

<https://artnodes.uoc.edu>

ARTICLE

NODE «ARTS IN THE TIME OF PANDEMIC»

First Response

Laura Benítez Valero

Director, Biofriction

Head of Theory, Degree in Arts & Design, Escola Massana

Erich Berger

Director, Bioart Society

Recommended citation

Benítez Valero, Laura; Berger, Erich. 2021. «First Response». In: Benítez, Laura; Berger, Erich (coord.) «Arts in the time of pandemic». *Artnodes*, no. 27: 1-9. UOC. [Accessed: dd/mm/yy]. <http://doi.org/10.7238/a.v0i27.378460>



The texts published in this journal are – unless otherwise indicated – covered by the Creative Commons Spain Attribution 4.0 International license. The full text of the license can be consulted here: <http://creativecommons.org/licenses/by/4.0/>

Abstract

The Covid-19 pandemic, which manifested itself during the early months of 2020, resulted in the activation of the expected official actors on a national and international level in policy, politics, the industrial military complex, pharma and medicine, among others. Being suddenly confined to a minimum of physical interaction, we found ourselves online among a concerned but enthusiastic group of artists, hackers, activists, scholars and other practitioners who organise themselves in informal settings to share, discuss and devise strategies of coping, care and action. They aim to apply their own artistic, activist or research competence to work through the complexities of continuously shifting information and circumstances. The pandemic is not simply an epidemiological crisis but a crisis of sovereignty. We refer here to the notion of sovereignty raised by Achille Mbembe to exercise control over mortality and to define life as the deployment and manifestation of power. Also the question of liveability comes to mind as introduced by Judith Butler and which the pandemic spread out in a wide spectrum, starting from the bare form of *Who gets to live?* - when it comes to access to medical support and decisions of care - up to *What is a liveable life during a pandemic lockdown?* In this way the pandemic makes visible and amplifies what was already there, a systemic plurality of inequalities and oppression enacted by predominant hegemonies. As Divya Dwivedi pointed out, the pandemic reveals a different sense of crisis, that is how the processes that have organised life (and lives) are distributed across the world and how some components of this worldwide arrangement have arrived at their functional

limits. Therefore, once again, what has been unveiled are the material conditions of structural and systemic violence. Throughout this issue, questions related to temporality, agency, care and scale are addressed from artistic practice(s) critically reflecting on the entanglement with the virus.

Keywords

pandemic, arts, care, temporality, scale

Primera reacci3n

Resumen

La pandemia de la COVID-19, que se manifest3 durante el primer mes de 2020, dio lugar a la activaci3n de los actores oficiales esperados en los 3mbitos nacional e internacional en las directrices, las pol3ticas, el complejo militar industrial, lo farmac3utico y la medicina, entre otros. Estando repentinamente confinados a un m3nimo de interacci3n f3sica, nos encontramos online con un grupo preocupado pero entusiasta de artistas, hackers, activistas, acad3micas y otras profesionales que se organizan en contextos informales para compartir, discutir y dise1ar estrategias de cuidado y acci3n para hacer frente a la situaci3n. Su objetivo es aplicar su propia competencia art3stica, activista o de investigaci3n para trabajar a trav3s de las complejidades de la informaci3n y las circunstancias que cambian continuamente. La pandemia no es simplemente una crisis epidemiol3gica, sino una crisis de soberan3a. Nos referimos aqu3 a la noci3n de soberan3a planteada por Achille Mbembe para ejercer el control sobre la mortalidad y definir la vida como el despliegue y la manifestaci3n del poder. Tambi3n aparece la cuesti3n de la habitabilidad, tal como la introdujo Judith Butler y que la pandemia extendi3 en un amplio espectro, a partir de «¿qu3n consigue vivir?» –cuando se trata del acceso a la asistencia m3dica y las decisiones de atenci3n–, hasta «¿qu3 es una vida habitable durante el cierre de la pandemia?» De esta manera, la pandemia hace visible y amplifica lo que ya exist3a: una pluralidad sist3mica de desigualdades y opresi3n promulgada por las hegemon3as predominantes. Como se1al3 Divya Dwivedi, la pandemia revela un sentido diferente de la crisis, es decir, c3mo los procesos que han organizado la(s) vida(s) se distribuyen por todo el mundo y c3mo algunos componentes de este arreglo mundial han llegado a sus l3mites funcionales. Por lo tanto, una vez m3s, lo que se ha revelado son las condiciones materiales de violencia estructural y sist3mica. A lo largo de este n3mero, las cuestiones relacionadas con la temporalidad, la agencia, el cuidado y la escala se abordan desde las pr3cticas art3sticas que reflexionan cr3ticamente sobre nuestro enredo con el virus.

Palabras clave

Pandemia, artes, cuidado, temporalidad, escala

First Response

The Covid-19 pandemic, which manifested itself during the early months of 2020, resulted in the activation of the expected official actors on a national and international level in policy, politics, the industrial military complex, pharma and medicine, among others. Being suddenly confined to a minimum of physical interaction, we found ourselves online among a concerned but enthusiastic group of artists, hackers, activists, scholars and other practitioners who organise themselves in informal settings to share, discuss and devise strategies of coping, care and action. They aim to apply their own artistic, activist or research competence to work through the complexities of continuously shifting information and circumstances.

At the time of writing the COVID-19 dashboard by the Center of System Science and Engineering (CSSE) at Johns Hopkins University reports 72,270,693 global cases of COVID-19 and 1,613,260 global deaths.

At the time of writing it is also thought that the virus is natural and of animal origin (Anderson et al 2020) and that it has jumped from a nonhuman animal to humans through spillover infection (Berger K. 2020).

At the time of writing the first vaccines have been approved and nations are preparing for the distribution and vaccination of their populations.

The collection of articles in this volume can only be seen as historical, in the light of the very moment of spring and summer 2020.

It is a collection of snapshots of artistic and cultural first response from artists and practitioners who aim to make sense of a changed world through their own practice. They reflect a state of notknowing but knowing. Knowing and experiencing that the encounter with SARS-CoV-2 is not only a bodily disease but even more a symptom of what becomes increasingly difficult to understand - the complexity of the world in the post-truth era and the experience that a global state of emergency exposes and amplifies the hidden, ignored or unacknowledged anatomy within our many societies.

An Overview

The pandemic is not simply an epidemiological crisis but a crisis of sovereignty. We refer here to the notion of sovereignty raised by Achille Mbembe to exercise control over mortality and to define life as the deployment and manifestation of power. Also the question of liveability comes to mind as introduced by Judith Butler and which the pandemic spread out in a wide spectrum, starting from the bare form of *Who gets to live?* - when it comes to access to medical support and decisions of care - up to *What is a liveable life during a pandemic lockdown?* In this way the pandemic makes visible and amplifies what was already there, a systemic plurality of inequalities and oppression enacted by predominant hegemonies. As Divya Dwivedi¹ pointed out, the pandemic reveals a different sense of crisis, that is how the processes that have organised life (and lives) are distributed across the world and how some components of this worldwide arrangement have arrived at their functional limits. Therefore, once again, what has been unveiled are the material conditions of structural and systemic violence.

The virus as an event has confronted us with rediscovering our ontological insecurity. But it is precisely the “cruel” immanence of the virus, in the terms of Rocco Ronchi, that provides a different register for thinking through the dimensions of this unfolding ontopolitical moment and the situation of (Necro)state failure(s) where some lives are managed as a surplus, that the virus connects and forces us to articulate common responseabilities, not just common solutions. In fact, we cannot talk about the virus as a nonhuman agent, coming out of nowhere and taking us by surprise, but we need to approach it as something for which human activity created the favourable conditions for it to rise to its full potential. However, human activity is not equal to the activity of humanity. We should not tap into the same trap as we did when naming the Anthropocene and to obliterate the responsibility of a few over the many (Berger E. 2020).

We also have been reminded that humans are not consistent bodies, but fluid and fragile biological constructs. Already the realisation of the strong interaction of the body with its microbiome has shown

that instead of ‘I’, an everchanging ‘We’ might be more appropriate. But not only are We a colony, hosting many species of bacteria and fungi, DNA analysis also has shown that our genetic code contains remnants of viral DNA (Heidmann et al 2017). It is already clear, though mobile and exchangeable, that the human microbiome is part of our functional body (Ogunrinola et al 2020) and that a change in the microbiome, as well as viral gene transfer, is transformative to the body. At the time of writing there exists only a preprint of a yet-to-be-peer-reviewed paper about SARS-CoV-2 RNA fragments in the human genome (Zhang et al 2020) and little can be said about any consequences. However, it points towards the possibility of a deep future of the virus as part of the human genome. While this is an exciting possibility to explore how the virus will impact human evolution, we shall now turn our focus again to the now.

On time(s)

Our current entanglement with this particular virus has confronted us, once again, with the question of temporality; addressed in many ways in this issue. Arts during the pandemic have aimed to generate spaces for encounters to share and critically assess this thick present. In fact, one of the issues that the current situation has brought back to us is the fundamental differences between coexisting in the now or making-present with all critters (Haraway 2016). Even with the ones we are mesmerised by.

(Re)taking Heidegger’s contributions on temporality, this making-present is not merely a function of existing together in the now, its remains informed by the futurity (maybe a deep future) of projection and the grounding in its having been, in this particular case, viruses as a condition of possibility of our existence. In a certain way, with all the necessary nuances it entails, the viral entanglement (re)presents the Heideggerian threefold structure of fundamental temporality (Zeitlichkeit). That is, having-been, being at and coming towards. Certainly, resorting to Heideggerian temporality is controversial but no less relevant. In the environmental struggle (Critical Art Ensemble 2018) along with the pandemic, we are, simultaneously, an affected part and agent of possibility, bringing in other nonhuman temporalities that throw us into an ecstatic temporality. Ecstatic temporality is that space of speculation that is presented but in the form of having-been from a future that is not a present future, but the anticipation of a finitude that bursts in. And although during the lockdown(s), we seemed to be lost in the middle of the Black Lodge while Special Agent Dale Cooper asks *is it the future or is it the past?*, the having-been indicates that the experience of this finitude points to an already having-been finite, which we constantly ignore and silence, and try to erase by failing miserably

1. UNESCO Forum: Imaging the world to come. Women’s voices, May the 20th, 2020.

and inappropriately, *being-towards-death*. Bearing in mind the biopolitical, thanatopolitical and necropolitical consequences of not being properly through care (Sorge). Although we share with Heidegger that time and phenomena are not ahistorical essences, it should be noted that the exceptionality of the Dasein does not operate anymore in terms of care within all the nonhuman multiple scales. In this sense, the notion of temporality and care proposed by Haraway seems more appropriate/coherent for the purpose to live in a thick time of caring for and with each other, with all the critters, agents, entities, presences, absences and latencies.

The estrangements that occurred during the pandemic have also revealed (once again) that at some point we were not able to draw a clear line between fiction and nonfiction. With the experience of a strange temporality, it seemed that both fiction and nonfiction were merging together, although the necropolitical consequences suddenly, and clearly, draw at least one plot of nonfiction, that of deaths. And, again, paying attention to care(s), fiction offers us critical tools with which to evaluate and rearticulate the present. As addressed in this issue, fiction within the arts is more like a *gerund*, a making (present). The speculative fiction present in this issue invites us to articulate fantasies with which to dismantle the warmongering discourses of the virus as an enemy to be defeated. The same ones that for centuries have dragged us to violent fantasy that leads us to murder and war. Leading us to violence against the other because the other remains other. Instead of (bio)techno-optimism and the promises of fixing and solving, we have the responseability to figure out how to live well on a planet which we damaged for ourselves (Anna Tsing 2017). To live well with each other in a thick present, which means environmental, multispecies, multiracial, multikinded reproductive and environmental justice. To live in a thick present of caring for and with each other. (Haraway 2016).

We are humus, not Homo, not anthropos; we are compost, not posthuman. As a suffix, the word *kainos*, “-cene,” signals new, recently made, fresh epochs of the thick present. To renew the biodiverse powers of terra is the sympoietic work and play of the Chthulucene. Specifically, unlike either the Anthropocene or the Capitalocene, the Chthulucene is made up of ongoing multispecies stories and practices of becoming-with in times that remain at stake, in precarious times, in which the world is not finished and the sky has not fallen—yet. We are at stake to each other. Unlike the dominant dramas of Anthropocene and Capitalocene discourse, human beings are not the only important actors in the Chthulucene, with all other beings able simply to react. The order is knitted: human beings are with and of the earth, and the biotic and abiotic powers of this earth are the main story. (Haraway 2016, 55)

In the course of Theoretical Philosophy (Venice 2006-2007), Giorgio Agamben asked of whom and what are we contemporaries? And

what does it mean to be contemporary? These are questions that are entirely appropriate for us in the attempt to analyse what is at stake at the intersections between arts and the time of pandemic. Appropriating Roland Barthes' well-known quote, which in turn took up Nietzsche's, the contemporary is the untimely; Agamben articulates a critique around the lights and leftovers of what we call present. In this issue, we find proposals that not only perceive the lights of a possible future, but are perceiving the shadows and darkness of the present. A dark, human, modern, Western, colonial and anthropocentric condition that, in turn, allows the light of other possible articulations to be glimpsed, or what we could call in terms of Agamben contemporary practices. So as long as we have the virus and the virus has us, we are a contemporary entanglement.

This means that the contemporary is not only the one(s) who, perceiving the darkness of the present, grasps a light that can never reach its destiny. They are also the one(s), dividing and interpolating time, are capable of transforming it and putting it in relation with other times. They are able to read history in unforeseen ways, to ‘cite it’ according to a necessity that does not arise in any way from they will but from an exigency to which they cannot respond. It is as if this invisible light that is the darkness of the present cast its shadow on the past, so that the past, touched by this shadow, acquired the ability to respond to the darkness of the now.² (Agamben 2006, 53)

Friedrich Nietzsche, in his *Untimely Meditations*, asked how can we make use of knowledge for life, for action? What is our vital relationship to the historical past? These questions are fundamental in a context where the relationship between life and knowledge is inverse, since, as Braidotti points out, contemporary capitalism has a biogenetic structure³, so it invites investment in “life” understood as an information system. Perhaps then it is worth asking whether technocratic-fantastic proposals, beyond the fascination produced by technological hyper-sophistication, is contemporary or merely celebratory technophilia⁴ that only sees the lights of a future. While the entanglement with the virus, on the other hand, places us in this thick present, confronting an indeterminate ontological condition.

On indeterminacy and alliances

In this issue, biology is not only understood as the natural sciences that study life and living organisms, including their physical structure, chemical processes, molecular interactions, physiological mechanisms, development and evolution. The proposal in this issue also invites us to think of biology as a discourse too, not the living world itself. That is, humans are not the only actors in the construc-

-
2. The use of the “s” and the third-person plural is a decision and modification that the authors have introduced. Agamben's original text uses “one” and “he”.
 3. A clear example is how in a pandemic situation the vaccine is not addressed as a common good, but as a product of speculative economies that feed the biomedical structure of contemporary capitalism.
 4. The promise of “they'll fix it”.

tion of the entities of any scientific discourse; machines (delegates that can produce surprises) and other partners (not “pre- or extra-discursive objects”, but partners) are active constructors of natural scientific objects. Like other scientific bodies, organisms are not ideological constructions. Bioencounters are radically historically specific, always lively, bodies have a different kind of specificity and effectivity; and so they invite a different kind of engagement and intervention, they invite the generating of worlds, by providing a tool through which to refer to human-non-human entanglement(s). (Haraway 1992). If we are already always entangled, what kind of agency are we dealing with? How do we deal with extension with respect to agency? Can we deal with extended and distributed agency? And, taking Joanna Zyliniska’s philosophical proposal as a reference, if we were to accept that it is a distributed agency, then it would be a kind of Spinozian-Deleuzian agency, distributed but not suspended? An agency that belongs to everyone is another one that would make up a nonunitary postanthropocentric extended subjectivity?

The current situation seems to expose the impossibility of understanding agency as something possessed by a subject per se, just as it cannot be understood as something that can be imposed from outside a situated phenomenon. From this perspective, which draws directly from quantum physics and specifically from Niels Bohr’s interpretation of the principles of indetermination and complementarity, agency would be found in that space of possibility(ies) opened up by indetermination in the absence of an a priori, a space which constitutes, a space of possibility(ies) which passes from the relations between the preexisting, that is to say, interactions, to intraactions⁵, which constitutes itself in that continuous there without a priori, but which does not for that reason annul the differentiation. Therefore, there is no longer an interaction between particular actions and content, but rather between possible actions, generated (poietic) and therefore existing, which are always entangled.

We have previously noted that the viral entanglement undoes certain legacies of traditional metaphysics⁶ and confronts us with ontological indetermination. This indetermination allows us to glimpse a line of connection with immanence only to itself. An immanence that also challenges us to banish the assumption of a given world, of what supposedly preexisted, that was already there and that is subject to procedural changes. Human beings do not simply assemble different devices to satisfy particular projects

of knowledge, but we are part of a continuous reconfiguration of the (so-called) world, entangled with the virus and different agents, an entanglement that queers our *ontological security*. Something similar to what happens with electrons; according to Barad “the electron is not merely causing trouble for us; in an important sense it is troubling itself, or rather, *its self*. That is, the very notion of ‘itself’, of identity, is radically queered.” (Barad 2012). And from here *How can we create a more caring world, one capable of sustaining and nourishing all forms of life?* (Care Manifesto 2020)

(...) from acting upon the understanding that as living creatures we exist alongside and in connection with all other human and nonhuman beings, and also remain dependent upon the systems and networks, animate and inanimate, that sustain life across the planet. We recognise that we are all inevitably steeped in ambivalence and even aggressions towards others. (Care Manifesto 2020, 94)⁷

Repairing and nourishing a *caring world* with multiple alliances requires not only overcoming careless anthropocentric imaginaries and developing politics of extensive interdependence, but also politics of scales.

On arts, transgression and the politics of scales

There is a consensus that an important role of art is to push the boundaries of societal norms, to be transgressive and question current sensibilities. Art is doing that out of a position where it can rely on an intact social contract which states that it can openly make things appear as something they are not (Catts/Zurr 2020). The condition for such a role is that to some extent other societal institutions like science and democracy are intact, that science is producing reliable knowledge and that democracy is governing to the benefit of the citizens. With current circumstances (and not only since Trump), where for example scientific knowledge is monopolised or ridiculed and democracy in peril, we can see that this is not the case anymore. Also, here the pandemic acts as an amplifier and Margherita Pevere formulates it in her interview by Rob La Frenais in this way: How can art be transgressive in times when boundaries are important in human society for the wellbeing of others and our own? (Pevere 2020). A question which though motivated by the pandemic can in turn be generalised when extended towards the general state of the human condition. How are the arts responding? The increase of artists working

5. Reference to Karen Barad, who conceives intra-action as the mutual constitutions of entangled agencies; the ability to act emerges from within the relationship, not outside of it.

6. In traditional metaphysics, identity is equivalent to selfsameness, to idem. In post-metaphysics, on the other hand, identity is equivalent to ipseity, ipse, in such a way that the being of strangeness is a post-metaphysical being, since the experience of strangeness contains the dialectic of the self and of the other different from oneself. The other is constitutive of the self, there is no self without the other, the other is a condition of possibility of the self.

7. Aligning with this issue, we would also add “all forms of non-living and semi-living”.

with ecological issues, the climate crisis and social injustice, or matters of knowledge like the art and science community point towards an increasing examination of the real.

For example the Sandberg Institute in the Netherlands is running a temporary 2-year course with the name F for Fact (Sandberg Institute 2020): “At a time when facts are increasingly framed as fantasy, and fiction is often presented as truth, F for Fact aims to develop narratives for the present by looking at past and future representations of reality through an artistic lens . . .”. It is not about the arts defending a postulated truth but to explore the depth of reality, something that Benjamin Bratton calls “the scope of the real” (Bratton 2016). The scope of the real is something which exists beyond the human sensorial comfort zone, its scales are inhuman and nonhuman in space and time and have a plurality. Something not moving within a human time frame might still move within deep time with orogenesis⁸ as an example. Marcia Bjornerud introduces the concept of timefulness to point out that we should adapt a polytemporal worldview to help us develop a planetary thinking (Bjornerud 2018). To understand and act in the world on human scale might appear as common sense at first but we need to develop an awareness that those scales are not ontological but evolved through decision making, disputes or arbitrariness and in themselves reflect hierarchies and hegemonies and as such are in the domain of the political. *The politics of scale* is a term which was coined by Neil Smith (Smith 1990) to attend to the processes through which scales are constructed and contested (Blakely 2020). Smith notes that:

Geographical scale is political precisely because it is the technology according to which events and people are, quite literally, ‘contained in space’. Alternatively, scale demarcates the space or spaces people ‘take up’ or make for themselves. In scale, therefore, are distilled the oppressive and emancipatory possibilities of space, its deadness but also its life. (Smith 1990, 230)

While Smith is examining geographical space and time, we can see with Bratton and Bjornerud that a more general evaluation of scales is of interest and necessary. An undertaking which we can locate in contemporary artistic practices. Specifically material- and process-based practices like biological art or art which examines the geologic (geologic turn, Turpin 2012) show clearly an interest to investigate, question and transgress the hegemonies of scales and to expand Smith’s *politics of scale* to the more-than-human world. Here artists, instead of working with representations and metaphors, which are scales in themselves, stage attempts, experiments and situations, even if often symbolic but still embodied in their materiality, to fathom the complexity of the real. Also, the current pandemic offers questions of scale, in the sense of Smith but also in the sense of the more-than-human world.

References

- Agamben, Giorgio. *What is an Apparatus? and Other Essays*. Palo Alto: Stanford University Press, 2009.
- Andersen, Kristian G., Rambaut, Andrew, Lipkin, W. Ian, Holmes, Edward C., and Garry, Robert F. “The proximal origin of SARS-CoV-2.” *Nature Medicine* 26, no. 4 (April 2020): 450–452. DOI: <https://doi.org/10.1038/s41591-020-0820-9>.
- Barad, Karen. “On touching—The inhuman that therefore I am.” *Differences* 23, no. 3 (December 2012): 206–223. DOI: <https://doi.org/10.1215/10407391-1892943>.
- Berger, Erich. *Radical Witnessing and the Scope of the Real in Art as We Don’t Know It*. Edited by Erich Berger, Kasper Mäki-Reinikka, Kira O’Reilly, and Helena Sederholm. Helsinki: Aalto Arts Books, 2020.
- Berger, Kevin. “The Man Who Saw the Pandemic Coming.” Accessed December 14, 2020. <https://nautil.us/issue/83/intelligence/the-man-who-saw-the-pandemic-coming>.
- Bjornerud, Marcia. *Timefulness: How Thinking Like a Geologist Can Help Save the World*. Princeton: Princeton University Press, 2018.
- Blakey, Joe. “The politics of scale through Rancière.” Accessed December 14, 2020. <https://journals.sagepub.com/doi/10.1177/0309132520944487>.
- Bratton, Benjamin. “On Speculative Design.” Accessed December 14, 2020. <http://dismagazine.com/discussion/81971/on-speculative-design-benjamin-h-bratton/>.
- Butler, Judith. “Can One Lead a Good Life in a Bad Life? Adorno Prize Lecture.” *Radical Philosophy* 176 (Nov/Dec 2012). <https://www.radicalphilosophy.com/article/can-one-lead-a-good-life-in-a-bad-life>.
- Catts, Oron, and Ionat Zurr. “The Contract of Art that Deals with Life (Sciences).” In *Art as We Don’t Know It*, edited by Erich Berger, Kasper Mäki-Reinikka, Kira O’Reilly, and Helena Sederholm, 238–243. Helsinki: Aalto Arts Books, 2020.
- Chatzidakis, Andreas, Jamie Hakim, Jo Littler, Catherine Rottenberg, and Lynne Segal. *The Care Manifesto. The Politics of Interdependence*. London/New York: Verso, 2020.
- Critical Art Ensemble. *Aesthetics, Necropolitics and Environmental Struggle*. New York: Autonomedia, 2019.
- Haraway, Donna. *Staying with the Trouble. Making Kin in the Chthulucene*. Durham: Duke University Press, 2016.
- Haraway, Donna. “The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others.” In *Cultural Studies*, edited by Lawrence Grossberg, Cary Nelson, and Paula Treichler, 295–338. London and New York: Routledge, 1992.
- Heidegger, Martin. *Being and Time*. New York: HarperCollins Publishers Inc, 2008.

8. The formation of mountains by the convergence of tectonic plates with results like the Alps or the Himalayas

- Heidmann, Odile, Anthony Béguin, Janio Paternina, Raphaël Berthier, Marc Deloger, Olivia Bawa, and Thierry Heidmann. "HEMO, an ancestral endogenous retroviral envelope protein shed in the blood of pregnant women and expressed in pluripotent stem cells and tumors." *PNAS*. August 8, 2017 114 (32) E6642-E6651; first published July 24, 2017. Accessed December 14, 2020. DOI: <https://doi.org/10.1073/pnas.1702204114>.
- Johns Hopkins University (JHU). "COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE)." Accessed December 14, 2020. <https://coronavirus.jhu.edu/map.html>.
- La Frenais, Rob. Interview with Pevere Margherita: "Leaky Bodies, Mourning Ecosystems and Sounding the Alarm on the Virus: The transgressive bioart of Margherita Pevere." Accessed December 14, 2020. <https://www.makery.info/en/2020/11/13/english-margherita-pevere-interconnectedness-is-the-substrate-of-my-work/>.
- Mbembe, Achille. "Necropolitics." *Public Culture* 15, no. 1 (Winter 2003): 11-40. DOI: <https://doi.org/10.1215/08992363-15-1-11>.
- Mbembe, Achille. *Necropolitics*. Durham: Duke University Press, 2019.
- Nietzsche, Friedrich. *Untimely Meditations*. Cambridge: Cambridge University Press, 2012.
- Ogunrinola, Grace A., John O. Oyewale, Oyewumi O. Oshamika, and Grace I. Olasehinde. "The Human Microbiome and Its Impacts on Health." *International Journal of Microbiology* 2020, Article ID 8045646, 7 pages. Accessed December 14, 2020. DOI: <https://doi.org/10.1155/2020/8045646>.
- Sandberg Institute website. Accessed December 14, 2020. <https://sandberg.nl/temporary-programme-f-for-fact>.
- Smith, Neil. *Uneven Development: Nature, Capital, and the Production of Space*. Second edition. The University of Georgia Press, 1990.
- Turpin, Etienne. "The geologic turn: architecture's new alliance." Design Research Symposium on the Anthropocene, University of Michigan, United States, January 10, February 10-11, 2012, Michigan, United States: University of Michigan. Accessed December, 2020. <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1182&context=smartpapers>.
- Zhang, Ligu, Alexia Richards, Andrew Khalil, Emile Wogram, Haiting Ma, Richard A. Young, and Rudolf Jaenisch. "SARS-CoV-2 RNA reverse-transcribed and integrated into the human genome." Accessed December 14, 2020. DOI: <https://doi.org/10.1101/2020.12.12.422516>.
- Zylinska, Joanna. *Bioethics in the Age of New Media*. Cambridge: MIT Press, 2009.

CV

**Laura Benítez Valero**

Director, Biofriction

Head of Theory, Degree in Arts & Design, Escola Massana

Plaça de la Gardunya 9
08001, Barcelonalaura@hangar.orglaura.benitez@escolamassana.catlbenitezva@uoc.edulbenitezv@elisava.net

Laura Benítez Valero is an independent researcher and curator. Her research connects philosophy, art(s) and technoscience, focused on bioresistance and nonhuman agents. Head of Theory, Degree in Arts & Design, Escola Massana and lecturer in Critical and Cultural Studies. Collaborator in the seminar of Robotics and Bioengineering, Mphil, UOC. Lecturer in Technology & Design, Elisava Design School. Guest researcher at the Ars Electronica Centre and the MACBA Study and Documentation Centre. She has also been invited to different international institutions such as Interface Cultures Kunstuniversität Linz, Sónar Festival (Barcelona/Hong Kong), Royal Academy of Arts London or the University of Puerto Rico. Currently she is the content director of the Biofriction (Creative Europe) project led by Hangar in collaboration with the Bioart Society, Cultivamos Cultura and Kersnikova Institute.

<https://biofriction.org/><https://laurabenitezvalero.com/>

CV

**Erich Berger**

Director, Bioart Society

Luotsikatu 13

00160 Helsinki

Finland

erich.berger@bioartsociety.fi

Erich Berger is an artist, curator and cultural worker based in Helsinki, Finland. His focus is on the intersection of art, science and technology with a critical take on how they transform society and the world at large. Throughout his practice he has explored the materiality of information, and information and technology as artistic material.

Berger's current interest in issues of deep time and hybrid ecology led him to work with geological processes, radiogenic phenomena and their sociopolitical implications in the here and now. He moves between visual arts and science in an area which he also investigates and develops as director of the Bioart Society in Helsinki. His installations, performances and interfaces are exhibited widely and he has received awards from renowned institutions such as Prix Ars Electronica (AT), ZKM (DE), Vida Telefonica (ES), Files Prix (BR) and Arts at CERN (CH).

<http://randomseed.org><https://bioartsociety.fi>