
Critical Bioart and Postcapitalist Ethics

Kim Harthoorn

Abstract: Bioart, even in its most material definition, entails a critical discourse on the use of technologies. The aim is to produce an experience, an image or a discourse that is able to decenter the viewers' perception and, if possible, bring them to question their own practice. As Deborah Dixon's framing of the critical stakes of bioart with Jacques Rancière's philosophy, aesthetics, by virtue of their ability to «redistribute the visible and the sensible», are inherently political. As far as biotechnologies are concerned, their use, meaning and ethical limits are drawn by the companies who use them and patent them. Their participation in the capitalist economy can be questioned from the point of view of recent postcapitalist theories, that displace the Marxian concept of infrastructure from capital to technics, following Jacques Ellul's understanding of the «technician system». Bioart's claims for paradigmatic changes and perceptual redefinitions are an attempt at drafting a new ethics, one that is adapted to the omnipresence of technics within our capitalist society. Using a few significant examples, this paper examines how bioart relates to the current situation, and how the «criticality» or modality of critique of bioart works both undermines hegemonic discourses and offers alternative visions for the individual and her or his relations with the others and the world in a postcapitalist future.

Keywords: Bioart; Bioethics; Postcapitalism; Accelerationism; Xenofeminism.

«It is easier to imagine the end of the world than the end of capitalism».
Frederic Jameson

The debates that surrounded the publishing of «#Accelerate:Manifesto for an Accelerationist Politics»¹, and later *Inventing the Future: Postcapitalism and a World Without Work*², by Nick Srnicek and Alex Williams, recentered the political discourse on technology.

Given the enslavement of technoscience to capitalist objectives (especially since the late 1970s) we surely do not yet know what a modern technosocial body can do. Who amongst us fully recognizes what untapped potentials await in the technology which has already been developed? Our wager is that the true transformative potentials of much of our technological and scientific research remain unexploited, filled with presently redundant features (or *preadaptations*) that, following a shift beyond the short-sighted capitalist socius, can become decisive.³

Jacques Ellul, in his memoirs, made the remark that if Marx had lived in our time, he would have focused on

technics instead of capital as the keypoint of society's infrastructure⁴. He indeed believes that a new ruling class of experts has secured a privileged access to technics, holding control over practices and theories, and on technology, which is defined by him as the discourse on technics⁵. This same new ruling class has influence on where ethical limits are drawn, especially concerning biotechnologies.

With the centrality of technics in mind, accelerationist⁶ thinkers Nick Srnicek and Alex Williams propose a conscious transition to post-capitalism. This change would include repurposing capitalist forces towards socialist ends, as well as embracing the radical cultural changes embedded in the technological possibilities that we do not exploit to the fullest, thus working towards a socialist postcapitalist global hegemony.

They are not the only thinkers who try to envision a tangible alternative to capitalism. Parallel to degrowth and ecologist political movements, other thinkers have started picturing a postcapitalist society, or at least the possibility of it, even if it is «easier to imagine the end of the world than the end of capitalism»⁷. From Paul Mason's *Postcapitalism*⁸ to Nick Srnicek and Alex Williams's accelerationist manifesto⁹, Peter Fraser's *Four Futures*¹⁰, and even liberal theorists Miliband and Pabst imagining post-liberalism¹¹, alternatives to neoliberal capitalism are flourishing in contemporary theoretical imagination, from different positions across the political spectrum.

Since it appeared, bioart has taken part in the ontological and political enterprise of renewing the sociotechnical imagination. As a movement, or category, bioart refers to artworks using materials from living organisms.¹² It can also be historically defined as a movement within media art that is specifically concerned with issues regarding relations between humans and living non-humans, the boundaries of life and the politics of bodies. In its narrowest definition, bioart refers to artworks using biotechnologies as a medium¹³. These definitions of bioart as a homogenous category are of course problematic and should not be taken at face value. Furthermore, within the narrowest of these definitions, a difference needs to be made between the uncritical celebration of the powers of scientific visualisation on one hand, and the critical, challenging artistic experiments which question the structures of scientific disciplines and their interrelations with other social phenomena on the other hand.

This distinction has been made by Deborah Dixon in a paper examining the criticality¹⁴ of Ionat Zurr and Oron Catts' Tissue Culture and Art project¹⁵. In her study of

TC&A's semi-living artworks, Deborah Dixon proposes that «political struggle is constituted from the effort to reconfigure [...] subjectivities, an effort that requires the reconfiguration of society at large and the forms of categorisation upon which social order is predicated»¹⁶. This wide range of questions raised with the use of biotechnologies falls into the matter of critical bioart, as discussed by Deborah Dixon.

One emblematic artwork that offers a good example of critical bioart is the *Semi-Living Worry Dolls* exhibition by TC&A, first presented at the Ars Electronica art festival in Linz in 2000¹⁷. It is not to say that Catts and Zurr disavow completely the use of biotechnologies, of course. The semi-living dolls are made of human cell tissue, roughly shaped on the model of Guatemalan worry dolls, and exposed in the bioreactors that sustain them.

There are seven worry dolls, for seven questions about our society and its relationship to science and knowledge. Their names follow an alphabetical order: worry for «Absolute Truths, and of the people who think they hold them», «Biotechnology, and the forces that drive it», «Capitalism & Corporations», «Demagoguery and possible Destruction», «Eugenics and the people who think that they are superior enough to practice it» (and people thinking they can practice it), «Fear of Fear itself», «Fear of Hope», G not being a doll because it stands for gene, which is present in all dolls¹⁸.

The artists seek to engage emotionally with the creatures they built, involving the audience in an intimate relationship with the semi-living. Visitors are indeed invited to whisper their doubts and questions about these themes directly to the dolls. At the end of the exhibition, the creatures are ritually killed, in a ceremony that could both be an exorcism of our fears and a question on the status of the semi-living and what we are allowed to do to it.

The worries that are at the centre of the exhibition are about the connections between corporations, money, power and biotechnologies, as well as about dogmatism and traditionalism. The artists' purpose is not to bring any response to the concerns expressed by the visitors, but to open up a space for a discussion on technology that is neither dogmatically conservative nor blindly enthusiastic¹⁹. Furthermore, their exhibition invited the audience to interact with the semi-living, and explore a new way of socialising within our technosocial environment. As more and more liminal objects/subjects appear and populate our world, how are we going to interact with them?

The discursive power of bioart regarding technosocial questions is particularly strong, given the omnipresence of biotechnologies both in the everyday life of living beings and in the understanding we have of what it means to be human and how we justify the order of things. Critical bioart is particularly relevant insofar as it is an unorthodox, anti-utilitarian, sometimes illegal aesthetic practice. As a discursive act, it engages the persona of the artist, her or his ethos in relationship to the logos and pathos of the work's rhetoric²⁰. The ethos of the artist practicing an aesthetic activity that uses contemporary technics outside corporate for-profit action is challenging for the given order of things. It can propose new ways of perceiving, conceiving and behaving that are not prescribed by the capitalist technosocial environment. As Dixon puts it in her article, «deploying overt manifesto and ironic com-

mentary, the practices, understandings and artefacts that comprise bioart work to challenge the political, economic, cultural and ethical contexts within which a modern-day technoscientific body operates»²¹. Indeed, bioart works can build propositions for the postcapitalist individual, or posthuman, and her or his interactions with other living beings, animal, plant, hybrid or unclassifiable.

In doing so, these works are repurposing our perceptions and challenge notions that are vital to the capitalist order of things. In *The Politics of Aesthetics: the Distribution of the Sensible*²², Rancière argues that aesthetic matters are political insofar as the realm of the visual arts provides us with a «distribution of the visible and the sensible»²³, a distribution of properties and qualities that determines who or what is perceptible, voiced, or agreed with. Dixon refers to his works and proposes the following thesis: «I want to make a much stronger claim for the aesthetic, one that interprets it as a concern with the production of difference in regard to the visibility and sayability of phenomena, and an attention to the site of political struggle in regard to the same.»²⁴

My wish is to draw attention to contemporary discussions on postcapitalism and to show how bioart can retroactively relate to these theoretical frameworks. I also aim to examine the ability of works of bioart to not only question the capitalist order of things but also to propose alternatives and imagine other possibilities. To do so, I will focus on how they contribute to a redistribution of the visible and the sensible, and to what ends. This will facilitate the drawing out of a few characteristics of a possible postcapitalist ethics, in terms of conception of the individual in the world and in her or his relations with others.

1. Emancipation of the Augmented Individual - Adaptation to the Capitalist Technosocial Environment

Our societies see an apparent rise of the individual as self-determined and independent. Narratives such as the self-made man, or its negative, the dependent multitude of poor people who rely on state benefits, show how determinism has been erased from the discourse on the individual that is prescribed by neoclassical economics²⁵. Indeed, this vision does not take into account the various determinisms that weigh on one's perceptions, decisions and behaviours: history, cultural capital, education, environment, personal ability, etc.

Indeed, technics are a key factor of the dynamics of the globalised contemporary society. To Jacques Ellul, technics are conditioning our relationship to our socio-natural²⁶ environment insofar as they mediate our interactions with it²⁷. Thus, the question of the environment is crucial, as its technical component can be seen as the contemporary infrastructure of society. Our technosocial environment is a powerful determining factor for the distribution of the sensible, and its ethical stakes²⁸.

In the continuity of Jacques Ellul's emphasis on the centrality of technics, as well as on the emerging of a new dominant class that is holding on to the knowledge of these technics, Paul Mason examines the specificity of economics since the appearance of the Internet. In *Postcapitalism*²⁹, he makes the point that our understanding of capitalism through the works of Marx did not include the

possibility of reproduction of goods at no cost, which is now possible with numerised cultural goods. We can reproduce images, videos, software and games in an instant and without cost, virtually to an infinite number. This game-changing fact is bringing up new forms of economy that tend to emancipate from the market economy and run parallel to it, ultimately threatening its existence.

This economic space of gratuity favoured the emergence of new figures of potential resistance that are crucial to postcapitalist socioeconomics: the hackers. Thanks to the free circulation of information within peer-to-peer networks, self-taught individuals acquire a mastery of informatics that places them out of the reach of corporate or state power.

Kevin Warwick's pioneering experiments are a good illustration of this hacker ethos applied to the human body. A professor of Cybernetics at the University of Reading, he conducted experiences that led him to be nicknamed «the first cyborg»³⁰. His experiences with his own body included silicon chips implants³¹, allowing him to interact with certain objects, notably identifying himself for security systems.

He leads the way for a community of biohackers whose experiments disrupt the limits of their bodies by equipping them with electronic devices, such as Rfid chips, magnets, LEDs in their hands, arms, and so on³². These experiments sometimes serve a practical purpose, but some are purely aesthetic. The ability to set one's own goals, the political emancipation by practice, along with an organisation operating in a headless network of people sharing advice and experience in an open source culture seems to fit within the framework of Srnicek and Williams' accelerationist propositions.

The «#Accelerate» manifesto describes indeed its own postcapitalist attitude as follows: «A new form of action, improvisatory and capable of executing a design through a practice which works with the contingencies it discovers only in the course of its acting, in a politics of geosocial artistry and cunning rationality, a form of abductive experimentation that seeks the best means to act in a complex world.»³³

Biohacking indeed redefines itself in the course of action, as new ideas and possibilities open up through new discoveries and experiments. Being an illegal, or at least illegitimate practice, biohacking needs its own spaces and social interactions, as well as its own set goals and purposes. It uses the possibilities opened by the capitalist market economy, such as cheap materials, and the ones opened by the Internet, fast communication and free resource-sharing. It takes advantage of available technics and repurposes them towards their own ends, sometimes non-utilitarian and aesthetic. Indeed, biohackers might be among those embracing the possibilities of technological exploration at the fringe of capitalist exploitation, although not entirely separated from it³⁴.

The accelerationist proposition is about reclaiming the possibility of imagining the future through an innovative technology that seeks new uses, purposes and reinventions. Additionally, one of the most important reinventions that needs to be explored is that of individual bodies, since the uprooted individual's needs and desires are at the centre of the consumer culture.

In this spirit, but long before accelerationism as such appeared, the bioartist Stelarc proposed ideas on how to biologically adapt our bodies to their new environment, altered by the growing importance of the Internet. With the project *Ear on Arm* (2003-2006)³⁵, he proposed the implementation of a microphone within an ear made of cartilage and cell tissue attached to his own arm. On his website, he describes his intent as follows: «I have always been intrigued about engineering a soft prosthesis using my own skin, as a permanent modification of the body architecture. The assumption being that if the body was altered it might mean adjusting its awareness.»³⁶

Asked about his supposedly transhumanist ambitions, Stelarc answered by opposing two views on the human body: a fatalist view that sees human nature as a given, and the view he embraces, that seeks adaptation to a new technological environment³⁷. To him, the first view is infused with religious preconceptions of a nature one cannot work against, and therefore a fatalistic attitude to humanity's destiny. On the contrary, he regards his own practice as an attempt to adapt to a new technological ecology. He therefore offers a vision of the individual not as an autonomous being but as determined by its environment, a form of technical ecology. Intervening directly on his body allows him to connect physically to the Internet by transmitting sounds and developing a different, complementary sense of hearing. The artwork is less about practical purpose than about provoking the emergence of new possibilities, a delocalised auxiliary sense that could alter one's perceptive apparatus, a poetic attempt at adaptation in a context infused with virtual and real-life interconnections, where the human body seems less and less adequate.

This creative proposition of reworking oneself resonates with the «#Accelerate» credo. Its Promethean advocacy for conscious, self-determined alienation, that the Xenofeminist manifesto also explores, goes against a pseudo-progress of capitalist technology that is only about «marginally better consumer gadgetry»³⁸. The underlying moral order is not questioned, nor is the «revolutionary technological potential» exploited. Stelarc's refusal of fatalism echoes a refusal of uncritical moral values that constitute the individual ethics of neoliberalism.

Stelarc, Warwick, and others, revindicate the right to self-determination and hacking of one's own body. Their attempt at becoming cyborgs has been qualified as autopoietic by Marc Jimenez. To him, «the notion of autopoiesis refers to the idea of self-engendering and conceals a term (poiesis=creation) frequently used in aesthetics in order to understand an artwork's creation process.»³⁹ Although his reading of Stelarc's work is not laudative he refers to his «project of total robotisation of the human being» as «mad»⁴⁰, his definition of autopoiesis can be understood not as a dystopian compensation for the body's limits, but as a personal attempt at adapting to a new social ecology informed by technics which already act upon our biological parameters. One could see autopoiesis as a simple attempt at self-enhancement, but I prefer to read Stelarc's artwork as a plea for the reclaiming of agency in the face of the totalising force of a technical society⁴¹.

One of the main difficulties encountered by postcapitalist propositions is the fact that capitalist forces have an

extraordinary adaptive power. For example, practices that name themselves biohacking seize this conception of an autonomous, self-engineering individual and devoid it of its subversive meaning by orienting it towards enhanced performance. Marketed «biohacking»⁴² ranges from superfoods to brain exercises. These willpower coaches offer a way for their customers to remain biologically able to sell their workforce, through healthy eating, meditation, sports and various forms of coaching. So, as individualism rises and people demand more self-determination, capitalist structures adapt and offer them a frame to operate within and contain their claim for autonomy.

Another example of this adaptation to the rise of the individual's claim for self-determination is platform capitalism⁴³. Platforms are places, organisations, websites or applications that allow people and businesses to connect easily with each other and their clients through a simplified interface. The infrastructure in this case is not capital itself but the interface that handles money and information exchanges: the platform.

The accelerationists, seeking to reclaim a form of agency in the face of these new structural developments of capitalism, advocate for a form of hacking of this platform system:

The left must develop sociotechnical hegemony: both in the sphere of ideas, and in the sphere of material platforms. Platforms are the infrastructure of global society. They establish the basic parameters of what is possible, both behaviourally and ideologically. In this sense, they embody the material transcendental of society: they are what make possible particular sets of actions, relationships, and powers. While much of the current global platform is biased towards capitalist social relations, this is not an inevitable necessity. These material platforms of production, finance, logistics, and consumption can and will be re-programmed and reformatted towards post-capitalist ends.⁴⁴

This platform system is the infrastructure that allows our interconnected economies to develop at an increasingly faster pace. But this macroeconomic system has its microeconomic counterpart, that can be called the «uberisation» of economy, or gig economy. In this system, individuals offering their workforce are connected with their customers through an interface, mostly an app accessible via a smartphone and an Internet connection. While they own their vehicle and smartphone, manage their time and at the same time constitute the workforce necessary for the service to be performed, they do not get the profit generated by their activity. This profit is transferred to the company that owns the interface and allows the circulation of information and money between workers and customers.

Stelarc makes a particularly interesting point about interfaces at the individual level. «What matters for an artist is to build an interface and then experience it directly, then to be able to articulate this new relationship of the body with the technology.»⁴⁵ The technics that surround us are growingly complex and remain out of our comprehension. As users, our only point of contact with them is the interface that allows us to command them or interact with them. The ones who design the interface and determine what commands or interactions with a given technology will be possible are the ones holding the true

power. The individual user is thus put in a place of fake autonomy.

Recognizing the way interfaces operate on us as well as building more adequate and alternative interfaces is one of the traits of Stelarc's work. This powerful example of interface crafting with a purpose, escaping the profit-driven capitalist imagination and seeking to explore more personal ways of human modification, can be seen as a component of a postcapitalist ethos. Indeed, he proposes a vision of the individual as rational, self-possessed and able to take advantage of its own determinisms. His ambition is to transgress the boundaries of the body, the self and the individual, in order to explore new interfaces and therefore connect differently with other sociotechnical bodies, knotting relationships that are not necessarily ones of domination.

2. Sympoietic Becomings

As we have seen, the augmented self disrupts and multiplies the limits of the body. But some bioart works take a slightly different stance on the matter of the disturbance of the boundaries of the body, the self and the human. In these positions, the individual, artist or viewer, is attempting to get closer to the boundaries between humans and others, in our examples the animal and the plant. While acknowledging that there can never be a perfect understanding of what it feels like to be a non-human being, these performances try to explore the connections that we can create with or towards the radically other. This de-centering of perspective and attempt, if not at empathy, at least at an understanding of one's conditions of life, can be understood as an ethical guideline for a breakaway from anthropocentrism and towards an ecological conception of life.

Another postcapitalist proposition that I would like to examine is the «Xenofeminism: A Politics for Alienation»⁴⁶ manifesto. Published by a group of theorists under the name Laboria Cuboniks, the xenofeminist ideology shares a common theoretical ground with accelerationism. The difference is the stress on intersectional issues: gender, sexuality, ability and ethnicity along class divides and socioeconomic inequalities. This reading will help us frame questions surrounding a decentering from anthropocentrism that can be politically relevant to the sketching of a postcapitalist ethos.

The main thesis of xenofeminism reads as follows:

XF seizes alienation as an impetus to generate new worlds. We are all alienated – but have we ever been otherwise? It is through, and not despite, our alienated condition that we can free ourselves from the muck of immediacy. Freedom is not a given and it's certainly not given by anything «natural». The construction of freedom involves not less but more alienation; alienation is the labour of freedom's construction. Nothing should be accepted as fixed, permanent, or «given» neither material conditions nor social forms. XF mutates, navigates and probes every horizon.⁴⁷

First, the centrality of determinisms in the becoming of an individual, called here «alienation»⁴⁸, is something to wish for instead of something we should reject in the name of a postulated purity. We cannot go against the fact

that we are alienated, but we can act upon the forces that alienate us, which is the only way to exert freedom. We can oppose a creative response to alienating forces and hope to subvert and redirect them towards self-defined freedom.

Second, the text makes a strong case against the naturalist argument. By questioning everything that is given as natural, such as procreation, ability and disability, gender, etc., the manifesto allows itself to redraw the boundaries of the possible, the knowable and the desirable. This reflection can be found in Donna Haraway's work, which also advocates for «the transgression of boundaries in order to appropriate the world in a new way with a less distorted ideological framework»⁴⁹. She describes the «construction of "nature" as a technical artifact» and criticises «naturalizing discourses» that are disguising their ideological positions by a universalist claim.

Marion Laval-Jeantet's capital and controversial performance *May the Horse Live in Me* constitutes an edifying case study for the crossing of limits. After several weeks of immunodepressive treatment under medical surveillance, owing to the toxicity of horse blood for the human body, parts of blood from a horse were then injected in her veins. This temporary graft succeeded: The account she gave of the operation showed that she was indeed brought to an intimate, bodily, unmediated understanding of the horse condition⁵⁰.

Not only is the experiment of transferring some of the blood of a different species into a human body shifting the boundaries of the possible, but the reactions to the performance have been extremely violent, from ethics committees to public outrage. The fears of a xenotransfusion causing contamination of the human blood show how the collective human self has been constituted as a species isolated from the rest of the living, and how this conception that was seen as natural can be transgressed and worked upon.

Recent discoveries have shown that we host an impressive amount of bacteria that are vital to our functioning, stressing the heterogeneity of what we call our body. Moreover, the structure of the living is far from immune to transfers and alterations. Marion Laval-Jeantet's radical performance took place within a redrawing of our understanding of interspecies becomings, both in scientific, technic and medical practice as well as in philosophy.

Marion Laval-Jeantet's experiment is both an acknowledgement that the experience of being an animal from another species is impossible to understand, and that this impossibility does not forbid an attempt at getting closer. Her liminal experiment is situated at the blurred and complicated threshold of interspecies communication. Something that is a medical reality, from the paralleling of animals and humans in lab experiments to attempted xenotransplants.

Another radical decentrement from the human isolation as self is *MyConnect*, realised in 2013 by Saša Spačal, Mirjan Švagel and Anil Podgornik. Its settings allow a person to connect with the mycelium of a mushroom⁵¹. The artwork consists in planting electrodes on the body of a human, and letting the vital parameters of the human be converted into an electric signal that is then sent to the mycelium. The response is fed back to the human through lights and sounds. An electric current put

through the network of the mycelium gets altered, so, as the human is influenced by what she or he sees and hears, she or he sends a different bodily response that is in turn transmitted and altered by the mycelium. This loop of communication is an attempt at getting closer to a possible alterity⁵².

One of the main points of this personal ethos of opening to alterity is the acceptance of the loss of control. In this dynamic of self-alteration, the other takes a place in a relationship that can be called sympoietic. As both parties are changed, the human opens to the vulnerability of a transformation towards something unknown, or even dangerous. Exposure to danger is part of this experience of radical decentrement.

In a postcapitalist world, alienation could be a key to the redefinition of social order. In an intersectional perspective, capitalist structures rely on systemic exclusion and exploitation of certain social classes. The reliance on cheap and free labour relegates women and people of colour outside the realm of legitimate being. Questioning their identity sets an ontological hierarchy that orders different statuses for living beings.⁵³ Animals are treated either as property, goods or a nuisance and therefore the economical organisation reserves itself the right of life and death on them. This specieist notion needs to be challenged in a postcapitalist conception of identity as fluid and non-decisive for political status. This radical rewriting of the ontological order necessitates an endangerment of the notion of the self and could be performed through a co-construction of new symbiotic identities.

Sympoietic self-editions of individuals could be a version of the alienation paradigm offered by the xenofeminist manifesto. As opposed and complementary to an auto-poietic ethos, a sympoietic ethos can be characterized as common to several beings across species or inter-kingdom divides. It consists in a consented relationship in which the human self is compromised. This symbiosis would be more about becoming near or towards the other than about asserting identities. It would in fact work against essentialism and constantly dismiss the concept of a stable identity. Its impulse in crossing boundaries would welcome new, previously unthought ideas and revitalise our imagination.

Indeed, the injunction to hack networks and establish new ones, as well as the importance of reclaiming technics and practices from institutional bodies, in the case of xenofeminism, medicine and pharmacology⁵⁴, are elements of a feminist version of accelerationism which emphasises the repurposing of alienation towards socialist goals of individual emancipation and «collective self-mastery»⁵⁵. This consented alienation can be understood as the ethos of sympoietic individuals preoccupied by their becoming other, and becoming with.

May the Horse Live in Me and *MyConnect* are two artworks that rework our conceptions of what is possible and what is desirable. Their way of redistributing the visible and the sensible, in Rancière's optic, incites us to pay attention to non-human beings as political subjects. They also render the notion of physical alteration not as a terrifying perspective but a desirable one, for the outcome of both projects has an emotional impact that relies on our desire to be united with others. This emotional impact goes against the fear of the endangerment of the self.

So far we have examined two possibilities for the postcapitalist individual's ethos: the augmented, autopoietic individual, able to craft oneself and decide consciously how to frame oneself by getting hold of techniques and interfaces. The second possibility is one of a sympoietic kind, not necessarily exclusive to the first one but oriented towards an endangerment of the self, a shifting of boundaries and exploration of the liminal, in an attempt to deconstruct categories and rewrite interpersonal and social relationships.

3. Wanderings in the Biosemiosphere

Among interpersonal relationships, the construction of the family and the laws of transmission are central. In this perspective, the reproductive ability becomes a central issue, particularly if this ability is commodified. Indeed, birth-giving is an ability that is traditionally assigned to female bodies, although a significant number of female bodies do not in fact have this possibility. In the biotechnology market, this ability is commodified, and this commodification alters the economic prospects of women in this new market, as well as the use of their bodies. It brings the question of self-sustainability by self-commercialisation, because as self-entrepreneurs, anyone is meant to be able to commercialise their time, money, body parts and workforce within technocapitalist structures.

The necessary adaptation of humans to a capitalist technoscape means imposing an exchange value on a human being based on gender, ethnicity, ability and sexual orientation is not only the norm, but also a norm carried out by people who market themselves as such. Intersectional theories problematise inequalities as a result of both capitalist structures of production and exchange of goods and services, and discriminatory production of identities, nationality, ethnicity, gender, sexuality, ability. Their extension to the body is a prolongation of capitalist biopolitical power⁵⁶. Although we worry about this totalising power, our only option seems to sustain a critical consciousness and participate reluctantly in an order of things that is less and less oriented towards humans as such.

In reorienting perception with a new proposition whose modalities carry affects of a new kind, they engender a redistribution of the visible, the sensible, and the way we attribute meaning. Spela Petrič's *Ectogenesis: Plant-Human Monsters* is a powerful example of this new modality that could have a strong effect on our perceptual framework. In this recent artwork, the artist impregnated young plantlets with her hormones in an attempt at cross-species parentality. The tonality of Spela Petrič's writing about what she calls «phytoteratology» is far from ironic. Her use of sex hormones leads to the creation of «a plantlet shaped by the infonutritive capacity of the human body». A new kind of parentality is established between plants and animals, disturbing our understanding of heredity and evolution.

In Phytoteratology blood kinship and genetic lineages give way to subtler streams of radical trans-species intermingling and category mongrelisation; I pro-create plant-human entities, which I lovingly call monsters, via *in vitro* conception and hor-

monal alteration. The project embodies my desire to conceive and mother a trans-plant, to conjoin the gentle green alien, metaphysically dubbed the most primal of life forms, the barest of bare life, and my animalistic, politicised humanness harboring a culturally pregnant mind.⁵⁷

Parentality is among these notions that are given as natural, and therefore legitimise social practices and ways of being: identities, heritage and family for example. Spela Petrič opens up the possibility of a radical alternative in transmission: interkingdom communication and circulation of meanings and meaning-making in a denaturalised environment where accidental and intentional is no longer a distinction, and where values cannot become exchange values. More importantly, the boundaries of the imaginable, as the knowable, possible, acceptable and desirable, are in constant reworking, drawing new bonds, new familialities.

Spela Petrič operates within a «post-genetic» paradigm that refuses the absolute necessity and legitimacy of the genome as the only possibility of transmission. She nevertheless embraces a broad vision of the entanglement of meaning and life sciences in what could be called the «biosemiosphere». The existential undertones of her work are sensible in her description of molecules «wandering our communal semiosphere, searching for new meaning»⁵⁸. Meaning-making and biological processes are intertwined, allowing us to reach out to the radical other, animal or plant⁵⁹. Our isolation in the human category is our own creation.

Ectogenesis is a subversive artwork that questions norms fundamental to our social and political order. It questions the validity of biology as a hard science, exploring instead the possibility that the object of biology as a science is not to be dissociated from the study of meaning-making. As the science of life itself, biology establishes a holistic narrative of our being and becoming. Petrič's practice attempts to explore possibilities that were left untouched by biology as a discipline that maintains narratives necessary to the current order of things, instead of researching and creating new, more comprehensive narratives. If we accept the paradigm of a biosemiosphere common to all living things, then new interactions and new understandings can start circulating based on impulses and desires that escape capitalist determination. Maybe we can see this biosemiosphere as the site of bioartistic discourse, where the desirability of new interactions with other living beings is established.

Hormones could operate as meaning conveyors across the biosemiosphere. The postcapitalist ethos that can be derived from this idea is that of the inventor attempting to reach out through the biosemiosphere, searching for new meanings to construct together with political subjects that are situated outside language but inside a common environment. The definition of politics could be transformed by this extension of the realm of possible communications outside the systematic application of exchange value.

Conclusion. The Creative Ethos

Through the study of a few bioart works and postcapitalist manifestos, we reached questions that lie at the core of

what we mean by society and how this meaning is changing. We have established the centrality of technics in the understanding of the infrastructural conditions of our current economic, political and personal lives. The «technician system»⁶⁰ and the most recent forms of capitalism that are informed by it are identified as both nefarious and about to collapse, or to reinvent themselves in entirely new forms.

Bioart works can propose individual responses to this collapse, as well as the redrawing of a new ethos. Auto-poietic reworking of the body and its determinisms in an ecotechnical perspective is a possibility, along the sym-poietic process of becoming together with the radical other. These transgressions of the place and limits that are traditionally assigned to the body open possibilities of other transgressions, including the bypassing of filiation, that remains a powerful structuring force of our social order, as well as a strong potential for the commodification of female bodies. These transgressions, redefinitions and openings are made possible by a biosemiotic vision of spaces shared with the radically other, across kingdoms, species, ethnicities, genders and abilities, whose diversity demands the crafting of new possible interactions.⁶¹

My propositions for a postcapitalist ethos echo the programmatic discourse of the «#Accelerate» manifesto:

We need to revive the argument that was traditionally made for post-capitalism: not only is capitalism an unjust and perverted system, but it is also a system that holds back progress. Our technological development is being suppressed by capitalism, as much as it has been unleashed. Accelerationism is the basic belief that these capacities can and should be let loose by moving beyond the limitations imposed by capitalist society. The movement towards a surpassing of our current constraints must include [...] the quest of Homo Sapiens towards expansion beyond the limitations of the earth and our immediate bodily forms. These visions are today viewed as relics of a more innocent moment. Yet they both diagnose the staggering lack of imagination in our own time, and offer the promise of a future that is affectively invigorating, as well as intellectually energising. After all, it is only a post-capitalist society, made possible by an accelerationist politics, which will ever be capable of delivering on the promissory note of the mid-Twentieth Century's space programmes, to shift beyond a world of minimal technical upgrades towards all-encompassing change. Towards a time of collective self-mastery, and the properly *alien* future that entails and enables.⁶²

If the accelerationist discourse is on point on the lack of imagination and the stagnation of technology in gadgetry instead of the critical philosophical revolution it could become, then critical bioart is a decisive way of forecasting what our bodies may become after such a change, and how we could reclaim an agency in these becomings, in a way that would do justice to all living beings of the biosphere. Bioartists' criticality lies precisely within this capacity to draw new boundaries, limitrophies and escape lines: the capacity to fertilise our political and existential imagination, despite the risk that the totalitarian presence of technics within the fabric of society could swallow these inventions in their circle of cultural commodification.

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Notes

- ¹ Nick Srnicek, Alex Williams, «#Accelerate: Manifesto for an Accelerationist Politics», 2013, <http://criticallegalthinking.com/2013/05/14/accelerate-manifesto-for-an-accelerationist-politics/>.
- ² Nick Srnicek, Alex Williams, *Inventing the Future: Postcapitalism and a World Without Work*, Verso, London, 2015.
- ³ Nick Srnicek, Alex Williams, «#Accelerate: Manifesto for an Accelerationist Politics», *cit.*, p. 6.
- ⁴ Jacques Ellul, *Ellul par lui-même: Entretiens avec Willem H. Vanderburg*, La Table Ronde, Paris, 2008, p. 59.
- ⁵ *Ibid.*, p. 74-75.
- ⁶ The term «accelerationism» refers to an orientation in contemporary left-wing debates. It proposes to take over capitalist modes of production and repurpose its technical and social infrastructure towards socialist ends, notably by the promotion of the maximal automation of labour. For an overview of accelerationism, particularly in regard to degrowth theories, see Aaron Vansintjan, «Accelerationism... and Degrowth? The Left's Strange Bedfellows», Social Ecology Blog, Institute for Social Ecology, 28/09/2016, <http://social-ecology.org/wp/2016/09/accelerationism-degrowth-lefts-strangest-bedfellows/>.
- ⁷ Frederic Jameson, *Postmodernism, or the Cultural Logic of Late Capitalism*, Duke University Press, Durham, North Carolina, 1991.
- ⁸ Paul Mason, *Postcapitalism: A Guide to our Future*, Allen Lane, London, 2015.
- ⁹ Nick Srnicek, Alex Williams, *op. cit.*
- ¹⁰ Peter Frase, *Four Futures: A Life after Capitalism*, Verso, London, New York, 2016.
- ¹¹ John Milbank, Adrian Pabst, *The Politics of Virtue: Post-Liberalism and the Human Future*, Rowman & Littlefield International, Lanham, Maryland, 2016.
- ¹² «The use of [...] living materials, or moist media, in artistic practice also implies the application of the tools of the life sciences in the arts», Robert Zwijenberg, «Preface», in Ingeborg Reichle, *Art in the Age of Technoscience: Genetic Engineering, Robotics, and Artificial Life in Contemporary Arts*, Springer, Vienna, 2009, p. Xviii.
- ¹³ Different definitions of bioart by bioartists themselves have been collected by Anne Byerley and Derrick Chong. Some of these definitions

focus on the use of biotechnologies as central to bioart. They report for instance Oron Catts' definition: «Catts finds the act of defining bio art “problematic”, referring to himself as “an artist who engages with biological arts”, and signalling the choice of media as a defining factor.» Anne Byerley, Derrick Chong, «Biotech Aesthetics: Exploring the Practice of Bio-Art», *Culture and Organization*, Taylor & Francis Online, 2014, p. 10. Further, Eduardo Kac's position also puts the biotechnological medium at the core of bioart practice: «Kac (like his fellow artists) acknowledges biotechnology as a point of reference: “I use the media of my time to make art, as Nam June Paik used video, László Moholy-Nagy used the photogram and the Impressionists used new paints in tubes”», *idem*, p. 12.

¹⁴ I define «criticality» as the modality of critique, i.e. how and by what means a discourse operates criticism. I coined this term because it allows to stress the quality, or modality, of critique. In an extended sense, «criticality» means «The quality, state, or degree of being of the highest importance», according to the American Heritage Dictionary of the English Language, Fifth Edition, 2011 (<http://www.thefreedictionary.com/criticality>). Furthermore, «Criticality is a nuclear term that refers to the balance of neutrons in the system. “Subcritical” refers to a system where the loss rate of neutrons is greater than the production rate of neutrons and therefore the neutron population (or number of neutrons) decreases as time goes on. “Supercritical” refers to a system where the production rate of neutrons is greater than the loss rate of neutrons and therefore the neutron population increases. When the neutron population remains constant, this means there is a perfect balance between production rate and loss rate, and the nuclear system is said to be “critical.” The criticality of a system can be calculated by comparing the rate at which neutrons are produced, from fission and other sources, to the rate at which they are lost through absorption and leakage out of the reactor core. A nuclear reactor is a system that controls this criticality or balance of neutrons». (<http://mitnse.com/2011/03/18/what-is-criticality/>). Finally, the Oxford English Dictionary defines the critical as what is «relating to or denoting a point of transition from one state to another». These definitions give critique a paradigmatic dimension.

¹⁵ Deborah P. Dixon, «Creating the Semi-Living: On Politics, Aesthetics and the More-than-Human», *Transactions of the Institute of British Geographers*, New Series, Vol. 34, No. 4 (Oct. 2009), p. 411-425.

¹⁶ *Ibid.*, p. 412

¹⁷ For details regarding the artwork's structure and practical details, see «Semi Living Worry Dolls», the Tissue Culture & Art project, <http://lab.anhb.uwa.edu.au/tca/semi-living-worry-dolls/>.

¹⁸ *Ibid.*

¹⁹ They make this position clear in Ionat Zurr, Oron Catts, «The Ethical Claims of Bio Art: Killing the Other or Self-Cannibalism?», *Australian and New Zealand Journal of Art: Art & Ethics* Vol 4, N° 2, 2003, and Vol. 5, N° 1, 2004, p. 167 – 188, available online at <http://www.tca.uwa.edu.au/atGlance/pubMainFrames.html>: «We are aware of the paradoxical position in which we are standing: on one hand we attempt to break down specism and make humans part of a broader continuum. On the other hand we, artists – humans, are using (abusing?) more privileged position to technically manipulate an aesthetic experiment. How do we resolve this tension?! We believe that by the creation of this new class of semi-living/partial life we further shift / blur / problematise the ethical goalpost in relation to our (human) position in the continuum of life. The discussion that being generated regarding the rights of the semi-living will draw attention to the conceptual frameworks in which we humans understand and relate to the world.»

²⁰ This framing of bioart with Aristotelian rhetoric has been provided by Marjan Groot in her seminar «Arts, Science, Design & Ethics» at Leiden University, 2015.

²¹ Deborah P. Dixon, «Creating the Semi-Living: On Politics, Aesthetics and the More-than-Human», *Transactions of the Institute of British Geographers*, New Series, Vol. 34, No. 4 (Oct. 2009), p. 422.

²² Jacques Rancière, *The Politics of Aesthetics: the Distribution of the Sensible*, Continuum, London, 2007

²³ *Ibid.*, p. 12.

²⁴ Deborah P. Dixon, «Creating the Semi-Living: On Politics, Aesthetics and the More-than-Human», *Transactions of the Institute of British Geographers*, New Series, Vol. 34, No. 4 (Oct. 2009), p. 412.

²⁵ An insight into this problematic of the neoclassical definition of the individual can be found in Ha-Joon Chang, *Economics: The User's Guide – A Pelican Introduction*, Pelican, London, 2014

²⁶ The difference between nature and culture as an artificial divide has been proven less interesting and thought-provoking than a conception of natureculture, a term coined by Donna Haraway, that comprehends social interactions with what was previously seen as «natural» as well as an ecological understanding of our life in a technoscientific era. This

vision relies on Donna Haraway and Bruno Latour, as well as the anthropological works of Philippe Descola (Philippe Descola, *Par-delà nature et culture*, Gallimard, Paris, 2005).

²⁷ «The technical environment substitutes itself to society insofar as not only natural data and natural facts, but also social relations, are mediated, formatted by the technical.» Jacques Ellul, *Ellul par lui-même: Entretiens avec Willem H. Vanderburg*, La Table Ronde, Paris, 2008, p. 96, translation K. Harthoorn.

²⁸ «In Rancière's deployment of the aesthetic, critical questions are raised in regard that which is made visible and that which can be said, as well as the appropriate, and inappropriate, places and times within which a distribution of the sensible occurs», Deborah P. Dixon, «Creating the Semi-Living: On Politics, Aesthetics and the More-than-Human», *Transactions of the Institute of British Geographers*, New Series, Vol. 34, No. 4 (Oct. 2009), p. 422.

²⁹ Paul Mason, *Postcapitalism: A Guide to our Future*, Allen Lane, London, 2015.

³⁰ «The Cyborg: Kevin Warwick is the World's First Human-Robot Hybrid», Motherboard, 10/08/2010, https://motherboard.vice.com/en_us/article/the-cyborg-kevin-warwick-is-the-worlds-first-human-robot-hybrid.

³¹ *Project Cyborg 1.0* (1998) and *Project Cyborg 2.0* (2002) were both aimed at implanting a silicon chip under Warwick's skin, the second project involving a connection with his nervous system. Ingeborg Reichle, *Art in the Age of Technoscience: Genetic Engineering, Robotics, and Artificial Life in Contemporary Arts*, Springer, Vienna, 2009, p. 135.

³² The community of grinders has online platforms and forums, such as <https://forum.biohack.me> or www.grindhousewetware.com, www.scienceforthemasses.com, etc.

³³ Nick Srnicek, Alex Williams, «#Accelerate: Manifesto for an Accelerationist Politics», 2013, p. 5-6.

³⁴ The multiplicity and ambiguity of biohackers' identity is discussed by Morgan Meyer in a study on comparisons describing biohackers: «The following hypothesis can be made: while comparisons with amateurs and punks are potentially benign, comparisons with Steve Jobs are potentially lucrative, and the ones with terrorists are problematic.» Furthermore, «Another topic could be to study how DIY biologists describe their activities as promissory and revolutionary – and compare them to known success stories in order to seek public funding or venture capital – and, at the same time, to find out whether funders “buy” these promises». Meyer underlines the thickness and complexity of the marginal position of biohackers, both in their attempts at a self-definition and in external viewpoints on their practice. «Steve Jobs, terrorists, gentlemen and punks: tracing strange comparisons of biohackers», in Joe Deville, Michael Guggenheim, Zuzana Hrdlickova (ed.), *Practising Comparison: Logics, Relations, Collaborations*, Mattering Press, London, 2016, p. 301.

³⁵ Initially *Extra Ear* (1997), then *Extra Ear 1/4 Scale* (2003), <http://stelarc.org/?catID=20242>

³⁶ <http://stelarc.org/?catID=20242>

³⁷ Marie Lechner, «Le corps amplifié de Stelarc», 12/10/2007, cité par «Stelarc, le premier cyborg?», *Anatomia Blog*, 12/02/2011, <https://bloganatomia.wordpress.com/2011/02/12/stelarc-le-premier-cyborg/>.

³⁸ Nick Srnicek, Alex Williams, «#Accelerate: Manifesto for an Accelerationist Politics», 2013, p. 3.

³⁹ Marc Jimenez, *Art et technosciences – Bioart et neuroesthétique*, Klincksieck, Collection 50 Questions, Paris, 2016, p. 77. Translation: K. Harthoorn.

⁴⁰ *Ibid.*, p. 60.

⁴¹ Among theorists who expressed concern about the totalising effect of a society permeated by technics, we can quote again Jacques Ellul, but also Hartmut Rosa. For an introduction to his work, see Hartmut Rosa, *Aliénation et accélération. Vers une théorie critique de la modernité tardive*, La Découverte, Paris, 2012.

⁴² See for example Bulletproof's marketing around biohacking (www.bulletproof.com and www.blog.bulletproof.com).

⁴³ «Some prominent critics [...] speak of platform capitalism – a broader transformation of how goods and services are produced, shared and delivered [in a] participatory model, whereby customers engage directly with each other», Evgeny Morozov, «Where Uber and Amazon rule: welcome to the world of the platform», *The Guardian*, 06/06/2015, <https://www.theguardian.com/technology/2015/jun/07/facebook-uber-amazon-platform-economy>.

⁴⁴ Nick Srnicek, Alex Williams, «#Accelerate: Manifesto for an Accelerationist Politics», 2013, p. 4.

⁴⁵ Marie Lechner, «Le corps amplifié de Stelarc», 12/10/2007, cité par «Stelarc, le premier cyborg?», *Anatomia Blog*, 12/02/2011,

<https://bloganatomia.wordpress.com/2011/02/12/stelarc-le-premier-cyborg/>. Translation: K. Harthoorn.

⁴⁶ Laboria Cuboniks, «Xenofeminism: A Politics for Alienation», 2015, www.laboriacuboniks.net, p. 1

⁴⁷ Laboria Cuboniks, «Xenofeminism: A Politics for Alienation», 2015, www.laboriacuboniks.net, p. 1.

⁴⁸ Hartmut Rosa defines alienation as the totalising, inescapable result of a technocapitalist environment where accelerating technical possibilities coupled with a new system of ethics and a productivity economy results in less and less time available for individuals. He underlines the total grip on everyone's relationship to time and therefore everyone's existence, physical and psychical alike, undergoing an acceleration and side-effects such as burn-outs and anxiety (Hartmut Rosa, *Aliénation et accélération. Vers une théorie critique de la modernité tardive*, La Découverte, Paris, 2012).

⁴⁹ Ingeborg Reichle, *Art in the Age of Technoscience: Genetic Engineering, Robotics, and Artificial Life in Contemporary Arts*, Springer, Vienna, 2009, p. 8.

⁵⁰ «My nights were totally fragmented, I had an absurdly strong appetite, and when someone knocked my arm I used to panic. In spite of that I felt incredibly strong ... I was talking to immunology doctors about it, and particularly with one immunologist who specialises in horses. To him it was obvious that all my reactions which have not been entirely of psychological nature were very much typical for a horse.», Aleksandra Hirszfeld, «May the horse live in me (interview with Art Orienté Objet)», 24/11/2016, http://artandsciencemeting.pl/teksty/may_the_horse_live_in_me_interview_with_art_oriented_objet-13/

⁵¹ <https://projectmyconnect.wordpress.com/info/>

⁵² «Myconnect is a symbiotic interspecies connector that questions anthropocentric division of nature-human-technology. With its circuit of signals and impulses, that are generated and translated by biological and technological organisms, Myconnect performs an immersive experience of symbiotic interdependence [...] By making new connections with other biological species and environment one might step out of anthropocentric perspective even if for just one moment to experience fresh air of other possibilities.» Saša Spačal, «MyConnect», <http://www.agapea.si/en/projects/myconnect>

⁵³ Intersectionality as «the articulation of resistances that were considered exclusive for too long: feminisms, anticapitalisms, antiracisms, ecologies, identity struggles», is seen by Delphine Gardey as «natureculture boilings», framing intersectionality with Donna Haraway's works, Delphine Gardey, «Donna Haraway: poétique et politique du vivant», *Cahiers du Genre* 2013/2 (n° 55), p.189.

⁵⁴ «We ask whether the idiom of “gender hacking” is extensible into a long-range strategy, a strategy for wetware akin to what hacker culture has already done for software. [...] Without the foolhardy endangerment of lives, can we stitch together the embryonic promises held before us by pharmaceutical 3D printing [...], grassroots telemedical abortion clinics, gender hacktivist and DIY-HRT forums, and so on, to assemble a platform for free and open source medicine?», Laboria Cuboniks, «Xenofeminism: A Politics for Alienation», 2015, www.laboriacuboniks.net, p. 9.

⁵⁵ *Ibid.*, p. 10.

⁵⁶ The notion of biopolitics, originally developed by Foucault, has been popularised by Michael Hardt and Antonio Negri in their seminal work *Empire* (Michael Hardt, Antonio Negri, *Empire*, Harvard University Press, Cambridge, Massachusetts, 2001, p. 22-41).

⁵⁷ Spela PETRIČ, «Ectogenesis: Plant-human monsters», 2016, <http://www.spelapetric.org/portfolio/ectogenesis/>.

⁵⁸ *Idem.*

⁵⁹ «Hormones are primordial messenger molecules, stemming from a common evolutionary parent of plants, animals and microbes. Their nature can be considered dual: one of materiality, the chemical structure conferring their ability to interact with other molecules such as receptors; the other semiotic, context dependent, fluctuating, adapting, involved in a process of meaning-making», Spela Petrič, «Ectogenesis: Plant-human monsters», 2016, <http://www.spelapetric.org/portfolio/ectogenesis/>.

⁶⁰ Jacques Ellul, *Ellul par lui-même: Entretiens avec Willem H. Vanderburg*, La Table Ronde, Paris, 2008, p. 99.

⁶¹ This idea of a biosemiosphere asks the questions of the semi-living, the not-yet-living and of robots, artificial intelligence, etc, who would stay at the margin of this biosemiosphere unless we could find a way of interacting with them outside valuation for exchanges on the world market. Ionat Zurr, Oron Catts, «The Ethical Claims of Bio Art: Killing the Other or Self-Cannibalism?», *Australian and New Zealand Journal of Art: Art & Ethics* Vol 4, N° 2, 2003, and Vol. 5, N° 1, 2004, p. 167 – 188.

⁶² Nick Srnicek, Alex Williams, «#Accelerate: Manifesto for an Accelerationist Politics», 2013, p. 6.