comprises things that are publicly shared with other human beings through communication. In other words, the world is not only created by *homo faber* through its artefacts but equally through the public actions of *zoon politikon*, the political animal, in its relations to other people. Thus, action takes place always between different kinds of people, "in-between" of human plurality.

Consequently, the world actualises and takes its shape simultaneously through fabricated artefacts and in the networks of human communicative plurality. From an Arendtian perspective, we enact our humanity by creating an artificial world that was built to seek immortality through publicly memorable acts.

Now, it could be easy to insist that Arendt's distinction between the earth and the world reflects a dualistic view of the relation between humans and nature due to her splitting the dimensions of *vita activa* into separate ontological categories. This is not the case, however, since Arendt particularly emphasises human dependence on earth's materiality, for example when she writes the following: "The human artifice of the world separates human existence from all mere animal environment, but life itself is outside this artificial world, and through life man remains related to all other living organisms" (HC, 2). Therefore, I argue that the concepts of earth and world, as well as the three dimensions of *vita activai* that are implicated in the earth and the world, provide a way of describing the dynamic of the commons and redefining the place of human action in relation to their environment.

The idea of the dynamics of the earth and the world can be better understood with the help of Arendt's LM. In the book, she emphasises that we humans are not dependent on the earth only because it enables our biological survival – we also relate to our environment as spectators and sensing beings when we create and secure the conditions of the common world. The earth is not only made to be consumed as a material resource but equally to be appreciated for its other qualities. This dimension of the material environment can be called aesthetic, and it ties the earth and the world together. The aesthetic dimension is crucial when thinking of the commons at the planetary level; it forces us to look beyond the dualist view of the commons and emphasises the intersubjective nature of human existence.

COMMON SENSE

Phenomenological approaches are rarely encountered in the actual commons literature. However, the attempts to avoid a reductionist interpretation of the commons are well compatible with the phenomenological approach. For example, the law scholar Ugo Mattei, who criticises the commodification of the commons as well as approaching the commons in terms of the market versus the state dichotomy, has called for new, more phenomenological approaches to the discussion (Mattei 2012). According to Mattei, the shift that we need to accomplish, to get over the absolute domination of the subject (owner or state) over the environment, is to focus on the reciprocal relationship between them. He writes that "we would need a new common sense that recognises that each individual's survival depends on his or her relationship with others, with the community, and with the environment" (Mattei 2012).

Mattei does not define common sense in his text but apparently uses the term in its typical meaning as conventional thinking and practical judgement. Arendt's definition differs from this received view. By *common sense*, she refers to the ability to receive reality through the senses (LM, 49-51). For Arendt, common sense is something that gives us a confirmation that the things we receive through the senses are evidences of reality, and this assures us that others can sense the same as we do (; LM, 49-51; Loidolt 2018; Ephraim 2018; Borren 2013). Following Arendt's "phenomenology of plurality" (Loidolt 2018), common sense is based on the contiguity of being and appearance, which means that her definition comes very close to what antireductionist theorisations of the commons seem to seek.

In HC,Arendt does not yet systematically analyse the importance of common sense for our experience of earth, though she does mention that "everything that is, must appear, and nothing can appear without a shape of its own" (173). In LM, Arendt continues the discussion on the coincidence

between being and appearance in a more systematic manner. She points out that as things appear, they, in turn, require spectators. Hence, the beings to whom things appear and who as recipients guarantee their reality are themselves also appearances. This simply means that spectators are never mere subjects and cannot be considered as such (LM, 19–20). For Arendt, then, common sense comes to mean a kind of sixth sense that fits us into our environment: a feeling that other beings, although different from me, share the same world as I do. If the eyes can see colors and fingers feel textures, the common sense perceives reality, but like other senses it cannot be placed in any specific organ. Instead, it is connected to our sensing of the location and surroundings (LM, 50-51; Ephraim 41). In other words, our spectatorship ensures the coincidence of appearance and existence, constituting shared scenes through common sense. From the perspective of appearance, the earth is not determined only as a field of survival but also as a tangible texture for the human world, a stage of appearances and an inspiration for the political stage (LM, 50; Ephraim 2018, 41-43). As Arendt puts it, living beings, humans and other animals are not just in the world, they are of the world. This is precisely because they are subjects and objects – perceiving and being perceived – at the same time (LM, 20).

Arendt's phenomenological interpretation allows us to think the commons not only as a resource (water, culture, the internet, land and education) but rather as a conception of reality, a condition and a result of our actions. Although Arendt accentuates the uniqueness of humans as worldly beings, she does not deny the uniqueness of other organisms. Rather, she seems to emphasise that the earth is not only for humans. As she interestingly states in the notes to the lecture she held at the University of California in 1955, "To whom belongs the earth? Nobody." This nobody's earth obviously means something else than the colonialist understanding of *terra nullius*. For example, it could mean the commons as a thing of the entire community, though only if we understand community itself as diversely as

possible.

Unlike what some misleading interpretations suggest, Arendt did not underestimate biological life in her discussion of the *polis*. In fact, she took life much more seriously than many scientists and philosophers in the Western tradition, emphasising the reciprocal character of existence on this planet. In this sense, her view of shared reality is consistent with the current perspectives in critical posthumanism and in science studies, both of which regard organisms as sensible, sentient and interpretive systems interacting with their environment and thereby creating meaningful relationships (e.g. Latour 1993; Bellacasa 2017; Stengers 2017).

To understand the tragedy of the commons in contemporary technocapitalist societies, we need to take a closer look at the existential and societal implications of science and technology. In both HC and LM, Arendt analyses thoroughly the impacts of modern scientific and technological advances on how we understand our relationship to our environment. According to Arendt, the development of modern natural science and technology led to alienation from the earth and the world. Her analysis has many similarities with Bruno Latour's idea of community and with the critique Latour presents concerning "matters of fact." To understand the criticism put forward by both thinkers, it is central to address the role technology plays in the tragedy of the commons. Furthermore, it is important to try to understand how the disappearance of common sense is linked to the disappearance of the commons.

ARENDT AND LATOUR: ALIENATION FROM THE COMMONS

Bruno Latour is an influential STS scholar, and in the discussions on posthumanism as well as in the field of STS, it is difficult not to collide with his numerous attempts to conceptualise the reality of nonhuman entities. Like Arendt, Latour bases his theories by criticising the epistemology that divides life into two

different ontological categories, society and its subjects and nature and its objects. While Latour does not seem to refer to Arendt in his writings, one finds several indirect similarities, congruences and complementarities between these authors. In this section, I will argue that combining Arendt's and Latour's understanding of modern science and technology provides a fruitful framework for addressing the role of technology in terms of the commons in the era of developed technologies.

One of the most important efforts in Latour's oeuvre is his conceptualisation of the agency of non-human entities. For example, such terms as actor network (2005), dingpolitics (2004b) and hybrids (1993) all suggest that, instead of separating subjects and objects, it would be better to approach the world in terms of human and non-human agency. The Latourian common world points to a shared reality that is achieved through political ecology, the aim of which is to politicise social and technical processes that designate our understanding of the world (2004c). Latour's theorisation can be seen to supplement Arendt's interrelational explanation of the dynamic between the earth and the world. Most importantly, they both see the modern scientific worldview, based on modern dualisms, as detrimental to common sense.

In HC, Arendt describes in detail the processes of human alienation from the world and the earth. These processes are linked to each other, but to understand the role of technology in the constitution of modernity, earth alienation becomes more significant than world alienation: if world alienation has determined the course and the development of modern society, earth alienation is the hallmark of modern science (HC, 264). Arendt describes the effects of mathematical and scientific discoveries at the beginning of the modern times on our understanding of the common world and the place of the human in it. Through the mathematical imagination, Copernicus and Kepler challenged the geocentric world view and proposed the revolutionary hypothesis that the Earth orbits the sun. Later, Galileo's telescope proved this

hypothesis and revealed to the human senses what had been out of their reach. A human-made artefact enabled a new technologically mediated – and thereby expanded – sense of the real and opened the path to the heliocentric worldview and the process of secularisation. At the same time, it caused humans to doubt their own senses. Arendt writes that Descartes's phrase "I think, therefore I am" is an articulation of a human's inner experience of their existence as confirmed in the situation where human beings could not trust their immediate sensory perceptions anymore (HC, 275–280). Arendt's critique of earth alienation is, therefore, a critique of Cartesian dualism and, more broadly, of the Enlightenment.

While the achievements of modern science showed that human beings are just atoms in the universe, this paradoxically allowed humans to forget their subjective point of view, the fact that every scientific criticism will return to ourselves (Arendt 2018). In its search for knowledge and truth, the modern human began to approach nature and its processes from an abstract Archimedean point of view, relying more on their thinking abilities than on their senses. Because of this, rational consciousness was dualistically separated from its material, biological foundation and the surrounding physical world. Arendt reminds us that modern natural science, in replacing sense-based common sense with calculability and precision, forgets that neither space nor the planet are closed systems and that universal science can never replace the experimental reality (Arendt 2018; HC, 284). As she writes, "thinking which subjects everything to doubt, has not any natural "matter-of-fact" relation to reality" (LM, 52).

In criticising the constitution of modernity in his many texts, Latour tackles the same process as Arendt. The connection to Arendt emerges perhaps most explicitly in Latour's (2004a) article "Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern,"in which he criticises realism for sticking blindly to *matters of fact*. Latour suggests that modern belief in as-if objective "matters of

fact" could (and should) be replaced by "matters of concern." By this he means bringing gatherings of non-human entities to the focus of public concern. According to him, the mistake has been the belief that there was no efficient way to criticise matters of fact except by moving away from them. Latour himself maintains that the solution would be to dig much deeper into the realist attitude, the second empiricism, to realise that matters of fact are implausible, unrealistic and unjustified definitions of what it means to deal with things. The facts are poor proxies for experience and a confusing bundle between epistemology and modern politics (Latour 2004a, 231-234). Hence, much like Arendt, Latour reminds us that reality is not defined by facts and that matters of fact are not all what is given in experience.

Both Arendt and Latour seem to bring us "down to earth" by emphasising the earth as the essential condition for human existence (Latour 2017). They did not criticise the discoveries of natural science as such but saw the dualism developed by the scientific and technological revolutions as antagonistic to common sense. They both point out that the facts are always a partial truth and that considering the complexity of the world requires more than just focusing on the facts. First and foremost, it would require recognising dependencies and associations that things carry with them. While Archimedes summed up a specific tradition by saying "give me one fixed point and I will move the Earth," Latour hopes to start a new tradition by reformulating this starting point as follows: "Give me one matter of concern and I will show you the whole earth and heavens that have to be gathered to hold it firmly in place" (Latour 2004a, 246).

Significantly, Arendt's and Latour's argumentations are not only about epistemological or ontological turns but about the possibilities of politics and democracy in the time of complex modernity. They were both concerned about the substitution of democracy by the authority of experts or scientists who appear to have access to the true nature of things. Latour stresses that it is entirely wrong to

divide the collective of human and non-human entities into the sturdy matters of fact on the one hand and the dispensable crowd on the other (Latour 2014, 246). To outline his argument in more detail, Latour uses the allegory of Plato's cave: those who are outside of scientific discourses have no access to the true nature of things, the objective facts that science brings to light which allow us to stop arguments (Latour 2004c; see also Seguin 2018, 4–5). Similarly, Arendt noticed that in the world of mathematical symbols, there is no need for speech to express the truth. She saw it as a threat to the shared experience of a common world that can only be formed when understood, perceived and argued from diverse perspectives (HC, 4). In other words, the masses excluded from decision making lose their connection to the commons.

The humans have lost the idea of themselves as earthly beings, a process that has resulted in the conception of nature as a resource to be utilised and managed. Therefore, the scientific revolution laid the foundation for the industrial revolution and economic growth and for an ideology that justified the endless depletion of resources. Owning and collecting private property became a rational activity: once you own the material, the reasoning goes, you have the right to collect more wealth (Quilliqan 2010). Because capitalist market economy creates value by enclosing common areas, local communities no longer manage their social and material resources according to their own demands, with control bring ceded to the centralised authorities of private markets.

In order to understand the effects of the technocapitalist developments on our common sense, we must notice how fundamentally the process of earth alienation has shaped fabrication, or *work* in Arendt's terms, as it was traditionally known in the Western tradition. Work no longer concerns securing a permanent world by fabricating durable things – through the scientific revolution, work has increasingly become a process of "acting into" nature (HC, 230-231).

CONDITIONING THE FORCE OF TECHNOLOGY

The paradox of modern science and its strong belief in the so-called rationalism that Arendt and Latour criticised manifest themselves particularly clearly in the current transhumanist movement. Transhumanist aspirations promise technological solutions to environmental catastrophes and other contemporary tragedies of the global commons through the creation of new infrastructural, and subsequently existential, conditions by science and technology. The strong belief in technology as a solution to the environmental crisis is reflected, for example, in the desire to initiate food production on the dark side of the moon (Wolf 2019), to resort to geoengineering (Watts 2018) or to shape biological inheritance through bioengineering (Pozniak 2017). So far, such technical innovations appear more like a rationalistic pipe dreams than viable strategies for living a socially and ecologically sustainable life. However, the most fundamental problem of the transhumanist orientation, in my view, is its rationalist individualism that conceives technology as a manifestation of objective rationality and the progress of freedom, without recognising that technological innovations are a part of increasingly intertwined complex systems (Allenby & Sarewich 2011). In Arendtian terms, we are talking about a desire to escape the human condition as it has been given to us from nowhere (HC, 2-3).

In her historical description in HC of how the development of science and technology challenges humanity by initiating the process of alienation, Arendt mentions such technological innovations as the splitting of the atom, the launch of the first Sputnik satellite and the advent of automation. She sees these innovations as epochal events of the modern era and ones that fundamentally shape the human condition; through these techniques, humans as a species were able to surpass their earthly foundations. Arendt writes about the consequences of this shift with trepidation: "It could be that we, who are earth-bound creatures and have begun to act as though we were dwellers of the universe, will

forever be unable to understand, that is, to think and speak about the things which nevertheless we are able to do" (HC, 3). Today, new links between information and biotechnologies make it possible to modify, for example, the biological genome and the earth's atmosphere pretty much without knowing where this intervention will lead to (Thacker 2003, 74–78). Such a development can be seen as a daunting human ability (and recklessness) to "act into," which makes Arendt's question "do we know what we are doing?" so much more pressing than it was at the end of the 1950s.

The question of the relationship between technology and the commons is certainly diverse and folds out slightly differently depending on whether the questioner is interested in digital technologies (Kidd 2001; Clibbinger & Bollier 2014), seeds (Bollier 2014) or, for example, cosmic outer space (Cassandra 2017). However, technologies make accessible new resources, making their management a constantly topical issue. Contemporary computational technologies, for example, are unique in their subtlety, imperceptibility and ubiquitous presence (see e.g. Thrift 2004; Bunz & Meikle 2017). Being embedded in socio-technical infrastructures, they form interactive relationships and human–technology reciprocities. From this it follows that current technological and scientific developments are not just about new management of resources through technology – they create qualitatively new relationships between humans and the environment. When one thinks about the role of technology in the constitution of a planetary commons from the perspective of the critique of dualism presented earlier, the focus is primarily on the infrastructures and interdependencies; that is, on how human-made technologies shape the conditions of the commons.

Instead of the transhumanistic belief in progress based on the rationalism of the Enlightenment, critical posthumanism encourages us to confront our community in a new way (Wolfen 2010, xiii-xv). Latour also urges us to treat technological agency as a part of shared reality, as a matter of common

concern. First of all, this task would require considering humans as conditioned beings, an idea that is at the heart of the Arendt's book. To briefly look at the conditioning power of current technologies, I will bring Arendt's explanation of changes in the nature of *work* into a discussion with the views of the anthropologist-paleontologist André Leroi-Gourhan and the technology theorist N. Katherine Hayles.

In the HC,Arendt describes *homo faber* as a manufacturer of an artificial world, but by "artificial" she does not mean something unnatural. Instead, for her technology is something that transmits the humans' experience of their environment along with the capacity of speech. Humans are capable of building a lasting world that they share, but this building or worlding is not innocent. That is because humans not only extend their spectatorship in time by fabricating durable things that exceed their own life span, they are also capable of shaping the material basis of their world in multiple and unpredictable ways. At the same time, this material shaping infrastructurally affects the activities of humans in fundamental ways. As Arendt writes: "Whatever touches or enters into a sustained relationship with human life immediately assumes the character of a condition of human existence. This is why men, no matter what they do, are always conditioned beings" (HC, 9).

Arendt's view of the conditioning power of technology can be fleshed out with the help of the French paleoanthropologist André Leroi-Gourhan's view of human evolution (1964/1993). According to him, tools and technologies define the relationship between the human animal and its environment. Put differently, technologies reflect the material interaction between humans and their environment, making visible and palpable the human effort to shape what materially surrounds them. With the help of craniometrics and anthropological discoveries, Leroi-Gourhan (1993) describes in detail the co-evolution of humans and human-made technologies. For example, the adoption of vertical stature freed the hands and enabled preparing food

and creating tools for hunting. The cooked and chopped food, in turn, freed the facial bones and muscles, evolving them to suit the production of more complicated sounds (Leroi-Gourhan 1993, 106). Usage of tools and language, for their part, developed those parts of the human brain that coordinate the motor functions of hands and facial muscles. A significant part of the motor cortex of *homo sapiens* is dedicated just to these two functions. Unlike what people often tend to assume, and as Charles Lenay summarises, "the tool is not so much the product of the intelligence but rather the intelligence is the product of the tool" (Lenay 2018).

According to Leroi-Gourhan's study, each tool is an exteriorisation of our body and reminds us of body's gestures, like hitting or beating; the same repeated gestures are recognisable in different cultures and same materials seem to house the same gestures through different cultures. He describes tools as social memory that is externalised from the biological human body (Leroi-Gourhan 1993, 227; Stiegler 1998/2009). The most intriguing insight of Leroi-Gourhan's anthropological analysis, as Charles Lenay (2018) points out, is that the fulcrum of human liberation, from the beginning of the hominisation process to the freeing of social memory, was a tool which permitted the passage from the biological world to the human world. This evolutionary view resonates with Arendt's idea of humans shaping the conditions of their own life through technology at the infrastructural level.

Obviously, as described above, current technologies can no longer be called tools in the traditional sense of the word. An interesting way to understand how technologies condition the context of contemporary techno-society is provided by N. Katherine Hayles' idea of technogenesis, by which she, in resonance with Leroi-Gourhan, refers to the simultaneous development of humans and technology. In her book *How We Became Posthuman* (Hayles 1999), she argues that current technology-mediated relationships represent a fundamental change in the nature of humanity in that networked technologies

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alter humans' activities neurologically, socially, culturally and economically. In the human–technology entwinements of cognitive assemblages, cognition mostly occurs outside of human consciousness, a phenomenon that Hayles calls non-conscious cognition (Hayles 2017, 1–30). This conceptualisation draws from cognitive biology in which knowledge is understood as something that is in constant interaction with the environment and is embodied in the structure of the organism. Cognition is not a representation of the given world but rather a simultaneous realisation of mind and world through diverse processes. Hayles defines cognition as a process in which information is interpreted within a context that connects it with meaning. The interpretation can happen in a conscious or an unconscious context. Thus, her definition of cognition not only applies to technical systems as well as biological life but also emphasises the deep entwinement, indeed the interpenetration, of technical and biological (Hayles 2017, 3–11). However, Hayles does not want to suggest that these domains are identical or even largely similar: the processes of these domains take place in very different material contexts. Instead, they perform similar functions within complex human and technical systems.

Investigating the similarities and differences between Arendt, Leroi-Gourhan and Hayles would require much more consideration, which is not possible in the context of this article. However, I initially suggest that Hayles' notion of non-conscious cognition provides a way to acknowledge that technology always has wide and unpredictable effects, a fact emphasised by Arendt in that we do not perfectly master what we have fabricated. More importantly, the notion of non-conscious cognition offers us a term with which to address the processes that are beyond our consciousness and to get a hold on the profound effects of technologies in an era when planetary ecology is undergoing unprecedentedly rapid transformation. Above, I have considered *homo faber* as a shaper of reality. By following Arendt's analysis of *vita activa*, we are able to understand humans as earthly beings,

conditioned and conditioning creatures. Anthropological studies have shown that technology fundamentally impacts, in unforeseeable ways, the basic human anatomical evolution. Contrary to what the narrowly goal-oriented transhumanists claim, technological innovations always have unintended consequences, and therefore the development of such technologies is never an innocent project. Hayles's term non-conscious cognition can be seen as an effort to conceptualise those information processes that are outside of human understanding; her notion also helps us to incorporate technological and biological "cognitisers" as integral parts of the shared reality. This, I find, is a precious task in the era of the Anthropocene when technological, societal and biological environments are increasingly merging together.

SUMMARY

In this article, I have tried to understand the dynamic of the global commons and its current tragedy with the help of Hannah Arendt and her philosophy of *vita activa*. In summary, according to Arendt to fully actualise our humanity, we must humanise the material by establishing a reality that places us above mere matter. However, she is not talking about humanising the world in any conventional modern sense but in the sense of a constant negotiation with the fact that the Earth is not merely for humans. Thus, following Arendt today, the commons is not primarily about the management of separate resources but about a constant recreation and maintenance of a global community. To complement Arendt's notion of common sense that recognises the intersubjective nature of earthly beings, I have brought her into a discussion with Bruno Latour's ideas of non-human agency. By noting the similarities in their critiques of modern dualisms, it becomes possible to perceive the effects of the scientific and technological worldview on the disappearance of the commons throughout the modernisation process. When science replaced common sense, it led to the alienation of humans from their earthly basis. The surrounding reality was no longer a matter of

common concern but a matter of mathematical facts and the management of resources increasingly for private purposes. An Arendtian perspective on science and technology stresses that humans build the common world not only through their communication but also through their technologies. Such a perspective highlights that the development and utilisation of technologies always includes political and ethical responsibility for the Earth as belonging to no-one. Starting to solve the tragedy of the global commons would require considering bio-socio-technical assemblages and "congnitisers" as matters of public concern.

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