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In (Tertiary) Memory of Bernard Stiegler

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THE EPIPHYLOGENETIC TURN AND ARCHITECTURE: IN (TERTIARY) MEMORY OF BERNARD STIEGLER

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Introduction

From Epiphylogenesis to General Organology

Robert A. Gorny and Andrej Radman, editors

> The present historical condition … is marked by three momentous and interconnecting changes. First at the social level, we witness increasing structural injustices through the unequal distribution of wealth, prosperity and access to technology. Second at the environmental level we are confronted with the devastation of species and a decaying planet, struck by climate crisis and new epidemics. And third, at the technological level, the status and condition of the human is being redefined by the life sciences and genomics, neural sciences and robotics, nanotechnologies, and new informational technologies and digital interconnections they afford us.
>
> Rosi Braidotti, *Posthuman Feminism*[1]

> I would go as far as to insist that more than any other time in our brief history on Earth, we are experiencing a clash of temporalities: geological time, the deep time of those processes that fashioned our terrestrial home; historical time; and experiential time. All these times now fold in on one another. We are not used to thinking of time as simultaneous. We think of time as linear: past, present, future. So how do we begin to think about time in a way that takes these concatenations seriously?
>
> Achille Mbembe, 'How to Develop a Planetary Consciousness'[2]

Bernard Stiegler (1952–2020) was a French philosopher of technology, influenced by Gilbert Simondon's mechanology and Jacques Derrida's deconstructivism. He left us with a complex oeuvre that will be difficult to outline. Stiegler's writings constitute a next level of conceptual alienation even for those used to neologisms. He composed and saturated an evolving apparatus of adopted concepts to deconstruct and think through our current technological condition. Among these are gems like hypomnesic tertiary retentions and protentions; exosomatic organogenesis, neganthropy, neganthropology and neganthropocene; general organology. This introduction will barely scratch the surface in comparison to a number of book-length works that strive to unpack Stiegler's highly syncretic way of thinking and collaborative working style.[3] While less synoptic than these studies, we hope to provide a genealogy that does justice to Stiegler's original complexities and convolutions.

Stiegler's work is first and foremost concerned with technology – or more specifically technics, referring to the general domain of technical practice as a system, as distinguished from the modern combination of technics and the sciences, and the resulting rationale (*logos*) to which technics are put – and its relation to forms of evolution, becoming, individuation, and subjectivity.[4] From the initial volume(s) of *Technics and Time* he developed a philosophically based theoretical framework concerning the historical conditioning of technics within evolutionary processes.[5] The central argument is best summed up by the line 'it is the "what" [that is, some material condition] that invents the "who" [as a subject]'.[6] The Stieglerian reversal (of the reversed ontology) has been refined across many subsequent projects, often published as

multi-volume studies.[7] Around 2010 he started to derive a particular methodological (if not didactic) framework that enables transformative action.[8] Stiegler's oeuvre can thus be divided according to three central concepts that will be explained below: 1) organology, 2) pharmacology, 3) neganthropology. More than subsequent phases these mark three mutually dependent intellectual endeavours to rethink how technics steer evolutionary processes, in both past and contemporary developments.

Even if Stiegler rarely touched on the subject of architecture directly, he nonetheless provides invaluable material for critically rethinking the built environment as a man-made existential niche: 'to create one's own milieu is to build'.[9] The purchase of Stiegler's concepts for architecture is to be found in the proposition of a novel theoretico-methodological turn towards so-called epi-phylo-genetic processes. These processes are to be embraced by an architectural discourse if we want to bolster the post-Foucauldian genealogical stances, which subsume architecture under the general history of techne.[10] We thus turn our attention to the evolving account of epiphylogenesis to familiarise the reader with the conceptual meshwork that Stiegler deployed. (Fig. 1) A subsidiary aim is to trace the transposition of this theoretical landscape into a three-stranded analytical approach for critically investigating past and ongoing technological developments in the light of their famously ambiguous characteristics.

It is important to stress that *Footprint* 30 does not study Stiegler's work in isolation, nor do we provide a facile 'Stiegler for architects' account. Following his own syncretic style and pharmacological attitude we consider any work to be most powerful when read alongside adjacent streams of theorising socio-techno-environmental relationships. This introduction and all subsequent contributions share an attitude of interlacing Stieglerian lines of argumentation in a wider milieu, so as to provide a tool for navigating a complex discursive body from multiple access points.

Contextualising Stiegler's anthropotechnics

Epiphylogenesis is one of many intricate neologisms developed within Stiegler's theory of anthropotechnical evolution. In the simplest sense, it describes a form of technically conditioned co-evolution. Stiegler initially synthesised this theory in his first books, *Technics and Time 1–3,* in which he doubly re-articulated Heidegger's ontology by means of a particular conception of technology that is derived from a more anthropological angle.

Based on the work of paleoanthropologist André Leroi-Gourhan and philosopher of technology Bertrand Gille, Stiegler reclaimed the forgotten technical condition of both human beings and their evolution. The process of becoming human and the characteristics of what makes us a particular species is constituted by technics to such an extent that it cannot be understood without it. The human *is* technics. As Leroi-Gourhan argued, Western civilisation has not simply been 'modified' with the advent of machines or a set of characteristic technics. Rather, humans evolved in reciprocity with technics and technology. The human brain and the nervous system essentially evolved not just alongside, but effectively *through* the production of tools, instruments and technical artefacts. This technical co-evolution entails an 'externalisation of memory' to which all techniques and technics can be traced back.[11]

Technics and Time identifies the newly acquired mnemotechnology as the threshold of a 'higher-order' evolution. According to Stiegler, technological conditioning led to 'the appearance of a new relation between the organism and its environment'.[12] This becomes one of the central tenets of Stiegler's work. He first transposes Gille's historiographical suggestion for the history of technics into an approach to history or historical formations in general.[13] This reordering would have been impossible without Gilbert Simondon's analysis of the evolution of technical objects and ensembles that mapped systemic stabilisation and concretisation of technical lineages. Second, in elaborating what the epiphylogenetic

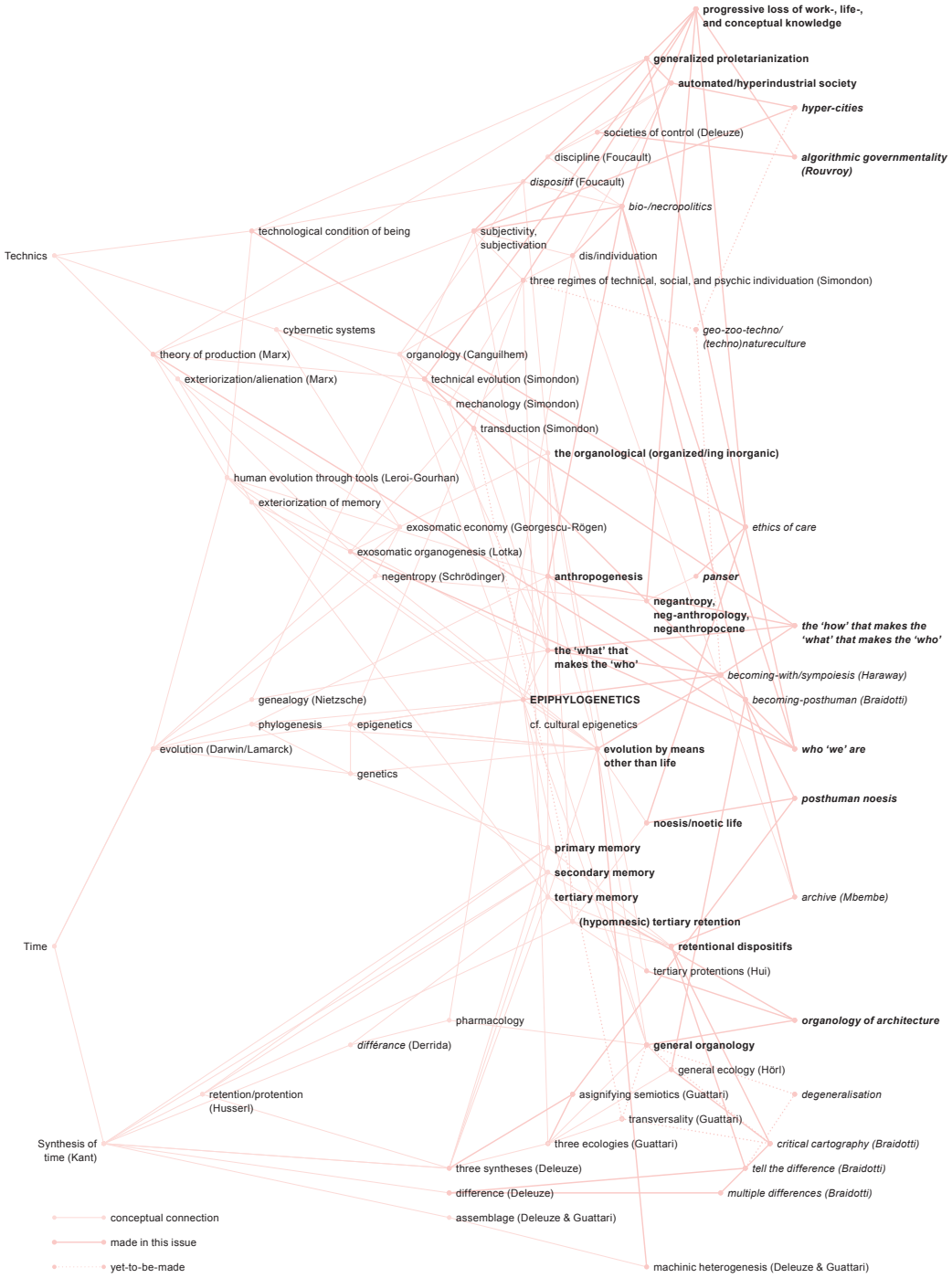

Fig.1: Conceptual network of key terms for theorising and technical co-evolution of socio-techno-environmental assemblages, within and beyond Stiegler's *Technics and Time*. Diagram: Authors.

mechanism consists in, Stiegler views technics not just as concrete material tools or entities and the ever more complex technical ensembles they historically concretised into. Under Simondon's influence he also conceives of them as things that are formed or organised *from* particular material environments in which they come to be put to use by particular life-forms that co-evolve with material technologies.

Stiegler thus reconsiders technics as an evolution of organic living 'by means [of something] other than life'.[14] This 'other' factor is located in the wider organisation of the inorganic matter of the world in which evolution traditionally takes its course, while foregrounding how it also changes its course. Life-forms such as humans are initially shaped by material environments and conditions through adaptations to ecological niches. Yet in this process they often come to re-shape their environments for their own evolutionary benefit.[15] They do so by means of concretising technical tools and ensembles to a point where technics fundamentally change the entire evolutionary dynamics.

It is here that the neologism 'epiphylogenesis' becomes indispensable for capturing the parallel evolution between 'corticalisation' and technical differentiation.[16] Humans and technics did not simply co-evolve; such an account would omit the recursive nature of this path-dependent evolution. Epiphylogenesis presents an account of the genesis of the human species (also known as anthropogenesis) and human societies *by means of* ever more complex technical systems and 'technicised' environments. Crucially, it constitutes a more general theory of how life-forms evolve *with* particular socio-techno-environmental assemblages, of which anthropogenesis is then a special case.

While uncovered in a quest to understand the specificity of human evolution, this type of higher-order co-evolution – by means of technics and organised (or technicised) environments – is certainly not something that sets humans apart in kind, but only by degree. Alluding to all kinds of constructed environments, Stiegler himself later used the example of the anthill: 'It is impossible to understand the ant without the anthill.'[17] By situating (the specificity of) human environments on an evolutionary spectrum, Stiegler in fact wards off any taint of human exceptionalism. The human is fundamentally decentred as a historical construct. Epiphylogenesis – as a broader process than anthropogenesis – reveals that there has never been such a thing as 'the human' whose genesis could be mapped in isolation, or merely 'in the environment'. Rather, the problem must be approached via co-evolution, which is structurally coupled to the evolving organisation of particular environments and their production of difference.

Before delving deeper into the details of Stiegler's work, it seems necessary to unpack the crucial aspects concerning this assemblage-theoretic account of the genesis of different life-forms, particularly humans, through certain technics, and its attempted decentring through generalisation. Concerning the first aspect, we should mention initially how epiphylogenetic thinking is inscribed into a longer trajectory of genetic approaches, from Nietzsche's genealogy of morality, to Foucault's related account on the production of modern subjectivity, to Deleuze and Guattari's theory of machinic subjectivation. The latter was especially inspired by Simondon's genetic approach to the individuation of technical objects. Simondon's perspective also aligns with those developed since Frantz Fanon's focus on sociogeny. They all share a common aim of debunking historical descriptions that merely trace what was happening. As such, representationalist methods fail to actually explain what was going on in what was happening. By contrast, genetic approaches try to map the underlying generative relationships, relations of production, and constitutive differences through which those transformations come about. One larger tenet of such anti-representationalist thinking is to stop using human agency, subjectivity, or social practices as the ground of explanation and consider them as something that begs explanation.

Instead of isolating epiphylogenesis, we can appreciate it as a strand that parallels several similar accounts. This particularly applies to posthumanist feminism with regard to socio-techno-environmental geneses, to which it can (and should) be fruitfully connected for the purpose of its reworking. In line with neo-materialist scholarship, the theory of epiphylogenesis debunks the Manichaeism of nature/culture, matter/technology, or object/subject, and complements the evolutionary notion of symbiogenesis from a technological angle. As underscored in Donna Haraway's kindred sympoietic approach to nature-cultures, things don't ever make themselves, but are always assembled in milieus of reciprocal processes of becoming (different together).[18] In this sense epiphylogenesis conceptually stands in for all forms of life that are necessarily conditioned by organisational differentiation processes that historically made us who we are (and made us so in different ways). Therein Stiegler's account resonates (albeit not yet explicitly enough) with feminist, queer and decolonial works of authors including but not limited to Rosi Braidotti, Claire Colebrook, Donna Haraway, Sylvia Wynter, Patricia Reed and Kathryn Yusoff. These scholars do not only critique 'man' as a generic construct, but also expose the all-too-general and all-too-human visions that fail to account for the more-than-human condition.[19] In line with these reproaches that stress how 'the human' is not just a historical figuration or even a social construct (to which we shall return in more detail below), epiphylogenesis decentres the human by approaching it as a technical construct. No longer opposed to nature or culture, 'technics' here is to be understood as involving all sorts of arts (*technai*), artefacts and their articulations. They include technologies of the self and technologically-related knowledges, emerging at an intersection of material-environmental, social-cultural and cognitive practices in the widest sense.

Epiphylogenesis first gained exposure in the field of media studies rather than architecture.[20] In the field of design theory it was recently picked up in Tony Fry's posthuman inquiry into 'becoming-human by design', particularly by means of environmental design.[21] It turns out that epiphylogenesis is more than an applicable design philosophy for the Anthropocene that may be coopted by the transhumanist project, from which we distance ourselves. As Heidegger had already argued, what is required is a more critical and multi-layered conception of what role 'design' plays in shaping *dasein*. Moreover, to what an extent are we even human, or made so.[22] The field of architecture has yet to fully reassert its role in subjectivation processes. The role of built spaces and technicised environments, and their material-discursive arrangements and organisations, has been somewhat overlooked even by neo-materialist and posthuman scholars, whose subject of interest is material-discursive practices and the complex ways in which technics are involved in worlding dynamics and geneses.

An extended genetic approach: epigenetics

Both Darwinism and Lamarckism failed to account for a more dynamic way in which environmental factors steer evolutionary processes. The former took differentiation to be a result of passive processes of adaptation to environmental pressures via sexual selection, while the latter thought that phenotypical differentiations are directly passed on as genotypical ones. It is beyond dispute today that evolution is in fact steered by a reciprocity that is found within processes of (adaptive) niche-construction (in fact as particular species-specific and species-constitutive behaviours) through which epigenetics and phylogeny are coupled.[23]

It is thus high time to complement the reductive Darwinian principle of natural selection with a healthy dose of neo-Lamarckian emphasis on auto-affective niche construction. The field of epigenetics has reestablished the influence of environments upon genetic aspects.[24] Whereas the genomic code may be compared to a changing 'hardware', epigenetics compares to the software – an equally changing programme written in the form of specific

chemical tags located on top of (*epi*) the genome, which regulates *how* the genetic code comes to be expressed.

As a branch of biology, epigenetics originally developed against the preformationist vision in embryonic development. It posits that organisms gradually take form through and evolve within successive differentiation processes. Epigenetic thinking as such has foregrounded generative rhythms within form-taking dynamics. In its search for the related differentiating factors of development that come to be activated within a generation (ontogeny, development) and transferred from generation to generation (phylogeny, evolution), epigenetic research revolutionises our understanding of evolution. It confirms a variety of molecular, biochemical, hormonal, physiological, behavioural, experiential and environmental factors in the modification of patterns of gene expression.[25] The way epigenetic mechanisms operate within larger evolutionary processes has only recently been captured in its multidimensionality.[26]

First, for this differentiation to take place in biology, epigenesis must necessarily be 'recapitulated'. Embryos, for instance, recapitulate phylogenetic becomings with(in) a particular environment, that is, a (bio)molecular milieu of (non) organic matter and forces from which it takes form. The milieu shapes the genesis of a body's internal organisations in a series of organising differentiations resulting in different cell-types, tissues, organs, and so on. This organisation *par le milieu* (as Isabelle Stengers would put it) continues throughout life. It is an interactive process through which a body contracts certain habits – (self) organisational patterns – by adapting to (or rather adopting) this milieu and becoming with particular habitats. These developments are guided by a structural coupling with trans-generational environments that in turn influence phylogenetic processes (that is, a longer evolution of distinct new species).

To the extent that humans are not just passively adapted to environments, but also actively modulate entire environmental systems, we are necessarily adapting by means of these anthropogenic modifications of the world while adopting them into our lives in a recursive becoming. Conrad Waddington – who is credited with coining the very notion of epigenesis – has represented this relationship with the diagrammatic idea of the 'epigenetic landscape' (what Waddington also calls the Chreod). Accordingly, an organism's development and evolution are channelled into particular pathways on a morphogenetic field, which itself is modulated by underlying epigenetic mechanisms and environmental pressures. This directed evolution is extremely difficult to grasp in its irreducibility. It does not simply determine or constrain, nor does it open up or enable becomings. It does both at once through a delicate calibration of generative and selective, or regenerative conditions.

Scholars with humanities leanings like Claire Colebrook and Catherine Malabou have promoted epigenetic thinking to problematise a middle ground, where the passive and the active meet, and revisit the middling stratifications and differentiations characterising life in their primarily productive function.[27] Conversely, biologists themselves have recently begun to expand the scope of epigenetic research to understand how cultural differences and patterns may leave their mark on evolution or reinforce replication or selection criteria.[28]

A further step: epiphylogenesis

What remains partly open, however, are the workings of these environmentally-operated mechanisms of replication, variation, and selection. In what way could culture possibly influence them unless it is recast as a quasi-causal mechanism?[29] This is precisely where epiphylogenesis tries to move a step further, in advancing a general theory of environmental engineering that ascribes cultural differences to techno-environmental lineages. Supplanting the well-known symbolic approach to the role of culture, Stiegler's macro-historical philosophy of technology problematises

the genesis within evolution in a more 'machinic' fashion.

Three million years ago a momentous change occurred within human evolution due to the appearance of a novel mechanism of inheritance by means of transmissible technical artefacts. *Technics and Time 1* (1994) is devoted to this new type of 'memory', which came to drive evolution. In addition to what he calls the primary memory – (phylo) genetic memory, that is, information expressed in the genome and the phylum of a species – and secondary memory – epigenetic memory, acquired through a complex nervous system accumulated during but not conserved beyond individual lives – Stiegler posits a third type of memory.[30] Dubbing it 'epi-phylo-genetic memory', Stiegler argues that this tertiary memory consists in the way that past epigeneses come to be accumulated and conserved within the spatio-temporal organisation of material environments.[31]

Retained in the form of an 'already-there', this third type of memory constitutes a past not lived but inherited nonetheless (in the form of a world). It is 'epiphylogenetic' to the extent that it also involves a recapitulation of the 'dynamic and morphogenetic (*phylogenetic*) accumulation of individual experience (*epi*)', which allows the transmission of epigenetically acquired knowledge 'to the phylum that is technical life'.[32] This way it couples genetic and epigenetic memory that, according to Nathan van Kamp, 'naturally' do not communicate.[33] Epiphylogenesis enacts a more artificial relationship, as this coupling forms some kind of enabling constraint through which the act of remembering becomes 'situated and therefore spatially-bounded'.[34]

Extending Husserl's phenomenology of time and its theory of 'passive synthesis' – consequently radicalised by both Deleuze and Derrida – Stiegler conceptualised the third kind of memory. These 'tertiary retentions' condition, 'at every step', the interplay between primary 'memories' and secondary 'habits' contracted by mnemonic accumulation.[35] For Stiegler, tertiary retentions are thus spatialised traces of past events, mainly in the form of tools, technical instruments, and technics. As such they are 'in the most general sense the prosthesis of consciousness without which there could be no mind, no recall, no memory of a past that one has not personally lived, no culture'.[36]

Technics and Time derives an evolutionary theory that more widely problematises a specific 'spatialisation of time' as the geneses of organisations that are utterly dependent on technics.[37] 'Organogenesis' is conceived by dynamising Leroi-Gourhan's aforementioned anthropological theory of exteriorisation and connecting it to Heidegger's ontological stance of the technological condition of being. In stark contrast to techno-determinism, the notion of epiphylogenesis posits a mutually-constitutive relation between organisms (the who) and their inorganic yet organised environments (the what) so as to reconsider anthropogenesis in its specificity. It explores how the third memory, which is 'housed outside the body through the organisation of the inorganic' affects the evolution of organic life 'by means other than life'.[38]

Stiegler argues that the first tools and art forms occurring during the Later Stone Age formed a new kind of retention in granting access to mental contents. These 'hypomnesic' tertiary retentions are responsible for an 'epiphylogenetic bifurcation' within the history of life. They allowed earlier forms of sentient life to enter a new kind of 'noetic life', sustained by specific 'retentional dispositifs' that enact particular 'regimes of individuation'.[39] As Yuk Hui notes, these include not just 'languages, the use of tools, the consumption of goods, and ritual practices', but also all sorts of non-human others, starting with, in Rosi Braidotti's words, 'organic animals, plants, and the entire planet', as well as 'inorganic entities, such as technological artifacts, networks, codes, and algorithms', as they form a 'vital web of complex interrelations.'[40] In critically developing Stiegler's early work, Hui highlights the need to understand those dispositifs not only as historically 'organised inorganic' objects or systems.

To apprehend the peculiar recursivity that characterises dynamic systems, they must be understood as an 'organis*ing* inorganic' that enacts 'tertiary protensions'.[41]

In resonance with Foucault's genealogies that trace emergent subjectivities, here we identify the complex task of epiphylogenetics in tracing how *noesis* is conditioned by retentional dispositifs. Similar to how epigenetic mechanisms act upon gene expression, epiphylogenetics studies the ways in which environmental organisations act upon the unfolding of phyl(ogen)etic processes (such as anthropogenesis) to the extent that it radically changes the conditions for organogenesis. The accumulated 'epigeneses exert a powerful counter-effect on the reproduction of the species' as they channel 'the transformative conditions of "selection pressure"'.[42] Such a conception of selection, Luciana Parisi notes, understands the metastable feedback loops between entities and their environment.[43] Reconsidered from the sympoietic angle characteristic of Haraway's work, this feedback loop consists in a symbiogenetic 'becoming-together-with environments' and it must be understood as a particular kind of syn-techno-genesis. Concerning these co-constitutive dynamics, technics (in terms of Simondonian technical lineages and Deleuze-Guattarian machinic phyla) gain an analytical primacy over the social and mental individuations that epiphylogenetic bifurcation brings about.

From one theory to two-fold reading

The third volume of *Technics and Time* replaced the notion of externalisation with the term 'exosomatisation', adapted from biologist Alfred Lotka and (bio)economist Nicolas Georgescu-Roegen, who reframed it in relation to Marx.[44] In 1945, Lotka noted that, through the production of externalised, inorganic organs presented by technical objects, evolution started to follow an entirely new exosomatic path 'in place of slow adaptation of anatomical structure and physiological function in successive generations by selective survival'.[45] 'Exosomatic evolution' as a process contrasts with (or complements) the type of endosomatic organogenesis that biology is traditionally concerned with. Attending to the progressive externalisation of our faculties into artificial organ(isation)s, according to Stiegler, has profoundly altered our understanding of

> organogenetic process through which the organism noetizes itself by endowing itself with inorganic organs. If vegetative and sensitive life is what constantly evolves through the *endosomatic organogenesis* … noetic life is characterized by an exosomatic organogenesis, that is, by the production of artificial organs without which it could not live.[46]

Based on Simondon's kindred genetic approach to the individuation of technical objects, Stiegler further elaborates a process of co-individuation, or 'transindividuation', driven by the genesis of 'exosomatic organs' ('ex-organs') that further 'ex-organise' the evolution of life by means other than life. It is in this sense that exosomatic organogenesis (ex-organogenesis) leads from an *Umwelt* to a *Welt* and finally to what Heidegger called *Gestell*.[47] This is an approach that one could easily associate with Foucauldian apparatuses (*dispositifs*) or Deleuze-Guattarian assemblages (*agencements*), which maintain the externality of relations. Here evolutions continue to get extrinsically organised ('ex-organised') by concretising technics, their associated technicised milieus and machinic phyla, as they co-evolve into a more-than-human system that selects for complex ex-organisms sustained by larger technical ensembles. In contrast to the endo-symbiotic drift that characterised the progressive complexification of cellular life, the system effectuates an 'exosomatic drift' characterised by the progressive reticulations of technically mediated forms of life. Placing Spinoza's question of knowing 'what a body can do' in a new light, Stiegler points out that

> *to this day, science has no complete theory of exosomatization*, that is, of the process by which noetic life

> constantly augments its power to act through artifices that are always also, however, what diminish its power to act, even to disintegrate it, annihilate it and, ultimately, completely destroy it.[48]

As we may not know in advance what an exosomatic theory of organisation might do, we have to suspend interpretation by elaborating a new heuristic. With this aim, Stiegler outlines a general theory of organisation, which calls an 'organology' in a spirit akin to Simondon's 'mechanology' and in conformity with his thesis supervisor Georges Canguilhem's use of the word.[49] This theory contradistinguishes organisms from 'the organological' that, comprising all inorganic yet organised matter, forms their basis. In contrast to cybernetics, organology thus does not just include technology as some exorganological reality; it is analytically grounded on an explicitly exosomatic conception of technical forms of life and the possibility of a particular type of retention that characterises anthropogenesis. The latter was absent from all earlier genetic approaches.[50] With this extrinsic conception, a wider approach may be analytically geared at understanding the more or less individuating powers of any form of organisation. By problematising the direction that specific technical systems tend to evolve towards, Stiegler pushes his organological approach towards a mode of study that Derrida had called 'pharmacological'. By approaching ongoing technological transformations as a double-edged sword, Stiegler carefully avoids falling into either the technophiliac embrace of techno-determinism, or the technophobic rejection of any techno-mediation whatsoever (by focusing, for instance, on social practices).

Stiegler's multiple pharmacological studies demonstrate that the externalisation of memory into technics and technicised environments constitutes 'an unconscious, if not the unconscious'.[51] They also expound a specific forgetting or unawareness, if not outright technological illiteracy, against which we need to re-cultivate a way of engaging with the evolving systems, always on the basis of – yet also against – their auto-piloting tendencies. Stiegler's *Automatic Societies* (2015) warn that the 'long circuits' of psychosocial transindividuation have become increasingly 'short-circuited' due to higher degrees of automation and algorithmic governance since the beginning of the industrial and 'hyperindustrial' age. This tendency has incrementally led to a 'generalised proletarianisation' and 'systemic stupidity' produced through a wider deprivation of knowledges; the successive eradication of many forms of *savoir-faire*, *savoir-vivre*, and *savoir-théoriser*.[52]

The ambition to recalibrate such disindividuating relationships into more empowering becomings led Stiegler to the question of entropy and in particular to Schrödinger's notion of negative entropy.[53] Negentropy, as it is commonly abbreviated, describes phenomena of local delimitation and deferral countering the overall effects of entropy as an irreversible dissipation of energy. Since its introduction it has been generalised to explain not just ordered structures, but in particular living structures and informational systems. Under the influence of Nicholas Georgescu-Roegen, Stiegler realised that 'a theory of exosomatic organogenesis is ultimately built on the theory of negative entropy'.[54] His subsequent study, titled *Neganthropocene* (2018), further transposes organology into a kind of 'neg-anthropology' that counteracts not just the increasingly disindividuating effects of (hyper-)automation, but also a much larger techno-environmental condition of the Anthropocene as a highly entropic age (*en*tropocene) with toxic effects.[55] To avoid confusion with a 'negative anthropology', Stiegler calls for a 'neganthropology' centred on a novel understanding of the 'neganthropy' within anthropogenic systems. The neologism designates a remedying project that depends on enacting new economies of care, including new forms of governance. Aligning with projects such as that of María Puig de la Bellacasa, Stiegler constructs a care-full account of the organisation of anthropogenic systems.[56] This new ethics is meant to help negotiate 'new world futures' as Fry

would put it.[57] It is in this respect that epiphylogenesis becomes important to genealogically locate the origins of contemporary (dis)individuating effects of organisations, their makeup, and design in order to *care*-fully and response-*ably* engage within ongoing transformations.

From two-fold reading to three-stranded approach

Stiegler had started to sketch the outlines of a 'general organology' in his eponymous contribution to Erich Hörl's reframing of the organisation of built environments in terms of a *General Ecology* (2019), as well as in another article called 'Elements for a General Organology' (2020). Both writings attempt to establish a theory that conceives of technical life as an evolutionary process that is psycho-socio-techno-logical, whereby 'the relationship between the organic and the organological [ough to be seen as] what Simondon calls transductive.'[58] To study these transductive relations, general organology proposes a transdisciplinary methodology, where the term 'general' designates a wider transindividuation effectuated on the 'three planes of organological becoming'.[59] The approach presupposes a particular type of recursivity between the organic and inorganic which does not stop at totalising feedback loops within closed systems.

Similar to the Deleuzo-Guattarian notion of assemblages, organology problematises a more complex systemic consistency and closure that gives rise to emergent systems.[60] By mechanologising Guattari's *Three Ecologies* qua Simondon, Stiegler arrives at a three-stranded cord designed to pharmacologically map the transductive relations of environmental, social, and psychic individuations within past and ongoing technological developments.

If we wanted to draw a brief genealogy of the three-stranded theory, we are initially referred back to Deleuze's overcoming of Husserlian phenomenology by his reworking of Kant's 'three syntheses' in *Difference and Repetition* (1968). Further developed in Deleuze's *Logic of Sense* (1969), this approach was synthesised in collaboration with Guattari on *Anti-Oedipus* (1972) and its tripartite theory of the machinic production of subjectivity that centred on a renewed understanding of processes of 'inclusive disjunction'. In his solo work, Guattari would reformulate the tripartite theory into the irreducibility of the aforementioned environmental, (bio)social, and (psycho)mental ecologies.

Its genealogy is significant for our purposes in two ways. First, it is here that Stiegler's line of thinking greatly converges with that of many architecture theorists – including among many others Hélène Frichot, Peg Rawes, and Andrej Radman – who have drawn on Guattari's work to reconceptualise architecture and built environments as relational ecologies of creative/transformative practices.[61] In their view architecture is located at the intersection of these three distinct but inseparable collective, psychological and environmental domains through which, as Peg Rawes writes, 'subjectivity and our habits, habitats, and modes of inhabitation are co-constituted'.[62] From such a viewpoint it could be argued that Stiegler's mechanologisation – insofar it concerns the 'arranging [of| the various processes of psychic and collective individuation … via technical individuation'[63] – may too hastily have conflated material/environmental ecologies and their organisation with technical objects.

Attempting to further generalise the (ex) organogenetic function of spatialisations in the epiphylogenetic turn, we first want to suggest that spatial design, architecture and urban planning, in their capacity as large technical ensembles with various instrumentalisations, ought to be added to the list of epiphylogenetic technics, and perhaps at its top. In *The Extended Self*, Chris Abel reproaches Stiegler for initially ignoring architecture in its capacity as a basic technology.[64] Later, Stiegler did recognise at least 'urban

morphogenesis … as an exosomatisation constituting all kinds of exosomatic exorganisms, such as … specific functional architectures … [and] functional concentrations of organism that are themselves exosomatic'.[65] Urging us to think 'the city starting from the concept of exosomatization as the pursuit of organogenesis', he thus understands the city as an assemblage of nested exorganisms.[66]

Concerning such an assemblage-theoretic reading, we wonder: Are built environments not the most obvious example of 'evolution by other (inorganic) means'? Is architecture not the first of all arts (*technai*) among the technical tools and ensembles that epiphylogenetically ex-organise 'worldings'? Paraphrasing Vicky Kirby, could we not say that cultures were perhaps just technicised environments all along?[67] The mantra that the 'what' invents the 'who' just as much as it is invented by it, was anticipated in Churchill's remark that 'we shape our buildings; thereafter they shape us'. Put bluntly, 'the built environment has no other purpose but to transform us'.[68] This urges us to carefully rethink how environmental formations like architecture technically operate within ontogenetic processes. Reconsidering the *what* of technicity as constitutive of the (post)human *who*, and not merely the other way around, implies a radical recasting of the architectural discipline after the epiphylogenetic turn. Breaking the trinary opposition of nature, culture, and technology, we see the epiphylogenetic turn as the path-breaking component within the wider convergence of three stands of study where architecture and spatial design are located.

Such an approach may help reinvigorate the ongoing efforts towards an urgently needed reconceptualisation of constructed ecosystems and worlding dynamisms from a more technological (organo-/mechano-logical) angle. Placing architecture at the intersection of three worlding dynamics opens up a timely opportunity to reclaim for it a vanguard position, against its relegation to a mere instrument of control and compliance with no potential for social reform. It is necessary to adopt an experimental attitude that turns architecture (as an ecology of practices) into an art of dosages.

This brings us to another aspect concerning the Guattarian genealogy. Perhaps the principal point of such a pharmacological (and in fact Spinozist) general organology of architecture lies in experimentally elaborating a 'general ecology of alternative ways of becoming subjects', as Braidotti puts it, to argue how this general organology may serve as a tool to navigate the contradictory forces of the present.[69] It is with this aim that we conclude by problematising another crucial point.

Not-too-general accounts of how the what determines the who

Evidently, Stiegler has not gone far enough in deconstructing the general reorganisation of exosomatic organs and organogeneses from an entropic into a newly negentropic configuration. What we miss is the specific direction to be taken in this countering move. As entropy is often associated with disorder and negentropy with 'order', there is a danger of misinterpreting Stiegler's organological call to order. For as long as we stay on a too-general level, it will be impossible to figure out what order(ing) we are referring to. Here generic typologies and classifications must give way to (epiphylo) genetic topologies and meshworks.

Again, we turn to posthuman feminism for guidance. Its most prominent advocate, Rosi Braidotti, also understands the present condition as a convergence of three changes: social, environmental, and technological, as articulated in our epigraph. Her cartographic work, which draws together a thousand works and voices, radicalises the mutual imbrications and inextricable linkages of matter-geo-environmental, zoo-bio-social, and noo-technical becomings 'to such a degree that it is impossible to tell them apart'.[70] Starting here with a (too-)general notion of transindividuation between the human and geo-zoo-techno-environmental

systems proves problematic, especially when extended into a transhumanist framework that uncritically maintains a particular template for human evolution (crypto-anthropocentrism). As Braidotti maintains, the challenge for critical theory is to distinguish between different mutations. She calls for more transversal ways of cutting across and desegregating established categories and fields of knowledge by 'making affective connections across the ecological, the social, the technological, and other domains.'[71]

Braidotti's transversal perspectives decentre the discursive hegemony of *anthropos* (Western man) by means of alternative visions of the post- or better, more-than-human, elaborated through more situated accounts of subjects that have long been excluded from this category. Her critical cartographies map past and ongoing becoming in terms of sexualised, gendered, racialised, and naturalised differences of oppositional otherness according to which 'difference from' always means 'being less than'.[72] In other words, these differences are organised into intersecting hierarchical systems of discrimination that dehumanise people with reference to a particular historical construct of 'man'.

Such situated perspectives underline the need to de-generalise Stiegler's conceptual toolkit through heavy doses of minor – feminist, queer, decolonial, and critical race – theories that compensate for its implicit Euro- and andro-centric universalising tendencies and neo-humanist leanings. For instance, Kathryn Yusoff's decolonial notion of anthropogenesis far more adequately reveals the extent to which different techniques also make us differently human, while Alexander Weheliye's work demonstrates how technical ensembles that form 'hierarchising assemblages' may dehumanise us to differing degrees and in different ways.[73] Often a matter of life and death, these *dis*individuating technological factors have more complex and concatenated (epi-phylo-)genealogies that require more nuanced problematisation of the variables that determine present mutations. As Achille Mbembe points out, there is no biopolitics without a necropolitical lining.[74]

There is a clear need to carefully rethink the 'general' aspect of organisations. The 'general organology' may be taken as a broader call for an assemblage-theoretical study into the specifics of *how* particular forms of life such as humans have co-evolved differently – through historical time, culture, age, class, gender and ability – and continue to co-evolve with certain technics, technicised environments, technologies of the self and of power. The concern brings epiphylogensis closer to what Deleuze and Guattari called 'machinic heterogenesis'.

As Stavros Kousoulas implies in his contribution to this issue of *Footprint*, Stiegler may have overlooked the 'how' that initially determines the 'what' determining the 'who'. We hope the multiple mappings of epiphylogenetic processes in the various contributions may provide the reader with new conceptual and methodological lenses to help analyse, understand and reconfigure what we are ceasing to be and who we are capable of becoming. Resonating with Braidotti's posthuman feminism, Claire Colebrook opens the issue by expounding on the 'problem of epiphylogenesis', namely what it does and demands from 'us'. The notion of a tertiary memory – making us possible by means of something else (like external technologies) – shifts the problem concerning present technological conditions and ecological crises that we are facing. Instead of a lament 'about what we can do', Colebrook employs epiphylogenesis to turn toward the very possibility of this 'we'. Her 'Speculative Architecture' is a call for affirmative action in the creation of new forms of thinking and knowing that may experimentally reconfigure the toxic historical archives and the disindividuations they entail, in the direction of more empowering becomings.

Subsequently, Georgios Tsagdis further explores the 'Architectures of Thought'. He suggests supplementing the genetic structural framework of

Stiegler's neganthropological project with a metabolic plane of analysis that highlights the ephemeral dimension and dynamic reciprocity within transductive relations. Upon revisiting Kant's architectonics of pure reason and the schematisation within cinematic consciousness, the article discusses the late-Marxian lineage on which Stiegler conceived the production of *noesis* as a consciousness conditioned through technical exosomatisation. Tsgadis takes this as a point of departure to elaborate how there is no 'individuated self before architecture' and how 'the self is rather constituted "through an experience of spacing that is already marked by an existing architecture"'.

A quite different type of this production of *noesis* beyond the human, is suggested by Jacob Vangeest's discussion of asignifying semiotics within forests. In expanding the neganthropological consideration of thinking as care (*panser*) through eco-feminist notions of care, the article reciprocally extends existing approaches concerning plant intelligence through the work of Peirce and Deleuze and Guattari. It provides an alternative formulation of epiphylogenetic memory demonstrated by a case study of the semiotic chain in response to fires in redwood forests on the west coast of the US.

Davide Landi concentrates on Stiegler's idea of hyperindustrial societies and investigates the particular epiphylogenetic function of increasingly immaterially-organised 'hyper-cities'. He problematises the longstanding formal analogy between bodies and buildings in order to investigate the complex contemporary relationships between posthuman bodies and the growing interpenetration of digital and physical realms. The article evidences the radical environmental, social, and psychological transformations brought about by infrastructural networks and their increasing digitisation, connectivity and data production, and it calls for pharmacological studies of the effect of technologies.

Having already investigated the trans-aspects of architecture in previous issues of *Footprint*, Tim Gough closes the peer-reviewed articles section by elaborating the idea of a transductive architecture. In investigating 'what an organology produces', he revisits Le Corbusier's design of the Villa Savoye (and its compositional play) as a 'tertiary protension that responds to then tertiary retentions of baroque and neo-classical Paris'. In so doing, Gough points to several profound changes that this notion implies, namely how architecture is conceptualised organologically and transductively, and what this vision concerns the ways in which we become-with architecture.

In their combined contribution, Gökhan Kodalak and Stavros Kousoulas review, from two opposing angles how Stiegler's work makes sense in advancing and helping promote Simondon's genetic approach to technics and individuation, which has only recently attracted attention in architectural discourse. Chris Smith reviews through Marx and Engels some forethoughts and afterthought concerning *Technics and Time*'s notion of the organised inorganic in two projects by Neil Spillers.

In an interview with Antoinette Rouvroy, Lila Athanasiadou and Goda Klumbytė revisit Guattari's 'Three Ecologies' and discuss their dynamics in the digital age. While a lot of the discourses on algorithms and the digital future invoke catastrophic imagery of totalising control, this conversation works with a propositional format, teasing out affirmative politics by pointing to spaces of potentiality within the environmental, the social and the mental realms.

The issue closes with two techno-mediated individuations in the form of visual essays. The first is curated by Agnieszka A. Wołodźko, who transindividuates herselves in an affective trans-species becoming – mystagogy and demonology. Her *Ars Daemones* manifesto is written through the experience of vegetariat in the work of Špela Petrič, transbodies and xenologies in the work of Adriana Knouf and the practice of virophilia in the work of Pei-Ying Lin. Setareh Noorani has the final word. Her contribution – which loops with Colebrook's

opening article – problematises Western archives as hegemonic tertiary retentions and proposes ways of constructing long overdue alternatives that enact a continuation of life by means other than life and multiple life-constituting others.

Notes

1. Rosi Braidotti, *Posthuman Feminism* (Cambridge/ Medford: Polity, 2022), 3–4.
2. Achille Mbembe, interviewed by Nils Gilman, 'How to Develop a Planetary Consciousness', *Noema Magazine,* 11 January 2022, https://www.noemamag.com/how-to-develop-a-planetary-consciousness/?fbclid=IwAR17lt0TSex_jnfoCnBnLO8Es_DIryAc_cBbHeDQ2hBayLk0hZjn8Q2vVws.
3. See, for instance, Ross Abbinnett, *The Thought of Bernard Stiegler: Capitalism, Technology and the Politics of Spirit* (London Routledge, 2019); Christina Howels and Gerald Moore, eds., *Stiegler and Technics* (Edinburgh: Edinburg University Press, 2013); Noel Fitzpatrick, Neil O'Dwyer and Michael O'Hara, eds., *Aesthetics, Digital Studies and Bernard Stiegler* (London: Bloomsbury Academic, 2021).
4. See the translator's note on the recurrent terms 'technics,' and 'technology,' in Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus*, trans. Richard Beardsworth and George Collins (Stanford: Stanford University Press, 1989 [1994]), 280–81. Some of these points were also addressed in *Footprint* 12, no. 1, 'The Architecture of Logistics' (2018).
5. Besides the aforementioned first volume, see Stiegler, *Technics and Time, 2: Disorientation*, trans. Stephen Barker (Stanford: Stanford University Press, 2009 [1996]); *Technics and Time, 3: Cinematic Time and the Question of Malaise*, trans. Stephen Barker (Stanford: Stanford University Press, 2011 [2001]). Stiegler intended a continuation of the *Technics and Time* trilogy. The draft for a fourth volume was published posthumously as *Technics and Time 4: Faculties and Functions of Noesis in the Post-Truth Age*, trans. Daniel Ross (2021), https://www.academia.edu/58785373/Stiegler_Technics_and_Time_4_Faculties_and_Functions_of_Noesis_in_the_Post_Truth_Age.
6. Stiegler: *Technics and Time* 1, 177.
7. Books in which Stiegler explores our present technological condition and politics along a more genealogical trajectory include: *Automatic Society, 1: The Future of Work*, trans. Daniel Ross (Cambridge: Polity, 2016 [2015]; *Symbolic Misery, 1: The Hyperindustrial Epoch*, trans. Barnaby Norman (Cambridge: Polity, 2014 [2004], *Symbolic Misery, 2: The katastrophē of the Sensible*, trans. Barnaby Norman (Cambridge: Polity, 2015 [2005]; *The Decadence of Industrial Democracies: Disbelief and Discredit 1*, trans. Daniel Ross and Suzanne Arnold (Cambridge: Polity, 2011 [2004]; *Uncontrollable Societies of Disaffected Individuals: Disbelief and Discredit 2*, trans. Daniel Ross (Cambridge: Polity, 2012 [2006]); and *The Lost Spirit of Capitalism: Disbelief and Discredit 3*, trans. Daniel Ross (Cambridge: Polity, 2014 [2006]).
8. This is presented in books like *Qu'appelle-t-on panser? 1: L'immense régression* (Paris: Les liens qui libèrent, 2018); *Qu'appelle-t-on panser? 2: La leçon de Greta Thunberg* (Paris: Les liens qui libèrent, 2020); *The Negantropocene*, trans. Daniel Ross (London: Open Humanities Press, 2018); and his Nanjing Lectures, trans. Daniel Ross (London: Open Humanities Press, 2020).
9. Stiegler: *Technics and Time* 1, 80.
10. Stiegler sees technics not just as concrete, material tools or entities and the ever-more complex technical ensembles they historically concretise into. Based on Simondon's work, he also conceives of them as things that are formed or organised from particular material environments in which they come to be put to use by particular life-forms that co-evolve with evolving technics. Like humans, these life-forms are initially shaped by material environments and conditions through adaptations to ecological niches. Yet in this process they often come to re-shape their environments for their own evolutionary benefit, to a point where technics fundamentally change these evolutionary dynamics. Explaining these technically-transformed dynamics is one of the central tenets of Stiegler's work.

11. See Andre Leroi-Gourhan's still untranslated books *L'homme et la matière* (Paris: Albin Michel, 1943); and *Milieu et techniques* (Paris: Albin Michel, 1945); see also Leroi-Gourhan, *Gesture and Speech* (Cambridge, MA/London: MIT Press, 1993 [1964–65]). Here, Stiegler, *Technics and Time* 1, 43, and also Yuk Hui, *The Question Concerning Technology in China: An Essay in Cosmotechnics* (Falmouth: Urbanomic, 2016), 216.
12. Stiegler, *Technics and Time* 1, 177.
13. Ibid., 29.
14. Ibid., 17, 135.
15. This is a process that biologists refer to as adaptive niche construction.
16. Stiegler, *Technics and Time* 1, 140–41, 175–79.
17. Pieter Lemmens in an interview with Stiegler, 'The System Does Not Spark Pleasure Anymore', *Krisis* 1 (2011): 35.
18. Donna Haraway, *Staying with the Trouble*: *Making Kin in the Chthulucene* (Durham, NC: Duke University Press, 2016).
19. We refer here especially to Rosi Braidotti, *The Posthuman* (Cambridge: Polity, 2015) and Kathryn Yusoff*, A Billion Black Anthropocenes or None* (Minneapolis: University of Minensota Press, 2018).
20. Belinda Barnet, 'Technical Machines and Evolution', *ctheory.net* (2004), https://journals.uvic.ca/index.php/ctheory/article/view/14545/5392; Belinda Barnet and Andrés Vaccari, 'Prolegomena to a Future Robot History: Stiegler, Epiphylogenesis and Technical Evolution', *Transformations* 17 (2009), http://www.transformationsjournal.org/wp-content/uploads/2017/01/Vaccari-Barnet_Trans17.pdf.
21. Tony Fry, *Becoming Human by Design* (London: Berg, 2012).
22. Beatriz Colomina and Mark Wigley, eds., *Are We Human: Notes on an Archaeology of Design* (Zurich: Lars Müller, 2016).
23. John Odling-Smee, 'Niche Inheritance: A Possible Basis for Classifying Multiple Inheritance Systems in Evolution', *Biological Theory* 2, no. 3 (2007): 276–89.
24. Bruce Wexler, 'Shaping the Environments that Shape Our Brains: A Long Term Perspective', in *Cognitive Architecture: From Bio-Politics to Noo-Politics*, ed. Deborah Hauptmann and Warren Neidich (Rotterdam: 010 Publishers, 2010), 144–69.
25. Adam Scarfe, 'Epigenetics, Soft Inheritance, Mechanistic Metaphysics, and Bioethics', in *Beyond Mechanism: Putting Life Back into Biology*, ed. Adam Scarfe and Brian G. Henning (Lanham: Lexington Books, 2013), 372–3; Brian Hall, 'Epigenesis, Epigenetics, and the Epigenotype: Toward an Inclusive Concept of Development and Evolution,' in Scarfe and Henning, *Beyond Mechanism*, 348–71.
26. See especially Eva Jablonka and Marion J. Lamb, *Evolution in Four Dimensions: Genetic, Epigenetic, Behavioral, and Symbolic Variation in the History of Life* (Cambridge, MA: MIT Press, 2005).
27. See for example Claire Colebrook, 'Epigenesis and Outside', in *Deleuze and Evolutionary Theory*, ed. Michael J. Bennett and Tano S. Posterano (Edinburgh: Edinburgh University Press, 2019), 159–82; or Catherine Malabou, *Before Tomorrow: Epigenesis and Rationality*, trans. Carolyn Shread (Cambridge: Polity 2016).
28. See especially Eva Jablonka, 'Cultural Epigenetics', *The Sociological Review* 64, no. 1_suppl. (2016): 42–60. Cf. Alex Head, *Richochet: Cultural Epigenetics and the Philosophy of Change* (Oslo: Ljå Forlag, 2021).
29. Andrej Radman, 'Allagmatics of Architecture: From Generic Structures to Genetic Operations (and Back)', in *Contingency and Plasticity in Everyday Technologies,* ed. Natasha Lushetich, Iain Campbell and Dominic Smith (London: Rowman and Littlefield, forthcoming).
30. See also Bernard Stiegler, 'Elements for a General Organology', *Derrida Today* 13.1 (2020): 72–94.
31. Stiegler, *Technics and Time* 1, 140 and 177.
32. Ibid., 177; Stiegler, 'Elements for a General Organology', 83.
33. Nathan Van Camp, *Redesigning Life: Eugenics, Biopolitics, and the Challenge of the Techno-Human Condition* (Bern: Peter Lang, 2015), esp. ch. 5.

34. See Stephen Loo's introduction 'Technics, Memory, and the Architecture of History' to *Interstices* 13 (2012): 4–10.
35. Tertiary retention is called 'tertiary' because it conditions the relationship between what Husserl distinguished in *On the Phenomenology of the Consciousness of Internal Time* as 'primary retentions' (made on the basis of certain criteria, which are also the synthesis of apprehension) and 'secondary retentions' (itself the condition of the concept of understanding taking hold of it), that are former primary retentions or selections, which have subsequently become memories; the accumulation of which engenders habits. Those are not just psychic but also social or collective, that can be shared, and as such forming a transmittable knowledge 'how to'; and it is this past experience that thus shape expectations and anticipations of future events, that – through *krisis* – can establish their own selection criteria (like desires), which he conceptualised as 'secondary protentions'. According to Stiegler, there is a critical play between the psychic and collective secondary retentions and protentions through which a particular epoch is formed, and which constitute particular processes of transindividuation. *Technics and Time 1* was an attempt at showing that this critical play 'is always conditioned, at every step, by tertiary retentions'. For 'The taking hold of primary retention by secondary retention involves a selection, and the latter operates according to the ways that tertiary retention affords possibilities to secondary retention of "schematising" primary retentions – and, in so doing, of selecting them' (Bernard Stiegler, *The Negantropocene* (2018), 93–94). Paraphrased after Stiegler's talk on 'The Post-Truth Era', *Truth, Fiction, Illusion: Worlds & Experience* Conference, at Klagenfurt University, Austria, May 29 – June 2, 2019.
36. Stiegler, *Technics and Time* 3, 39.
37. Yuk Hui, *Recursivity and Contingency* (London: Rowman & Littlefield, 2019), 203.
38. Stiegler, *Technics and Time* 3, 206.
39. Stiegler, *The Negantropocene,* 157.
40. Hui, *Question Concerning Technology*, 216; Braidotti, *Posthuman Feminism*, 69 and 191.
41. Yuk Hui, *On the Existence of Digital Objects* (Minneapolis: University of Minnesota Press, 2016), chap. 6; Hui, *Recursivity and Contingency*, chapter 2 and 3. On the Husserlian notion of protention, see note 35 above. See also Gough's article in this issue.
42. Stiegler, *Technics and Time* 1, 177; idem, *Technics and Time* 3, 206.
43. Luciana Parisi, *Abstract Sex: Philosophy, Bio-Technology and the Mutations of Desire* (New York: Continuum, 2004), 53.
44. Alfred J. Lotka, 'The Law of Evolution as a Maximal Principle', *Human Biology* 17 no. 3 (1945), 188 and 192; cited after Stiegler, *Technics and Time* 4, 24f.
45. Lotka, 'The Law of Evolution as a Maximal Principle', *Human Biology* 17:3 (1945), 188; cited after Stiegler, *Technics and Time* 4, 25 n26.
46. Stiegler, *Technics and Time* 4, 61–62 [italics original].
47. Stiegler, *The Negantropocene,* 64 and 118; idem, *Technics and Time* 4, 47.
48. Stiegler, *The Negantropocene,* 217; idem, *Technics and Time* 4, 47, [emphasis in original].
49. Georges Canguilhem, 'Machines and Organism', in *Incorporations*, ed. Jonathan Crary and Sanford Kwinter (New York: Urzone, 1992), 45–69. Cf. 'Elements for a General Organology'.
50. Stiegler, *Technics and Time* 4, 223.
51. Stiegler, *For a New Critique of Political Economy*, trans. Daniel Ross (Cambridge/Malden: Polity, 2010), 8.
52. How to produce (work-knowledge), how to live (life-knowledge); and how to think (conceptual-knowledge).
53. In his lecture 'What is Life?', Erwin Schrödinger showed that every form of life is the local formation of a counter-entropic tendency effectuated through the organization of life. Repr. as *What is Life?, with Mind and Matter and Autobiographical Sketches* (Cambridge: Cambridge University Press, 1992). Stiegler, *The Negantropocene,* 36ff.
54. Stiegler, *Technics and Time* 4, 63–65.
55. Stiegler, *The Negantropocene,* 34–63.

56. For a comparative overview on ethico-aesthetic models of care, see Joke Brouwer and Sjoerd van Tuinen, *To Mind is to Care* (Rotterdam: V2, 2019). Stiegler's book *Qu'appele-t-on panser*, 2 vols (2018/20), revive in a Derridaean move, the older French terms *panser* (to care) in connecting it to *penser* (to think).
57. Fry, *Defuturing: A New Design Philosophy* (London: Bloomsbury, 2020 [1999]).
58. Stiegler, 'Elements for a General Organology', 73–74; and idem, 'General Ecology, Economy, and Organology,' in *General Ecology: The New Ecological Paradigm*, ed. Erich Hörl with James Burton (London: Bloomsbury, 2017), 129–50.
59. Stiegler, *The Negantropocene,* 45.
60. On the genealogy of this concept coined by Georges Canguilhem, via Descartes, Kant, and Bergson, see Hui, *Recursivity and Contingency*, ch.3.
61. See for instance Peg Rawes (ed.), *Relational Architectural Ecologies: Architecture, Nature, Subjectivity* (London/New York: Routledge, 2013); Hélène Frichot, *Creative Ecologies: Theorizing the Practice of Architecture* (London: Bloomsbury, 2019); Andrej Radman, *Ecologies of Architecture: Essays on Territorialisation* (Edinburgh: Edinburgh University Press, 2021).
62. Rawes, *Relational Architectural Ecologies*, 10.
63. Stiegler, *The Negantropocene,* 122.
64. Chris Abel, *The Extended Self: Architecture, Memes, and Minds* (Manchester: Manchester University Press, 2014), here 66–71.
65. Stiegler, *The Negantropocene,* 120.
66. Ibid.
67. Vicky Kirby, 'Natural convers(at)ions: Or what if culture was nature all along?,' in *Material Feminisms*, eds. Stacy Alamo and Susan Hekman (Bloomington: Indiana University Press, 2008).
68. Radman, 'Ecologies of Architecture,' in *Posthuman Glossary*, eds. Rosi Braidotti and Maria Hlavajova (London: Bloomsbury, 2018), 117–20; here 118-9, in reference to Sanford Kwinter, 'Neuroecology,' 313.
69. Braidotti, *Posthuman Feminism*, 237.
70. Ibid., 131–34.
71. Ibid., 9 and 103.
72. Rosi Braidotti, *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory* (New York: Columbia University Press, 1994), 147.
73. Kathryn Yusoff, 'Anthropogenesis: Origins and Endings in the Anthropocene,', *Theory, Culture & Society* 34, nos. 2–3 (2017): 105–27; and Alexander Weheliye, *Habeas Viscus: Racializing Assemblages, Biopolitics, and Black Feminist Theories of the Human* (Durham/London: Duke Univbersity Press, 2014).
74. Achille Mbembe, 'Necropolitics,' trans. Libby Meintjes, *Public Culture* 15, no.1 (2003): 11–40, and idem, *Necropolitics*, trans. Steven Corcoran (Durham/London: Duke University Press, 2019).

Biography

Robert Alexander Gorny is an architecture theorist, writer, and educator interested in a more machinic and ecosystemic understanding of and approach to architecture. A graduate of the State Academy of Arts, Stuttgart, and the Berlage Center for Advanced Studies in Architecture and Urban Design, he currently teaches at the Chair of Methods of Analysis and Imagination, TU Delft. After recently completing his doctoral thesis 'A Flat Theory: Towards a Genealogy of Apartments, 1540–1752,' he is currently outlining a research program that extends its underlying assemblage-theoretic approach towards a general organology of built environments.

Andrej Radman has been teaching design and theory courses at the TU Delft Faculty of Architecture since 2004. A graduate of the Zagreb School of Architecture in Croatia, he is a licensed architect and recipient of the Croatian Architects Association Annual Award for Housing Architecture (2002). Radman received his master's and doctoral degrees from TU Delft and joined the Architecture Philosophy and Theory group as assistant professor in 2008. His research focuses on new-materialist ecologies and radical empiricism. Radman's latest publication is *Ecologies of Architecture: Essays on Territorialisation* (Edinburgh University Press, 2021).

Speculative Architecture

Claire Mary Colebrook

What is the problem of epiphylogenesis? We can define and understand the term, but what does it do and what does it demand of us? Indeed, one way of thinking about epiphylogenesis is through Bernard Stiegler's claim that some forms of technology generate or enable long circuits of desire, and that this needs to be recalled in a time of short circuits. Epiphylogenesis requires both that we pose problems differently, and that 'we' are, or should be, a problem to ourselves. Let me unpack this by beginning with what presents itself as a major problem: climate change, and the end of the world. What are we going to do? How can we change course? How do we save the world? The posing of the question in this way is only possible if there is a distinct 'we' who must then deliberate a course of action in relation to the world. Epiphylogenesis shifts the question towards the very possibility of this 'we'. How do formations of what comes to think of itself as 'the human' come into being, and what worlds and capacities do such formations make possible? For Stiegler the problem of climate change is ultimately the problem of who 'we' are, along with a constitutive tendency towards the failure to confront this question.

Epigenesis, in general, refers to the inheritance of acquired characteristics. Thinking of who 'we' are epigenetically already shifts the burden away from conceptions of liberalism, where we become who we are through deliberative relations with each other in a common milieu; every gesture, word, desire, image and artefact stores the past. To desire a brick veneer house with a picket fence and finely mowed lawn is to maintain a norm of suburban security; to demand that schools teach a certain version of history is to conserve the terrain of social relations and aspirations of the present; to mark certain occasions with certain foods, to recognise gender through certain comportments, to be moved by Beethoven's Ninth Symphony but not Coltrane's 'A Love Supreme': all these possibilities emerge from stored memories. If epigenesis is the carrying over of the past into who 'we' are, epiphylogenesis makes this claim about the very formation and possibility of the 'we'. It is not only that there is something like the human species that may alter genetically depending on the behaviour of past generations. Rather, what Stiegler refers to as 'the human' is this external storage and carrying over of memory. There is a difference between epigenesis in its strict and technical sense; if your parents lived at a high altitude and became 'hypoxia tolerant', you can inherit that characteristic, even if you are not born at high altitude. For epigenetics there is something called the human species, as such, prior to its inheritance of acquired characteristics. Epiphylogenesis will argue that the human comes into being with the external storage of memories; the creation of figurines and fables opens the space of the present into a world of myth and imagined futures enriched by the past. Every reiteration creates a more complex space and time of desire. If my desires are made possible through a range of complex, inherited, constantly transformed and intensified objects then my world is made possible by intricate relations with others,

whose sense of who they are and who I am can reach a high degree of individuation.

In the twenty-first century with the massive archival range of objects, images, narratives, designs, games, institutions and histories available to be streamed, downloaded, purchased and held privately, each living body can mark out its range of possibility by reading, listening, viewing and wearing a highly specific ensemble of artefacts, each in communication with an inherited past, an anticipated future and presupposed 'we'. The very singularity of who I am, and my capacity to desire and have a world is made possible by an archive that is beyond the bounds of my own (and any other human's) body, or what Stiegler refers to as 'exosomatic'. This is the difference between epigenesis (or inherited acquired traits) and epiphylogenesis, where who 'we' are is located beyond the body, and includes the buildings, monuments, institutions, habits and rhythms of the world. For this reason my own being, like every other human, is rendered utterly fragile. The archive of stored memory in its very range and complexity may cease to open a space of desire or futurity. This is how Stiegler articulates the problem of the Neganthropocene. The external storage of memories is what enables the human to be formed across time, increasing with complexity and intensity in the range of what can be imagined. A 'we' is formed through the ongoing reading, dreaming and desiring made possible by the archive. It is the archive that works against entropy, against us merely living and desiring within the present.

This counter-entropic movement has undoubtedly contributed to climate change. Stored memories make possible, and require, all the fossil-fuel practices of global travel, the desire for a wide range of commodities, the fast-fashion and haute cuisines that generate waste, and the privileged urban spaces of art galleries, cinema, universities and museums. To say that humans are constitutively rich in world, as Heidegger did, poses the question of the relation between the ontic and the ontological (again following Heidegger, but heading towards Stiegler).[1] Being rich-in-world is at once ontological rather than ontic, referring to the sense and temporal range one bears towards the present; one can see a chair, for example, not simply as something to sit on, but as a retro designed object capable of evoking the 1950s with a strong sense of pastiche and nostalgia. But that ontological possibility of seeing what is given in the present as opening out to a horizon of possibility has ontic conditions, and this is what Stiegler focuses on in his theorisation of both tertiary retention and long circuits. What are the material conditions that enable the experience of the 'now' to be opened – bifurcated – beyond itself?

Like Heidegger, Stiegler does not begin with 'the human' and then seek to determine its distinct qualities; nor does he operate with a nominalist account where 'humanity' is – as in many versions of post-humanism – a strategy for some humans to define what is normative and proper for the sake of dehumanising others. More importantly again, 'the human' is not a malleable category or family resemblance that might be more or less inclusive, and modified according to ongoing inquiry. To make this clear one might think of David Graeber's response to Eduardo Viveiros de Castro.[2] Responding to what he terms the ontological turn in anthropology, Graeber argues that granting every other being an integrity of world that is not translatable into one's own precludes any radical revision of what might count as human. For Graeber, Viveiros de Castro's radical perspectivism, where 'worlds' unfold in all their truth and multiplicity from the lives and relations of distinct beings, amounts to a passivism when it comes to taking up a critical relation to Western forms of knowledge. Genuinely revolutionary thought would revise a general concept of humanity according to the various ways in which different cultures theorise and explain the world. Graeber's objection to radical perspectivism would result in an exclusive disjunction: either there is some general entity called humanity that may be

discernible through family resemblances that are adjusted through anthropological encounters, or what refers to itself as human is but one composition of the world among others. For Viveiros de Castro, there is not one nature that is revealed through different cultural perspectives (mononaturalism), but as many natures as there are worlds; the world is not the sense made of nature, but what is as such.[3] For Graeber there is one world, and one humanity, and seeking its revolutionary potential requires comparison. For Graeber and Viveiros de Castro, the problem of the human has to do either with species unity or multiplicity. Is there such a thing as the human as a natural kind or is 'the human' just one possibility of personhood among others?

Stiegler provides a different modality of this problem of 'the human', charting a path between a pure anti-foundationalism in the existential tradition and a naturalism; this is not just to say that it is our nature not to be determined by nature but rather than the ways in which humans denature has a nature all its own. One of the apparent oddities in Stiegler's corpus can be illuminated by setting his own work in contrast with the problem of humanism versus posthumanism. To use Deleuze and Guattari's language, what Stiegler offers is an inclusive disjunction.[4] For Stiegler, there is no such natural kind as the human (with each modality of who 'we' are being bound up with specific archives), and yet there is a 'humanity' in general given through this absence of ground. Humans are that one animal or species at odds with their animality. The human is better thought of as the 'not-inhuman', which comes into being with the formation of archives or externally stored memories. This means that there is a formal process to the human in general, but it is just this formality that generates the human as ungrounded and therefore multiple-in-world. This is different from simply saying there is no natural kind or species that can be called human, and significantly different from the existential claim that subjectivity is nothingness, or the essence-free negation of what simply is. By using the phrase 'not inhuman' being and by referring to negentropy and by insisting on tertiary retention and the exosomatic, Stiegler refuses the idea of subjectivity as pure transcendence, as a freedom or negation of what is. Instead it is only through an attachment or coupling with the things of this world that humans are formed. Not as the negations of natural being but as those beings who care for, and desire a future through a collectively experienced archive. The inhuman would amount to a collapse of this temporality, a failure to work against entropy. Negentropy occurs when the formation of an archive not only allows experience and memory to be sustained through time but allows those same stored memories to be rendered increasingly complex, with further relations of desire, anticipation, variation and mystification creating multiple relations among individuals.

Being not-inhuman is the effect of stored memories that enable thinking to be oriented not simply to what is actually present but to the thoughts, desires and traumas of others. Who 'we' are as human is both the effect of the ongoing external storage of memories – everything from the number system and calculus that is stored in the technical history of computation to the buildings and cityscapes that orient the way we move, and the way we give our day time and space. This not-being inhuman co-evolves with technologies that have their own forces and tendencies, such that there is both a formal generality to the human – the only natural kind whose exosomatic memories have a distinct evolutionary history – and a disunity that follows from the volatility and fragility of the archive. If, in the twenty-first century, Stiegler speaks of a single general condition of the loss of the human this is not because he assumes a human unity but, on the contrary, because late industrial global capitalism is homogenising the possibilities of thinking and desiring, thereby leading to disindividuation. If I can be distinct and individuated by way of the archives that compose my being, then it follows that one can fall back into disindividuation when all that is viewed, read, heard and desired is produced from

an industrial conglomerate oriented to capturing attention. What Stiegler refers to as the 'proletarianisation of the senses' occurs when a single industry takes hold of the production of images: rather than a complexity and multiplicity that would require a negotiation of what and who I am and care for, there is but one archive or a homogenised 'noosphere' – a term I will discuss below.[5] For now what is worth drawing attention to is the way in which Stiegler's formal account of the human differs from other forms of anti-foundationalism.

From Kant onwards, through to liberalism and deconstruction, it is because there is no given moral law, no nature that generates how one ought to decide, that ethics is ungrounded, detached from any authority of what counts as properly human. If individualism yields a purely formal ethics of anti-foundationalism, with each subject relating to others as autonomous persons with the right to determine their own political being, this leaves out of play both the coming into being of the individual (individuation) and the potential for decisions which, though undecidable, are not indeterminate. It is the attention to the pre-decisional terrain of individuation (and what Stiegler refers to as noesis or noetic faculties) that allows Stiegler to pose a general problem of the human, while also being radically anti-foundational.[6] Theories of individuation insist that prior to that moment of autonomy and being able to care for oneself there is a pre-individual investment in a collectively formed archive. I am a distinct being because of all that I have read, listened to, viewed, touched, tasted and oriented myself towards; thus, the more I encounter the more distinct my being, and the more I am with others who have also read, viewed, touched, listened and moved the more complex are my desires and potentials for dreaming. If anti-foundationalism from Kant to Derrida insists on the ungrounding of the decision because of the absence of any moral law or natural determination, Derrida will add to this absence of ground the rogue forces of the archive.[7] Decisions are not fully one's own but are always made possible by the conditions of grammatisation (such as language). For Stiegler this archival condition is made more complex and historical by way of a theory of tertiary retention, whereby the time and space that we live (schematism) is given through technical objects that have an evolutionary trajectory that not only allows human existence to maintain itself over time with increasing complexity, but also allows the conditions through which humans desire and decide to become industrialised, homogenised, and so expansive and entrenched that all possibility of bifurcation is reduced.

Only if the means through which time and space become matters of care can there be a new epoch, one which would be the negentropic. Here, Stiegler draws upon and transforms two terms from Edmund Husserl's phenomenology: *epoché* and noesis. Husserl had marked out a distinction between the object intended in thought – such as a number – which he referred to as the noema, and then the thought itself, which was the noesis. The key point for Husserl was that what is thought is an affective complex. It is not that I think of something and then have certain attitudes and emotions, but that what is thought is given as remembered, feared, desired, anxiety-shrouded or joy-laden.[8] Stiegler does not make much of the noesis-noema distinction which was crucial for Husserl, who wanted to distinguish between idealities like number and then the psychic process that grasps those objects of thought. There are two reasons for this.

First, Stiegler is less interested in establishing truth per se (though this is important), than he is concerned with a history of truth in a 'post-truth' era. Like Husserl, he negotiates between the material conditions of truth's emergence and articulation and the ongoing relation to that truth once it has been constituted. Where Husserl sees a single history that becomes threatened in the twentieth century, Stiegler has a more intensely historical focus on the technologies that allow truth to appear. The sophistication, complexity and evolution of these technologies amount both to the forms of our inner

life, and the capacity for those forms to take on an entropic tendency whereby we no longer care for what we think. If Husserl insisted that we can think numerically or logically (noesis) because of the ideal objects of truth (noema), Stiegler's proposed history of truth attends far more to the different modalities and temporalities that compose inner life (noesis), focusing on the collective and desiring investments that make truth possible. The problem with truth is that the means through which it is produced and available in late capitalism or smart capitalism become increasingly developed in scales beyond our range of comprehension and care. The problem of noesis increasingly becomes one of proletarianisation; the technologies that allow us to think (and have an intense inner life) are produced by industries of information and data management that we cannot grasp. For Stiegler, it is the historical formation of industries at different scales – from nanotechnology to satellite networks – that precludes any possibility of what Husserl thought phenomenology could achieve: that any subject might once again reconstitute, through reason, the genesis of truth. For Stiegler, such an effort can only be collective and requires taking up a relation to the means through which we think, the faculties through which the world is given, desired, anticipated and known. What is crucial here is Stiegler's insistence on tertiary retention. The time of inner life that requires the carrying over of the past into the present, and the anticipation of the future from the present, is made possible through collectively formed and lived objects. The monuments, archives, spaces and instruments through which we think and dream produces us as exosomatic and negentropic beings: capable of sustaining time and desire beyond the life of any individual body. But that very possibility of storing memory, of delaying the dissolution of knowledge, of allowing desire to orient itself to temporalities beyond the time of the organism and of creating a noosphere is not simply negentropic; it is accompanied with risk. One might, for example, be oriented beyond one's immediate milieu to something like planetary life in general, to something like humanity beyond the forms it already takes, and to care enough about what has been learned, desired, imagined and suffered to think of ways of preserving the archive. One might also, however, be so attached to the commodified objects that appear to make life worth living that one does no more than accumulate forms of the present. What is important, for Stiegler, is not simply how we make sense of the world (the forms of knowledge) nor is it saving the world (working against entropy in a simple sense); it is, rather, a new requirement in an age where the very means for working against entropy take on such complex forms that taking care becomes no longer possible. Some new way of thinking about noesis is required; what might it mean to have a collective politics oriented to taking command of the ways we think?

Second, in addition to tying inner life and time to historically distinct technologies that render a grasp of how we think and know increasingly difficult, Stiegler takes up the question of epoch. One might think the unique problems of the twenty-first century to be the intertwined perils of climate catastrophe and totalitarianism. To say that these are epochal problems is to shift the question away from what 'we' ought to do towards the formation of a 'we' as such; this is an epochal question both because it amounts to creating a form of knowing and thinking that can take up a relation of care towards the complexity of the whole, and because it requires an acutely historical sense. Husserl's *epoché* was a methodological move that suspended all questions of the being of a thing in order to question its mode of appearing. It turns out that what appears, according to Husserl, are phenomena that unfold through time, appearing as real through the retention of the past and the anticipation of the future. Time is not some background within which things appear; life – in its unfolding, retention and anticipation – is time. The *epoché* for Husserl is an attention to this irreducible temporality; it is a realisation that the supposedly static or timeless object is ultimately temporal. What

appears is time. The *epoché* suspends or puts out of play the 'natural attitude' that posits a world of things that happen to appear through time, and attends to time itself in its appearing. More specifically, one takes up a relation to time.

What might it be to take up a relation to the technologies of one's time, the technologies that compose time? By insisting on tertiary retention – the clocks, musical instruments, smart devices, monuments, and moving images – that compose the experience of time, Stiegler marks out the human both as a mode of time made possible by things outside one's own body, and as a capacity to care about that composition. When Stiegler talks about epoch and humans being doubly epochal he refers not only to taking up a relation to what appears – such as Husserl's argument that there can only be an appearing world of things because of the flow of time of transcendental subjectivity – but also to taking up a relation to those technologies that produce the inner experience of time. When Husserl imagined the flow of time by way of listening to a melody, he had already implicitly acknowledged tertiary retention in the composition of consciousness; consciousness is intentional, or always consciousness of. The flow of inner time is given through the attachment to objects that compose and orient images. Inner life, or the noetic, is made possible by what Stiegler refers to as the exosomatic. The history of who 'we' are and our capacity to take up a relation to the formation of that 'we' requires attending to the increasingly complex, industrial and multiscalar production of the noosphere. What happens when the spiritual matter of inner life is not something we can grasp? This is Stiegler's question for the Neganthropocene: the stuff of dreams, the rhythms, forms, figures and desires that forge human beings as counter-entropic are what enable a life lived now to imagine and form a future beyond the time of the body. Spirit is made possible by the matters of stored memory; we desire, dream and think according to complex and increasingly ungraspable archives.

At first glance Stiegler's work appears to profoundly Eurocentric (in his ongoing reference to the tradition that runs from Plato to Heidegger), and possibly even uncritically humanist, in his anxiety that 'we' are threatened with non-being. There is a growing body of philosophy, theory, fiction and cinema that has contested the notion that the humanity being threatened ought to be saved; there is also a counter-archive that focuses on the destructive force of collective memory. To cite one example, one might think of Black speculative fiction, with its intense focus on archives and living in the wake of archives, and its even more intense desire to end the world for the sake of the future. I will explore this further below, but for now one can at least recall Aimé Césaire's idea that 'the only thing in the world that's worth beginning: [is] The End of the World, no less'.[9] Where Stiegler charts a tradition from Plato to Valéry that is focused on the loss of spirit, one might read a counter-tradition that sees the European attachment to spirit as possible only through the social death of Black lives. Afro-pessimism's attention to the objectification of Blackness being constitutive of white interiority, along with Indigenous thinkers' refusals of the fetishisation of 'the human' are manifestly at odds with the preliminary mourning that accompanies the loss of who 'we' are.[10] Where Stiegler is focused intensely on the proletarianisation of the senses – where the interior life that composes who we are is no longer capable of being reflected upon – he has little to say about slavery and colonisation other than to refer to industrialisation as a progressive enslavement of 'us all': 'technological mutation is today pursued digitally, but also biotechnologically, and, if nothing happens in the short term, then European democracies will soon be definitively enslaved, and the entire world disorientated [*déboussolé*]'.[11] There is a smooth transition from European democracies to the entire world's enslavement. Little is said about the dependence of that spirit on slavery as an entirely different temporality and spatiality of technics.

Stiegler does talk about the Greek theorisation of otium, as that which is enabled by a division between those who are subjected to maintaining subsistence versus those who are free to think. He also talks about the ways in which the demos to some extent does away with this split, such that even the enslaved and workers may take part in the life of the mind.[12] What happens as history heads to supposed democracy, especially in the USA, is the loss of otium; everything becomes subject to production and industrialisation. Taking epiphylogenesis seriously requires thinking about the inner life of the present, the 'we' of the present as made possible by technologies that store time. An individual's daily orientation, as a private person with a space of their own and the very rhythm and desire of their day, is an archival event: from the phone that maps time, plays music, communicates, and conveys the state of the world, to the running shoes and vehicles that enable bodies to orient themselves in space. Here Stiegler objects to the Marxist/Hegelian dialectic of work. First, Stiegler insists on the translation of *Knecht* as 'servant', and not 'slave' (*Sklave*) and does so because the servant bears a relation not simply to work but to the future world that is being desired.[13] Second, this means that the best way to understand the transformative power of work is neither through the concepts of slavery nor the proletariat but through a worker who understand fully and relates to the technologies that form and sustain the world. That concept of work and labour is quite distinct from slavery and general proletarianisation where the mechanisms and technologies of production are utterly alien and ungraspable. Third, this is why Stiegler will frequently talk about slavery and enslavement in the same breath. The tendency throughout Western thought to think of slavery as a cognitive malaise is manifestly a failure or repression to deal with the actuality of slavery. When Stiegler distinguishes between work as that which bears a reflective relationship to the technologies of memory (and of who 'we' are) versus slavery where epiphylogenesis is short-circuited, he connects the inner life of the human, the very genesis of the human, with modalities of labour and a relationship to labour. His claim for a general enslavement due to twenty-first century industrialisation of the noosphere draws upon the pharmocological predicament of humans as epiphylogenetic beings: if who 'we' are is made possible by external technologies and stored memories then it follows that 'we' lose any reflective relation to the possibility to work on, or transform, the stored and potentially dynamic desires that compose our being:

> Contrary to what Marx would have us believe in *Capital*, it is not proletarianization that is the bearer of a transformation but, as he had envisaged in the *Grundrisse*, the end of employment, combined now with the organological mutation to which digital tertiary retention has given rise – and this transformation is a therapeutics, as care taken of a *pharmakon* that is always becoming more efficient because it is transindividuated by *objectified* knowledge, firstly as mechanical tertiary retention, then as analogical tertiary retention, and now as digital tertiary retention.
>
> The end of employment can and must lead to the de-proletarianization of work, and in this sense its 'reinvention', inspired both by the organization of work in free software communities and by the intermittence scheme, in a society where employment is becoming a relic of an outmoded epoch, and where *neganthropic knowledge* becomes the *source of value* at once as life-knowledge, work-knowledge and conceptual knowledge.[14]

I would suggest that Stiegler's question of epochal doubling, of how we might take up a relation to the ungraspable technologies that compose who 'we' are has been posed fruitfully and differently by writers for whom the pharmacological nature of the archive bears a different dynamic of toxicity and interiority. When Frantz Fanon poses the question of interiority, inheritance and not owning or commanding the images that compose one's being, he does so not only with a sense of the long

circuits of desire that are constitutive of the discipline of psychoanalysis, but also with a sense of the space and movement that renders and objectifies his being. The multiple legacies of Fanon's thought and work on the aftermath of slavery and colonisation have also worked with the archives – especially the spatial archives – that make up the being of 'humanity' today, doing so with a sense of the radical unmaking of Blackness in the formation of 'the human'.[15] This is not to say that one can supplement, critique or illuminate Stiegler's problem of proletarianisation by way of adding the perspective of those whom the West literally enslaved, but rather to say that literal enslavement and its epiphylogenetic heritage pose both the problem of the toxicity of spirit and – more positively – the possibility of cutting into and opening desire's short circuits. One of the ways in which this has been achieved has been through what I would refer to as speculative architecture, where fictional worlds are composed that allow one to think of the world and the 'we' of the present as not one's own. The world, in the sense that it is used when one speaks about the 'end of the world', is a pharmakon; the stored memories and collectively composed times and spaces that frame what we desire make any imagined future possible, but the world can also – as Stiegler argues – become enslaving. If 'saving the world' amounts, as it so often does, to saving actuality then this will be destructive of the planet and of the very potentiality for humanity to compose itself differently; 'we' will be nothing more than a maintenance of the technological status quo. In that respect, imagining the end of the world would be a fruitful and radical rupture with an archive and schematism that is enslaving.

Much work has been done on the daily wake, aftermath and ongoing presence of racial capitalism and slavery, ranging from Frank Wilderson's claim that humanity is constituted through an anti-blackness produced by slavery to the productive demand for wake work that would seek to take up a relation to the anti-Blackness that remains unsaid but woven into the space and time of living in the world.[16] What I refer to as speculative architecture takes the next step of producing what – borrowing from Stiegler – might be thought of as epochal redoubling. What might it be to imagine this world and its archive as utterly toxic, as producing a 'we' and world that ossifies one's being? What might it be to think of the archive and the composition of space and time as so disabling that only the end of the world might open a future? What might adding the concept of epiphylogenesis do to this question?

> For, if we are lucky, we live in the knowledge that the wake has positioned us as no-citizen. If we are lucky, the knowledge of this positioning avails us particular ways of re/seeing, re/inhabiting, and re/imagining the world.[17]

Work has already been completed on epigenesis and racial trauma, and even without that explicit theorisation it would not take too much reflection to acknowledge that decades of poor nutrition, poisoned water, unequal education, historical erasure, police violence, carceral capitalism and voter suppression have effects that last for generations and transform bodies at the deepest level. What Stiegler's theory of epiphylogenesis adds to this mix is two-fold: there is no 'we' prior to the ongoing exosomatic storage of memory, and that very complexity and externality of memory also creates the possibility of becoming disaffected, proletarianised, or enslaved to who 'we' are.

2020 saw the intensification of demands for the destruction of the space of colonialism and enslavement; not only were confederate statues in the US targeted for removal, there was also a supposedly unthinking or reactive movement aimed at putatively 'innocent' statues. In June 2020 the Associated Press reported the destruction of the statue of Hans Christian Heg, an abolitionist. Rather than think of this destruction as a mindless event of violence, it would be better to take seriously the motivating sense of the toxicity of the space of statuary, of the

forms of political life composed of great men, and – more broadly – the forms of polity and world built on a reverence for a past of sacred inscription. In N.K. Jemisin's *Broken Earth Trilogy* several thematic and figural strands converge to produce a speculative architecture that would contest the unthinking reverence for a stone-set law.[18] First, Jemisin builds a world where 'seasons' interrupting life and fruition last for several human lifetimes, creating a long time in which one's sense of history includes the coming into being and falling away of worlds. Second, in these waves of time there is an ongoing relation to 'stonelore': a fragmented archive of wisdom that is both enigmatic and oppressive, with the lore producing a hierarchical cosmology and caste system. Third, those who have been marked out as the wretched of the earth ('roggas') are those who can intuit and command the forces that stabilise and destabilise the world. Jemisin charts a narrative where the central character – across three volumes – discovers that the archive upon which the world was built has not only worked to occlude and maintain the violence that sustains the whole, but also represses the affront the planet feels for the wound and theft of its equilibrium. The three volumes narrate the gradual awareness that the lore upon which the order of the world is based is fraudulent and destructive, that the only way to exist for those who sense the force of the earth is to end the world, and that the bodies who sense the force and possibility of the earth are precisely those who have been enslaved. Jemisin's sense of enslavement is in tune with Stiegler's conception of epiphylogenesis, at the same time as it offers a necessary and positive sense of what it might mean to relate to the enslavement of the world with an epochal imaginary. Those who can 'sess' the vibrations of the earth are either killed or enslaved; without their power there is no world, even if that same world is composed of a sense of the border between the civility of the 'stills' (those who work within the world) and the 'roggas' (those whose power to 'sess' and harness the forces of the earth are what make possible the entire moral order). What Jemisin achieves in her composition of this earth that is multi-layered geologically and historically is a space in which moving and being, and one's sense of who one is, carries the inscription of centuries. Her work generates a profound sense of the epiphylogenetic. What the space of her composed world brings to the fore is that there can be a 'we' and an archive that bears the seeds of its own demise, but that those who can sess the force of this potentiality may well embrace this end.

Here, her work might be aligned with the spatial imaginary of writers like Octavia Butler before her, and the more recent work of Rivers Solomon. In *Dawn* Butler imagines the destruction of the earth, followed by the rescue of some humans who are held in a spaceship that is literally alive (composed of growing, edible and responsive matter); this separation from the earth allows the rescued humans to take up a relationship to 'the human' and to do so with a profound ambivalence.[19] In Rivers Solomon's *The Unkindness of Ghosts* there is also an imagined spaceship that is the refuge of those fleeing a depleted earth; here, those who maintain and work the ship are able to take up a critical and hostile relationship to the order of the world.[20] By giving the wretched of the earth a space apart from the earth, these authors create a space between the imperative to save the world (by clinging to actuality) and an epiphylogenetic spatial imaginary. To create a space where who one is requires ending the world amounts to a recognition that the space and time of the present is toxic, and that there is a 'we' to come that is out of this world.

Notes

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5. Bernard Stiegler, 'The Proletarianization of Sensibility', *Lana Turner Journal* 4 (2012), http://www.lanaturnerjournal.com/archives/prolsensestiegler.
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11. Bernard Stiegler, *The Decadence of Industrial Democracies: Disbelief and Discredit, Volume 1*, trans. Daniel Ross and Suzanne Arnold (Cambridge: Polity Press, 2011), 13.
12. Ibid., 7.
13. Bernard Stiegler, *Automatic Society, Volume 1: The Future of Work*, trans. Daniel Ross (Cambridge, Polity Press, 2016), 162.
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15. Christina Sharpe, *Monstrous Intimacies: Making Post-Slavery Subjects* (Durham, NC: Duke University Press, 2010).
16. Frank B. Wilderson III, *Afropessimism* (New York: Liveright, 2020); Christina Sharpe, *In the Wake: On Blackness and Being* (Durham, NC: Duke University Press, 2016).
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Biography

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Architectures of Thought: Negentropy, Metabolics and the General Ephemeral

Georgios Tsagdis

Metaballon anapauetai
Heraclitus[1]

Dramatis concepti: terminological clarifications

Most of the terms that compose the following meditations are either explicitly determined in the text itself, or implicitly elaborated through its logic, so that every new retracing of the text should result in clarifying them further; nonetheless, a brief outline of certain key terms may facilitate a pre-comprehension and thus a smoother first passage.

Bernard Stiegler passes from a pharmacological to an organological and finally a neganthropological phase, as entropy and thermodynamics at large become ever more central to his project. Accordingly, neganthropology can be delineated as a prescriptive philosophical anthropology in the service of claiming negentropic enclaves, constructing spatio-temporal orders, the technologies of which allow for the flourishing of trans-individuation, of individual difference emerging from and for the collective.

Stiegler is thus interested in architecture, not only as the science and discourse of the built environment, but more importantly, as the principal technological structuration of milieus – of noetic life, of networks – noetic life itself being structured on the groundwork of a technologically inscribed network. The notion of the ground thereby comes to the fore, its metaphorical uses shown to be inextricable from its technical uses, as Kant's architectonic of reason is caught up between the enunciation of stability and the transformative demands of the life of reason.

Kant's reflections are pivotal here, as they set the parameters of the discourse to follow, informing, not least, Stiegler's casting of Kantian consciousness as cinematic, that is, as having all its production conditioned by technologically mediated conditions of reproducibility. In turn, the engagement with Marx makes the stakes of technological (re-)production palpable and shows that in the effort to decode the genetics of noetic life, Stiegler neglects its metabolics, consequently reinscribing the animal-human distinction that he critiques in Marx's analogy of the architect and the bee and barely finding himself with more resources than Kant, to account for the transformative instability of the architectonics of reason.

Metabolics is thus introduced as life's principle of becoming. Just like the term architecture, the term 'metabolics' is here assumed in a general sense, reaching beyond the biological model, as the well as the post-war Japanese movement of metabolic architecture. Two terms are employed to thematise the ephemeral, or fleeting character of metabolics: Jacques Derrida's 'maintaining now' (*maintenant*) and Gilles Deleuze and Félix Guattari's haecceity ('thisness'). Coming from distinct models of thought, they both designate the thick moment in which the effervescence of becoming takes place and are thus integral in accounting for all life, and for noetic life in particular.

Setting the stage: the general ephemeral and metabolic thought

The white marble theatres of Greece were built once Aeschylus, Sophocles and Euripides were

dead. The great tragedies were staged there as re-runs. Later, the whole classical world would be restaged: reborn into Renaissance, academised into Classicism. Undoubtedly, the 'whole' here signals a hyperbole: only a handful of fragments, a sparse tangle of surviving inscriptions could be rehearsed anew, infinitely mediated, transposed, inflected. Biology, the discourse of life, or put differently, the science of surviving inscriptions, of survival as inscription and inscription as survival, calls this creative corruption of reproduction 'selection'. Whether through hetero-affection – the interpolation of viral RNA – or through auto-affection – a deficit or excess of the reiterated protein sequences – selection marks each step along the way to phylogenesis.

The genetic code, epigenetic modification of this code, and the technical exosomatic epiphylogenesis, that for Stiegler determine the Promethean destiny of the human, are all shaped by selection; in turn, they stage in unison the drama of selection. The deus ex machina of selection is a devised solution, at once a dramaturgical miracle and a dramaturgical monstrosity that requires a mechanical device to appear. A machine allows the god to resolve a play that conditions the god's appearance. En abyme.

If selection is cultural, technical and biological, it is no less thermodynamic. Ilya Prigogine and Isabelle Stengers understand entropy 'as a selection principle' on the basis of the irreversibility of symmetry breaks at the microscopic level. Such breaks or 'bifurcations' (a term introduced by Poincaré) allow a passage to the macroscopic, establishing a nexus of irreversibility at both levels. Bifurcations, such as those between particles and antiparticles, are in turn conditioned by a thermodynamic disequilibrium.[2]

Stiegler adopts the notion of bifurcation in his late work to think the conjunctive ecology of energy, life and technics. With Whitehead, he understands reason as the bifurcating principle, negotiating the competitive tendencies of slow decay (entropy) and of seasonal rejuvenation (negentropy). Reason is what tampers the 'anarchic' negentropic origin of life in history.[3] As principle of selection, or arbiter of arbitrary bifurcations, reason has since Plato's method of division (*diairesis*) been the paradigmatic path to the general; yet for Stiegler, this path does not lead to speculation. Aligned with Georges Bataille's general economy and Erich Hörl's general ecology, the generality of the general refers in Stiegler principally to the encompassing of all thought and practice by the entropic principle. Entropy is what makes time homogeneous and translates its passing through and as the flow of energy. As such, entropy says, 'all passes': the general is ephemeral, the ephemeral is general. Yet creative bifurcations are possible within the general ephemeral and are precisely the labour of life and thought.

Such bifurcations constitute the local within the general, or in Hegelian terms, the concrete universal, the space where life unfolds – the life of bodies, minds, cultures. Stiegler requires that negentropic bifurcations determine localisations that resist the self-destructiveness of the anthropic principle.[4] Lévi-Strauss's 'nihilism' is the adversary:

> From the time when he first began to breathe and eat, up to the invention of atomic and thermonuclear devices, by way of the discovery of fire and except when he has been engaged in self-reproduction – man has done nothing other than blithely break down billions of structures and reduce them to a state in which they are no longer capable of integration.[5]

Humanity is here a funnel of entropic disintegration, a funnel enlarged by technological production, in which the grace of biological reproduction ebbs away. For Stiegler, however, the remedy can only be sought in technology's poison. The technological production of new local milieus is an imperative all the way to the ground. Stiegler is willing to return to the question of the land, its possession and distribution, the nomos without which for Carl Schmitt there is no law. Stiegler wants to liberate land from

blood-and-soil ideology in order to rethink it as a condition of a localising bifurcation of life.

The technological production of bifurcations and the ground of this production thus become integral to the neganthropic project, while architecture, as the practice and theory of creating milieus, becomes its paradigm and vector. This essay aims, accordingly, to enrich the ground of the neganthropological project, by superimposing a metabolic plane upon the genetic plane, the plane of conditioning inscriptions that Stiegler's writings painstakingly outline. Here, 'metabolism' is not understood in the limited sense of a normal or reverse Krebbs cycle, involving the familiar anabolic-catabolic processes, but subspecies of a general metabolics, that is, as the actuality of metastability, as the living of life that preserves and transforms (*meta+ballein*) life at the same stroke. Such a metabolism includes, along the anabolic and catabolic, the symbolic in the specific sense of elements that enter into sym-metric, sym-pathetic and sym-biotic relations. Accordingly, this essay undertakes to show that a general genetics cannot be thought apart from a general metabolics: the thermodynamic question demands a double answer.

In order to gesture towards a general metabolics, the essay proceeds by examining the relation of architecture to noetic life, which, as life, is always already also non-noetic, and as noesis is always already non-life. At this juncture, the Kantian architectonic of reason is catalytic, as it sums up the history of reason it critiques, but also, through this critique, sets up the parameters of the discourse on noetic life to follow. In sum, Kant's effort to provide solid foundations for the system of human thought is shown to slide into a series of dislocations, which appear as genetically accidental, yet prove to be metabolically vital. This sets the stage for Stiegler's reading of Kantian schematism as founding a cinematic consciousness which lends itself inherently to industrialisation and algorithmisation. At a time when computation and automation (the energetics of Zeus) become faster than thought (the energetics of neurons) the stake for what Stiegler called the 'reticulated' society is nothing less than a '*colossal social disintegration*': techno-capitalism reducing noetic-political communities and individuals to 'purely, simply, exclusively and therefore absolutely computational' objects.[6]

Stiegler laboured throughout his life to create new network architectures that advance contributory, negentropic modes of social hermeneutics, developing the latter with his collective, Ars Industrialis.[7] This effort itself constituted a transformative or metabolic exploration of the modes of production that a cinematic consciousness can support. The relation of production to noetic life and life at large comes to a head in the figures of the architect and the bee, in which Stiegler confronts late Marx. The essay follows this confrontation through a Derridean inflection, which shows a more consistently 'organological' Marx and queries the relation between biological and techno-economic (re-)production. This opens the path towards one of the principal metabolic moments in Derrida's work, the moment of his confrontation with architecture, when the ephemeral is thematised as the 'maintaining now'. The essay closes with a redoubling of the maintaining now, recasting it as a haecceity, a Scholastic term appropriated by Deleuze and Guattari, which in turn informs Rosi Braidotti's employment of metabolism in exploring non-majoritarian modes of individuation.

Kantian dislocations: the life of the architectonic of pure reason

'By an architectonic I understand the art of systems.'[8] Kant's famous opening of 'The Architectonic of Pure Reason' conjoins technics and thought by introducing 'art' in the system as an external force and practice that finds itself always already on the inside. Moreover, as the 'Antinomy of Pure Reason' had already made apparent, both the art of architecture and the system of reason share in the same nature: 'Human reason is by nature architectonic. That is to say, it regards all our knowledge as belonging to

a possible system.'[9] Both architecture and reason have a nature and this nature is the same. Perhaps, just perhaps, Kant seems to suggest, this nature is none other than nature tout court: ecology as the techno-noetic milieu of life.

Kant's understanding of the notion of the architectonic passes, in Daniel Purdy's reading, through the same stages as the modern reception of the story of Babel: just as the sixteenth century hermeneutics of celebration of royal power gives way to the seventeenth century's Protestant catechism against the hubris of all human power, so Kant abandons his early effort to build a metaphysical tower from which God could be perceived and his existence proven, for a modest watchtower to survey human experience, or rather, for a functional bourgeois house, to serve as reason's abode.[10] The equivocation of the metaphor constitutes the first dislocation: Kantian reason seems to dwell in a watchtower.

This reason must confront not only Hölderlin's delirium, in his confinement in the Necker tower, but also measure up against Leibniz's windowless monads. Not least since the monad of monads, God, is also an architect and a geometer. Thus at once architect and architecture, God builds a resplendent cosmos with perfect efficiency and economy. For even though God has no budget – since nothing costs God anything – divine rationality qua rationality, demands economy.[11] For Leibniz, the highest imperative of this economy is the affordance of all that is necessary, whereas for Kant the reason of economy consists in eliminating the unnecessary, justifying the place of every element in the whole.[12] This archi-economic principle informs the Kantian thrift of materials, the modesty of design and the attentiveness to the telos and function (serviceability) of the planned edifice.[13]

No less does it inform Kant's consideration of the economy of forces at play in the edifice of reason. Kant is acutely aware of the potentially devastating effects of gravity, but its pull is one among numerous active forces, rather than 'dead weight'.[14] The gravity of critique presses against the elevation of speculation, in a dynamism that sustains thought at the precariousness of the joint.[15] This precarious dynamism opens the path to the second dislocation: the apparent inorganic stability of the house of reason gives way to an organic metastability. Not only is it 'vital' that the house of reason stand and withstand, but this vitality is subject to an entropic corruption, decline and 'death'.[16] In the words of the fifteenth-century architect Filarette: 'It is clear that by being killed or by not eating, one dies; so do buildings. You can say, one eats and *even so* one dies. The building also must decline through time just as one dies sooner than another or has better or poorer health.'[17] It is not only violent death or demolition, not only starvation or negligent maintenance, it is the law of entropy that the building, just like life, must measure up against.[18]

Kant does not wish to know of the natural death of buildings, even as he speaks of their ruins. Yet the effort to accommodate elements of proto-metastability (a proto-negentropy) within a traditional architectonics of stability is unmistakable. The Kantian house of reason, just like Goethe's figure of the subject, is interminably under renovation. Tellingly, the penultimate chapter of the first Critique outlining the 'architectonics' of pure reason, is succeeded by pure reason's 'history': a story of 'ruins', which lays upon Kant the demand 'to designate a place that is left open in the system and must be filled in the future.'[19] The art of systems is thus supplemented in a single stroke by the advent of the unforeseen event. Moreover, in order to rebuild, it is not enough, as Descartes admonishes, to gather provisions of materials, architectural knowledge, and planning, but one must, before demolishing a house, provide oneself with a temporary dwelling. It is then hardly surprising that the 'empirical' history of the house-tower of 'transcendental a priori' rationality turns out to be a history of dislocations, a perennial 'living elsewhere', at once a life and a heterotopia – supplementary through and through and only thus foundational.[20]

The passage from inert stable materiality to entropic metastable living matter proceeds for Kant from the ground. Designating reason as the foundation of foundation, the word 'ground' is for Kant 'merely a symbol of reflection', rather than 'the proper schema of a concept'. This 'symbolical hypotyposis' or 'expression' of the non-concept of ground, underscores the architectonic as an art of systems, as much as the metabolics of this art.[21] Tellingly, Kant limits himself to 'merely outlining the *architectonic* of all cognition from *pure reason*,' and beginning 'only at the point where the general root of our cognitive power divides and branches out into two stems, one of which is *reason*.'[22] The architectonic of reason is thus ultimately cast as an 'outline' or sketch of a plant that grows from the ground, this ground in turn being reason itself as the architectonic foundation of the plant.

The ground gradually emerges as a symbol in the metabolic sense. Whereas in the first part of the *Critique of Pure Reason* Kant aligns the ground with the empirical by making sense-perception the foundation of all valid knowledge, in the second part, the ground appears to refer to 'the Idea of the whole, the schema that pulls together perceptions,' a plane of organisation or development in Deleuze and Guattari's terms, a hidden principle inferred only from its empirical effects.[23] It is only with the *Critique of the Power of Judgment* that the ground stops being a schema turning into its opposite, namely a symbol, that is, a metabolic life-function of the system.

This architectonics of a sprouting reason runs up to Heidegger, who, in opening his seminal analysis on Kant writes: 'laying the ground for metaphysics can mean to lay a foundation [*Fundament*] under this natural metaphysics'.[24] Heidegger's 'natural' architectonics does not quite announce a terra-forming project, but in fidelity to the Kantian desire for the art of systems expounds 'ground-laying' as the 'projecting [*Entwerfen*] of the building plan', a projecting design which delineates the 'inner possibility of metaphysics, that is, the concrete determination of its essence.'[25] In passages such as this, Heidegger wishes to align the construct of metaphysics with the ground it occupies, as if the former grew in perfect harmony out of the latter.

The architectonic of reason thus emerges as the practice of making what is already there, constructing the natural, or rather, of tracing the line between construction and nature. Ultimately, the task of construction will be handed over to technology, knowledge of nature to science, and philosophy will maintain the line between the two. As Kant admits to Herder, it is 'truth' that composes the building of metaphysics, while he merely sketches this building at different times, from different perspectives.[26] The architectonic of reason is the art of systems insofar as it is the art of the line. Perhaps Kant is sketching a self-portrait when summing up Wolff as 'a speculative and not an architectonic philosopher and leader of reason. Actually, he was not a philosopher, but rather a great artist of the human desire for knowledge, as so many people still are.'[27]

Indeed, Kant projects the Critique as 'a treatise on the method, not a system of the science itself; but it catalogs the entire outline [*Umriß*] of the science of metaphysics, both in respect of its boundaries and in respect of its entire internal structure.'[28] Marking and drawing the line, tracing and following (*meth*) the path (*hodos*), Kant visualises the discursiveness, the walking of reason, in order to accommodate the knowledge to come (history as a future).[29] Specific provisions have to be made for such an accommodation, a specific ecology must be furnished.

If for Vitruvius the sum of an author's writing was conceived of as a corpus or body of knowledge, if for Michelangelo 'architectural members [should] reflect the members of Man', and if for Alberti, 'a wall that wandered like a worm' could only be due universal reprimand, it is unsurprising that Kant should show 'a preference for self-conscious ordering, an aversion to the serpentine flow of the arabesque, and a blindness to the charms of haphazard accumulation, be they medieval or

baroque.'[30] A 'body without organs' such as Greg Lynn's regenerating flatworm, capable of proliferating variations of itself beyond mere replication, is anathema to Kant, who time and again privileges articulation (muscles, tissues, organs) over aggregation. This is the very accusation that Kant levels against his predecessors, whose systems were such in name only, 'formed, like maggots [*Gewürme*], by a *generatio aequivoca* from the mere confluence of aggregated concepts'.[31] And yet, this spontaneous generation, this equivocation of life, is according to Kant able, despite its garbled beginnings, to fashion complete systems out of 'the original seed' from which the 'self-development of reason' proceeded.[32] Lacking an external architectonic idea, the internal life of reason, its metabolism, is enough to bring it to maturity, even if its investment into maggot-like systems could never produce more than fertilising ruins for the next metaphysical Babel.

Architecture and schema: Stiegler's reading of the Kantian cinematic consciousness

The preceding dislocations that cast the architectonics of reason (both house and tower) as botany or zoology and, at the moment of summative reflection, as the line that separates and aligns the two in a double techno-physical helix, offer the ground of Stiegler's reading of Kantian schematism.

From the outset, the definition of a schema within the 'Architectonic of Pure Reason' presents all the marks of the above tensions. A schema is here 'an essential manifoldness and order of the parts determined *a priori* from the principle of the end', possessing either technical unity, when its aims are grounded in contingent experience, or architectonic unity, when its ends are grounded in a necessary Idea of reason.[33] Kant's attempt to separate architecture from technics runs counter not only to the prima facie definition of architectonics as the *art* (*Kunst*) of systems, but also to the necessary understanding of this art as techne, that is, as the empirical know-how that the Third Critique opposes to theoretical knowledge (*Wissen*).[34]

The untenability of the technical-architectonic distinction is already sealed at the outset of the first Critique, where the (transcendental) schema is introduced as a mediator, a third (*ein Drittes*), which homogenises the category and the intuition. A schema is thus an 'intellectual' and 'sensible' hybrid, a thick line that unites sense and reason as its internal and external limits, in irreducible difference.[35] However, sustaining the line requires Kant to postulate a further 'transcendental affinity' between, on the one hand, the unity of consciousness and, on the other, the unity of objects and ultimately of the world at large. As Stiegler observes, this 'transcendental affinity' becomes operative by reproducing what is essential and necessary in the empirical domain, in the act of producing it.[36] The transcendental deduction of categories is built on the ground of this affinity, upon which is established the triple synthesis 'found in all cognition': 'the *apprehension* of the representations, as modifications of the mind in intuition; of the *reproduction* of them in the imagination; and of their *recognition* in the concept.'[37]

The three syntheses correspond, according to Stiegler, to the three retentional types, even if, in making reproduction a condition of apprehension, Kant commits the same mistake that Husserl attributed to Brentano, namely, confusing primary with secondary retention. For even if primary retention is a condition of apprehension, secondary retention is not; at least not directly. As Stiegler observes, Kant does not claim that secondary retention provides selection criteria for the operation of primary retention; rather, he elides the distinction of the two in the constitution of apprehension.[38] This obscures the function of the three syntheses, which as retentional forms weave together consciousness, making schematism possible.[39]

As link between sensibility and understanding, imagination constitutes the very actuality of schematisation. Understood thus as *schema schemans*, imagination becomes the principal activity of the subject, the activity through which the subject constitutes itself as noetic actuality. In Stiegler's reading

of Horkheimer and Adorno, the industrialisation of imagination through appropriation and manipulation by the culture industry, and principally cinema, amounts to the elimination of the distance of imagination from perception and the substitution of the former by the latter. This substitution effects an 'alienating reification' of consciousness, dissolving subjectivity.[40] For Stiegler, however, Kantian consciousness is always already 'cinematic'. The composition of temporal objects (and their correlate subject) by the interweaving of primary and secondary retentions is always overdetermined by the technical and epochal characteristics of tertiary retention, which 'in the most general sense' is 'the prosthesis of consciousness without which there could be no mind, no recall, no memory of a past that one has not personally lived, no culture.'[41] This means that the culture industry is 'merely' updating and systematising the technology of this overdetermination through selection and manipulation criteria determined by the logic of the 'marketplace' – which is now precisely the place without place.[42] But for Stiegler, 'industrial schematism' is possible only because 'schematics are originarily, in their very structure, industrilizable'.[43]

Thus, for Stiegler, what is first and principally industrilisable is not imagination, but the concept, which Kant designates as 'recognition': the function of thought that implements 'the a priori law of the temporal flux in which the categories are constituted'.[44] This activity amounts to a production of the a-temporal law of temporality in which re-production can take place, and for Stiegler it is here, rather than in the imagination, that processes of subjectivation begin. Of course, production is only possible on the basis of the materiality of reproduction and in turn, on the apprehension of the manifold of sensibility, meaning that production is only possible insofar as the flux of consciousness itself is reproducible; but it is production as the activity of the concept that renders compatible and unites primary and secondary retentions into the flux of consciousness.[45]

For Stiegler this flux composes the Kantian cinema of consciousness. According to Kant, consciousness is informed by an a-temporal reason that provides the principles according to which the rules of understanding are employed, and the laws according to which subjectivity as the unity of apperception is made possible. For Stiegler however, the casting of the triple synthesis as the retentional threefold shows reason as a historically and technically conditioned condition of consciousness; a condition that can thus be industrialised, and today, algorithmised. Stiegler accordingly diagnoses in Kant the effort to preclude entropy though 'a denial of the organological conditions of the formation of reason as well as of understanding.'[46] And yet, Kant recognises metaphysics as the effect of an *epimytheia*, which, even though it is called to discover the absolute origin of subjectivity in its affinity with the world, also constitutes the metabolic residue of noetic life.[47] At the same time, Kant recognises the demand to provide a *prometheia* for the thought to come, to leave a place in the system for history, for a metabolics which might destabilise the genetics of the system.

The task of a neganthropology today is to show not only that reproduction conditions production, an idea that is operative in the Kantian text, but that production, in the form of tertiary retention, determines the totality of noetic life, and further, to imagine new forms of tertiary retention, to produce negentropic modes of production.

The bee and the architect: (re-)production after Marx

In the first part of *Capital*, Marx sets the bee and the architect apart in a manner with particular significance for the neganthropological project. Marx writes: 'what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality'.[48] For Stiegler, this constitutes a 'regression' from the vanguard positions of *The German Ideology*, which dismissed consciousness as the distinctive trait of

humanity, turning rather to the production of the means of subsistence on the basis of the human 'physical organisation' as the mark of this distinction.[49] Importantly, *The German Ideology* does not breach the human-animal barrier, but rather locates its foundation elsewhere, namely, in the 'physical organisation', or rather perhaps the 'life-process' that precedes and conditions consciousness.[50] So, when Stiegler derides late Marx's 'disarming classicism', which subjects the development of the 'potentialities slumbering within nature' to the 'sovereign power' of the human head, and attributes this 'regression' to Marx's 'profound ignorance of the question of tertiary retention', this gesture is not meant to destabilise the barrier sustained by Marx.[51] It is meant to reform its architectonics.

For Stiegler, an architect's work is only possible from within a 'preindividual milieu, supersaturated with potentials', a milieu of tertiary retentions which facilitates the transindividuation of dreams and enables their realisation. Noesis functions precisely as an 'arche-cinema' constituted by such a milieu through a '*montage* of retentions and protentions', the projections of which transform, or metabolise this milieu in turn.[52] As such, noesis presupposes the same speculative powers that the architectonic plan, as much as investment capitalism, calls for: proletarianisation and the tower of Babel are projections of the same, human arche-cinema.[53]

It is perhaps no coincidence, and it is certainly of great consequence, that Derrida in his 1975–76 seminar *Life Death* comments on the same passages from Marx, albeit at greater length. His principal intention is to problematise the function and interrelation of production-reproduction for techno-economic, biological and epistemic discourses. Derrida sees the notion of 'production' filling in the voids of these discourses and becoming, in the face of the obsolescence of all other values, 'the surrogate for the determination of being'.[54] In place of metaphysical or ideological verbs such 'create', 'engender', 'express' or 'think', one uses the verb 'produce'. According to Derrida, this obsession with production re-produces a Marxist discourse, for which production is 'a fundamental operator'; even if Marx insists that there is no 'general' production, he employs the term with a generality that makes the whole theory of historical materialism a theory of production and bases on its materiality the production of ideas and consciousness at large.[55] Ultimately, all of human and non-human life is subsumed under a theory of (re-)production.

In *The German Ideology* it is the production of the means of subsistence (*Lebensmittel*) that produces material life in general and provides the decisive distinction between man and animal, from which other distinctions, such as consciousness and religion, seem to follow. Although the production of the means of subsistence depends on the nature of those means that are already in existence and must be reproduced, it does not amount to mere reproduction of physical human existence, but constitutes a 'definite form of activity' and a 'definite form' of life expression (*Äusserung*). Accordingly, the totality of human life is premised on the mode of production and the nature of the product, which sets apart biological reproduction from the exteriorisation of the self in technological reproduction.[56]

This reading of *The German Ideology* is closer to Stiegler's own thought than he is prepared to admit; even the distance from the regressive 'classicism' of *Capital* appears diminished. For one thing, *Capital* reproduces the principle of *The German Ideology*, which Stiegler also deduced from the Kantian cinematic consciousness, namely, that there is no production without reproduction, and that, in fact, the conditions of the two coincide.[57] Moreover, *Capital* does re-mark the technological conditioning of life and calls attention to the 'productive organs of man in society', those 'organs that are the material basis of every particular organization of society', an attention equal to that lavished by Darwin on the 'natural technology' of animal and plant organs and their function in the production of life.[58] The (later Simondonian) technical exosomatisation that is pivotal to Stiegler's organology is already at

work here, while the idea of a 'natural technology' seems to bring the bee and the architect closer than Stiegler himself allows.

Both Stiegler and Derrida recognise that Marx's evocation of the bee is not accidental. The bee is acclaimed by Aristotle as a 'political animal', yet with a 'politics' that Hobbes, drawing on Aristotle, disparages as lacking the exosomatisation of a language to select and establish a principle of general transformation, beyond the metabolics of particular judgement and desire: bee politics is peaceful, yet stale.[59] Aristotle attributes this to the bee's inability to pass from sensation to memory and from memory to experience; the bee is accordingly an intelligent animal that lacks the ability to learn.[60] Although Stiegler does not regard such inability as innate, he underwrites it on the basis of the lack of tertiary technological retentions.

Interestingly, neither Stiegler nor Derrida refer to Kant's invocation of bee architectonics at the precise moment of the third *Critique* when the work and working of art is distinguished from nature's general production. For Kant, as for Marx, the difference is a capital one, a difference of the head, that is of reason, which for Kant means a difference of freedom: 'although people are fond of describing the product of the bees (the regularly constructed honeycombs) as a work of art, this is done only on account of the analogy with the latter.' [61] In truth, only humanity is free for productive architecture; the bee is 'captive' in merely re-productive life, as it is 'captive' in its environment (*Umwelt*) for Heidegger, lacking access to a world (*Welt*).[62] Stiegler is less interested in liberating the animal from 'captivity' than he is in showing the technological conditioning of biological and noetic human life. In pollination, Stiegler diagnoses both entropic and negentropic tendencies, with the latter taking effect when pollination fertilises not merely the flower, but the potential for diversification. Negentropy accordingly becomes neganthropy through the 'mutual fertilization of noetic souls', feasible only within conditions of care that potentialise individuations from preindividual funds.[63] Such individuation processes are, however, always on the verge of relapsing into an entropic, algorithmic Leviathan which manipulates humans like insects, whose pheromones 'trigger behavioural sequences controlled by the genetic sequences encoded in their *soma* and reproduced by their *germen*, which evolve only under the influence of the combined effects of environmental variations and the pressure of selection.'[64]

In this 'selection' lies Stiegler's own classicism. For while biological selection selects the animal through sex and death, insofar as there would be no selection for a perfectly replicating, perfectly reproducing animal, technological selection can also be selected by the human, albeit through the technological, preindividual mediation of the milieu of tertiary inscriptions, a mediation which must be felicitous and benevolent for the human to be able to select. Ultimately however, Stiegler is in line here with Aristotle, Hobbes, Kant and Marx, in marking human (re-)production as (the potential of) an activity opposed to the foreclosed passivity of animal (re-)production.

In order to advance the neganthropological project one must account for and draw on metabolics: the active actuality that forms secondary, epigenetic inscriptions as much as tertiary, technological ones. Before turning to the temporality of the 'now' that maintains metabolics, it is worth raising one last time to the question of production. The above makes clear that within a Marxist framework the question 'what is production?' becomes synonymous with 'what is?' For Derrida, neither can receive an answer, since neither constitutes, in truth, a question. The formula 'what is?' is rather 'a contract with the self whereby the self divides and augments itself at the same time, produces-reproduces itself in dividing itself. Like bacteria.'[65] Between thought guided by the re-productive force of technological code and principal life guided by the biological code, there is neither identity, nor opposition, but *différance*.[66]

The unproductive in architecture: the metabolic now

Neither for Derrida nor for Stiegler is there an individuated self before architecture; rather, the self is constituted 'through an experience of spacing that is already marked by architecture.' The subject is mastered by architecture before mastering it. The question then becomes not how to reverse the order of mastery, but how to break with it, with the passive-active polarity of selection, how to sustain the present of architecture, the maintaining now (*maintenant*), in which the taking place of an event – not least the event of the self – becomes possible.[67] How to let architecture inhabit us, as we inhabit it – 'now'.

The challenge of maintaining the ephemeral in architecture comes from its 'ground', which folds architecture upon itself and which as an 'architecture of architecture' effects, just like the law of law, a paramount tension. On the one hand, it shows 'architecture' as a construct, even when it appears naturalised (as an offshoot of the human noetic ground), synonymous with 'good sense' or sense in general, thus, with 'meaning' as much as with 'direction' or 'orientation'.[68] On the other hand, it dictates that this sense be the unshakeable, quasi-absolute principle or finality, the ground or foundation, the logic of the totality of structure. As such the double genitive of the architecture *of* architecture places architecture '*in service*, and *at the service of* a '*teleology* of dwelling' inscribed within the 'archi-hieratic order' that architecture itself establishes.[69]

In tandem with and as a result of this tension, the logic of a 'general architectonics' (or a general architectonics of logic) that for Derrida governs the totality of Western culture, also designates a specific practice, the solid consistency of which becomes the 'most powerful metonymy' of this logic. 'Consistency' refers here not only to logical coherence, the implication of all human experience in the same matrix, but also to 'duration, hardness, the monumental, mineral or ligneous subsistence, the hyletics of tradition'. Hence it refers to the material and noetic resistance that establishes architecture as 'the last fortress of metaphysics'.[70]

The task of deconstruction is thus to begin at the place of 'greatest resistance', to show the internal limit of formalisation and the vital incompleteness of the structure.[71] The story of the tower of Babel offers a deconstructive narrative, showcasing the impossibility of totalisation, as well as the irreducibility of idioms, which can procure the joy of multilingualism as much as the maddening frustration of incomprehension. Derrida discovers something of this madness in Tschumi's follies, which he sees as dislocating traditional architectonic meaning and advancing a new semantics, an affirmation beyond the 'nihilistic repetition of metaphysical architecture'.[72] They maintain, renew, and reinscribe architecture; 'they awaken, perhaps, an energy in it that was infinitely anaesthetized, walled-in, buried in a common sepulcher or sepulchral nostalgia': thus they enter the now (*maintenant*).[73]

The now offers the possibility of a singular gathering beyond a synthetic-syntactic ordering. It engages with and advances the dis-jointure of the living trace and prevents it from being homogenised; it prevents the abstract trait from being poured 'into concrete'. The now shows that the architectonic, as an art of the system, is merely one epoch, one determined possibility, one *Gestell*, of the potentiality of being-together.[74] In sum, then, this is 'the task and the wager, the concern of the impossible: to give dissociation its due, but [also] to put it to work *as such* in the space of a gathering.'[75]

Practicing and inhabiting such an architecture may appear a hyperbolic task. Apart from Tschumi's follies, Derrida indicates the temple of Ise in Japan, one of most remarkable shrines of Shintoism, as a case in point: 'the temple has been dismantled and rebuilt with new materials every twenty years for one thousand five hundred years. The next time will be in 2033.'[76] But there are many more quotidian practices; metabolism is everywhere.

Upsetting the stage: returning by the way of a becoming

One may pursue the metabolics that animate life, both noetic and architectural, down countless alleyways. The prosaic act of walking is a metabolic practice through and through, animating the prose of Walter Benjamin, Guy Debord and Michel De Certeau and shaping countless figures in the work of Derrida and Stiegler. Walking ensures that the metabolic now does not settle in a 'proper' place, that it continues becoming. Thus, what situationism calls '*dérive*' within an urban-political context, the life sciences discover as 'genetic drift' within a biological-evolutionary frame of reference; what is at stake in both is the metabolic becoming of the genetic.

In such a becoming, the element of chance, of the incalculable and unexpected, becomes constitutive. Everything, nearly everything, is possible; the maintaining now flourishes. Perhaps then, it will be conducive to cast this maintaining now that informs the general ephemeral in one last, and initially unlikely, figure, as a way of retracing the path of this exploration, in a repetition without repetition, a repetition in difference, what one may call a return, capable of carrying the neganthropological project forward. Deleuze and Guattari call this figure 'haecceity':

> a season, a winter, a summer, an hour, a date have a perfect individuality lacking nothing, even though this individuality is different from that of a thing or a subject. They are haecceities in the sense that they consist entirely of relations of movement and rest between molecules or particles, capacities to affect and be affected.[77]

Haecceities are unique combinatorial possibilities of rest and movement (longitude) and affective power (latitude) and as such the general, as much as ephemeral, compositional elements of bodies. The 'animal-stalks-at-five-o'clock' is thus a haecceity, which precedes and composes the animal's genetic programme. It is in the maintaining now of its haecceity that the animal metabolises its genetic architecture, makes its architecture live.[78]

It is clear that although it does not endure, the maintaining now is not instantaneous; it dilates in order to accommodate, it breathes in order to metabolise. Deleuze and Guattari repeat Virginia Woolf's account of Mrs Dalloway:

> She felt very young; at the same time unspeakably aged. She sliced like a knife through everything; at the same time was outside, looking on. ... She always had the feeling that it was very, very dangerous to live even one day.'[79]

Each day is a maintaining now, on the cusp of age and youth, on the sharp edge of life.

Each day repeats, accordingly, the maintaining now, and in this repetition creates difference. This is precisely how Rosi Braidotti, advancing Deleuze and Guattari, understands 'metabolism': as the general ephemeral 'consumption of the old that can engender the new'.[80] What for Stiegler constitutes the task of the trans-individuation of noetic life, for Braidotti presents itself in the cipher 'woman'. Braidotti thus refutes the assumption that any kind of volition can decide in advance the psychic reality of this cipher. 'Woman' must be metabolised, for 'woman' designates a non-majoritarian programme that claims for itself the general ephemeral. Mrs Dalloway is a 'woman' because she becomes one each day in the maintaining now of a haecceity.

Architecture in general, and the architecture of noetic life specifically, stands to gain much in pursuing these lines of metabolic transformation that exist in Kant's critical project, in Marx's communist project and in Stiegler's negathropological project. For each of these projects is first and foremost a pro-gramme, and thus, despite its profound desire for futurity, entropically foreclosed. Metabolism is both the fulfilment and the immanent disruption of the programme, and thus what safeguards the programme by allowing it to be other than itself.

Notes

1. Heraclitus, *Fragment B84*: 'It rests in change' (my translation).
2. Ilya Prigogine and Isabelle Stengers, *Order out of Chaos: Man's Dialogue with Nature* (London: Bantam Books, 1984), 285–86.
3. Bernard Stiegler, 'General Ecology, Economy, and Organology', trans. Daniel Ross, in *General Ecology: The New Ecological Paradigm*, ed. Erich Hörl (London: Bloomsbury, 2017), 144.
4. Bernard Stiegler, 'Five Theses', in *The Neganthropocene*, trans. Daniel Ross (London: Open Humanities Press, 2018), 131.
5. Bernard Stiegler, *Automatic Society I: The Future of Work*, trans. Daniel Ross (Cambridge: Polity Press, 2016), 242.
6. Bernard Stiegler, *The Age of Disruption: Technology and Madness in Computational Capitalism* trans. Daniel Ross (Cambridge: Polity Press, 2016), 7; Stiegler, 'What is Called Caring?, Thinking Beyond the Anthropocene,' in *The Neganthropocene*, 253, emphasis in the original.
7. Stiegler, 'General Ecology,' 147–48; 149.
8. Immanuel Kant, *Critique of Pure Reason*, trans. Paul Guyer and Allen W. Wood (Cambridge: Cambridge University Press, 1998), 691 [A832/B860].
9. Ibid., 502 [A474/B502].
10. Ibid., 627 [A707/B735]; Daniel L. Purdy, *On the Ruins of Babel: Architectural Metaphor in German Thought* (Cornell University Press, 2011), 53–55.
11. Gottfried Wilhelm Leibniz, *Discourse on Metaphysics,* trans. Gonzalo Rodriquez-Pereyra (Oxford: Oxford University Press, 2020), 10–11.
12. Purdy, *On the Ruins of Babel*, 121.
13. Ibid., 56–59.
14. Ibid., 60–61.
15. Ibid., 74.
16. Ibid., 64.
17. Filarete, *Treatise on Architecture*, trans. John R. Spencer (London: Yale University Press, 1965), 14, emphasis added.
18. For her record 'Songs of Solitude' (2021), the violist Hiyoli Togawa solicited contemporary solo viola compositions to reflect on the pandemic isolation and brought them into dialogue with Bach, whom she considers her 'daily bread' – 'nourishment' and 'grounding' at once. And yet she explains in the accompanying booklet, 'it just takes a momentary lack of attention to the bow pressure and the flow of the music is interrupted – and with it the natural course of [Bach's] sublime harmonic progressions. The musical architecture becomes unsteady.' This is the metabolics of architecture at its most ephemeral, at the edge of the 'maintaining now'.
19. Immanuel Kant, *Critique of Pure Reason* , 702 [A852/B880].
20. René Descartes, *A Discourse on the Method* trans. Ian Maclean (Oxford: Oxford University Press, 2006), 21.
21. Immanuel Kant, *Critique of the Power of Judgment* trans. Paul Guyer and Eric Matthews (Cambridge: Cambridge University Press, 2000), 226 [5:352].
22. Immanuel Kant, *Critique of Pure Reason*, 693 [A835/B863], emphasis in the orginal.
23. Purdy, *On the Ruins of Babel*, 83; Gilles Deleuze and Felix Guattari, trans. Brian Massumi, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: Minnesota University Press, 2005), 266.
24. Martin Heidegger, *Kant and the Problem of Metaphysics* trans. Richard Taft (Indianapolis: Indiana University Press, 1997), 1–2.
25. Ibid., 2.
26. Kant in a letter to Herder, 9 May 1767, in Purdy, *On the Ruins of Babel*, 72.
27. In Purdy, *On the Ruins of Babel*, 98.
28. Kant, *Critique of Pure Reason*, 113 [Bxxiii].
29. Purdy, *On the Ruins of Babel*, 100–2.
30. Indra Kagis McEwen, *Vitruvius: Writing the Body of Architecture* (Cambridge, MA: MIT Press, 2003), 7–10; Michelangelo, Letter of 1560, in James Ackerman, 'Architectural Practice in the Italian Renaissance', *Journal of the Society of Architectural Historians* 13, no. 3 (October 1954): 3; Leon Battista Alberti, *The Ten Books of Architecture* trans. Morris Hicky Morgan (New York: Dover Publications, 1986), 202 [Book IX, Ch. VIII]; Purdy, *On the Ruins of Babel*, 123.

31. Greg Lynn, 'Multiplicities and Inorganic Bodies', in *Folds, Bodies, and Blobs: Collected Essays* (Brussels: La Lettre Volée, 2004), 44–45; Kant, *Critique of Pure Reason*, 692 [A835/B863].
32. Ibid.
33. Ibid., 691–92 [A833/B861].
34. Kant, *Critique of the Power of Judgment*, 182 [5:303]. The fact that art is in turn distinguished into 'mechanical' and 'free' does not constitute a resolution, but a further dislocation of the tension of art and science, this time within art.
35. Kant, *Critique of Pure Reason*, 272 [A138/B177].
36. Bernard Stiegler, *Technics and Time, 3: Cinematic Time and the Question of Malaise,* trans. George Collins and Richard Beardsworth (Stanford: Stanford University Press, 2011), 5.
37. Kant, *Critique of Pure Reason*, 227–28 [A97], emphasis in the original.
38. Stiegler, *Technics and Time, 3*, 42–43.
39. In the second edition of the *Critique of Pure Reason*, Kant replaces the triple synthesis with a double figurative [*speciosa*] and intellectual [*intellectualis*] synthesis, and subsumes imagination together with sensibility under the figurative synthesis (B151). Although Kant systematically underplays the significance of the change, for Stiegler this elision compromises the resources to account for the temporality of consciousness. See Stiegler, *Technics and Time, 3*, 47.
40. Ibid., 37–38.
41. Ibid., 39.
42. Ibid.
43. Ibid., 41.
44. Ibid., 45.
45. Ibid.
46. Bernard Stiegler, 'Thermodynamics, Gestell and Neganthropology', in *Nanjing Lectures 2016–2019,* trans. Daniel Ross (London: Open Humanities Press, 2020), 41.
47. 'Hence human reason has never been able to dispense with a metaphysics as long as it has thought, or rather reflected [*nachgedacht*]'. Kant, *Critique of Pure Reason*, 696 [A842/B870].
48. Karl Marx and Friedrich Engels, *Capital I*, *Collected Works XXXV,* trans. Samuel Moore and Edward Aveling (London: Lawrence & Wishart, 2010 [1867]), 188.
49. Karl Marx and Friedrich Engels, *The German Ideology, Collected Works V,* trans. Clemens Dutt, W. Lough and C. P. Magil (London: Lawrence & Wishart, 1976 [1832]), 31.
50. Ibid., 36.
51. Stiegler, *Automatic Society I*, 227–28; Stiegler, 'Capitalism as Epistēmē and Entropocene', in *The Neganthropocene*, 150.
52. Stiegler, *Automatic Society I*, 228, emphasis in the original.
53. Ibid.
54. Jacques Derrida, *Life Death* trans. Pascale-Anne Brault and Michael Naas (Chicago: The University of Chicago Press, 2020), 99.
55. Idem., 100.
56. Ibid., 102–3.
57. Ibid., 103.
58. Ibid., 100–1.
59. Thomas Hobbes, *Leviathan* (Oxford: Oxford University Press, 1998 [1651]), 113 (Chapter 17:6).
60. Aristotle, *Metaphysics, Book 1,* 980b (standard pagination).
61. Kant, *Critique of the Power of Judgment*, 182 [5:303].
62. Martin Heidegger, *Fundamental Concepts of Metaphysics: World, Finitude, Solitude,* trans. William McNeill and Nicholas Walker (Indianapolis: Indiana University Press, 1995), 269.
63. Stiegler, *Automatic Society I*, 232.
64. Ibid., 233.
65. Derrida, *Life Death*, 105.
66. Ibid., 105-6.
67. Jacques Derrida, 'No (Point of) Madness— Maintaining Architecture', trans. Kate Linker, in *Psyche*, *Inventions of the Other II* (Stanford: Stanford University Press, 2007), 88.
68. Ibid., 90.
69. Ibid., 92, emphasis in the original.
70. Ibid.
71. Ibid., 97–98; Derrida, 'Des tour de Babel', trans.

Joseph F. Graham, in *Psyche*, *Inventions of the Other I* (Stanford: Stanford University Press, 2008), 191.

72. Derrida, *'No (Point of) Madness',* 90.
73. Ibid., 93.
74. Ibid., 99.
75. Ibid., 99–100, emphasis in the original.
76. Francesco Vitale, *The Last Fortress of Metaphysics: Jacques Derrida and the Deconstruction of Architecture* (New York: SUNY Press, 2018), 42.
77. Deleuze and Guattari, *A Thousand Plateaus*, 261.
78. Ibid., 263.
79. Ibid.
80. Rosi Braidotti, 'Towards a New Nomadism, Feminist Deleuzian Tracks, or: Metaphysics and Metabolism', in *Gilles Deleuze and the Theatre of Philosophy*, ed. Constantin V. Boundas and Dorothea Olkowski (London: Routledge, 1994), 182.

Biography

Georgios Tsagdis teaches at Leiden University, Erasmus University Rotterdam and the Architectural Association. His work operates across theoretical and disciplinary intersections drawing on twentieth century, contemporary and Ancient Greek philosophy. His essays have been published in various collections and international journals, among which *Parallax*, *Philosophy Today* and *Studia Phaenomenologica*. His editorials include the special issues 'Intersections: at the Technophysics of Space' (*Azimuth*, 2017), 'Of Times: Arrested, Resigned, Imagined' (*International Journal of Philosophical Studies*, 2020), and the collective volume *Derrida's Politics of Friendship: Amity and Enmity* (Edinburgh University Press, 2022). Another volume, titled *Memories for the Future: Thinking with Bernard Stiegler*, is in preparation for Open Humanities Press.

Forest Semiosis: Plant Noesis as Negentropic Potential

Jacob Vangeest

In a significant portion of his later writings, Bernard Stiegler pursues the expansion of thinking in an attempt to get beyond the Anthropocene. Operationalising concepts from Martin Heidegger's *What is Called Thinking* to bring together thinking (*penser*) and caring (*panser*) as *pænsée,* Stiegler argues that moving beyond the Anthropocene – towards a Neganthropocene – requires an expansion of what humans think and care about. In his earlier work, *Technics and Time 1: The Fault of Epimetheus,* Stiegler provides a consideration of memory as sedimentary or, to use his term, 'epiphylogenetic'. Roughly put, human thought develops through reflexive interaction with technology. Take writing as an example. Humans write something. This writing transforms what humans can think. In turn this transformation of the human makes it possible for new things to be written. Each transformation builds upon the previous: 'the technical inventing the human, the human inventing the technical'.[1] In positioning thinking as caring, Stiegler aims to expand what it is possible to care about by introducing new sedimentary layers in this reflexive system of thought.

Given his emphasis on care, it would seem useful to place Stiegler's later work alongside the scholarship of someone like María Puig De La Bellacasa. Bellacasa stresses an 'ethics and politics of care' that rests on a notion of interdependence and entanglement.[2] Alongside the work of people like Natasha Myers and Donna Haraway, Bellacasa stresses care and care thinking as central to transformative thinking in the contemporary condition. She locates care as emerging from the intersections of lived embodiment. Despite its foundation in a reflexivity with non-human technologies, Stiegler's consideration of thinking as care remains foreclosed to the sort of engagements Bellacasa puts forward in thinking with(in) messy, ecological terrains. Epiphylogenesis maintains an anthropo-techne-centrism unique to the relationship of humans and technology. Stiegler's anthropo-techne-centrism limits his push towards novel forms of thought in at least two ways: 1) it limits what kinds of beings can produce the novel thought – or *noesis* – Stiegler aims at while 2) limiting the possibilities of *noesis* itself; only humans have *noesis* and humans cannot think *noesis* beyond the human. Stiegler's concept of writing persists in a semiotic framework that centres human signs. As such, there has been limited engagement in thinking Stiegler within critical animal or plant studies.

Nevertheless, there is a strength in Stiegler's consideration of external memory systems, via epiphylogenesis, that remains useful despite this limitation. The aim of this article is to take up his consideration of the Neganthropocene (as the promotion of novel thought, or *noesis,* through an expansion of care) that broadens the specific kind of knowing emergent in epiphylogenesis beyond human-technic interactions. I suggest that plants (and animals) also have epiphylogenetic, sedimentary memory. As such, this article aims to add to the growing field of literature dedicated to considerations of plant epistemologies. What is novel about my approach is its attempt to bring Stiegler's

epiphylogenesis into this conversation. Stiegler has been critiqued on the grounds of his anthropocentrism (which is likely rooted in his Heideggerian tendencies).[3] My aim is less a critique than an attempt to infiltrate and co-opt the use of epiphylogenesis and the Neganthropocene, while leaving aside the anthropocentric commitments. This development of epiphylogenesis beyond human-technic relations remains aimed at the Neganthropocene, through an increase of not only what it is possible to think, but the conditions of the possibilities of thinking. Care moves beyond a unilateral commitment of the human, to a reflexive interaction.

This article consists of four sections. The first explores Stiegler's consideration of thinking through his promotion of *pænsée.* Here, the limits of Stiegler's epiphylogenesis are understood as grounded in a linguistic-centric semiosis. To provide an alternative, the second section offers a more expansive semiotics that is developed in the scholarship of C.S. Peirce and Gilles Deleuze and Félix Guattari. To introduce this semiotics, I focus on a study of semiotic chains in response to forest fires in coastal redwood (*Sequoia sempervirens*) forests. In the third section I argue that these semiotic chains operate as epiphylogenetic memory systems: that each stage of the chain, each sign, operates as sediment that builds upon previous sediment or signs. Finally, I focus on the way that this alternative notion of epiphylogenesis intersects with the more interdependent ethics of care provided in the work of Myers and Bellacasa: the expansion of *noesis* goes beyond expanding what thought is *about* in epiphylogenesis to an expanded concept of what thought *is* in epiphylogenesis. At the core of this position is the claim that plants (and animals) have complex epiphylogenetic, sedimentary memory systems that are not extensively different from the human-technology assemblages described by Stiegler.

Pænsée in the Neganthropocene

Near the end of his life, Bernard Stiegler published a number of texts focused on care. Among these are a short series, *Qu'apelle-t-on panser?* (What is called caring?)*,* and various elucidations focused on the potential of care to usher in a new epoch: the Neganthropocene.[4] For Stiegler, the Anthropocene blocks thinking beyond itself through both technological and ideological means. Thinking, as *noesis,* is grounded in prosthetic memory systems. Humans use technologies, such as computers, to remember things. The computer is *exosomatic*: it stores memory outside the brain and the *soma*. Conditions in the Anthropocene produce what Stiegler terms *de-noetisation*: the structures of these memory systems frame what sort of thoughts can be produced, limiting the possibility of *noesis*.[5] These technological conditions result in the ideological, negative protention where 'we do not believe that it is possible to change human behavior'.[6] Aligning this *de-noetisation* with entropy, and naming the Anthropocene an 'Entropocene' that closes off knowledge in closed entropic, exosomatic systems, Stiegler locates the overcoming of these conditions in affirming the power of a *noesis* generated in the openness of negative entropy or negentropy in the Neganthropocene.[7] Drawing upon Martin Heidegger, this *noesis* is aligned with care. For Heidegger, to be with is to care for.[8] To think (*penser*) about something is to care (*panser*) about it.[9] This care is bound up with the exosomatic: Stiegler's hope is that in expanding care one expands thought and that in expanding thought one expands care. But the notion of *panser* goes beyond the English connotation of care. While designating 'care', *panser* also can be translated as bandaging or treatment. Moving beyond the Anthropocene requires expanding *pænsée* (thinking+care) in the development of new *noesis* that is bound up with action.[10]

Despite this push to expand the limits of thinking, Stiegler's philosophical commitments limit the possibilities of *noesis.* This is particularly evident in his framing of semiotics and writing. In *Technics and Time 1*, Stiegler considers memory through genetic, epigenetic, and epiphylogenetic systems.[11] Genetic memory is present in long-term evolutionary history

and is seen in heritable genes. This is present in living forms: they pass down their genes to their offspring. Epigenetic memory constitutes heritable aspects, such as behavioural patterns, that aren't determined by genes. Epigenesis describes the way that a milieu or environment condition one's being. It is the third memory system, 'epi-*phylo*-genesis', that is unique to Stiegler. It is defined as 'the conservation, accumulation, and sedimentation of successive epigeneses, mutually articulated'.[12] Epiphylogenesis is envisioned as a sedimentary progression of technological epigenesis. Each level of sediment builds on the others. Stiegler understand this reflexivity as central to technology. The technical object emerges through the encounter of an interior and exterior milieu.[13] Stiegler presents this consideration through the emergence of writing systems as described by Jacques Derrida and André Leroi-Gourhan. The *grammē* (a technical term for a 'writing' that structures human existence) is not reducible to writing, because it is both older than human writing and extends, for Stiegler, to 'electronic files and reading machines'.[14] The sedimentation of *grammē* can nevertheless be explored through writing. Writing emerges as an external reference of internal memory. A reflexive chain develops in the relation of the human to the exosomatic system. Humans interact with technology, which shifts their behavioural patterns. These new behavioural patterns lead to new developments in the technology. Each epigenetic progression builds on the previous sediment. Stiegler aligns the history of the *grammē* with the history of technics.[15]

Francesco Vitale has argued that Stiegler's position is grounded in his disagreement with Derrida. Where Derridean semiotics open to a 'differential process of biological life', Stiegler remains bound to the human-techne duality as limit of *noesis*.[16] Unlike genetic and epigenetic memory, Stiegler considers epiphylogenesis uniquely human.[17] The chain of sedimentation in epiphylogenesis is entirely a relation of humans to their own writing. To be fair, Stiegler does not limit plants and animals from having certain types of knowledge, as both have genetic and epigenetic memory. It is only epiphylogenesis, as a 'new type of *grammē* and/or program' that is foreclosed to the non-human.[18] Stiegler announces 'the *epiphylogenesis* of man' as a break from life that produces a history.[19] As such, there is no history for the plant, no history for the animal. Furthermore, this way of thinking suggests that non-humans do not build complex, sedimentary memory systems. There is no *noesis* beyond the human.

Forest memory: a collective response to fire

But what if *noesis* doesn't need to be limited in this manner? An alternative consideration of something like the *grammē* would open *noesis* beyond the human. Rather than framing this in terms of writing, I prefer to consider it as a semiotic system. To develop an understanding of semiotic memory inspired by Peirce and Deleuze and Guattari, the remainder of the article concentrates on a study of coastal redwood (*Sequoia sempervirens*) forest response to forest fire. This semiotics works to develop a collective *noesis* in forests that evolves both external to and alongside humans.

The distribution of signs in the *Sequoia sempervirens* ecosystem might be drawn out in how the forest responds to fire. Given their position along the west coast, with immense fog cover and relative lack of lightning, fire tends to be rare in old-growth redwood forests.[20] Past examples of fire, such as a 1945 fire in Humboldt County, suggest that the redwood trees are largely unaffected by fire when compared to other trees in the region.[21] Historically, the Yurok people have used this to their advantage by engaging in low-intensity burning that is beneficial to the tanoak (*Lithocarpus deniflorus*) and helps suppress the spread of larger fires.[22] Evidence does suggest that an increase in fire in the region due to climate change could be detrimental to the coastal redwood.[23] Increased fire and dryness would likely be detrimental to seedling success.[24] In August 2009, fire erupted in the Swanton area of Santa Cruz, CA for the first time since 1948. Because

it affected a number of landholders, including Lockheed Properties, the fire has been referred to as the Lockheed Fire. It burned 3 163 hectares.[25] The area had been logged around the turn of the twentieth century and clear-cut from 1907–1923.[26] The land currently houses even-aged redwood and Douglas fir (*Pseudotsuga menziesii*) due to these clear cut practices, though attempts are being made to produce an even aged forest through selective harvesting.[27] After the fire, roughly 48.5 per cent of trees in the Lockheed area are redwood with tanoak and Douglas fir also featuring prominently in the area.[28] Redwoods had the highest survival rate among the trees; significantly higher than Douglas fir and tanoak.[29] Among the trees, coastal redwoods were found to have the highest mean of crown survival, the highest percentage of residual canopy, and the highest percentage of post-fire regeneration.[30] Nevertheless, among trees surveyed in the Lockheed area, redwoods had more scorch patterns than other trees. As such, redwoods were found to be the species most resilient to fire. Among basal sprouts that rooted after the fire, redwoods were also found to have the most offspring.[31]

Against language-centric semiotic systems – among which the use of writing in Stiegler's epiphylogenesis can be included – Peirce defines the sign as 'something which stands for something in some respect or capacity'.[32] Linguistics is only one form of semiotics among many. By distinguishing linguistics as only one form of semiotics among many, Peirce allows for non-human semiotic systems. He outlines three types of signs – indexes, icons, and symbols – which Deleuze and Guattari reinterpret.[33] For Peirce, an index 'takes hold of our eyes, as it were, and forcibly directs them to a particular object'.[34] Deleuze and Guattari name territorial signs as indexes.[35] Just as an arrow with the word 'food' indexes a restaurant, a fire leaves scorch marks upon a redwood tree's bark. In this latter example, the territory is marked through an index – the scorch marks index the fire. For Peirce, the second type of sign, icons, are direct representations: the word 'tofu' is an icon of tofu. Where indexes abound in the more than human world, it can be more difficult to locate icons. Nevertheless, examples can still be seen. Coastal redwoods can reproduce both sexually and asexually. In asexual reproduction, they produce identical clones.[36] These clones are icons of the mother tree. For Deleuze and Guattari they are signs of reterritorialisation. Finally, a third concept, symbols, are identified as contextual signs. These are aligned with deterritorialisation. For Peirce, symbols are uniquely human, consisting in mathematical and grammatical symbols. Through their re-working, Deleuze and Guattari aim to move Peircian semiotics beyond signifier-signified relations by way of a principle of asignification, where the signifying chain can be breached at any point by pre-signified intensities.[37] Icons, indexes, and symbols, as instances of material semiotic chains, work on the levels of material strata (stratifying, de-stratifying, and re-stratifying).[38] These signs are not signifier-signified relations, but chains of interpretation.

The Lockheed fire can be grasped as an intersection of multiple actors within an ecosystem. It might be useful to start with the fire. Fire is an interesting 'actor' within an ecosystem. It doesn't quite fit the typical criteria of interpretant (given by Peirce), but it does produce signs that are interpreted by the rest of the ecosystem. Redwoods respond to fire in several ways. I've already mentioned that scorch marks index the fire. Given that this fire was able to burn species other than *Sequoia sempervirens*, the response of this species has been to dominate the terrain in the aftermath. These material significations – in the emergence of redwoods throughout the understorey – are in turn read by other tree and animal species in the region, with the redwood's remaining dense canopy cover producing the conditions that allow certain species to develop at the expense of others. The persistence of fire as a quasi-actor within a forest can alter the landscape. The conditions of fire are varied, with fire operating on different parts of the forest: fire can be surface fire, understorey fire, and canopy fire.[39] The result of the Lockheed Fire

has produced conditions that allow the redwoods to dominate the terrain; but a different sort of fire – such as a canopy fire – might have been more detrimental to the species.

These chains are what constitute thinking: selves emerge from these chains (rather than the inverse).[40] For Peirce, semiotic chains contain three levels of meaning making relating to the 'real'. The category of firstness is described as 'a flash'; it is a spontaneous, free sensation that is nearly imperceptible.[41] Secondness moves this flash towards permanence as a form of sensation – a sensation perceived as 'dynamical connection' or 'mere resemblance'.[42] Where firstness is a flash and secondness is a repetition, thirdness is habit and learning.[43] Thirdness is related to Deleuze's consideration of the past and memory. Deleuze outlines both an active and passive synthesis of the past. The passive synthesis, habit, recognises the past as a 'problematic source'.[44] Memory, the active synthesis of the past, determines itself through the indeterminacy of habit. Memory emerges in response to a sign: a 'violent' interpretation that 'mobilises the memory'.[45] The pure past is not productive. Nevertheless, memory attempts to awaken and interpret it. This interpretation is productive insofar as it produces a new sign in a semiotic chain. As such, the pure past insists upon the present in a way that determines the future. Memory is an interpretation in a semiotic chain.

Semiotic memory outlines a materialist epistemology that aims at something other than sentience as a criterium of memory. As such, the coastal redwoods and other plants are understood as having knowledge. This is by no means a novel idea. There has been a recent uptick in theoretical works on plant thinking.[46] Though it falls outside the scope of this article, it is important to note that this theoretical investigation pales in comparison to the rich scientific history of plant intelligence which precedes it.[47] Within the theoretical frameworks of plant theory, my examination comes closest to that of Natasha Myers, who has gone so far as articulate the potential of a *Planthroposcene* defined as 'an aspirational episteme and way of doing life in which people come to recognise their profound interimplication with plants'.[48] Myers stresses the interdependence of what I term semiotic chains. More broadly, it would be easy to suggest that this semiotic framework could be placed alongside the new materialism of Bruno Latour's actor-network theory, Jane Bennett's vital materialism, and Isabelle Stengers's cosmopolitics.[49] There are further intersections with feminist posthumanists such as Stacey Alaimo and Donna Haraway by way of notions of trans-corporeality, embeddedness, and situatedness.[50] While new materialism and posthumanism hold positions similar to the one I've presented, my position is that these discourses articulate a causality of semiotic chains: positioning actors or actants ontologically prior to semiotic chains. Within a materialist semiosis, knowledge is indistinguishable from the semiotic chain. Rather than an internal intelligence, material semiosis, in plant life, is the production of signs by plant bodies. This places my notion at a distance from other thinkers of plant intelligence such as Michael Marder. Here, I follow Terrence Deacon in thinking about sign-systems through 'entention' rather than intention. Intention relies on purposiveness and representation that assumes a hierarchical dependence. For example, the mind desires some representation and so the body goes in search of that thing, prioritising the mind's act over the body. Deacon's concept of 'entention' provides an alternative wherein these phenomena can be considered non-hierarchically, without an assumed determination.[51] As such, the consideration of knowledge is not one of internal consciousness nor prosthetic consciousness. Rather, knowledge emerges out of the development of semiotic-chains.

Semiosis and epiphylogenesis

Semiotic memory allows a return to Stiegler as long as we bracket his anthropo-techne-centrism. In the memory systems Stiegler develops both

genetic and epigenetic memory are present beyond the human. All living things contain both genetic and epigenetic heritability. Every plant indexes its ancestors in its physicality as it is passed down through these genetic and epigenetic chains. Beyond heritability, trees also provide criteria for more individual memory in a variety of registers. The most obvious might be through ring systems, which index the habitat and thirdness of tree groups (thirdness insofar as this explains one way that the redwoods learn to be with their habitat). Coastal redwoods are dependent on fog for much of their water. [52] Given the complexities of a tree's water intake, the ring patterns will vary on the basis of root water, fog drip, and evaporative conditions.[53] Ring patterns are not only unique to species but are even specific to habitat. As interpretants, coastal redwoods interpret the environmental conditions of water fall through their ring systems. These rings index the history particular to the region. In examining rings, humans take part in a semiotic system that is oriented towards the future: reconstructing the pure past of habit through the interpretation of memory. Scientific interpretation introduces new signs within the semiotic chain.

How does this relate to epiphylogenesis? To repeat Stiegler's definition, epiphylogenesis is 'the conservation, accumulation, and sedimentation of successive epigenesis, mutually articulated'.[54] Within his work this can be seen prominently through the way technologies and humans build upon each other. Technical objects serve as an externalisation of cultural memory and are exosomatic. Central to this sedimentation is the externalisation of memory in writing. As such, technical objects may have a recourse to Peircian symbols – the only uniquely human sign. But it should be asked whether these objects are symbols, icons, or indexes. Writing uses symbols, but symbols are not inherent to the process of externalisation. Grammatical devices (such as periods and commas) are not essential to writing systems but serve as aids. The written word doesn't function as a symbol, but as an icon or an index. While it would be outside my scope to claim that the redwood forest develops a linguistic technical object, it would not be off the mark to suggest that the forest produces a material semiotic chain that mediates internal and external milieus. This claim might appear ludicrous to a language-centric semiosis, but it is perfectly valid from the Peircian-Deleuzian-Guattarian position. Understood as semiotic chains, epiphylogenesis might be extended beyond the human to all forms of life that develop together through interaction.

It is possible to provide a consideration of something akin to Stiegler's epiphylogenesis in a forest ecosystem on the basis of semiotic chains consisting of multiple interpretants. Unlike genetic and epigenetic systems, the epiphylogenetic operates only on the basis of a collective memory. In Stiegler's work it is the collective involving both human and technical objects. For a plant equivalent to epiphylogenesis the collective would include the plant as species (genetic) and the distributed ecosystem (epigenetic) building on each other in a reflexive semiotic chain. For this reason, the collective evokes not only the redwood, but the entire ecosystem in which it plays a part. Even if this criterion does not align with the anthropo-techne-centrism of Stiegler's epiphylogenesis, the concept is still useful for considering this distributed memory within a collective individuation or collective enunciation of the forest. Here it is possible to arrive, with Deleuze and Guattari, at a position where 'no distinction between man and nature' is made.[55]

To start from the most basic formulation: if genetic memory presumes that form is present in the germen of a species, and epigenetic memory presumes that the form is potential that is moulded by some external form, then epiphylogenesis can be taken as a mediation of these concepts.[56] Following Gilbert Simondon – a notable influence on both Deleuze and Stiegler – it is possible to recognise group-individual dynamics as co-determinate: 'the group is not formed by individuals joined together in a group due to certain bonds, but by grouped

individuals, *group individuals.* Individuals are group individuals'.[57] The relation of individual and group is not a synthesis, but it is synthetic. For Simondon, it is in the rapport between the two sides that signification emerges: 'signification is a rapport of beings, not a pure expression; signification is relational, collective, transindividual, and it cannot be provided by the encounter of expression and the subject'.[58] Signification is an act of collective enunciation. Thus, the forest dynamic envisioned here considers the production of sign-systems as emerging between the engagement of the individual plant and the diverse culture of interpretants within the ecosystem. This relation is not a synthesis of the individual and culture, but the synthetic rapport that results in signification. Following Simondon, this rapport is grasped as metastable, rather than composed of stable, distinct forms (genesis and epigenesis are not distinct forms but are metastable and interspersed). The emergence of new signs in this rapport can be read in terms of individuation: interpretation through the metastable rapport is an operation of individuation. This metastable formation of individuation, working through a reflexive and epiphylogenetic process, undoes the consideration of a single, unilateral designer. It follows that forest *poiesis* does not result from the prescriptive and unilateral design of a (divine or human) intelligence, but through the cultural investment of multiple group individuals whose emergence is discovered in the relation between their internal and external milieus. Through this rubric, design is not present in the germen, nor imposed on the soma from without. Design works through the dynamic significations emerging at the meeting of interior and exterior milieus.

This can be presented in the Lockheed area. Redwoods interpret these conditions of fire to their benefit; they 'read' the landscape left by the fire and reproduce on the sites that the fire has left bare in the understorey. Within this structure, the potentials given in the memory system of the redwood's pure past – those genetic conditions which set the stage for it to grow within specific conditions – are the habits that condition its emergence in the Lockheed landscape after the fire. The emergence of these potentials within the landscape result from the mediative and reflexive relations of the potentials present in the landscape (the soil, the distance from the coast, the forest canopy, the fog in the area, and so on) with the potentials present in the redwood's genetic memory. The meeting of these potentials results in mutual interpretation. The emergence of new signs – in the form of new saplings – is the result of this reflexive semiotic chain. The various dynamics emerge, together, in a collective enunciation to express a new sign as index of this history.

Furthermore, while the future of the Lockheed area is unknown, we may be able to predict aspects based on previous semiotic developments, such as those that have occurred in Humboldt County over the past century. In the early 1900s, forests were disturbed with the introduction of livestock. Some of these grasslands have been abandoned. While the redwood was able to dominate after the Lockheed area because of its resilience to fire where other trees falter, in the Humboldt prairies it has been the Douglas fir which has dominated. In the Lockheed area, the fact that the redwood's canopy was able to sustain itself in spite of the fire meant that the necessary shade conditions for reproduction and spread were available. In the Humboldt grasslands, on the other hand, a Douglas fir stand was able to be established due to the lack of redwood competition. Nevertheless, as the Douglas fir has established itself in that area, its own canopy has begun to provide the necessary shade conditions needed for other species to flourish, notably redwood and tanoak. Scientists hypothesise that, without significant change in the area, the redwood will eventually dominate the space that is currently held by the Douglas fir.[59] In this space a dynamic conversation is unfurling. The human settlers stripped the area, producing the prairie. This sign served as a sort of flat space where animals could graze. The abandonment of these lands set the conditions for a

new interpretant, the Douglas fir, to reproduce itself on the land. Yet, this very interpretation of the land provided the conditions for the redwoods and tanoak to integrate themselves back onto the land. Thus, in these three motions, a dynamic semiotic chain develops, with different interpretants interpreting the conditions and acting on the basis of those conditions: again, we see the emergence of different signs through the dynamic processes of collective enunciation. The potentials of the prairie are interpreted by the Douglas fir – an interpretant uniquely situated to read the potentials provided. The Douglas fir's interpretation of this sign is the production of a new sign that emerges in the resulting canopy. Through the dynamic process of interpretation, this allows other interpretants to emerge through the sign provided by the Douglas fir. Here the coastal redwood emerges in the landscape through the dynamic history of the past that is indexed by the Douglas fir.

The story I've told here is much too limited. For it has largely only given an account of the trees. These trees express themselves within a rich, unfolding dynamic with numerous interpretants who are integral to the development of the necessary conditions for new interpretations to emerge. The elements and variation in soil composition allow different species to flourish, but the compositions of the species on the soil will, furthermore, determine future compositions.[60] The elevation and distance from the coast play an integral role in where redwoods and other species develop.[61] The different flora and fauna of any region allow different animals to survive, but those animals will also transport plants to different areas through their faeces. I raise these various examples to stress the intricate and dynamic metastability of these various interpretants working in a reflexive and mediated collective. The forest expresses itself through these various interpretants as a dynamic and intricate system of knowledge. The ability of the coastal redwood to interpret the conditions of the Lockheed area, post-fire, suggests a form of material intelligence that allows the species to be resilient. These movements index an evolutionary dynamic that merges the genetic and epigenetic developments through the external interactions with other interpretants. Together these interpretants form a collective knowledge system that dynamically produces itself through interaction.

Care-full considerations

Stiegler suggests that thinking and care are intrinsically tied. As such, despite his anthropocentrism, there are similarities between his approach and that of María Puig De La Bellacasa, who has posed an 'ethics and politics of care'.[62] Following Haraway, Bellacasa stresses a notion of interdependence and entanglement. Within this analysis, ethics and care cannot be disentangled from the world: one cannot be in the world without care.[63] Myers's Planthroposcene attempts to situate such a relation between the plant and the human – recognising that humans and plants are persistently interconnected. Within these interconnections, Myers's neologism provides the capacity 'to change the terms of the encounter, to make allies with these green beings'.[64] Beyond Stielger, whose *noesis* is focused merely on human intelligence, thinkers like Bellacasa and Myers stress an entanglement *with* that goes beyond the armchair to suggest that thinking and care require a relational and material entanglement.

Stiegler is perpetually announcing that thinking is care but given his positioning of thinking within a particular epiphylogenetic and human-technecentrism, the possibilities of care are only raised unilaterally: the human invokes a care for the world. If only humans are capable of thinking in this manner, then only humans are capable of caring in this manner. Ironically, this re-affirms the Anthropos of the Anthropocene. Stiegler instates epiphylogenesis as a way to overcome pure life for something like *Dasein*; something historical. But he institutes a separation that places limits on both thinking and care, insofar as they are intricately connected. His theoretical consideration separates the human from the entanglements expressed by Myers and Bellacasa. Thus, the philosophy of care is inherently

divided between an entangled care and a unilateral care. It is not all that surprising that the latter seems closer to paternalism than genuine care. Stiegler's Neganthropocene aims to expand the possibility of what it is possible to *care for*, but his presuppositions relating to care foreclose the possibilities of *caring with*. If thinking is caring, a notion of thinking built within material semiotic chains comes closer to the formulation of care as entanglement. Within the forest, each sign intersects with the plurality of signs designated prior to it. Signs are sedimentary, building upon each other over time within the space where they are present. Each interpretant exists in and through the entanglement, and signs are developed through that interaction. If thinking is care, then this system of entanglement is synonymous with caring. This is not a unilateral deployment of care for but care as emergent in the intersections of entanglement. Thinking as entanglement is caring with.

Expanding care beyond unilateral paternalism – in a sense infusing Stiegler's consideration of *noesis* through care with a healthy dose of entanglement – broadens the possibilities of care beyond the Anthropocene. As such, Stiegler's aim of producing the Neganthropocene by way of *noesis* as care remains available but with a more inclusive epiphylogenesis. Epiphylogenesis provides notable criteria for thinking about technological innovation: if technics invent the human, it is integral to consider this impact in the design process. In extending epiphylogenesis beyond human-technical relations the consideration of impact must be expanded even further. Innovation affects not only the human in a human-technic reflexivity but extends beyond these limits to affect a multiplicity of interpretants. This is most obvious in considering something like clear cutting. Clear cutting is, theoretically speaking, a human interpretation of the forest. It is a sign that interprets the conditions of the forest and expresses a new set of conditions. What is notable is that actors in the forest respond to this sign, producing their own signs. Trees developed through even-aged tree growth. This has, in turn, had some serious ramifications on humans – on one level the trees are not as healthy, which can impact human plans for the forest, but on another level, unhealthy trees adversely affect oxygen levels, which has profound impacts on humans. As a result, humans have read the signs deployed by the forest and instituted selective harvesting rather than clear cut logging methods. The Yurok people have understood this entanglement throughout history. Their localised burnings worked through a 'care-full' semiotic entanglement that was beneficial to both the health of the forest and their people. Expanding epiphylogenesis in this way provides a recognition that design is not necessarily a unilateral process of the human acting on material, nor is it even a reciprocal operation of human and technology, but rather, that it is an entangled and collaborative process that affects multiple beings on multiple registers. A product or production is not separated from this entanglement but is deployed through and by the entanglement, affecting and affected by the entanglement. Care emerges from these interactions. The designer – while a misnomer, given that design is a collaborative unfolding within these sedimentary chains – can either recognise this entanglement or ignore it. If the aim is to think beyond enclosure, it may be better to affirm this collaboration.

Conclusion

Stiegler's pursuit of a Neganthropocene through his use of thinking and care (*pænsée)* in epiphylogenetic memory systems provides a notable goal: the expansion of care against the negative protention of the Anthropocene. Yet, despite the aim of expanding both what it is possible to think and care about, Stiegler limits the possibilities of this sort of thinking to human-technic relationships. In this article I have promoted a more than human, asignifying semiotic formulation of epiphylogenesis which enables an operationalisation of Stiegler's formulation beyond Stiegler's limit. Drawing upon the complex semiotic chains of the coastal redwood, I have provided an

overview of sedimentary memory that accounts for a history of the forest. This enables a more complex and entangled form of both thinking and care that bring Stiegler's consideration closer to feminist post-human theories outlined by Bellacasa and Myers. These more entangled formulations pursue the Neganthropcene with, but also beyond, the human. Together, these complex relations of care, entwined with the Neganthropocene, designate the potential of a care-ful semiotic entanglement that opens the door for a relational collaboration: a recognition that all production is collaborative, even if it is not recognised as such.

Notes

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1. Bernard Stiegler, *Technics and Time, 1: The Fault of Epimethus*, trans. Richard Beardsworth and George Collins (Stanford: Stanford University Press, 1998), 137.
2. María Puig de la Bellacasa, *Matters of Care: Speculative Ethics in More than Human Worlds* (Minneapolis: University Of Minnesota Press, 2017), 5.
3. Francesco Vitale, 'Making the Différance: Between Derrida and Stiegler', *Derrida Today* 13, no. 1 (May 2020): 1–16, https://doi.org/10.3366/drt.2020.0216.
4. Bernard Stiegler, *Qu'appelle-t-on Panser? 1. L'immense Régression* (Paris: LLL: Les Liens Liberent, 2018); *Qu'appelle-t-on Panser? 2. La Leçon de Greta Thunberg* (Paris: LLL: Les Liens Liberent, 2020); *The Neganthropocene,* ed. and trans. Daniel Ross (London: Open Humanities Press, 2018); 'What Is Called Caring?: Beyond the Anthropocene', trans. Daniel Ross, *Techné: Research in Philosophy and Technology* 21, no. 2 (2017): 386–404, https://doi.org/10.5840/techne201712479.
5. This analysis is heavily indebted to Martin Heidegger, 'The Question Concerning Technology', in *Basic Writings*, ed. and trans. David Farrell Krell (San Francisco: HarperSanFrancisco, 1977), 307–42.
6. Stiegler, *The Neganthropocene,* 35.
7. Ibid., 51.
8. Martin Heidegger, *Being and Time*, trans. John MacQuarrie and Edward Robinson (New York: Harper Perennial Modern Classics, 2008 [1927]), 237.
9. Stiegler, 'What is Called Caring?', 389.
10. Stiegler develops this portmanteau in *L'immense Régression*, 120, and discusses it early in *La Leçon de Greta Thunberg.*
11. Stiegler, *Technics and Time, 1,* 138–140.
12. Ibid., 140.
13. Ibid., 79.
14. Ibid., 137.
15. Ibid.
16. Francesco Vitale, 'Making the Différance', 12.
17. Stiegler, *Technics and Time, 1*, 140.
18. Ibid., 138.
19. Ibid., 140.
20. John O. Sawyer et al. 'Redwood Trees, Communities, and Ecosystems: A Closer Look', in *The Redwood Forest: History, Ecology and Conservation of the Coast Redwoods*, ed. R.F. Noss (Washington, DC: Island Press, 2000), 111.
21. John O. Sawyer et al., 'History of Redwood and Redwood Forests', in *The Redwood Forest: History, Ecology and Conservation of the Coast Redwoods*, ed. R.F. Noss (Washington, DC: Island Press, 2000, 7–38.
22. Ibid., 26.
23. Margaret R. Metz et al., 'Unexpected Redwood Mortality from Synergies between Wildfire and an Emerging Infectious Disease', *Ecology* 94, no. 10 (October 2013): 2152–59, https://doi.org/10.1890/13-0915.1.
24. Sawyer et al., 'Redwood Trees, Communities, and Ecosystems', 112.
25. Rachel Anne Lazzeri-Aerts, 'Post-Fire Analysis of Sequoia Sempervirens Forests on the Central Coast of California' (master's thesis, San Jose State University, 2011), 34, http://search.

proquest.com/docview/878528238/abstract/E4DF5E04E3DE4752PQ/1.

26. Ibid.
27. Ibid., 36.
28. Ibid., 46–47.
29. Ibid., 49.
30. Ibid., 51–57.
31. Ibid., 61.
32. As cited in Eduardo Kohn, *How Forests Think: Toward an Anthropology Beyond the Human* (Berkeley: University of California Press, 2013), 29.
33. Ibid., 531n41.
34. C.S. Peirce. 'On the Algebra Logic: A Contribution to the Philosophy of Notation', in *The Essential Peirce, vol 1. 1867–1893,* ed. Nathan Houser and Christian Kloesel (Bloomington and Indianapolis: Indiana University Press, 1992), 226.
35. Gilles Deleuze and Felix Guattari, *A Thousand Plateaus*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), 55.
36. Deborah L. Rogers, 'Genotypic Diversity and Clone Size in Old-Growth Populations of Coast Redwood (Sequoia Sempervirens)', *Canadian Journal of Botany*, 2 February 2011, https://doi.org/10.1139/b00-114.
37. Deleuze and Guattari, *A Thousand Plateaus*, 142.
38. '"Behind" statements and semiotisations there are only machines, assemblages, and movements of deterritorialisation that cut across the stratification of the various systems and elude both the coordinates of language and existence. That is why pragmatics is not a complement to logic, syntax, or semantics; on the contrary, it is the fundamental element upon which all the rest depends'. Deleuze and Guattari, *A Thousand Plateaus,* 148.
39. Ibid., 71.
40. This is an argument made by Eduardo Kohn in *How Forests Think,* 33–34.
41. C.S. Peirce, 'A Guess at the Riddle', in *The Essential Peirce, vol. 1*, 278.
42. C.S. Peirce, 'Trichotomic', in *The Essential Peirce, vol. 1,* 280.
43. Ibid., 284.
44. Gilles Deleuze, *Difference and Repetition,* trans. Paul Patton (New York: Columbia University Press, 1994), 83. Elsewhere, Deleuze aligns it with the 'body-without-organs' and anti-production. See *Proust and Signs*, trans. Richard Howard (London: Continuum, 2000), 117–18.
45. Deleuze, *Difference and Repetition*, 64.
46. See, for example, Michael Marder, *Plant-Thinking: A Philosophy of Vegetal Life* (New York: Columbia University Press, 2013); Marder, *Grafts: Writings on Plants* (Minneapolis: University of Minnesota Press, 2016); Luce Irigaray and Michael Marder, *Through Vegetal Being: Two Philosophical Perspectives* (New York: Columbia University Press, 2016); Matthew Hall, *Plants as Persons: A Philosophical Bontany* (New York: SUNY Press, 2011); Jeffrey T. Nealon, *Plant Theory: Biopower & Vegetable Life* (Stanford: Stanford University Press, 2016); Hanna Stark, 'Deleuze and Critical Plant Studies', in *Deleuze and the Nonhuman*, ed. Jon Roffe and Hannah Stark (Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2015): 180–97.
47. Tony Trewavas has presented a helpful overview of this history in Tony Trewavas, 'Plant Intelligence: An Overview', *BioScience* 66, no. 7 (1 July 2016): 542–51, https://doi.org/10.1093/biosci/biw048. Trewavas traces the consideration of plant intelligence to Karl Robert Eduard von Hartmann in 1875 and Charles Darwin in 1880. It might be possible to go back even further: for example to Johann Wolfgang von Goethe's 1790 *Metamorphosis of Plants.* Recent scholarship goes further in pushing the relationship between plant behavior and cognition. One might start with Barbara McClintock's 1984 Nobel Prize speech, in which she discusses plant intelligence on a cellular level, and the work of Suzanne Simard on plant communication through carbon transfer. Barabara McClintock, 'The Significance of the Responses of the Genome to Challenge', *Science* 226 (1984): 792–801, https://doi.org/10.1126/science.15739260; Suzanne W. Simard et al., 'Net Transfer of Carbon between Ectomycorrhizal Tree Species in the Field', *Nature* 388, no. 6642 (August 1997): 579–82, https://doi.org/10.1038/41557. See also the forthcoming Simard, *Finding Mother Tree:*

Discovering the Wisdom of the Forest (New York: Penguin Random House, 2021). These discourses have been popularised in the work of Peter Wohlleben. See Peter Wohlleben, *The Hidden Life of Trees*: *What They Feel, How They Communicate*, trans. Jane Billinghurst (Vancouver, Berkeley: Greystone Books, 2016). This work is not without controversy. See Jos Kramer and Joël Meunier, 'Kin and Multilevel Selection in Social Evolution: A Never-Ending Controversy?', *F1000Research* 5 (28 April 2016), https://doi.org/10.12688/f1000research.8018.1.

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Biography

Jacob Vangeest is a PhD student at the University of Western Ontario's Centre for the Study of Theory and Criticism. Jacob is invested in a nebulous constellation of plant epistemology, the later Platonic dialogues, considerations of the 'non', technics, and the lineage of theories and philosophies of becoming. His current research engages in bridging discourses of technics, plants, and posthumanism. Jacob currently lives in Northern California and enjoys hiking among the redwoods.

Being in the Hyper City and the Posthuman Body

Davide Landi

The birth of a technologically dependent built environment, and the collapse of the classical tradition led to the abandonment of interest in the question of the body-buildings analogy.[1] More recently, however, contemporary culture has produced and made available different new technologies.[2] This has redefined the nature of human beings, their bodies, their everyday life and their architectural and urban correlates.[3] With these current transformations, we sense a deliberate urgency to address the body/built environment paradigm, which again raises the issue of the analogy with the body. Throughout this article, the term body is used to describe the unity between the psyche (that is, the self) and flesh. The epidermic surface seals this unity.[4]

This exploratory article, therefore, examines the hyper city/posthuman body paradigm as a possible container of a renewed psychological interpretation of the analogy between bodies and buildings. It requires a self-conscious continuity of the posthuman subject. The self-conscious continuity acknowledges an impossible pragmatic differentiation between physical and digital domains, flesh and machines, to reveal and orient related boundaries. This affects the experience of the built environment, turning posthuman subjects into active rather than passive inhabitants of the hyper city. Both the built environment and its inhabitants have a reciprocal critical role opposite to prescriptive and standardised urbanisations. Such a self-conscious continuity is elaborated through the reading of Bernard Stiegler's work. It is advanced as a precise sign of a radical departure from Gilbert Simondon's classic argument about the organological development of human beings, technological objects and modern culture. In Simondonian theory, the emancipation of technological objects is progressively integrated into modern culture and human beings, making up an ensemble. This would lead to a condition of economic equality rather than its capitalisation.[5] In Stiegler's view, the emphasis is on the process of externalisation through which posthumans exercise their self-consciousness and perform the continuity between physical and digital environments, flesh and machines. The self-consciousness makes possible once more both an individual and communal life through the ethics of community to stand against the systemic power of capitalisation.[6]

For the purposes of this article, the term 'hyper city' essentially expresses the implementation of hyper-reality to existing urban settings.[7] Hyper-reality is a fictional technology that condenses several already available tools such as augmented reality (AR), wearables, and the internet of things.[8] The term 'posthuman' identifies the possible next stage of the human condition, where posthumanism refers to the humanist idea of a city as a projection of a human body.[9] The human body engages in co-production processes with machines and other figures but not necessarily with humans. Simultaneously, the human body experiences its own dematerialisation. Therefore, the differentiation between physical and virtual body becomes obsolete.[10]

To do so, the article is structured into three main sections. The first, 'Hyper urbanism', and the second, 'The age of the posthuman', help readers to comprehend the socio-cultural, historical, and theoretical background of the paradigm. They support the subsequent discussion: 'Reforming the body/city analogy'.

Nevertheless, the first context that is central to understanding a renewed body-buildings analogy is the long history of the analogy. Urban designers and architects adopted the analogy to ensure a certain continuity between the self, its body and the built environment. The origin of the analogy goes back at least to the Ancient Egyptians and the Hindus. The Egyptians introduced a grid of eighteen units that acted as a proportional system to design perfect bodies and buildings, whereas the Hindus wrote the *Vastu Shastra* in which the human body was at the basis of any design and construction (from the scale of a family house to a temple).[11]

The western history of the analogy recorded different interpretations: the metaphorical, the mathematical, and the psychological interpretation. In the Hellenistic period, for instance, a mathematical order with a psychological understanding of the human body shaped buildings and cities. The idea of 'body heat' and related notions of hot and cold identified the generative process of human beings and buildings.[12] The Stoa presented a double-height marble colonnade combining four different orders (one Doric, two Ionic and a Corinthian capital) at the front, and a walled part at the back. The colonnade was conceived as one of the edges of the Agora. There, many activities such as religious dancing, gossiping, and watching jugglers occurred at once (the place for exposure). The walled row of shops (places for dining, doing business without intrusion) were more intimate.[13]

The eclipse of the Hellenistic culture opened the way to the growing power of the Roman Empire. Political ideologies and visual aesthetics underpinned Roman architecture and urbanism. The buildings and cities, therefore, represented order, both political and visual.[14] In the *Ten Books on Architecture*, Vitruvius describes the necessity of harmonious, symmetrical proportions in the design of sacred architecture. These symmetrical proportions were distilled from the geometries of the human body. By adopting these proportions, a relationship between a building, its occupants, and the sacred could be created.[15] The Pantheon, built by Hadrian on the ashes of Marcus Vipsanius Agrippa's temple to all the Great Gods, was an extension of the human body and synthesis of Roman technological achievements.[16]

The Middle Ages were characterised by an abundant production of military architecture such as fortresses. Francesco di Giorgio Martini was the first to provide a comprehensive treatise on military architecture. It covered both the theoretical and practical aspects of this specific architectural domain. Here, the author showed his interest and preoccupations in the analogy between the human body, the military city and its elements. This analogy was the generative principle of urban and architectural forms. Two of his drawings clearly illustrate this: a walled city in the shape of the human body, encircled by towers placed at the elbows and feet; and secondly, a city model at the hand of Dinocrates – Alexander the Great's architect.[17]

Ideologically linked to antiquity, the Renaissance proposed a revival of the classical mathematical analogy between the human body and a work of architecture or the city. However, it was permeated by a Christian belief: man is the image of God. The use of human proportions and its geometries in architecture and urbanism allowed architects and urban designers to translate the divine order into the built environment. For example, architects such as Bramante and Giuliano da San Gallo combined the symbol of the cross with human geometries by using the Greek cross-type of plan, while others such as Francesco Giorgi framed a harmonious and proportional progression that united the microcosm with the macrocosm.[18]

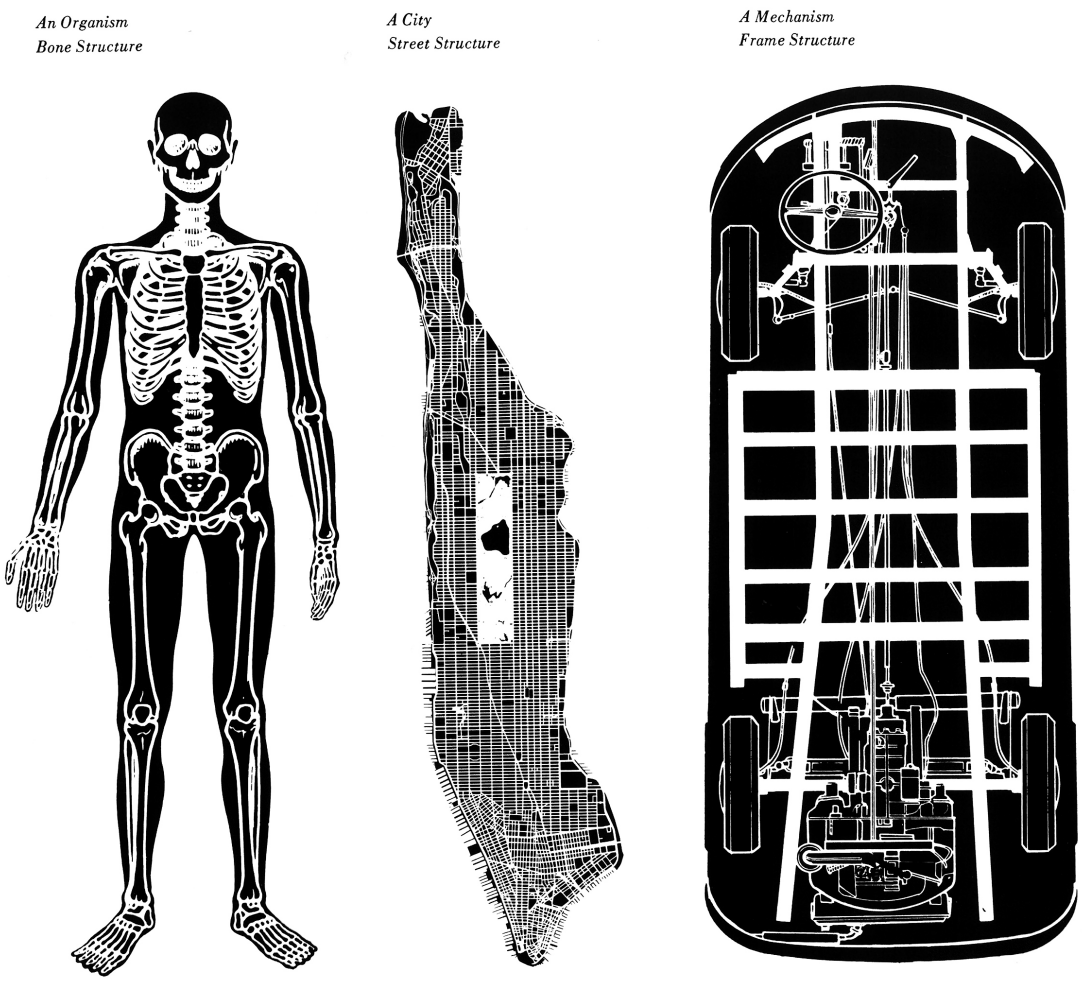

Fig. 1: ‘City Metaphors’, juxtaposing a city map with images of an organism and a mechanism. Photo: Ungers Archive for Architectural Research UAA, 1982.

The new scientific achievements of the seventeenth and eighteenth centuries had spatial, social and professional implications. On the one hand, the city became the theatre in which to act socially on streets functioning as urban stages.[19] On the other hand, technological and economic changes emphasised the professional division between engineers and architects.[20] At that time, however, buildings and streets were dirty, unpaved, with exposed sewage and extremely congested. In the planning of Washington DC by Thomas Jefferson and Pierre Charles L'Enfant, engineers and new building technologies such as water supply and drainage were central in pursuing a healthy city on the model of a healthy body.[21]

The growing industrial sector ushered in the advent of modern capitalism and the globalisation of some companies.[22] Modern architects and urbanists embedded the capitalist necessity of performance and economic efficiency in their design strategies. This was the beginning of zoning and single-use development.[23] In this, the experience of the streets was dramatically subverted. The introduction of different levels of urban arteries and veins forced a compartmentalised circulation of goods and people (as for example in the London underground). Inevitably, people no longer dwelled in the city while they moved through, it detached from its narratives. The urban body was fragmented.[24] Whereas theorists who were also practitioners such as Le Corbusier attempted to impose mathematical patterns based on the human body on buildings (the Modulor – a concept criticised at the time, and for different reasons, today), others such as Oswald Mathias Ungers limited the body-buildings analogy to visual metaphors and a morphological design.[25] [Fig. 1] Authors such as Ernst Neufert and Henry Dreyfuss introduced standardised spatial measures to comfortably accommodate a standardised human body and its activities. The exception was Frederick Kiesler. The Austrian architect expressed a physical and physiological understanding of human bodies in his 'Endless House'.[26]

Whereas the modernists dedicated more attention to the rational sheltering of the human body in the built environment, post-modern culture occupied a different position. Architects such as Coop Himmelb(l)au, Bernard Tschumi and Daniel Libeskind were concerned with the bodily analogy, and with reinscribing the classical and humanist body in their work. The human body no longer served to centre, stabilise or fix. It was a body that seemed to be as fragmented as the built environment, with ambiguous boundaries between interior and exterior.[27] The conventional human body, for instance, was threatened by the confrontation with Tschumi's work. The follies at Parc de la Villette proposed totally different forms and a different sensibility of a new revolutionary body despite their reference to Constructivism theories.[28]

This historical overview of the body-buildings analogy risks irritating both historians and theoreticians of architecture. Albeit, the danger of a historical focus of the article and the temptation of describing everything about the western history of the body in architecture is therefore contained, while common patterns around the interpretation of the analogy are revealed. In other words, there is a systemic coupling of the human body and the built environment. Notwithstanding its architectural or urban scale, the built environment metaphorically, mathematically, and psychologically resembles the human body. At the same time, the status of the human body is placed in question, both in its inner procedures and outward appearance. Hence, a renewed body-buildings analogy demands the comprehension of its essentials: the genealogy of the hyper city and the posthuman body.

Hyper urbanism

The production and circulation of information rather than goods and people became central in twentieth-century industry and everyday life.[29] Information progressively changed 'from atoms to bits' and thereby it could potentially be produced anywhere and at any time.[30] This transformation, characterised

Fig. 2: Hyper city street view. Still from a short film: Keiichi Matsuda, 2016.

by a global appeal, required a new set of infrastructures with multiple forms and tools that could rapidly process and communicate data.[31] The first step in this infrastructural transformation was the 1866 laying of the transatlantic cable between London and New York. It was the first lasting attempt to create a global network that acquired complexity although less material consistency over time.[32]

Thenceforth, infrastructures such as the internet, and tools such as data processing machines have been the backbone of a profoundly transformed built environment.[33] Global hyper-connectivity, the proliferation of networks, the overwhelming generation and thereby circulation of data have determined the quantification of the built environment.[34] As a consequence, the experience of the built environment has acquired peculiarities that are related more to informational networks than to pre-existing architectural and urban settings.[35] The 1991 essay collection *Cyberspace: First Steps* explores this transformation and its epochs in terms of the spatial, cultural, social and psychological implications.[36] The book gives particular attention to the last epoch of this infrastructural transformation: cyberspace and virtual reality (VR). They are described as a realm of pure information, and a representation of a post-industrial metasocial field for interactions. Nonetheless, the book also introduces different ways in which cyberspace and VR relate to the physical environment. This defines a clear line between objects with generative computational capabilities of cyberspace, and AR. It results in a successfully distributed application of cyberspace and VR to the ordinary world. While cyberspace and VR produce a complete detachment from the real world and the richness, practical and emotional significance of what composes it, AR includes these aspects.[37]

The hyper city, therefore, is a speculative example – and probably the most recent – in which virtual and physical environments merge together.[38] The hyper city enriches the physical environment of the contemporary city through Keiichi Matsuda's hyper-reality technology.[39] It is a megastructure that covers an urban settlement with virtual layers that give visual consistency to the generation and circulation of data, hyper-connectivity and multiple networks by means of a combination of existing tools (such as AR and the internet of things). Hyper-reality acts as an interface between the hyper city's inhabitants and its multiple virtual layers. [Fig. 2] In this, inhabitants are capable of manipulating these layers.[40] However, the hyper city expresses a dualism between its public image and inhabitants' multiple individual images. They visually translate a coexistence of different rhythms to experience and to perform depending on the network of which inhabitants are part. Inevitably, historical, biological and physical notions of proximity and distance, the gradient of time and memories are lost. The form, the time, the scale and materiality become the elements that define the hyper city and its experience.[41]

But whereas, it is easy to find parallels with either Todd Presner, David Shepard and Yoh Kawano's definition of hyper cities or Timothy Morton's notion of hyperobjects as pervasive, large, and multidimensional things distributed in time and space relative to humans, the brief genealogy of the hyper city presented here also acknowledges the intimate bond with its inhabitants, a society detached from the biological and physical notions of time and space: the 'network society'.[42] Aware of this detachment in his attempt to reconstitute the more numerous collective signifying forms within the technological milieu, Stiegler explains this synchronisation of different technological tools, economic and societal programmes, beyond the attributes of informational networks, as the 'hyper-industrial society'.[43] In this synchronising tendency, Stiegler also notes some fundamental issues such as inhabitants' diminished ability to engage with their individual affective and intellectual faculties: a disorientation.[44] The cause of this individual disorientation is founded in the growth of neoliberal capitalism blending with technical programmes and networks' universal principle

of efficiency. These impose a hyper-capitalisation of society. It is no longer made whole through the ethics of collective signifying forms transposing a communal and individual recognition, justice and democracy. Rather, the hyper-capitalised society is recognised with the constantly transforming stupidities of cosmetic technologies, hyper-consumption, financial speculation and hyper-sexuality through which neoliberal capitalism creates a crisis of the individual's self-consciousness.[45]

As a response, inhabitants' human nature and their body status have undergone an analogous transformation that results from the combination of two different processes: the quantification of the human body and the escapist desire to transcend its biological limits. The next part gives critical insight into the two processes.

The age of the posthuman

Historically, the first process – the quantification of the human body, began in the nineteenth century with Francis Galton's studies of fingerprint records.[46] More recently (between 1998 and 2010), Gordon Bell stored personal data such as everyday photos, computer activities, and biometrics in specifically designed hardware and software – the 'Your Life, Uploaded' project.[47] From scattered and voluntary events in which biological entities were quantified, the establishment of portable technologies such as smartphones, sensors and wearables (smart watchbands, clothing, Google Glass, and so on) as everyday essentials attached to human bodies quantified digital traces. These technologies generate rich digital portraits that report the activities of human bodies in the everyday real world back to the digital domain.[48] The human body is therefore simultaneously a node and a network that stores, shares and produces data.[49] Yuval Noah Harari labels this quantification process 'dataism'. While 'dataism' is potentially applicable to anything in the real world, Harari recognises in this quantification process a more primitive need of an obsolete Homo Sapiens: to be part of something bigger than oneself. As a consequence, 'dataism', with its ritual aspect, acquires an almost religious quality.[50] Nicholas Negroponte describes it as analogous to a force of nature.[51]

The second process, takes the humans' primordial desire to escape their biological limits further. This is illustrated in Beatriz Colomina and Mark Wigley's book *Are We Human? Notes on the Archeology of Design*. By unravelling the bilateral relationship that unites design and human beings, the authors acknowledge a historical partnership between technology/design and humans.[52] This partnership began with prehistoric humans, their survival instinct and the necessity for them to face human biological limits (for example, the first stone tool supported the prehistoric emergence of the human species). If primordial needs such as hunger triggered the partnership, the desire to escape from the biological limits of an out-to-date human body towards divinity pushed the partnership towards a symbiosis with the machine.[53] More advanced forms of this escapism are illustrated in Mark O'Connell's book *To Be a Machine: Adventures Among Cyborgs, Utopians, Hackers, and the Futurists Solving the Modest Problem of Death*. For example, Dr Natasha Vita More created the Primo Posthuman project, a physical avatar onto which an independent human mind can be uploaded. In its essence, the Primo Posthuman speculates on the logic of wearable technology, although with a human aspect.[54] Nevertheless, the 1983 arrival of mobile phones opened up the possibility of this dual transformation at the mass scale. Biological and mechanical entities merged as natural extensions whereas the informational consistency prevailed over the material consistency.[55] Here, human beings have a physical and virtual body.[56] They start a co-operative coexistence with 'mechanisms equipped with processors,' as Nicholas Negroponte envisioned, to establish systems capable of evolving.[57] The idea of a system capable of evolving probably emerged with André Leroi-Gourhan's work on prehistoric culture.[58] Artists such as Stelarc with his 'Fractal

Flesh' or Roberto Bolle's dance with a robotic arm have performed this co-operative coexistence and thereby a condition of evolution in contemporary culture.[59]

Such an interpretation is reinforced by Stiegler's approach to posthumans. In the same vein as Rosi Braidotti's transposition and Julia Kristeva's poetics, he situates his condition of evolution both at the superficial and the deep level. While the dual transformation (that is, the quantification of the human body and the desire to escape its biological limits) represents the superficial and skeletal level, the intensified fundamental questioning of fundamental aspects of human nature such as life and mortality is the deep level.[60] And yet for Stiegler, the questioning of human nature and the status of the human body's dual evolutionary transformation into a technorganic hybrid stems from the synchronising conjunction of knowledge and technologies encompassing artificial intelligence, biology and cybernetics. However, this also contributes to the process of hyper-industrialisation in which the increasingly close relationship between technological production and the logic of capitalisation leads to a hyper-capitalisation of society. This is an overdetermination of everyday life, which exposes the evolved technorganic hybrid individuals to the damage to their sensorial and intellectual faculties.[61] From a Stieglerian perspective, we must pay attention to the formative process of the evolved technorganic hybrid individuals. Within the context of a hyper-capitalised society, the formative process pushes out the culture of ethics as a mode of distributing the possibility of collective and self-expressions.[62] This restrains certain essential differences and unforeseen encounters between biological and mechanical entities, and their physical and virtual bodies. The lack of essential differences and unforeseen encounters impoverishes noetic activities and thereby also the self-consciousness of evolved technorganic hybrid individuals.[63]

Considering all of this evidence, the dual and simultaneous transformation at the superficial and deep level constitutes the term posthuman in this article, a post-gender subject that combines fictional and lived experiences. Regardless of the hyper-capitalised society, neither the machine nor the human being dominates or threatens the others. These entities are only responsible for defining the boundaries between themselves, their body and the built environment.[64] The biological body and the built environment are restructuring themselves through a digital quantification and a merger with technology; while the subject is no longer necessarily human.

Reforming the body/city analogy

A limited scrutiny of the posthuman body/hyper city paradigm suggests either a metaphorical or a mathematical interpretation of the analogy. Nevertheless, the posthuman body/hyper city paradigm is radical in the formulation of a psychological interpretation of the analogy. Indeed, it does so more ontologically than as an analogy. In the overstimulating experience of the hyper city, posthuman inhabitants potentially engage with the hyper city's distinguishing characteristics and the complexity of its digital layers beyond their specific visual aspects.[65] Posthuman inhabitants, for instance, perform work activities simultaneously with shopping. In a certain sense, different although simultaneous activities promote different although simultaneous rhythms and speeds of posthuman inhabitants. This establishes an indissociable but contradictory link between the hybrid (that is, a physical and virtual) space of the hyper city and its occupants. The hybrid space is an assisted space in which hyper-reality technology informs posthuman users about specific actions such as when to get off the bus, while emoticons, pinpoints and tags indicate dangers such as malicious software, or reassuring elements such as a virtual votive niche in the hyper city.[66] Rather, the availability of intelligent or assisted spaces, smart devices and their simplified languages (that is, emoticons, pinpoints, and tags) prescribe to posthuman inhabitants how to separately deal with the different although simultaneous activities, rhythms and speeds.[67] Inevitably, the hybrid space of the

hyper city becomes a stage for compartmentalised experiences with a robust individualistic character.[68] At this point, physical and virtual interactions with other posthuman inhabitants are optional. The next Amazon algorithm knows us, and others, better than we do ourselves.[69] This contradiction recalls past consumerist capitalist solutions that attempt the continuous reordering of posthumans' communal and individual life. The hyper city becomes an expression of hyper-capitalised society, with a sense of the acute disorientation of its posthuman inhabitants.[70]

This denies all the promises regarding a regained urban complexity analogous to the psychological understanding of posthuman bodies and their digital shadows. To avoid the risk of hyper-capitalised society and posthumans' disorientation, we must acknowledge the necessity of a continuity between posthuman subjects and the hyper city. This continuity arises from posthuman subjects' self-consciousness and their capacity to define their own boundaries. An initial formalisation of this concept is found in Martin Heidegger's writings. In the 1951 lecture *Building Dwelling Thinking*, he questions modernism and its implications for the built environment. Heidegger is concerned about how modern technocratic functionalism transforms humans into passive occupants of a prescribing built environment. Therefore, he reclaims a continuity between humans and their everyday space while rejecting the modern functionalist divide. This division is the consequence of an adopted wrong philosophy. It is a metaphysical problem that conveys the 'very form of reasoning' without taking into account what Being is.[71] Heidegger's investigations of modern technocratic functionalism, capable of imposing structures against humans effectively dwelling in the built environment, continue in *The Question Concerning Technology*. The article aims to disentangle the essence of technology. It has nothing to do with technology as a tool or a mere instrument that supports humans in meeting their ambitions. The essence of technology lies rather in the act of revealing. This refers to Plato's link of the word *techne* to *episteme,* which expresses a mode of revealing. It gives back to humans a self-consciousness, and thereby control of the built environment surrounding them. Humans, therefore, are subjects of the built environment, and its technology no longer poses a threat.[72] Bernard Stiegler offers a robust critique of the ambiguity and obsolescence of Heidegger's work, although with an equal engagement with Plato's writings. In *Technics and Time, 1: The Fault of Epimetheus*, he describes the human evolutionary process as informed more by technology than biology. It is a revealing process in which technology is guided by forces that humans constantly have to negotiate to limit its dangers in favour of its healing powers. For example, technology appears to be a power in the service of humanity but it also becomes autonomous. Heidegger's analysis ignores the Epimethean and Promethean primordial sense of technology. Dasein retains its privileges over technology. This technology is a prosthesis with no truly constitutive role. In these terms, the prosthesis is synonymous with inequality. Given that inequality, Stiegler pleads for its destruction by revealing and orienting the threshold between 'the who' (humans) and 'the what' (technology).[73] With a debt to Jacques Derrida's account of the 'grammè', this is not a rupture with biological nature but its re-organisation. Consequently, the prosthesis constitutes the human body, it is not just an extension. For humans, the prosthesis is not a means but an end.[74] This new organisation, called 'technological Dasein' by Stiegler, transforms the relationship and actions through which humans compose their collective and individual lives.[75]

To avoid prescribed and assisted spaces with a strong individualistic character, therefore, the hyper city must be an end, not a means, for posthuman inhabitants. The hyper-reality megastructure is oriented through existing technologies such as wearables, and the internet of things. In this, the technorganic hybrid post-gender subject

(that is, the posthuman inhabitant) reveals and defines thresholds and boundaries between the constitutive entities. The quest for continuity and subsequent establishment of thresholds, for example, is confirmed by one of the fictional characters who is an AI-run corporation's teleoperator and an inhabitant of the hyper city. In her fight for economic survival, the fictional character openly expresses her disorientation and confusion about the threshold between digital and physical domains, flesh and machines. Lacking the capacity to distinguish the threshold, the fictional character is unable to orient the threshold.[76] This is impossible without the consciousness of the posthuman subject.

In a critical reading of Husserl, Stiegler identifies consciousness as the producer of this continuity between something outside of the object of consciousness and the object of consciousness itself. In the case of humans, they rationally know everything about themselves. Their bodies as a whole are the instruments that humans understand – the object of consciousness. Technology is perceived as a prosthesis thereby something outside the human bodies. This consciousness, which is a self-consciousness, 'a gesture of thoughts', is synonymous with the comprehension of the essence of technology as the act of revealing.[77] That act, however, comes after memory. Thousands of years after the Promethean fire, humans still attempt to fill their Epimethean void with memory. This can be understood through Husserl's concept of retention. Husserl discerns two different categories of retention. 'Primary retention' emerges from an encounter of phenomena in the present and with the immediate past and future. 'Secondary retention' is from memory, including, by implication, memories of collective and individual lives accumulated since childhood. Thus, memory an archive of human culture is the condition for a self-consciousness of humans. Stiegler introduces the concept of 'tertiary retention', when the self-consciousness is externalised. For example, 'tertiary retention' manifests itself in writing, in cooking, and in dwelling.[78] In random-access memory and hard drives, in revealing and orienting boundaries between digital and physical domains, flesh and machines.

Fundamental to the externalisation of a self-consciousness is the use of the terms endosomatic and exosomatic.[79] Authors such as Alfred J. Lotka and Nicholas Georgescu-Roegen call those instruments that belong to humans by birth, such as legs, endosomatic. Exosomatic instruments are produced by humans, but do not belong to their bodies.[80] Similarly, although mitigated by an interest in the development of a rational externalisation of the process of communication, Karl Popper argued that exosomatic processes give the specificity of human reason the possibility to express itself, for example in writing and criticism.[81] Stiegler expands Popper's argument by acknowledging the presence of new technologies, and by implication new forms of externalisation, as well as questioning existing ones. Stiegler laments this increasingly close relationship between technological production, exosomatic processes and the logic of capitalisation.[82] To frame the capability of these exosomatic and endosomatic processes to create an externalised self-consciousness rooted in collective and individual memories and signifying forms against the capitalist market's dynamics in the context of new technologies such as hyper-reality, we must appeal to David M. Berry's definition of 'infrasomatisation': a social-structuring infrastructure that follows a complex fusion of exosomatic techniques and endosomatic capacities to create a self-conscious technological milieu.[83] There, the available technologies such as AR, wearables, and the internet of things are ready to be self-consciously configured and reconfigured to permit collective and self-expressions, and the materialisation of their ethical values.[84] This confirms an irrevocable distance between the inaccessible hyperobject that a humiliated humanity cannot address, and the hyper city.[85]

In the posthuman/hyper city paradigm, therefore, posthuman inhabitants own knowledge for the use of existing technologies as well as for information

management and production. Posthuman inhabitants do not only rely on predetermined scripts, although they can write their codes and software.[86] The posthuman inhabitant types X and Y comes into being by means of interfaces such as smartphones. Mathematics and data generate virtual and physical narratives, in which posthuman doers and users of the hyper city overlap.[87] The power of the configuration and reconfiguration, production and post-production, storing and dissemination of information no longer belongs to the logic of efficiency, constantly transforming cosmetic technologies, hyper-consumption, hyper-sexuality and financial speculation, and thereby to a hyper-capitalised society.[88] Indeed, this power mutually belongs to the hyper city and its posthuman inhabitants, and makes possible what Stiegler termed an 'economy of contribution'.[89] This 'economy' reconsiders the antagonistic relationship between the capitalisation of a technologically organised individual and communal life, and the ethics of community, while welcoming back noetic activities, the possibility of collective and self-expressions, and signifying forms.[90]

Such a hyper city is difficult to explicate. The posthuman inhabitants have not been able to incorporate new dynamics and their complexity of a new technology. A new technology that is exposed to the systemic power of capitalisation. This converges into a disharmony, a tension, which leads to fragmentation. Nonetheless, the tension presents the chance of return of self-consciousness for posthuman inhabitants. Stiegler called this tension the 'pharmakon'.[91] The pharmacological comprehension of this tension is essential for the emergence of a self-conscious continuity between the digital and physical domains, flesh and machines. The self-conscious continuity allows the emancipation of posthuman inhabitants in the infrasomatised hyper city. It reveals and orients thresholds among the different domains of the hyper city and its posthuman bodies. Lodged between these domains, the agency of not only the posthuman inhabitants but also of the hyper city itself are renewed. As a result, the psychological interpretation of the analogy is fully established.

Conclusion

The posthuman body/hyper city paradigm allows us to explore the historical relationship between bodies and buildings. Discussing the dual transformation of human nature in the context of a radically digitised built environment through data production, hyper-connectivity, and networks reveals spatial, cultural, social and psychological implications. This article argues that the posthuman body/hyper city paradigm may contain a renewed psychological interpretation of the body/buildings analogy. The posthuman self-conscious continuity with technology reveals and orients thresholds between flesh and machines. Analogously, the posthuman conscious programming and scripting action reveals and orients thresholds between the digital and physical domains of the hyper city. This posthuman self-conscious continuity refuses the prosthetic and prescriptive urban condition synonymous with a segmented and standardised lifestyle and economies inherited from modernism and the systemic power of capitalisation. Inevitably, the military origin of networks, and the division between an exclusive programming and scripting caste and simple users have contributed to the proliferation of a prosthetic and prescriptive urban condition.[92] Consequently, the posthuman body/hyper city paradigm offers an alternative, nurturing the self-conscious continuity of a posthuman inhabitant. It originates from a pharmacological effect of technologies such as hyper-reality and its infrasomatisation. This avoids a growing splitting, and colonialist or 'on-demand' approach to urban and architectural spaces.[93] The revealing and orienting of boundaries between digital and physical domains, flesh and machines attribute to the hyper city and its inhabitants something in common with the pre-industrial city: its indeterminism and complexity. This is neither a holistic mythification of past urban conditions

against the increasingly private visions of romantic individualists of the last decades, nor a warning to slow the pace at which technology destroys the ethics of community and its signifying forms. In my opinion, the renewed psychological interpretation of the body/buildings analogy in this article is the only possible basis for the restoration of a critical agency to architecture, urbanism and their inhabitants, otherwise assassinated by the endless cycles of standardised and prosthetic technological and spatial production and consumption.

Notes

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Biography

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Transductive Architecture: What an Organology Produces – The Case of Le Corbusier

Tim Gough

Bernard Stiegler proposes an organology. As the evolving epiphylogenetic interplay of organic and non-organic life, this world- or cosmic-concept follows on from Gilbert Simondon's thought of the transductive relation, which Stiegler states is 'a relation which constitutes its terms, the terms not existing outside the relation.'[1] This is the decisive move of late twentieth-century thought: a new ontology not of form/matter, nature/artifice, subject/object (or any of the other metaphysical binary pairs) but an ecological and ethological thought of the a-parallel evolution of heterogeneous elements, within an essentially hyper-relational realm which in the case of Stiegler is opened by Derrida's différance. Différance itself is a transductive concept, as Stiegler notes.[2] This ontology of essential difference is at the core of all post-humanisms worthy of the name, including those of Derrida, Foucault, Klossowski, Blanchot, Deleuze, Guattari and those others who take Nietzsche seriously by not getting distracted with either a positivist or a Heideggerian interpretation of *Wille zur Macht*.

This essay will explore some of the implications of this ontology of difference for architecture. Although this philosophical ontology – outlined in the twentieth century and taken up by Stiegler in the twenty-first – is relatively new, this is an ontology of how the world has always been. For us, architecture is part of that world, and therefore Stiegler's organology tells us something significant about what architecture is. More than that, I show that such an outlook on architecture has existed in the past. Where such an outlook occurs – that is, where an architect has a differential or transductive ontology of architecture – they will speak of architecture differently to other ontologies, and also do architecture differently. I will use the example of the early written and built work of Le Corbusier to explain this in concrete terms.

Ontology, therefore, matters for architecture. What we think it is influences how we study it, how we write (about) it and how we do it. Those having a particular ontology of architecture will see certain things related to the scope and nature of that ontology. They will be capable of studying certain things that their ontology finds in works of architecture. Some types of architectural work will be exemplary for that ontology. A different ontology will in turn give different possibilities for study, for seeing, and for exemplifying. An ontology of architecture can be foregrounded and explicitly laid out in thematised writing; or it can be a background ontology remaining implicit and unstated – a set of presuppositions not thematised as such. True artists, those who carve a new way, are perhaps those who are able to intuit and express a new ontology implicitly, before it becomes explicit in philosophy. A particular background ontology of architecture will produce, when deployed by an architect, works of architecture of a certain character, works that would have a different underlying character if the background ontology was different.

An ontology is also an epistemology. It is a way of knowing things (epistemology) interlinked with an understood way of being of those things (ontology). Since, here, what is being discussed

is an organology or an ecological idea of ontology, and therefore an interweaving between ways of thinking and the ways in which things exist (a différance), the difference between an ontology and an epistemology is not foundational; is it an after-effect. The logic of the after-effect, which Stiegler generally names prosthetic ('prosthetics' from the outset) or technics ('technology' from the outset), determines everything here. It makes an opening, it gives (Derrida's logic of the gift) the long circuit of an affirmative individuation that is the mark of an architecture allowing for social (and individual) re-form, or that indeed is social/individual re-formation, becoming, or transduction, in contrast to a coercive architecture which short-circuits such possibilities.[3]

To put this in Stiegler's terms: an organology, or a general ecology, or a general economy (he uses all these words to name the same thing and so inform that naming) is always thinking about or using a transductive mixture of (psychosomatic) individuals, social or collective individuals, and technical individuals.[4] This three-fold dynamic mixture is transductive in Simondon's sense given above, namely that they are all mutually co-dependent and cannot exist outside the relation which makes them; the three individuations are side-effects of the relations, so that the terms of the relation do not pre-exist those relations.[5] Stiegler is here indebted to Félix Guattari's *Three Ecologies* of 'the environment, social relations and human subjectivity', but he tends not to use such traditional terms to name these elements, because those names are often used within a more traditional non-transductive ontology.[6] That is, they are defined as self-sufficient things, each with its own essence, which only subsequently come to find themselves (somehow) in relation to each other. Such an arrangement misses the co-evolution, or a-parallel evolution, that occurs in transduction. If we apply this terminology to architecture, what is clear is that architecture has always been seen as a mixture of or a response to or a working with society, the human individual and technology. There is a transcendence implied here: the pre-existing fields of society, individual and technology transcend architecture. What transductive thought says is that architecture, instead, becomes not a technological response to societies' requirements and individual needs, but rather is the mutual interplay between all these, such that they in turn only come into being from out of such a transductive architecture. This is therefore instead an immanent architecture.[7]

Le Corbusier: a traditional ontology of forms

What follows is an exemplary case of the transformation of an architectural ontology into a transductive organology. The case is that of Le Corbusier. In the overview of his career 1910–1965, and in *Vers une architecture*, Le Corbusier shows us how his ontology of architecture changed during his early career.[8] The initial ontology is a mimetic formalism. The second ontology acknowledges the game as a potential internal différance or transduction of architecture. By internal, I mean internal to the composition of the work, internal to the process of composition that Le Corbusier went through to create the work. The third and final ontological transformation is to the participatory interplay of a people-to-come and place-to-come as the external transduction of architecture – that is, a fully-fledged organology or technics, in Stiegler's terms.[9] By external transduction I mean here the interplay with users, inhabitants, visitors and the wider culture that occurs once the building is complete, once the composition (conventionally thought) has finished. Let us look at each of these three ontologies in turn.

The first stage is represented by what I judge to be a poorly-designed project, namely a set of artists' studios from 1910 based on the formal massing of Hagia Sophia, which as we know from *Vers une architecture* and elsewhere was a key architectural reference for Le Corbusier.[10] Hagia Sophia was, he says, a 'cluster of ideas'.[11] How, Le Corbusier asks himself, to respond to the success of this building?

The response in 1910 is so poor as to bring one up short: why would Le Corbusier publish

such a cart-horse of a project? After all, the *Oeuvre complète* ignores his earliest projects at La Chaux-de-Fonds altogether, accomplished though they are. But the issue is nothing to do with quality. The reason for including the studios is that he wishes to show us his struggle for an ontology (an organology) of architecture, not just by way of words (*Vers une architecture* and suchlike) but also by way of examples. The project shows how a particular ontology of architecture affects – and effects – architecture when designed by an architect who has, or thinks, that ontology. The design exemplifies a common background ontology of architecture, often unacknowledged but also the subject of explicit study and approbation. This ontology of architecture proceeds by way of the imitation of past, more or less canonical buildings, and does so in a particular manner by carrying across formal characteristics of the earlier architecture into the current piece to be designed. The elements and shapes that appear in the earlier work are seen and appreciated, and are then appropriated into the new work.

The background ontology implied by this movement of forms (large scale or small scale) from the earlier exemplar to the architecture that is being designed is a static, non-différancial ontology of objects. This object-orientated architectural ontology, and the strategies of design that it implies and allows, is perhaps the most common. The taking of individual elements, parts of a language of architecture, complete languages, plan forms, decorative elements, and, as Le Corbusier does here, overall massing, and their reuse in later buildings is universal, and to some extent unavoidable. Whole architectural movements and ideologies are based on this arrangement; we need only think of, on the one hand, the International Style (the moment it was axiomatically established was the moment Le Corbusier abandoned anything like it, even to the extent of revising his past work), or, on the other, the various theories and schools of traditional, regional or vernacular architecture. A variation on this transposition of forms into the objects of architecture occurs where things other than previous works of architecture provide the shapes that are appropriated by the architect. Examples include the transposition of forms from nature (think of the work of Bruce Goff and other organicists, or the way in which Filippo Juvarra imitated the form of a deer's antlers for the plan of Stupinigi hunting lodge), from engineering and science fiction (Piano and Rogers), and from philosophy and the history of ideas (the formal transposition of 'the fold' from the title of Deleuze's book on Leibnitz and the baroque to the shape of facades or plans; or, slightly less explicitly, the transposition of ideas of deconstruction into deconstructionist architecture).

All of these formal transpositions imply and presuppose a static, object-orientated ontology, whether that ontology is acknowledged as such, or whether it remains background, implicit and unthematised.

The ontology develops: the 'internal' interplay of the parts

Le Corbusier shows us his particularly bad example of the results of such an ontology because he wishes to point us towards the next stage in the development of his architectural thought and design strategies. This stage is also discussed in *Vers une architecture* and consists in the 1915 idea of the Dom-ino house, together with the examples of mass concrete housing which he does the same year.[12] These examples imply and exemplify a broader and richer ontology of architecture. Firstly, there is a clearly expressed idea: the Dom-ino house. Neither a purely pragmatic proposal, nor, pace Eisenman, a purely theoretical self-referential sign, this diagram has something like the status of a directing concept that comes to be realised in particular and developing solutions as Le Corbusier addresses the problematic question of the modern house.[13] Secondly, the ontology incorporates the quality of a game. The Dom-ino house refers to the game of dominos, popular at that time; the

six columns are analogues of the six dots of the domino piece. Le Corbusier then begins to play, in his designs, with these pieces: the 'group of mass-production houses in mass concrete' has a plan which clearly replicates a set of dominos laid out in a game, as does another similar scheme.[14]

This is the second stage in Le Corbusier's development of an ontology of architecture. The idea of play, or interplay between parts, is more sophisticated than the static ontology of the mimesis of forms, as is the incorporation of an idea within the working-through of the problem. In this instance, however, play, as an idea in itself, is limited in influence to what I have called above the internal transduction of architecture. It is primarily a compositional device. It does not affect the ontology of the work of architecture 'itself' (the external transduction), rather it is limited to the building's production within the creative process. As a result, the Dom-ino projects which Le Corbusier illustrates from 1915 are somewhat crude, both in their exterior appearance and in the interiors. The more creative and ultimately revolutionary work from 1920 onwards awaits a more radical change in his understanding of the nature of architecture.

Le Corbusier: an organology of architecture

This third stage takes the movement of play and incorporates it into the external transduction of architecture, so that, in the manner of the house as 'a machine for living' which literally is (post-) human, and architecture as, literally, 'a poetic emotion', the entire conception of what architecture is changes.[15] Le Corbusier's ontology of architecture becomes an organology. This stage culminates, in the built work, with Villa Savoye, and in the written work with his description of various ancient buildings, including the Acropolis, in the 'Architecture' section of *Vers une architecture*. In these we are firstly led to see something in architecture which before that had not been described. Then the same new ontology – an organology, in Stiegler's terms – leads to a work of architecture revolutionary in intent and realisation.

In the 'Architecture II – The Illusion of Plans' section of *Vers une architecture*, Le Corbusier begins with an analysis of the Green Mosque in Broussa; he describes not the building as an object, but the building as experienced, as the interplay or intense relationship between people and place.[16] This relationship is one of an original prosthesis or technics; 'people' and 'place' only emerge as after-effects of their transductive relation. One enters a little doorway of 'normal human height' from the street; the question of scale in the small vestibule is related immediately to the scale of the street just past and the larger scale of the mosque proper to come. Scale is not the variation in size on a plan, nor is it a question of mathematical proportions between spaces; it is part of and realised in the transductive interplay of the 'work'. The dimensions of the large main space are likewise there to make an impression, to impress; it is an impressive space not in itself, but because of what happens in the event of its being experienced, and this event is what architecture is. As always, the eyes 'take its measure'. Not that the architecture operates only through the eyes; this same transductive movement can operate outside the visible; all these relations could be fully understood by a blind person, aware as they are of the size of spaces and their sequential interrelation in space. Le Corbusier emphasises the eyes in order to bring us to the experience of the place, rather than an objective analysis. He goes on to describe the repetition 'in a minor key' of the central space in a darker and raised space beyond: two smaller side spaces, and, 'turning around', two tiny dark niches at either side of the door through which we have entered. He says: 'you are captured, you have lost the sense of the common scale'.[17] What this means is that we (those who engage with this building) have been caught in the transductive relation of its architecture, we have become part of its architecture, and the result is that all questions of scale are related to us, not to 'the common scale' of measurement.[18] (This is the root meaning of Le Corbusier's Modulor, a system of proportion directly

related to the human body.) He does not describe the exact proportion of the spaces, nor their dimensions, and his sketches are deliberately crude and vague not because he was in a hurry or because he was not capable of exquisite and precise drawings but because he wished to convey what was essential: the relational organology of architecture – a message that would only have been confused had he been precise. Finally: 'you are enthralled by a sensorial rhythm (light and volume) and by an able use of scale and measure, into a world of its own which tells you what it set out to tell you'.[19] The building does what its architects intended because they have set a transductive machine in operation of which the building is only a part; the remainder is you, and the associated collective, or rather you and the collective become as they are by virtue of this transductive relation.

Le Corbusier next does a similar analysis of the Casa del Noce in Pompeii. Finally, the Acropolis and the Parthenon are given an equally precise and transductive explication. Of the Acropolis we have already been told that 'the whole composition is massive, elastic, living, terrible, sharp and keen and dominating'.[20] The description here, and of the Parthenon, swerves dramatically between one of the internal compositional machine (massive, elastic, living…) and the external participatory transduction (living, terrible, dominating…); there is a peculiar mixture of poetic and literal uses, sometimes in the same word when it refers to both relations at once. This poetic 'confusion' expresses that for Le Corbusier great architecture always interplays the internal machine of composition with the external transduction of people and place; the composition is not only that which occurs during the period of design, but is also that which comes to occur as the architecture, when the engagement with the 'human' happens as an event. The term 'composition' now refers both to the internal machine of design, and to that which has been designed. Further, the composition is a symphony which includes the audience as a transductive movement.

The arrangement of the axes on the Acropolis, and the way in which the ensemble of the buildings (including the Parthenon), the landscape, the trees, the sea, the horizon, the sky make up an 'enclosure which the eye readily embraces', likewise receives an interpretation that relies upon an understanding of architecture as something which occurs immanently as us.[21] And the Parthenon, in an extended photo-essay, is described in the following terms:

> Here is something to arouse emotions. We are in the inescapable realm of the mechanical. There are no symbols attached to these forms: they provide definite sensations; there is no need of a key in order to understand them. Brutality, intensity, the utmost sweetness, delicacy and great strength.[22]

Again, there is a slippage in the text between the two meanings of composition: to compose, and what is composed, the internal compositional machine and the external transduction of the resulting architectural composition, which includes in its operation the person-to-come who engages with it. Thus 'the mechanical' refers both to the formal precision of the stones and the mouldings, and to the providing of definite sensations within the transductive relation. This is an architecture of brutality, intensity, sweetness, delicacy and strength, not metaphorically (thus in transcendent tone, as metaphor always is, said of the objective form within a static ontology) but immanently, spoken within Le Corbusier's organology of architecture.[23]

No doubt, Le Corbusier is picking up on certain strands of then-contemporary (or nineteenth-century) art historical, architectural and urban design thought in his explications. As is well known, his analysis of the Acropolis is indebted to Auguste Choisy (who provides the plan).[24] The description of the way in which urban spaces are actively inhabited clearly owes something to the analyses in Camillo Sitte's *The Art of City Planning*, even if Le Corbusier criticised Sitte's methods.[25] A more detailed discussion could develop the

connection with broader late nineteenth-century currents in art history, such as the sculptor Adolf von Hildebrand's ideas about the difference between a visual ('*Gesichtsvorstellungen*') and kinaesthetic ('B*ewegungsvorstellungen*') appreciation of a work.[26] Or indeed Alois Riegl's notion of *Kunstwollen* which, in the words of Christopher Wood, uses terms such as 'coordination, participation, attention, surface and depth, internal and external unity, the tactile and optical gaze' and thus seems to 'reconnect the beholder of the painting or the building with an initial perceptual event and ultimately with an entire worldview.'[27] However, what Le Corbusier achieves in his poetic use of language is the beginnings, as I argue, of a distinctive ontology of relation which is transductive in the sense that relations, instead of being between fixed entities as implied by his predecessors, become primary. The supposed fixed entities of the inhabitant or visitor (Stiegler's psychosomatic individuation), society (collective individuation) and architecture seen as object or building (Stiegler's technics, in this instance) lose their position as a point of departure for the analysis, and the relations between 'them' (and they only occur 'afterward', as a transductive 'result' of those relations) become foundational. We will see now how this new ontology feeds back onto the creation of a work of architecture.

The Villa Savoye and the tertiary retention of architecture

Having set out his organology in *Vers une architecture*, and having used it to analyse the buildings that moved him during his earlier travels around the orient, Le Corbusier then shows in the Villa Savoye the implications of such a technics for design and for the being (or, we should say, becoming) of architecture.

The internal, compositional machine of the Villa Savoye is directed by the transductive idea of the five points of architecture. As Stanford Anderson shows in his article 'Thinking in Architecture', the Dom-ino house constituted a 'non-conservative model', to use the terminology of Imre Lakatos.[28] That is, it was not a static model, but rather one that developed transductively as an idea in interchange (that is, in active interplay) with its various concrete manifestations both drawn and built in the period 1915–1927, leading to the statement of the five points of architecture (raised gardens, piloti, free plan, strip window, free facade). The interplay between the transductive idea/non-conservative model and the possibilities for composition had a long gestation, and then occurred again as the specific design of the villa progressed rapidly through its various stages. This is the opposite of a merely conceptual architecture, where the concept precedes the design and becomes represented in it. It is instead to maintain the idea as an active problem that gets worked over and worked though at the same time as it gets realised in the work of architecture. No longer conceived of as an object, not designed in the mind of the architect as an object, not intended to be an object; on the contrary, conceived as *Vers une architecture* demands, as a participatory event, designed in the mind of the architect as a people-work, and intended to be architecture as poetic emotion (as well as machine for living), the villa subsists as a set of transductive relationships rather than exists as the building which no doubt can still (for those beholden to a static ontology) be abstracted and reduced out of this mobile transductive ensemble.

We can therefore constructively apply exactly the same type of analysis to the villa as Le Corbusier had earlier done to the Acropolis, the Green Mosque and the Casa del Noce. Such an analysis was encouraged by the architect by means of the photographs he published, the film he made and the further transductive idea of the *promenade architecturale*. The photographs in part undermine the idea of the organic totality of the work in order to make a silent protest against the reduction to the International Style, and in order to re-emphasise instead the overarching rule that it is the encounter with the building, making up architecture, which is

primary here. The film tracks the movement of the participant around the villa, as if we were them, and acts as a virtual (as Tim Benton says) sign of the interplay of us and the building.[29] The idea of the promenade architecturale, realised so obviously in the villa, makes no sense outside the thought of architecture as an organology.

As with the Casa del Noce, no historical references are needed; no reference need be made to the function of the spaces in order to appreciate the work. The removal of any decorative references, the removal of any obvious mimesis of past styles, takes on a positive meaning: it is not simply a question of avoiding something, but of allowing what is primary – the concrete transductive assemblage of the work – to occur. The villa takes on a universal aspect, because this assemblage is not clogged up by additional references.

However, what is perhaps most remarkable in the villa is a phenomenon that only becomes apparent if we, in turn, apply a transductive ontology as we seek to analyse the work. This will make a radical difference to its interpretation.

Villa Savoye as a reworking of the Hôtel de Beauvais

Colin Rowe, in *Collage City*, undertakes an analysis of this building.[30] It is a fundamental weakness of Rowe's work – one that, due to his influential position, has had a decisive effect over the last half century on the progress of architectural theory – that his ontology is a purely static one, dealing solely with that limited aspect of architecture which Le Corbusier named construction and which consists of the physical building as an object. Such an analysis usually proceeds in a limited formal manner: reduced to the physical object, the analysis of architecture becomes, taking Kant at his word, the question of the form of the design.[31] Architecture is reduced to buildings, to the hylomorphic complex of material and shape, where form usually becomes the topic of the academic's text, again in good Kantian manner. (That we sometimes see a counter-movement towards the question of the material quality of architecture does not get us any further than Rowe unless the ontology also changes.) Rowe uses a formal analysis of the Parisian Hôtel de Beauvais in order to cast light upon Le Corbusier's intentions when designing the Villa Savoye. Whereas, he says, the Hôtel de Beauvais is a series of masses clustered around a courtyard, the Villa Savoye inverts this relationship so as to form a coherent single form.[32] [Fig. 1]

The banality of this analysis is striking, but not untypical of what you get when the organology of architecture is reduced to an ontology of objects. As Le Corbusier's investigations in *Vers une architecture* show, he was fascinated by the way external spaces such as the courtyard of Le Pautre's Hôtel de Beauvais define something that feels like an interior. The analyses of the Casa del Noce, of the Acropolis, and of the forum at Pompeii – all spaces either of a similar enclosed intensity to the hôtel court, or accorded such an intensity by the analysis – show that he had no intention to merely invert that arrangement; on the contrary, he was fascinated by it, and went to great lengths in the design of the villa to incorporate such spaces on the first floor garden terraces, despite the fact that the building is a suburban one, sitting as an 'island' building within its site. A function of the density of the Poissy site is taken by Rowe as an indicator of the compositional strategy of the building; such an argument does not have much traction.

What is however intriguing about this comparison with the Hôtel de Beauvais is that, seen from the point of view of an organology of architecture – the operation of both the internal machine and the external transductive relations – rather than from the point of view of an analysis of form, far more interesting and pertinent connections can be drawn. How might we carry out such a non-formal analysis of Hôtel de Beauvais? What does that mean? Are we not always condemned to look at the building, the object? Is that not what objective study means? Precisely not. Simply because we wish to make

something our object of study, that does not mean to say that we are necessarily studying an object. Even as architects, critics, theorists or historians of architecture, we have the choice to make a different sort of study, one that is governed by another ontology, that is, an organology more appropriate to the nature of architecture in general and this building in particular. When we do this, the object of our study will change its character, and become something else. We need to be looking at something entirely different from that which a formal analysis of Hôtel de Beauvais and Villa Savoye would suppose.

If we instead carry out an analysis which describes the architecture as a transductive relation, in the manner which Le Corbusier employs in *Vers une architecture*, then in a few simple words we can outline the experience of Hôtel de Beauvais: you arrive from the street and pass under the porte cochère; in front of you, the view is framed by the arch leading into the light-filled courtyard; the roof of the porte cochère acts as a shelter from the sky which mediates your movement from the street into the building; you are dropped off and go into a grand vestibule where the dramatic staircase leads you up to the piano nobile; there, you see a longitudinal gallery; you can relate through the windows of this gallery on one side back to your point of entry; and, on the other, across to a raised and hidden garden at the same level, a garden which you did not know existed when you first arrived (a moment of pleasant surprise); this in turn sits over the ground-floor stables, your carriage and horses being garaged there by proceeding after having dropped you off.

This participatory account has analogies with a formal analysis of the building as an object, but it incorporates all that such a formal analysis could achieve, plus much more. It enables us to speak about scale as a function of the body; it enables us to speak about light as something that affects; it enables us to state spatial relations between things such that time – in fact, with Stiegler, technics as time – is taken into account, and with it issues such as the surprise that can be engendered when a new vista is opened up or a secret raised garden, unexpected in its location, is revealed.[33] Most importantly, it enables us to abstract from the particular situation being described, but in a manner that maintains the hyper-relational and mobile qualities of architecture, staying true to the transductive ontology Le Corbusier has outlined.

Without a doubt, Le Corbusier knew this hôtel intimately, as a transductive relation. My thesis here is that, in a Nietzschean revaluation (or 'transvaluation', *Umwertung*) of all values, he takes this relation and transposes it, almost event by event, to Poissy.[34] It is not a question of the architect striking a formal contrast between two objects. We are constantly misled if we think that what Le Corbusier was about was the masterful play of forms in light, if this phrase is interpreted merely formally. At the Villa Savoye, the external transductive machine plays like this, in a few simple words: you arrive from the street and pass under the porte cochère created by the raising of the building on piloti; in front of you, the view is framed by two of the same cylinders, revealing the light-filled countryside beyond; the roof of the notional porte cochère acts as a shelter from the sky which mediates your movement from the street into the building; you are dropped off and go into a grand vestibule where the dramatic ramp leads you up to the main level of the house; there, you find a longitudinal gallery; you can relate through the windows of this gallery on the one side back to the garden beside your point of entry; and, on the other, to a raised garden at the same level, a garden which you did not know existed when you first arrived (a moment of pleasant surprise); this in turn sits over the ground-floor garage, your car being garaged there by proceeding neatly forwards after having dropped you off.

We see that the playing of the transductive machine at the Villa Savoye virtually repeats the playing of the same machine in the Hôtel de Beauvais. It is as if these machines have become, and always have the potential to become, abstract machines or diagrams which can then be taken

Fig. 1: Antoine Le Pautre, Hôtel de Beauvais, Paris, 1660. Photo: author.

Fig. 2: The entry sequence of the Hôtel Jacquemart-André, Paris, Henri Parent, 1869–75. Photos: author.

Fig. 3: Villa Savoye entry sequence, Poissy, Le Corbusier, 1929–31. Photos: author.

up elsewhere. Within a longer essay, these themes could be transduced across to a discussion of Deleuze's interpretation of Foucault in his book of that name, where the topic of the abstract machine and diagram is shown to have its origin in architecture in the situation of Jeremy Bentham's panopticon.[35]

Informed by an organology of architecture – an ontology which Le Corbusier championed – the transductive investigator of something like Villa Savoye will uncover not only a richer account of architecture than is accessible to a formal analysis, but will also reveal connections between past works which the formal analysis will miss. Why are these connections available, and what is the particular way in which Le Corbusier uses them? If we speak in Stiegler's terms, what is happening here is an appreciation of the tertiary retention of the technics of architecture. Within the co-evolution, or co-individuation, of buildings and people – which is one of the becomings of architecture – the prosthetics of the environment retains the work of the past as an active archive which it is the joy of the architect (and others) to take up again and again.[36] There is something like a sedimentation of that evolution. Past transductive (différantial) activities of composition do not so much solidify into buildings (or objects) as form a societal tertiary retention that is not exactly a memory but the possibility of a memory happening for the first time – a memory of a past that never was, because the transductive 'they' of the past (both the buildings and the people) were something entirely different. Le Corbusier had to take these tertiary retentions up not as solid remnants or memories or records of memories (this would be to misunderstand Stiegler's tertiary retentions in a non-transductive manner) but as new possibilities for what we might call, taking a term from Yuk Hui, tertiary protentions.[37] There is an inherent futurity (of which Derrida often speaks) to architecture such that it not only 'retains', but also allows the projection of a creative future. Such tertiary protentions lie not only in the short-circuits of algorithmic pre-choice (as Hui points to negatively), but also in the long circuit of the right to – or the gift of – taking them up first in a new individuation of composition (what the architect does, the internal transduction) and then in an indefinite further external transduction of the architecture's 'reception' (invoking here Stiegler's interest in Wolfgang Iser's reception theory of literature) and co-individuation.[38]

Villa Savoye as a reworking of the Hôtel Jacquemart-André

The connection with the Hôtel de Beauvais is not the only tertiary protention we can point to in this case. We can carry out an even more precise participation in relation to another hôtel, this time what is now the Museum Jacquemart-André on the Boulevard Haussmann. Rather than repeating the abstract machine twice, I will write it in such a way that it applies to both that hôtel and the Villa Savoye:

> approach the building by driving perpendicular to the axis of the main rooms, likewise perpendicular to the street from which you have come; drive under the piano nobile; the drive curves to a semi-circle and you disembark having rotated through precisely ninety degrees; your vehicle continues another ninety degrees around the remainder of the semi-circle and parks beneath the piano nobile by turning inwards towards the centre of the plan; you, meanwhile, enter the building at the mid-axis parallel to your original approach but in reverse direction; and you find to one side a most dramatic vertical circulation arrangement – a remarkable sculptural spiral staircase winding up to the main floor and lit from above.

This movement is illustrated in figures 2 and 3 for each building. When one looks at the development of the planning of Villa Savoye, what is interesting is the speed with which Le Corbusier put together the initial outline of the plan. Although within the compositional transductive activity it is obvious that the five points of architecture and the promenade

play a key role as idea, or diagram, there is much more going on. Does the design fall rapidly from the sky into the designer's head? In this case, once one understands the ontology within which Le Corbusier worked – an ontology he had himself rediscovered and championed – it appears that he was operating within a field where the lessons learnt from the tertiary retentions of architecture could be re-envisioned within a long-circuited protention. With, but also beyond, the decorative ingenuity, who can fail to respond to the drama of the Hôtel de Beauvais? (In the early twentieth century, it was in any event in a poor state, and much of the decoration now visible is the result of a careful restoration and replacement of ornamental detail. This makes no difference to the transductive quality of the building, as outlined above.) Who can fail to respond to the drama of the entry sequence at the Museum Jacquemart-André, with its semi-circular nymphaeum-type space (itself of course invoking past architectures, such as Vignola's Villa Giulia, or Palladio's Villa Barbaro, or Carlo Maderno's Villa Aldobrandini in Frascati) and culminating in the most extraordinary of spiral staircases? My argument is that Le Corbusier does respond to these buildings, not in an objective manner (as Rowe would have it, by way of a contrast of forms), but by way of an organology – a relational ontology.

I noted above that Le Corbusier, earlier on in his architectural development, rejected the imitation of past architectural forms. The formal transposition, at whatever scale, from existing works into current designs, is something he tries out and then decisively rejects for the entirety of the rest of his career. However, the more general idea of a taking up of past architecture is by no means rejected. Instead, it gets reworked, re-assigned within a différantial organology, as a tertiary retention transposed into a tertiary protention. The existing works are, as Le Corbusier does in *Vers une architecture*, interpreted as having the character of the external transduction of architecture; he implies that this is in accord with the original ontology that those architects would have understood, at least implicitly – an organology or technics of the (therefore post-) human and the (therefore post-objective) building. This transduction of architecture then gets further transduced within the compositional internal machine of the new work of architecture – the Villa Savoye - along with multiple other devices such as the idea of the five points, the idea of the promenade, and the interplay between the developing design and the site which it reveals and creates.[39] An alternative way of putting this – and to use Deleuzian terminology – would be that there is a becoming-Jacquemart-André of the Villa Savoye, and (since both villas only subsist as a transductive relation including our psychosomatic individuation, our 'haecceity' to again quote Deleuze and Guattari) a becoming-Villa Savoye of the Hôtel Jacquemart-André.[40]

My analysis of the relation between the Villa Savoye and the Hôtel Jacquemart-André derives from visiting both buildings. I had the intense feeling, on entering the latter, that I had done something like that before, that I had been there before; almost a feeling of déjà-vu.[41] That is, a memory of a past that never was. It expressed in me the experience at Poissy. Am I here therefore merely replacing an objective analysis of architectural forms with a subjective one? Or a phenomenological one? Precisely not. The 'objects' of study for an organology of architecture are no less 'objective' in their character than those of a static ontology, and differ from a phenomenological analysis (just as Stiegler's philosophy goes beyond Husserl in the same way that his mentor Derrida's had already done in the early 1960s) in that a transductive account does not begin from a thinking subject but rather from the mutual three-way implication of psychosomatic individuation, collective individuation, and technical individuation.[42] But there is also evidence in the developmental sketches for the villa indicating such a becoming-Hôtel-Jacquemart-André. In his paper on the promenade

architecturale, Tim Benton points out that at Villa Savoye

> Le Corbusier toyed with the idea of introducing an elevated ramp which would bring cars into the house at first floor level from the South East. The ramp would then have dived down through the middle of the house to turn off to the North East. This astonishing proposition, complete with a porte-cochère, would clearly have been impractical.[43]

That Le Corbusier was attempting to bring cars in at first floor level on a ramp, not only turning through 180 degrees but also sloping up and then down is indeed an astonishing proposition, which Benton attempts to explain by analogy between the final pedestrian ramp and vehicular circulation, and by formal analogy with Le Corbusier's urban theory. Transductive criticism will not be persuaded by such formal analogies, since our argument is that by this time, Le Corbusier had set aside that ontology. Transductive architectural analysis instead notes that there exists a non-formal, non-phenomenological, non-analogical interplay between the villa and the Hôtel Jacquemart-André that Le Corbusier was expressing, since in the latter the vehicular approach is precisely a rotation of 180 degrees up to first floor piano nobile level and then back down again. It could perhaps only be by such attempted expression of a becoming-Hôtel Jacquemart-André that Le Corbusier would make such an 'astonishing proposition'.[44]

Such an expressive architecture is, we could say with another theorist (Demitri Porphyrios, writing of Aalto in *Sources of Modern Eclecticism*), a 'heteroclite symbiosis'. However, Porphirios's beautiful and evocative term needs to be re-understood, since for him it operated within a static ontology rather than a transductive one.[45] The heteroclite heterogeneity I refer to operates on a different level, namely that of the external transduction; the symbiosis refers not (as it does in Porphyrios's work) to a symbiosis of forms, but to the symbiosis inherent in this différantial relation, working also within the internal machine of architecture. (We could, of course, do a similar organological analysis of Aalto's early and middle periods, taking all the 'objective' data Porphyrios provides us with and re-understanding it transductively. In that case, the transductive relation occurs also with Finland 'itself', which did not precede Aalto's work and came into being as a country in a co-individuation with the architecture.) Once we realise (that is, both comprehend and effect) the difference, it becomes clear why a no-doubt perspicacious theoretician of Aalto's architecture such as Porphyrios, when it comes to his own internal compositional machine, seems to stay so stubbornly with an architecture of the mimesis of past classical objects and forms. This is only a particular example of the broader phenomenon that the analytical tools commonly used by the discipline of architecture, from Rowe to Eisenman, based on drawing, graphic analysis, geometry and form, perpetuate the problem of architecture being reduced to buildings and composition.[46]

Villa Savoye is an exemplary work. Its significance lies not only in its abstract appearance, nor indeed in the skill, novelty and shear panache of its architectural promenade, nor in its filmic quality, nor (with Tschumi) in its ability to be overcome by a decayed sensuality that would proclaim an other architecture; nor in its explicit references to an architecture stretched out between earth and sky embodied by the basement and the solarium linked by the enlightening movement of the spiral stair.[47] It articulates, of course, all of these things and many more. But above all it proclaims an other ontology of architecture, an organology of composition and existence, a rich and multiple inherently relational transduction, one which we can essay in all of Le Corbusier's later work and indeed in any architecture worthy of that name.

Notes

1. Bernard Stiegler, 'Deconstruction and Technology: Fidelity at the Limits of Deconstruction and the Prosthesis of Faith', trans. Richard Beardsworth, in *Jacques Derrida and the Humanities: A Critical Reader*, ed. Tom Cohen (Cambridge: Cambridge University Press, 2001), 250. Simondon proposes the idea of the transductive in, among other places, *On the Mode of Existence of Technical Objects* dating from 1958. Gilbert Simondon, *On the Mode of Existence of Technical Objects*, trans. Ninian Mellamphy (London, Ontario: University of Western Ontario Press, 1980).
2. Stiegler, 'Deconstruction and Technology', 250.
3. For the question of the short-circuit and the long circuit in Stiegler, see his 'Programs of the Improbable, Short Circuits of the Unheard-of', trans. Robert Hughes, *Diacritics* 42, no.1 (2014): 70–108.
4. See, among other places: Bernard Stiegler, 'What Is Called Caring? Beyond the Anthropocene', in *Techné: Research in Philosophy and Technology* 21, no. 2–3 (2017): 386–404, pages 390 and 391; *Nanjing Lectures 2016–2019*, ed. and trans. David Ross (London: Open Humanities Press, 2020), pages 45, 47 and 173. I am grateful to the editors for bringing my attention to these quotations.
5. For a more detailed exposition of transductive relations and the linkage with information science, systems theory, cybernetics and quantum theory, please see my article in *Footprint* 28: Tim Gough, 'Systems and Relations All the Way Down, All the Way Across', *Footprint* 28 (2021): 63–80.
6. Félix Guattari, *The Three Ecologies*, trans. Ian Pindar and Paul Sutton (London: The Athlone Press, 2000), 28.
7. This question of immanence (as opposed to transcendence) is the central question for Deleuze. See, at the beginning of his career, *Nietzsche and Philosophy* (where Kant is said to fail [p. 91] and Nietzsche to succeed in the project of an immanent philosophy) and at the end his *Pure Immanence: Essays on A Life*. Gilles Deleuze, *Nietzsche and Philosophy*, trans. Hugh Tomlinson (New York: Columbia University Press, 2006); *Pure Immanence: Essays on A Life*, trans. Anne Boyman (New York: Zone Books, 2001).
8. These two publications are: Willy Boesiger and Hans Girsberger, eds., *Le Corbusier 1910–1965* (London: Thames and Hudson, 1967) and Le Corbusier, *Towards a New Architecture*, trans. Frederick Etchells (New York: Dover, 1986 [1923]).
9. The distinction between these two modalities of architecture – the aspect internal, as it were, to the architect as they compose the building, and the external aspect that occurs once the building has been created and is in use – is one that Félix Guattari also points to in his short essay 'Architectural Enunciation', where he names them as 'polyphonic, on the order of the *percept*' (internal to composition) and 'ethico-aesthetic, of the order of the *affect*' (what happens when architecture takes on being with its inhabitants). Félix Guattari, 'Architectural Enunciation', in *Schizoanalytic Cartographies*, trans. Andrew Goffey (London: Bloomsbury, 2013), 233.
10. Boesiger and Girsberger, *Le Corbusier 1910–1965*, 23. The illustration to refer to is the artist's studio on that page. This illustration is also found on page 22 of Volume One of the *Oeuvre Complète*. *Le Corbusier et Pierre Jeanneret Oeuvre Complète de 1910–1929*, ed. Willy Boesiger and Oscar Stonorov (Zurich: Girsberger, 1937), 22.
11. Le Corbusier, *Towards a New Architecture*, 183.
12. Ibid., 229–36.
13. Peter Eisenman, 'Aspects of Modernism: Maison Dom-ino and the Self-Referential Sign', *Log* 30 (Winter 2014): 139–15.
14. Le Corbusier, *Towards a New Architecture*, 230–31 and 236. The illustration of this scheme is on pages 230–31.
15. The phrase 'Une maison est une machine à habiter' (Le Corbusier, *Vers une architecture* (Paris: les éditions G. Crès et Cie, 1924), 73) is poorly translated as 'A house is a machine for living in' by Etchells (Le Corbusier, *Towards a New Architecture*, 95). The 'in' betrays immanence, and sneaks in a transcendence of the pre-existing house to the living which

subsequently occurs. ‘Architecture only exists when there is a poetic emotion. [L’architecture, c'est quand il y a émotion poétique]’. Le Corbusier, *Towards a New Architecture*, 215.

16. Ibid., 181–83.
17. Ibid., *Towards a New Architecture*, 182–83.
18. For a discussion of the mereological question of the part and the whole in relation to architecture, see my essay in *Footprint* 20 on analytical philosophy. Tim Gough, ‘G.E. Moore’s *Principia Ethica* and the Complex of Architecture’*, Footprint* 20 (2017): 11–22.
19. Le Corbusier, *Towards a New Architecture*, 183.
20. Ibid., 43.
21. Ibid., 179.
22. Ibid., 195
23. Metaphor is always a transcendent game. This is because it posits an original, ‘correct’ meaning from which the metaphor is derived. This had already be deconstructed by Derrida in his essay *Qual Quelle*. That this deconstruction remained unacknowledged in Paul Ricoeur’s later and somewhat anachronistic *The Rule of Metaphor* is symptomatic of the failings of a hermeneutic, phenomenological and, in Ricoeur’s case, theological interpretation. See Jacques Derrida, ‘Qual Quelle: Valery’s Sources’, in *Margins of Philosophy*, trans. Alan Bass (Brighton: Harvester Press, 1982), 273–306; Paul Ricoeur, *The Rule of Metaphor: The Creation of Meaning in Language*, trans. Robert Czerny with Kathleen McLaughlin and John Costello (London: Routledge, 1977).
24. See Richard E. Etlin’s classic study, ‘Le Corbusier, Choisy, and French Hellenism: The Search for a New Architecture’, *The Art Bulletin* 69, no. 2 (June 1987): 264–78.
25. Camillo Sitte, *The Art of Building Cities: City Building According to Its Artistic Fundamentals*, trans. Charles T. Stewart (Eastford, CT: Martino Fine Books, 2013). The relation between Le Corbusier and Sitte is discussed in H.A. Brooks, ‘Jeanneret and Sitte: Le Corbusier’s earliest ideas on urban design’, in *In Search of Modern Architecture*, ed. Helen Searing (Cambridge, MA: MIT Press, 1982).
26. Adolf von Hildebrand, ‘The Problem of Form in the Fine Arts’, collected in *Empathy, Form and Space: Problems in German Aesthetics 1873–1893*, trans. Harry Francis Mallgrave and Eleftherios Ikonomou (Santa Monica: The Getty Center for the History of Art and the Humanities, 1994), 229.
27. Quoted from the introduction to *The Vienna School Reader*, ed. Christopher S. Wood (New York: Zone Books, 2003), 9.
28. Stanford Anderson, ‘Thinking in Architecture’, in *Ptah 08 Yearbook Architecture: Building, Designing, Thinking,* ed. Esa Laaksonen (Helsinki: Alvar Aalto Academy, 2009), 72–86. Lakatos’s idea of a non-conservative model for scientific investigation is outlined in Imre Lakatos, ‘Falsification and the Methodology of Scientific Research Programmes’ in *The Methodology of Scientific Research Programmes: Philosophical Papers Volume I*, ed. John Worrall and Gregory Currie (Cambridge: Cambridge University Press, 1978), 8–101.
29. Tim Benton, ‘Le Corbusier y la promenade architecturale’ (with English original), *Revista Arquitectura* 100, no. 264–265 (1987): 38–47. The reference to the virtual is on page 42: ‘The promenade, in an important sense, is a virtual rather than actual one.’
30. Colin Rowe and Fred Koetter, *Collage City* (London: The MIT press, 1983), 78. Famously, he also analyses the building in *The Mathematics of the Idea Villa* from 1947. This, too, operates strictly within a limited objective ontology of architecture. Colin Rowe, ‘The Mathematics of the Ideal Villa’, collected in *The Mathematics of the Ideal Villa and other Essays* (Cambridge, MA: MIT Press, 1976), 1–28.
31. ‘In painting, in sculpture, indeed in all the visual arts, including architecture and horticulture insofar as they are fine arts, design is what is essential; in design the basis for any involvement of taste is not what gratifies us in sensation, but merely what we like because of its form.’ Immanuel Kant, *Critique of Judgment*, trans. Werner S. Pluhar (Indianapolis: Hackett, 1987), 71.
32. Rowe and Koetter, *Collage City*, 78.
33. For the theme of technics *as* time, see Stiegler’s three volumes of *Technics and Time*, but in particular

Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus*, trans. Richard Beardsworth and George Collins (Stanford: Stanford University Press, 1998), 83.

34. Friedrich Nietzsche, 'The Anti-Christ', in *The Anti-Christ, Ecce Homo, Twilight of the Idols and Other Writings*, trans. Judith Norman (Cambridge: Cambridge University Press, 2005), 66. For another take on the question of 'trans-', see my essay in *Footprint* 21: Tim Gough, 'Trans-Architecture', *Footprint* 21 (2017): 51–65.
35. Gilles Deleuze, *Foucault*, trans. Seán Hand (Minneapolis: University of Minnesota Press, 1988), 31. I discuss this question of the relation between Foucault's diagram, Bentham, architecture and Deleuze and Guattari's abstract machine in: Tim Gough, 'Diagrammatic Architecture', *le Journal Spéciale'Z* no. 4, Ecole Speciale D'Architecture (2012): 8–22.
36. On the archive in Derrida and Stiegler, see Yuk Hui's 'Archives of the Future: Remarks on the Concept of Tertiary Protention', in *Inscription*, ed. Karl-Magnus Johansson (Göteborg: Riksarkivet Landsarkivet i Göteborg, 2018), 129–51.
37. Ibid., 147.
38. Bernard Stiegler in interview with Irit Rogoff, 'Transindividuation', *E-Flux Journal #14*, 2010, 4. For an extended discussion of Iser's reception theory in relation to architecture, see my essay in *Architectural Theory Review*: Tim Gough, 'Reception Theory of Architecture: Its Pre-History and Afterlife', *Architectural Theory Review* 18, no. 3 (Spring 2014): 279–92.
39. A longer analysis would look more closely into this question of the co-creation of the site and the building, starting of course from Heidegger's point in 'Building Dwelling Thinking' that the river banks only become apparent because of the bridge, or in 'The Original of the Work of Art' the stony valley only appears with the creation of the Greek Temple. Martin Heidegger, 'Building Dwelling Thinking' and 'The Original of the Work of Art' in *Poetry, Language, Thought*, ed. and trans. Albert Hofstadter (New York: Harper & Row, 1971). For a more recent discussion on this topic, see Andrea Kahn, 'Defining Urban Sites' in *Site Matters: Design Concepts, Histories, and Strategies*, ed. Carol J. Burns and Andrea Kahn (London: Routledge, 2005), 281–96.
40. For the theme of haecceity, see in particular Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), the section in plateau 10 ('1730: Becoming-Intense, Becoming-Animal, Becoming-Imperceptible') entitled 'Memories of a Haecceity' (pp. 260–65). More space would enable me to look more closely at how the recounting of the transductive haecceity of the villa/hôtel relates, precisely, to the question of memories.
41. This same intense feeling happens occasionally for me with one other architect, aside from Le Corbusier. That is Herzog and de Meuron, perhaps not co-incidentally from the eastern part of Switzerland. One only has to experience, in the same weekend, the east facade of Ronchamp and the east façade of Schaulager to understand that these Basel architects have learnt a transductive lesson from the La Chaux-de-Fonds master.
42. Deleuze and Guattari's critique of phenomenology in *What is Philosophy?* can be invoked here: 'Beginning with Descartes, and then with Kant and Husserl, the cogito makes it possible to treat the plane of immanence as a field of consciousness. Immanence is supposed to be immanent to a pure consciousness, to a thinking subject.' Gilles Deleuze and Félix Guattari, *What is Philosophy?*, trans. Hugh Tomlinson and Graham Burchell (New York: Columbia University Press, 1994), 46. For a discussion on this, see Leonard Lawlor, 'The End of Phenomenology: Expressionism in Deleuze and Merleau-Ponty', *Continental Philosophy Review* 31 (1998): 15–34.
43. Benton, 'Le Corbusier y la promenade architecturale', 45.
44. In correspondence with Tim Benton, he pointed out to me that the attribution of these sketches to the Villa Savoye has been called into question by Josep Quetglas in his *Les Heures Claires: Proyecto y Arquitectura en la Villa Savoye de Le Corbusier y Pierre*

Jeanneret (Barcelona: Massilia, 2008). Professor Benton also kindly directed me to Jan Birksted's article 'The Politics of Copying: Le Corbusier's "Immaculate Conceptions"', *Oxford Art Journal* 30, no.2 (2007): 305–26, which is an interesting instance of a formal comparison between Le Corbusier's work and his forebears, similar in ontology to that of Colin Rowe.

45. Demitri Porphyrios, *Sources of Modern Eclecticism* (London: St Martin's Press, 1982).
46. To quote one of the reviewers of this essay, to whom I am grateful for putting the matter so clearly. I look more closely at some aspects of Peter Eisenman's formalism in: Tim Gough, 'The Voids of Eisenman's Fin D'Ou T Hou S', *Kritische Berichte* 3 (2018).
47. The Tschumi reference is to his *Advertisements for Architecture* (1975), where photos of the decayed Villa Savoye in the 1960s are juxtaposed with slogans such as 'sensuality has been known to overcome even the most rational of buildings.' Although why it was thought of as rational is unclear. Reprinted in 'Architecture and Transgression' in Bernard Tschumi, *Architecture and Disjunction* (Cambridge, MA: MIT Press, 1996): 63–78.

Biography

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Review article

Simondoniana: Essays by Kodalak and Kousoulas, with Mutual Responses

Gökhan Kodalak, Stavros Kousoulas

No Gilbert, no Bernard. It would be unimaginable to dedicate an issue to Stiegler without devoting a section to Simondon. Two contemporary architectural philosophers have responded to the editors' call to speculate on the impact of the philosophy of technology on the discipline of architecture. The essays were written in isolation and subsequently sent back and forth for mutual responses. The two converging and diverging lines of thought are juxtaposed. It turns out that our initial question was perhaps posed wrongly. Ask not what Simondon can do for architecture – ask what architectural technicity can do for philosophy.

Simondon, the Question of Technology, and the Architectural Margin of Indeterminacy

Gökhan Kodalak

Gilbert Simondon is a post-war philosopher who formulated a new way of conceiving individual modalities – from crystals, technical objects and biological organisms to psychic phenomena and social collectives – by exploring their individuating processes. Despite his original insights on philosophy and technology, however, Simondon's work was overlooked for decades, with the exception of dedicated thinkers such as Bernard Stiegler who unpacked and furthered his project.[1] The field of architecture is no exception to this neglectful tendency. After decades of silence, we have been discovering the architectural implications of Simondon's philosophy only in the last few years.[2]

Simondon was active from the 1950s until his death in 1989 within the vibrant context of French thought. He interacted in varying degrees with Georges Canguilhem's philosophy of science and biology, Martial Guéroult's history of early modern philosophy, Maurice Merleau-Ponty's phenomenology of perception and art, and Gilles Deleuze's idiosyncratic philosophy. His metaphysical conception of ontogenesis, which explains how *individuals* emerge from a *pre-individual field* of metastable potentials through processes of *individuation*, helped him reconceive technical objects, no longer as passive automata, but as exuberant individuals, active and full of life, with their own irreducible modes of existence. With this new vision, Simondon invites us to rethink our relationship with technical objects beyond the mythological attitudes of technocracy, technophilia, and technophobia, which we can develop further today to reconceive architecture's own modes of existence and charged relations with technology.

Ontogenetic triad: predindividuality, individuation, and individuality

Simondon explains the making of the universe and the existence of a plethora of different beings by way of an ontogenetic triad of his own. Every individual (*individuel*), he argues, exists via continuous processes of individuation (*individuation*), arising immanently from divergent potentials of the preindividual being (*l'être préindividuel*). The interplay within this ontogenetic triad – preindividuality > individuation < individuality – breathes life into all modes of existence, through which the underlying

generativity of the cosmos is channelled by each and every being.

Simondon's ontogenetic approach is a fundamental objection against the canonical lineage of continental philosophers and scientists who, for centuries, have defined the cosmos with respect to 'constituted individuals' such as galaxies and planets at the macro-scale, humans, animals, plants, and technical objects at the meso-scale, and atoms and subatomic particles at the micro-scale, to such an extent that even when they envision what transcends reality, the supernatural dimension they imagine is still only populated by preformed individuals such as angels, demons, and gods. Yet reality, Simondon counters, is not made of individuals whose modes of existence arrive preformed. Individuals rather become individuated by way of genetic and developmental processes of individuation. 'Grant[ing] an ontological privilege to the constituted individual' is the majestic misstep of canonical Western thought, Simondon argues, which 'runs the risk of not actualizing a veritable ontogenesis that would put the individual back into the system of reality within which individuation takes place.'[3] To oppose this canonical misstep, Simondon develops his ontogenetic approach by seeking 'to know the individual through individuation, rather than individuation starting from the individual.'[4]

Knowing the individual through individuation requires identifying – and to a certain extent speculating about – its genetic relationship with 'the preindividual being.' In Simondon's own words:

> The individuated being is neither the whole being nor the first being; *instead of grasping individuation on the basis of the individuated being, the individuated being must be grasped on the basis of individuation and individuation on the basis of preindividual being*, which is distributed according to several orders of magnitude.[5]

Simondon's 'preindividual being' is not a supernatural, transcendent realm, but an immanent, subsisting dimension of reality. It is a topological continuum, a shared manifold, an infinite ocean constantly dephasing itself beneath our everyday actuality. There are no individual distinctions in the preindividual being's continuity, but infinite variations and differentiations attained by the thickening and thinning of its potential fields. This means that all beings in the cosmos, all of us, attain our individuality from a common preindividual field of potentiality, yet do so by actualising and unpacking this shared field's differentiating gradations. We all embody the same underlying source, but manifest it in many different forms.

Simondon's ontogenetic triad therefore expresses co-existing dimensions of a single reality. At the level of preindividuality, nothing has yet taken on form or become actual; rather, there is a metastable field capable of assuming various individual forms. At the level of individuation, preindividuality is in the process of being immanently expressed as individuality, that is, the different potentials and contrary tensions of preindividuality resolve themselves in the emergence and persistence of individual beings. At the level of individuality, underlying potentials have already given way to certain modes of actuality and stability, constraining the spaces of genetic and developmental possibilities, expressing certain qualities and formal organisations over the others.

Such is the ontogenetic worldbuilding that allows Simondon to posit that all individual beings are generative and express unique modes of life. For all individual beings, whether humans, animals, plants, crystals, technical or architectural modalities, can implicate underlying potentials of the preindividual being, complicate such potentials through individuation processes, and explicate them via individuated forms and qualities. Being alive and generative simply means being capable of articulating the very life that runs across the preindividual and individual dimensions by way of individuations. 'Thus, life is not a distinct substance of matter', Simondon concludes, 'it supposes processes of integration

and differentiation that cannot in any way be given by something other than physical structures.'[6] That is, there is no bifurcation of life and non-life in reality but a gradual continuity of vitality across physical and biological individuations.

This means that just as there are modes of life peculiar to organic individuals like humans, animals, and plants, so too are there modes of life unique to non-organic individuals like crystals, technical objects, architectural buildings, and machines. 'The machine, being a work of organisation and information, is, like life itself and together with life', Simondon argues at one point, 'opposed to depriving the universe of the power of change.'[7] At another point, he adds: 'There is something alive in a technical ensemble.'[8] Technical – and by extension architectural – modalities do not lack generativity; they are not inert tools or passive instruments lacking 'the power of change' as conventionally perceived. From Simondon's radical lens, technical and architectural modalities are all alive, albeit 'according to several orders of magnitude.'[9]

Mythological triptych: technocracy, technophilia, and technophobia

Simondon's heterodox acknowledgment of technical and architectural life goes against orthodox Western conceptions, which imagine a 'gap' between the life of humans and the so-called 'nonlife' of technical (and architectural) objects: 'What is wrong is rather that there is a gap between man and the object, a misunderstanding, a sort of war.'[10] As most of us are indoctrinated by the Western canon's far-reaching influences, Simondon argues, we find ourselves internalising this gap, which leads us to develop mythological attitudes toward technical objects: 'A gap manifests itself in our civilization between the *attitudes* provoked in man by the technical object and the true nature of these objects; from this inadequate and confused rapport a set of *mythological* valuations and devaluations arises'.[11] Acknowledging the unique lives of technical objects and architectural modalities requires, first and foremost, revealing the inadequacy of our mythological attitudes arising from this fabricated 'gap'.

Simondon observes that we have developed three dominant 'mythological attitudes' in our modern relationship with technology. The first attitude corresponds to 'enslaving' technical modalities, so that we subordinate their lives to our own purposes; we turn them into passive objects; we force them to echo our own ambitions; we ignore their transfinite capabilities of individuation; we devalue their lives, or rather, we don't even recognise that they are, in fact, alive. Simondon calls this mythological attitude 'technocracy'.[12]

Because of our technocratic attitude, Simondon maintains, 'the technical object remains neglected.'[13] And so, the technical object 'must be rescued from its current status, which is miserable and unjust.'[14] Technical (and architectural) modalities must be rescued, Simondon insists, for we turn them into 'slaves' so as to extend our methods of domination by their mediation over nature as well as over other people:

> One could use the term 'autocratic philosophy of technics' for a philosophy that takes the technical ensemble as a place where machines are used in order to obtain power. The machine is only a means; the end is the conquest of nature, the domestication of natural forces by means of a first act of enslavement: the machine is a slave whose purpose is to make other slaves. Such a dominating and enslaving inspiration can coincide with the quest for man's freedom. But it is difficult to free oneself by transferring slavery onto other beings, men, animals, or machines; to reign over a people of machines that enslave the entire world is still to reign, and every reign presupposes the acceptance of the schemas of enslavement.[15]

With this technocratic attitude, we instrumentalise technical objects and architectural modalities as a means to our own ends. We weaponise them to domesticate nature and discipline culture. We acknowledge neither their unique lives and singular

modes of existence, nor their underlying potentials and arcs of individuation. We overlook their vitality, pretend that their exuberant agencies are mere reflections of other 'living' actors, and cover their animate capacities with our self-serving impositions.

Simondon seems to insist in the analogy of 'enslavement', not to devalue the traumas and pains embedded in the social history of slavery, but to oppose the constant imposition of different 'enslavement schemes' on other beings, to animals, natural milieus, and technical modalities. For he intuits that, insofar as we keep similar techniques of domination, we are always at risk of not just enslaving other beings, but also ourselves and each other:

> Awareness of the modes of existence of technical objects must be brought about through philosophical thought, which must fulfil a duty through this work analogous to the one it fulfilled for the abolition of slavery and the affirmation of the value of the human person.[16]

This urges us to reconceive our tired relationship with technical and architectural modes of existence beyond instrumentalising them for 'enslaving' social and natural modalities.

The second mythological attitude reverses the master-slave hierarchy and turns technical objects into transcendent masters with a positive moral lens, so that we divinise them; we assign them supernatural qualities; we worship their 'prophetic' powers; we seek our redemption in their 'sacred' existence. Simondon calls this 'technophilia', or 'the idolatry of the machine'.[17] Regarding the technophilic attitude, Simondon gives the example of idolising an imaginary ideal of human-like robots, which can be updated with recent examples such as the naïve (seemingly transhumanist but latently idealist) dreams of uploading our minds to clouds to achieve disembodied immortality, or the unsuspecting utopias of living in perfect harmony under the flawless control of (supposedly) non-biased algorithmic systems.

The third and the final attitude keeps technical objects as transcendent masters, but pushes them to the opposite, negative moral pole, so that we demonise them; we assign them aggressive qualities; we fear their 'cataclysmic' powers; we envision them as the harbingers of the impending apocalypse. Simondon calls this 'primitive xenophobia' against the technical object, which can be shortened to and renamed technophobia, so as to better fit his conceptual triptych.[18] Regarding the technophobic attitude, Simondon gives the example of our constant fear of machinic rebellion that poses an existential risk to our (self-proclaimed) human supremacy, which has become even more prominent in the last few decades with the new discussions around artificial general intelligence.

What these three seemingly different – even opposing – mythological attitudes all share is their insistent overlooking of the unique modes of existence of technical objects: technocracy enslaves and instrumentalises their life; technophilia dresses them in holy robes; transphobia turns them into diabolical monsters. Simondon's subtle observation of our mythological attitudes reveals that it is easier for us to imagine technical objects as gods, demons, or slaves than to acknowledge their singular modes of being.

Architecture is not exempt from such mythological attitudes, as the next cutting-edge technology – whether algorithmic coding, robotics, artificial intelligence, 3D printing, or blockchain – is either immediately instrumentalised by the technocrats to impose new orders of domination on social actors and natural environments, or naïvely embraced and idolised by the technophiles, or paranoidly opposed and demonised by the technophobes. None of us are totally immune to these attitudes, which are not even mutually exclusive; that is, we all find ourselves from time to time participating in, hybridising, and disseminating these myths in different ratios and to varying degrees. Considering the deeply-entrenched influence of these attitudes, is there even the possibility of an

alternative position in our relationship with technology? Building on Simondon's critical analysis, can we today evade the pitfalls of this mythological triptych?

Heterarchy: 'being among the machines'

Simondon suggests getting rid altogether of these master-slave hierarchies that mistake technical objects for slaves, gods, and demons. Because we, humans, Simondon argues, are neither above the machines, nor below them: '[man] is *among* the machines that operate with him. '[19] Now, this is a crucial alternative, a fourth attitude moving beyond the mythological triptych, which acknowledges not just the singular life of technical (and architectural) modalities, but situates their life on equal grounds with ours. Although Simondon does not give a specific name to this alternative attitude in his oeuvre, it is too critical to remain unnamed, so I suggest retrospectively calling it heterarchy (as opposed to the master-slave hierarchy).[20]

Developing a heterarchical attitude toward technical (and architectural) modalities means conceiving of ourselves 'among' them, affirming that they 'operate with us', and acknowledging their modes of existence on equal footing with ours, insofar as one affirms that it is a question of heterogenous capacities, 'as long as one realises that it is a question of different speeds'.[21] For technical (and architectural) modalities are also beings with singular modes of existence; they can also harbour unique potentials and constraints as continuous extensions of life; they are also capable of embodying transfinite capabilities of affecting and being affected by their associated milieu within their finite lifetime; they can also channel the preindividual field of potentiality, undergo ever new individuations unique to their being, and crystallise themselves as persevering yet malleable individual beings. Ontogenetic commonalities render humans, machines, and buildings continuous and on equal footing; ontogenetic singularities render each and every one of us distinct and unique.

Simondon maintains that our relationship with technical (and architectural) modalities is neither vertical, nor unilateral, but reciprocal: in our tempering and hurrying them, we are tempered and hurried by them in return.[22] This means there is a co-determining evolution, a latent intimacy shared across our organic and technical setups. In an often-overlooked TV interview, Simondon goes even further: 'Without an excess of passion or indifference, one must have an attitude of friendship, of society with technical objects.'[23] Such is the heterarchical attitude: a friendship of equals mutually benefiting from each other's heterogeneous skill-sets. This means that potencies of flesh, silicon, and stone are not alien to each other. Humans, machines and buildings, regardless of our divergent potencies, regardless of our dissimilar form and content, regardless of our singular beings and different contexts, can and do trespass on preset classifications; we associate with each other in unexpected, surprising ways. Through Simondon's heterarchical lens, we – humans, machines, and buildings – are all singular modes of existence evolving in a reciprocal dance by way of individuating the generativity of life that runs through us in varying magnitudes and speeds.

A 'high degree of technicity': becoming more alive

Simondon argues that, insofar as we can affirm the unique life of technical (and architectural) modalities and acknowledge our heterarchical reciprocity with them, we can construct machines (and buildings) 'with a high degree of technicity'.[24] This is Simondon's crucial move, bridging metaphysics with ethico-aesthetics. It means no longer reducing the life of buildings and machines to predetermined operations, no longer conceiving them from the viewpoint of automation, no longer closing them in on themselves. Rather, Simondon suggests constructing 'open machines' that harbour 'a certain margin of indeterminacy':

> Automatism, however, is a rather low degree of technical perfection. In order to make a machine automatic, one must sacrifice a number of possibilities of operation as well as numerous possible usages … The true progressive perfecting of machines, whereby we could say a machine's degree of technicity is raised, corresponds not to an increase of automatism, but on the contrary to the fact that the operation of a machine harbors a certain margin of indeterminacy. It is this margin that allows the machine to be sensitive to outside information. Much more than any increase in automatism, it is this sensitivity to information on the part of machines that makes a technical ensemble possible. A purely automatic machine completely closed in on itself in a predetermined way of operating would only be capable of yielding perfunctory results. The machine endowed with a high degree of technicity is an open machine.[25]

That is, the higher margins of indeterminacy that technical (and architectural) modalities can harbour, the higher the degree of technical perfection they can achieve.

It is no wonder that the canonical modes of architectural practice and thinking have rarely embraced such a heterodox approach. That would mean letting go of our predetermined control, self-proclaimed authority, and unilateral master-slave projections over the vibrant lives of architectural modalities. We have yet to cast away our mythological conceptions, leave behind our technocratic, technophobic, and technophilic attitudes, and stop overlooking the unique existence of architectural modalities. Only then can we reconceive of architectural modalities not just as full of life and on equal footing with ourselves, but as harbouring high margins of indeterminacy and operating within an expanded space of possibilities.

Cedric Price is one of the few architects (and anomalies) in the history of the profession who resisted the canonical given of conceiving architectural modalities as lifeless automata. Rather, he grounded his design ethos on 'the acceptance of the "life" of a building', and developed an idiosyncratic post-war vision congruent with that of Simondon.[26] As though channeling Simondon's plea for augmenting technical indeterminacy, Price once concluded a public architectural lecture as follows:

> But what does worry me, is that the profession doesn't like the idea of uncertainty. If something is uncertain, they call it a crisis... Now unless architecture realizes that *calculated uncertainty* is one of the great generators for what it should be doing in the future, then I think the profession has no future. But I think architecture has.[27]

From the shared, and implicitly cybernetic viewpoint of Simondon and Price, this is the ethico-aesthetic horizon of technical and architectural modalities: becoming more open, harbouring a higher degree of technicity, operating within higher margins of indeterminacy, in short, *becoming more alive*.[28]

Architects for Simondon

Stavros Kousoulas

Why Simondon in a volume dedicated to Stiegler? It is not that Stiegler's oeuvre cannot be examined without referring to the crucial influence of Simondon. More importantly, it is only through Simondon that Stiegler makes sense. Simondon is keen to remind us that sense, first and foremost, stands for directionality: to make sense is to grasp a direction.[29] Without Simondon's critical reformulation of our technological becoming, Stiegler's project is without meaning. In a non-zero-sum game, Stiegler through Simondon and (retroactively) Simondon through Stiegler produce the norms and values of a directing sense that can indeed compel us to engage in our worldly endeavours with neganthropic care.

Why architects for Simondon? Primarily, to be done with the 'philosophers for' plague that torments almost any discourse: philosophy should not be misused metaphorically in any other field than its own. On the contrary, philosophy can and will meet

other discourses on the level of the problems that they pose. Let us not forget Deleuze's declaration:

> It is a question of stealing a word … we will take it, we will pick it up and we will keep it for our own uses but not as a metaphor. We will proceed neither by metaphor nor by metonym. We will proceed by using an inexact term to say the exact thing.[30]

As such, architecture and philosophy can meet each other, without any metaphors or simplifications, on the intensity of their problematic entanglements. Within this problematic field, an amateur 'architectosophy' can emerge, one that produces architectural concepts for philosophical problems and vice versa. In the architectosophical academy, Simondon is a pioneer, always on the limit: between technology and culture, actuality and virtuality, disparation and emergence, a philosopher of humble, material – done in the workshop – production which nonetheless succeeds in being cosmological. This is the plan: to steal Simondonian terms that are architecturally inexact in order to speak in an exact way about architecture. However, I will not speak about architecture in general, but rather about the architectural act itself. Through Simondon and through an architectural reconsideration of his most critical terms, we will see how we can speak of an architecture that depends only on the architectural act and its capacity to be affectively attuned to a shared (informational) meaning.

What does architecture do?

Architecture produces information. Before clarifying that production is not the most accurate term when it comes to information (another Simondonian concept will prove much more adequate), we need to dissociate information from dataism. Information, for Simondon and for architecture, has nothing to do with data, big or small. To confuse information with data is an original sin we have carried since the first information theories, be it those of Claude Shannon, Léon Brillouin or even Alan Turing himself. Most of those self-proclaimed information theories deal with the transmissibility or the compressibility of data but, crucially, not with the effect of data when it gets to be eventuating; or, in better terms, when it becomes informative. In other words, most information theories are flawed since they do not examine information but rather how information can be calculated and simulated; as such, they are data theories and not information theories.

This is Simondon's first important lesson: information is a universal process that concerns all being and it is the formula for individuation, the sense according to which a system individuates.[31] It is a requirement for individuation, but it is never a given thing to be measured in bits and bytes, words or numbers. In simple terms, information is a difference that can make a difference.[32] In even simpler terms, it is the potential that can energise a potential: what sort of and how much intensity is needed for a transformation to occur. Therefore, information becomes synonymous with significance, with meaning. Nothing is inherently informational, nor is anyone informed in the same way. What matters is neither the emitter, nor the message but a particular state of the receiver that needs to be metastable enough, charged with potentiality in order to make becoming-informed possible. We are in for a surprise though: something is meaningful when it is constrained. As biologist Stuart Kauffman writes, 'constraints are information and information is constraint.'[33]

This is architecture's first important lesson: to enhance life you need to constrain it. This is precisely what architecture has been doing; from the first gatherings around a fire in a primitive cave to a lobster dinner in a Manhattan skyscraper, architecture introduces constraints that reduce our options (from infinity to infinity minus one) and by doing so, ironically, proliferate our affective capacities. With architecture, constraints are acting for what they truly are: synapses.[34] A synapse is a singularity, a junction, an almost imperceptible gap through which an impulse of intensity passes. Beyond the

modal temptation of placing it in space and time, the synaptic moment folds upon the synaptic location, the two being one since both are simply pure action and, consequently, pure relationality: both a material object and a figure of thought, the complementarity of an actual brain and a virtual mind.[35] As Félix Guattari points out:

> A-signifying synapses, which are simultaneously irreversibilizing, singularizing, heterogenesizing and necessitating, push us from the world of memories of redundancies embedded in extrinsic coordinates, into Universes of pure intensive iteration, which have no discursive memory since their very existence acts as such.[36]

This is the reason why synapses should be understood as constraints: they delimit the field of the actual while reinforcing the virtual. In those synaptic passages, architecture turns into something much more significant than the simple construction of space. By producing (and being produced by) synapses that constraint infinity, architecture enunciates ways of life that would otherwise have been impossible: who would ever claim that there is anything natural or even historically necessary to our Manhattan lobster dinners? To introduce novel ways of life, architecture not only produces and manipulates synaptic constraints, but crucially, determines how, when and where those synapses relate to each other. As such, architecture can be understood as a transductive meta-synapse, a constraint of constraints.

There have been many attempts to explain Simondon's use of the concept of transduction, but for practical reasons I will propose a rather simple one: transduction is the operation of moving from the singular to the singular, from synapse to synapse, and in doing so, introducing a new constraint that becomes informative in its own right. In fact, Simondon did not coin the term. He has simply introduced a wider understanding of a concept that was first used in children's psychology, initially by William Stern, later by Maurice Merleau-Ponty and more extensively by Albert Burloud: when a child is asked why the sun is hot, it will answer that it is hot because it is on fire; transduction is a transfer from particular to particular, a movement from the singular to the singular without any dominant order intervening.[37] In moving from synapse to synapse, information emerges as an enabling constraint that energises a potential. This is why it is not accurate to claim that information is produced; information is transduced whenever singular synapses are brought together. How is it, though, that the singular can come close to the singular and how is architecture (in the very act of architecting) transductive?

Neither form nor function

The first transductive principle is something that perhaps any architect can attest to, despite the stubborn efforts of many reductionists: form and function are not separate. Simondon becomes an ally here: against the traditional hylomorphic schema that opposes matter to form, Simondon claims that any such distinction also implies a binary opposition between structure and operation, or in terms more familiar to architects, between form and function.[38] To position form and function together, Simondon proposes two key terms: modulation and allagmatics. Both terms can essentially be understood as the analytics of transduction, the key process that explains how information propagates through the encounter of the singular with the singular. While modulation and allagmatics are not separate processes, developing a unique account for each can help us grasp transduction.

Simondon develops his concept of modulation as a theory of structures, or in better terms, as an updated theory of genetic structures, since according to him, most of our sciences until now have focused exclusively on studying generic structures.[39] Focusing on the process of moulding, traditionally the hylomorphic example par excellence, where a subject in command dictates matter to assume the form of a brick and then, almost magically, a brick

indeed appears, Simondon makes three crucial points: 1) the clay is neither passive nor inert, but like any other material, it has its own specific affective capacities; 2) the mould is neither an ideal nor an abstract form, but rather a specific material frame that has itself been produced through specific technicities at play; and 3) the craftsman, by increasing the temperature or applying pressure introduces and manipulates singular intensities that catalyse the resolution of the disparate tension between clay and mould to the point that a third individual, a brick, emerges.[40] By bringing the craftsman onto the same plane as the materials and the tools used and therefore proposing an account of material production that he calls technicity, Simondon sheds light on all the tensions and struggles that most architects fail to express when they find themselves in the eye of the productive, designerly storm: we stand much closer to the intensity of the architectural act itself if we understand the architect as a helpmate to emergence rather than as a subject in command.

As architects, now liberated from the tyranny of our supposed agency over matter, we can grasp much more easily the counterpart of modulation; more than that, we can – and we should – effectively introduce an architectural account of allagmatics. Defined by Simondon as the theory of operations, allagmatics focuses on approaching an operation as the conversion of one structure into another.[41] In this sense, no operation, no function designed by an architect can be determined outside of a structure, outside of a form: any function is always immanent to the form that undergoes it and vice versa.[42] Regarding allagmatics, what is astonishing is that it manages at once to dissociate function from all its functionalist reductionisms while simultaneously proposing a proper and true account of it: one can no longer speak of function in an essentialist manner; there is no function in general, there are as many functions as the forms that individuate through them, and in doing so, they enunciate a particular style, a specific 'how' in the 'it is done'. In other words, architectural allagmatics helps us understand that the singularity of architecture lies in the passage from form to function, from structure to operation and vice versa: its capacity to catalyse new ways of life by assisting and intensifying the transduction of novel informational constraints.

Caught in the act

Architecture's allagmatics and the modulational individuation of forms that it implies, stand surprisingly close to the rather obscure deleuzo-guattarian concept of generalised chromaticism.[43] Deleuze and Guattari describe this term as the operation where elements of any kind are placed in a continuous variation and in doing so, new distinctions emerge but none is taken as final, and none is prioritised in advance.[44] Simondon's account of individuation puts forward the same idea: the knowledge of individuation is the individuation of knowledge. Or, said differently, one cannot know individuation, one can only individuate.[45] As such, Simondon rejects any a priori or a posteriori principle of individuation and instead demands that we examine individuation qua individuation in the *a praesenti* of its autonormativity.[46]

To explain what autonormativity stands for, Simondon uses the example of a hiker in a forest. Each step a hiker takes when walking in the woods is its own consequence: it is self-constitutive. The act of walking does not include any intrinsic directionality, any inherent compass that will orient the hiker.[47] Likewise, if the hiker gets lost, it is not possible to depend on any familiar, recognisable exterior norm. For a hiker in the woods, there are 'no norms, no set rule of direction, every step, in every direction, is equiprobable and equivalent at once.'[48] From an infinity of directions, the first step – as the act of hiking-in-the-woods – becomes the norm itself: every step that follows builds on the relation of the step before it, one after the other leading the hiker to the edge of the forest. This is what Simondon has in mind when he claims that 'the norm is derived from the act … Every act, anomic from its absolute origin, valorises itself in an

autogenous fashion because it continues and rests, consequently, more and more on itself.'[49]

In this regard, architectural norms and values, the very logics, practices and ethics of architecture, are not only co-determinable, they are fundamentally contingent.[50] There is no ground for them, except for the ground on which an architectural act territorialises. Subsequently, the act itself must allow for the synaptic passage of an architectural memory that will select a territory and will allow it to express and possess a form that is yet to be invented. On the territory and in the architectural act of expression, the technicities that cause subjects, objects and environments to fold, become the eventuating *a praesenti* of that which is about to come. The architectural act as the event becomes a principle, since it is the moment where the a posteriori becomes a priori. The architect does not perform architecture prior to the technicities that afford it, but in and during their allagmatic operation. As Simondon has it, the architect fulfils the function of the present and maintains the reticularity of its consequences because her life is made of the rhythms of the technicities that surround her and allow her to connect with them and to connect them with one another.[51]

Consequently, architectural information (as the meaning that produces architecture and the meaning that architecture produces) is what allows architecture to further individuate. One step after the other, one architectural act after another, architectural information transductively propagates the constraints that assist the constant effort of coupling the genetic with the epigenetic via detachable, externalised epiphylogenetic technicities. Architectural evolution is not something that belongs to the discursive, a succession of different typologies and ideologies, nor is it the story of an imposed design; architectural evolution is the dynamic individuation of a progressive constraint. What is crucial is that the individuation of this constraint is constantly and continuously open to contingent modulations: the very style of how we do architecture not only determines our current practices but is also able to rearrange the entire plane of architecture itself. In the architectural act, architecture is not only producing its technicities, its norms and its values. The architectural act allows architecture to rearrange itself without actually erasing itself; it allows an architectural memory of the future to pass through what is at once genetic, epigenetic and epiphylogenetic. Through architecture, paraphrasing one of Stiegler's favourite dictums, we get to know that is not simply the 'what' that makes the 'who'. The style of the eventuating architectural act highlights that essentially it is the 'how' that makes the 'what' that makes the 'who'; if not, why bother climbing a skyscraper built on former indigenous land just to eat a crustacean that has been caught in the depths of the Atlantic?

Kodalak responds

Stavros Kousoulas is obsessed with sense – with directionality, significance, and meaning. Obsession is a necessary ailment for thinking and making. This is one of those trade secrets not taught in school: obsession is the precondition of becoming a philosopher, the prerequisite of becoming an architect, especially if you are to operate at the limit, and it is perhaps this obsessive orientation that constitutes the underlying continuity of both fields. Becoming obsessed with a problematic field, with a conceptual or constructive modality, with something as seemingly abstract as sense, or as seemingly tangible as the sense of the wind and the sun, of the brick and the concrete, is the first step toward generating something new.

The irony of Kousoulas's obsession lies in its meta-position. Obsession is a sensorial tunnel vision, the radical act of losing ourselves in the affective direction we are heading, the extreme emphasis on a singular event at the expense of dimming almost everything else. Given that Kousoulas affirms Simondon's definition of sense as the grasping of a direction, obsession can be deemed as sensemaking on steroids. This is the meta-position full of potentials but also dangers:

Kousoulas is trying to make sense of sensemaking; he is obsessed with obsession itself.

Yet this is not a generic pursuit. That is, Kousoulas is not looking for that one and only transcendent sensation of sense, the master key to grasp any and every meaning, the top-down conception of obsession that would apply to all obsessive pursuits. Rather, he is obsessed with doing justice to the immanent sense of each and every operation in its one-of-a-kind unfolding. There is no sense that is not unique to the events and individuations it accompanies; no obsession that is not laser focused on an irreducible set of singularities. It's no coincidence that Kousoulas allies his thinking with Simondon, Stiegler, and Bateson, as well as with Spinoza, Deleuze, and Guattari, the thinkers with the deepest obsessions of immanent odysseys from one set of singularities to the other without appealing to transcendent generalities and reductive fixes. Kousoulas is obsessed with the singularity of each operation of sensemaking.

It is at this point that the irony of Kousoulas's obsession turns into an elegant delirium with an almost impossible demand. How are we to grasp the sensorial directions of each event, the affective rhythms of each modality that unfold before us, the critical thresholds of each operation with which we find ourselves in constant co-operation? How can we prepare ourselves for every unpredictable encounter, every twist and turn, every erratic fluctuation? There are no pre-set answers, only an invitation to experiment. A direction makes itself felt only when we make ourselves confluent with its inclinations. A gradation is sensed only when we dilute or condense our affective setup so as to reach its levels of saturation. We tend to forget that none of us knew how to swim at the initial moment our bodies met with water. If only for a few moments, we all literally drowned until our bodies learned, on the fly, how to align their movements with those of the sea and *make sense* of aquatic forces, rhythms, and directions. Such is the ethico-aesthetic vision Kousoulas sets forth. We make sense in the immanent thickness of making and thinking, in the obsessive zigzags of pursuing one singular direction after another, in the delirious act of jumping into the water for the first time without knowing in advance how to swim.

This leaves us with a final set of questions already implicit in the direction of Kousoulas's thinking, even though there is at times hesitation, at times generative tension, yet always prompting for further experimentation. What if sense is not simply the vector of our obsession, but the self-obsession of the cosmos? Can sense be the immanent waltz between *Natura Naturans* and *Natura Naturata*, the incessant overlapping of distinguishing singularities with underlying commonalities, the salient agent with which we break our individual casing and learn to become one with the universe? Or as Novalis subtly put it in *Blüthenstaub*: 'We dream of travels through the universe – Is not the universe *within us*?'

Kousoulas responds

A response should always be critical. But we ought to dissociate the notion of the critical from that which conflates it with critique. The latter is always a matter of judgement, of conformity to supposed criteria, the triumph of *doxas*, or worse, *urdoxas*, opinions that think the world of themselves. Instead, we should simply think of the world; and the world keeps individuating regardless of our judgements or opinions. What matters is our capacity to figure out how the world is worlding. This is where the critical attains its value. Going critical, as Alan Turing would have it and as Bruno Latour reminds us, refers to critical mass: a neutron enters a critical sample of nuclear material, causing a branching chain reaction. To think (and respond) critically means to trace the singular (critical) points and moments that can catalyse change. In Kodalak's essay there are (at least) three such instances, that, not surprisingly, work in tandem: gradations, folding and heterarchy.

Manifesting (pun intended) his Spinozist background, Kodalak claims that all that exists shares

a common preindividual field, differing however, by actualising differently differentiating gradations. Indeed, there are three references to difference in a single sentence, but that is what it means to think in terms of intensities and not in terms of shapes and outlines. This is also what Spinoza proposes when he refers to the 'face of the whole universe'. In the original Latin, Spinoza uses the word *facies*, derived from the verb *facio*, to fashion or to make – the making of the whole universe. However, the word 'face' implies a surface continuum that expresses finite modes. Each individual is composed of many other individuals, forming a series of increasing complexity, in the same way that multiple cells and micro-organisms make a fish; multiple fishes, plants, stones and water make a river; multiple rivers, mountains and land make up the earth; multiple planets make the universe and so on: a finite yet infinite continuum where everything pertains to a process of expressive individuation.

But what is it that propels this process? In simple terms, nothing but the process itself, what Simondon calls autonormativity: make, and by making, make yourself. In less simple terms, the individuation of the cosmos is a process of continuous, incessant and unstoppable folding, for better or worse. Bearing in mind the French word for a fold, *pli*, the cosmos individuates by implicating, complicating and explicating at once. Simondon has an intriguing understanding of this process, since he approaches the fold as a membrane: for Simondon, the process of folding is always a liminal one, and it happens on the membrane that is itself neither spatial nor temporal but both simultaneously. In this sense, the membrane is purely experiential, but as an experience that precedes, transcends and determines individual experience. Everything is of the membrane by dint of being on the membrane.

This is where heterarchy comes to the fore. On the membranic folds, any individual is always complicating on the continuous limit of its interiorised past and its exteriorised futurity: the interior as implicated affects and the exterior as explicated encounters. In Kodalak's heterarchy, interiorised affective pasts meet exteriorised futural encounters without a priori or a posteriori categories and taxonomies, but rather on the intensive *a praesenti* of their transindividuation. The transindividual, one of Simondon's greatest conceptual contributions, is by default heterarchical, since the very condition of its existence is neither collective nor individual, neither of the future nor of the past, neither interiorised nor exteriorised, but eventuating: what will always have come first (and we need such complex grammar to express it) is the event of crossing a limit, and in doing so catalysing a qualitative transformation. In other words, it is not that the cosmos is heterarchical; the cosmos *is* because it is heterarchical. This is a crucial reversal and we should be thankful to Kodalak for insisting on reminding us.

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For Simondon's primary literature, see: Gilbert Simondon, *On the Mode of Existence of Technical Objects,* trans. Cecile Malaspina and John Rogrove (Minneapolis: Univocal, 2017 [1958]); *Individuation in Light of Notions of Form and Information*, trans. Taylor Adkins (Minneapolis: The University of Minnesota Press, 2020 [1964]); *Two Lessons on Animal and Man,* trans. Drew S. Burk (Minneapolis: Univocal, 2011 [c.1960s]); 'On Techno-aesthetics', trans. Arne De Boever, *Parrhesia* 14 (2012 [1982]): 1-8; 'The Position of the Problem of Ontogenesis', trans. Gregory Flanders, *Parrhesia* 7 (2009 [1989]): 4–16.

1. For some of the significant secondary literature, see: Gilles Deleuze, 'On Gilbert Simondon', in *Desert Islands and Other Texts, 1953–1974,* trans. Michael Taormina (New York: Semiotext(e), 2004 [1966]), 86–89; Muriel Combes, *Gilbert Simondon and the Philosophy of the Transindividual*, trans. Thomas LaMarre (Cambridge, MA: The MIT Press, 2013); Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus*, trans. Richard Beardsworth and George Collins (Stanford: Stanford UP, 1998 [1994]); Jean-Hugues Barthélémy, *Life and Technology: An Inquiry Into and Beyond Simondon,* trans. Barnaby Norman (Lüneburg: Meson Press, 2015); Andrea Bardin, *Epistemology and Political Philosophy in Gilbert Simondon* (Dordrecht: Springer, 2015); David Scott, *Gilbert Simondon's Psychic and Collective Individuation* (Edinburgh: Edinburgh UP, 2014); Pascal Chabot, *The Philosophy of Simondon: Between Technology and Individuation,* trans. Graeme Kirkpatrick and Aliza Krefetz (London: Bloomsbury, 2013); Arne De Boever et al., eds., *Gilbert Simondon: Being and Technology* (Edinburgh: Edinburgh UP, 2012).
2. An early formative encounter was the publication of Gilbert Simondon, 'The Genesis of the Individual', trans. Mark Cohen and Sanford Kwinter, in *Incorporations: Zone 6*, ed. Jonathan Crary and Sanford Kwinter (New York: Zone, 1992), 296–320. Only for the last decade, however, has Simondon's philosophy been in the process of being addressed in relation to the architectural field: Georges Teyssot, *Topology of Everyday Constellations* (Cambridge, MA: The MIT Press, 2012); Katie Lloyd Thomas, 'Between the Womb and the World', in *Relational Architectural Ecologies*, ed. Peg Rawes (Routledge: London, 2013), 192–208; Stavros Kousoulas, 'Shattering the Black Box: Technicities of Architectural Manipulation', *International Journal of Architectural Computing* 16, no. 4 (2018): 295–305; Stavros Kousoulas, 'Flights of a Spider: A Play of Architectural Limits' in *Communicate, Villard Journal*, vol. 2, ed. Luca di Lorenzo and Giulia Menzietti (Rome: Quodlibet, 2020), 113–26; Muriel Combes, 'On Nature', *Log* 49 (2020): 146–64; Peter Trummer, 'Notes on Mechanology', *Log* 49 (2020): 164–68; Andrej Radman, 'Machinic Phylum and Architecture', in *Proceedings of the 2020 DigitalFUTURES*, ed. Philip F. Yuan et al. (Singapore: Springer, 2021), 3–16; Elizabeth Mortamais, 'What is an Intelligent Building?', in *Organizing Smart Buildings and Cities*, ed. Elisabetta Magnaghi et al. (Cham: Springer, 2021), 125–39.
3. Simondon, *Individuation*, 1.
4. Ibid., 3.
5. Ibid.; emphasis in original.
6. Ibid., 173.
7. Simondon, *Mode of Existence*, 21.
8. Ibid., 140.
9. Simondon's primary technological project then becomes tracing the ontogenetic processes of different modes of technical existence and their vibrant lives in different orders of magnitude. With this approach, he formulates a progressive genealogy of different levels of technical objects, arguing that from simpler technical elements and individuals the more advanced technical ensembles of the twentieth century arise. In addition to tracing this lineage of evolutionary differentiation, Simondon distinguishes technical modalities from organic modalities by way of their modes of individuation and causality, and distinct uses of memory, among other things. Finally, Simondon pays special attention not to reduce the singular life of each and every technical object under an essentialist genus or species, and suggests tracing their individual

ontogenesis whenever possible. Having said that, the raison d'etre of this section is not to trace the ontogenesis of a unique technical object, but to provide the very ontogenetic system by which the uniqueness of technical objects go hand in hand with their gradual continuity with other modalities of life, so as to reveal, together with Simondon, that technical modalities are singularly alive.

10. From Jean Le Moyne's TV interview with Simondon, *Gilbert Simondon, Entretien sur la mécanologie*, National Film Board of Canada, 1968.
11. Simondon, *Mode of Existence of Technical Objects*, xv; my emphasis.
12. Ibid., 21, 132, 141–2, 160.
13. Gilbert Simondon, interview in *Esprit* 76 (04/1983): 147–52, translated by Andrew Iliadis as 'Save the Technical Object: Interview with Gilbert Simondon' and available on Iliadis's website, http://s3.amazonaws.com/arena-attachments/2444381/e42a00ab751f-52f09178e22ec821e936.pdf?1531871959.
14. Ibid.
15. Simondon, *Mode of Existence*, 141.
16. Ibid., 15.
17. Ibid., 17, 21.
18. Ibid., 16–17.
19. Ibid., 18.
20. Heterarchy is a conceptual formation whose variations can be found in different modes of metaphysical and ethical thinking, ranging from Zhuangzi's Daoism and Heraclitus's ever-living fire (*pyr aeizoon*) to Spinoza's immanent metaphysics and Whitehead's 'democracy of fellow creatures'. For a more detailed elaboration of heterarchy operating in Spinoza's philosophy, see: Gökhan Kodalak, 'Spinoza, Heterarchical Ontology and Affective Architecture', in *Spinoza's Philosophy of Ratio*, ed. Beth Lord (Edinburgh: Edinburgh University Press, 2018), 89–108; Kodalak, 'Spinoza and Architecture: The Air of the Future, ' *Log* 49 (Summer 2020): 122–46; Kodalak, 'From Architecture Lifeless to Architecture Alive', in *Architectures of Life and Death*, ed. Andrej Radman and Stavros Kousoulas (Lanham: Rowman & Littlefield, 2021), 39–61.
21. Le Moyne, *Gilbert Simondon Entretien*.
22. Simondon, *Mode of Existence*, 18.
23. Le Moyne, *Gilbert Simondon Entretien*.
24. Simondon, *Mode of Existence*, 17.
25. Ibid., 17–8.
26. Cedric Price, 'Concentrate', ' in *Re:CP,* ed. Hans Ulrich Obrist (Basel: Birkhäuser, 2003), 107.
27. Cedric Price, 'Has the Architectural Profession a Future?', AA Lecture (6 March 1975). Price devoted his life to developing ever new design logics of indeterminacy. He incessantly experimented with conceptualising and constructing architectural modalities that embody an open horizon, genetically charged with the capacity to be made, re-made, and unmade in their never-ending unfolding, that is, always catalysing modification and change.
28. It is no wonder that Simondon and Price, as children of a shared post-war context, were both heavily influenced by the emerging science of cybernetics, which promised to approach the lives of 'the animal and the machine' not as distinct areas of inquiry, but as a unified and continuous problematic field. See Norbert Wiener, *Cybernetics: Or Control and Communication in the Animal and the Machine* (Cambridge: The Technology Press, 1948).

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29. Simondon, *Individuation*, 287.
30. Gilles Deleuze, 'Il Senso in Meno, Part 1: Surfaces of Redundancy, Black Holes, Language and Orders', in *Deleuze & Guattari at Vincennes, 1975–76*, trans. Graeme Thomson and Silvia Maglioni, https://deleuze.cla.purdue.edu/seminars/thousand-plateaus-i-deleuze-paris-8-video-links/lecture-01.
31. Simondon, *Individuation*, 12.
32. Gregory Bateson, *Steps to and Ecology of Mind* (New York: Random House, 1972), 453.
33. Terrence Deacon, *Incomplete Nature: How Mind Emerged from Matter* (New York: W.W. Norton & Co, 2012), 392.
34. For a detailed discussion of architecture, synapses and constraints see: Stavros Kousoulas, 'Synaptic

Passages', in *The Future of Indeterminacy International Conference*, University of Dundee, November 2021, https://youtu.be/6CE-KgZ6jkc.
35. Hanjo Berressem, 'Degrees of Freedom: Félix Guattari's Schizoanalytic Cartographies', in *Schizoanalysis and Ecosophy,* ed. Constantin V. Boundas (London: Bloomsbury, 2017), 142.
36. Félix Guattari, *Schizoanalytic Cartographies,* trans. Andrew Goffey (London: Bloomsbury, 1989), 178.
37. Emmanuel Aloa and Judith Michalet, 'Differences in Becoming: Simondon and Deleuze on Individuation', *Philosophy Today* 61, no. 3 (Summer 2017), 493.
38. Anne Sauvanargues, *Artmachines: Deleuze, Guattari, Simondon*, trans. Suzanne Verderber and Eugene W. Holland (Edinburgh: University Press, 2016), 69.
39. Simondon, *Individuation.*
40. Sauvanargues, *Artmachines*, 69.
41. Simondon, *Individuation*, 661.
42. Barthélémy, *Life and Technology*, 204.
43. For a discussion of generalised chromaticism, see: Andrej Radman, 'Generalised Chromaticism: The Ecologisation of Architecture', in *Embodiment and Meaning-Making: Interdisciplinary Perspectives on Architectural Heritage*, ed. Aleksander Staničić and Andrea Jelić, special issue of the *Journal of Architecture* 27 (forthcoming).
44. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus,* trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987), 97.
45. Barthélémy, *Life and Technology*, 219.
46. David Scott, 'How Do We Recognise Deleuze and Simondon Are Spinozists?', *Deleuze Studies* 11, no. 4 (2017): 571.
47. Ibid.
48. Ibid.
49. Gilbert Simondon, *Sur la Technique: 1953–1983* (Paris: Presse Universitaires de France, 2014) cited in Scott, 'How Do We Recognise Deleuze and Simondon Are Spinozists?', 571.
50. Stavros Kousoulas, Architectural Technicities: A Foray Into Larval Space (Abingdon: Routledge, 2022).
51. Simondon, *Mode of Existence*, 140.

Biography

Gökhan Kodalak is a theorist, teaching philosophies of architecture, nature, and cities at Pratt Institute; an architect, directing design studios at Parsons School of Design; and a historian, who completed his PhD on 'Spinoza and Architecture' at Cornell University. Kodalak's research is awarded by the Andrew W. Mellon Foundation, Canadian Centre for Architecture, and the Institute for Comparative Modernities. His design work is acknowledged with international awards, and exhibited at the Johnson Museum of Art (New York), Antalya Architecture Biennial, and One Architecture Week (Plovdiv). His theoretical discourse has been published in journals such as *Deleuze Studies* and *Interstices*, and in edited collections like *Spinoza's Philosophy of Ratio* (Edinburgh University Press, 2018) and *Architectures of Life and Death* (Rowman & Littlefield, 2021). Most recently, Kodalak served as the Theories of Architecture fellow at TU Delft (spring 2021) and developed a multi-issue editorial project at *Log* (2020–21), unpacking the understudied thinking of Spinoza, Whitehead and Simondon to explore alternative approaches to interfused questions of nature, philosophy, and design.

Stavros Kousoulas is assistant professor of architecture philosophy and theory at the Faculty of Architecture of TU Delft. He studied architecture at the National Technical University of Athens and at TU Delft. He graduated cum laude from IUAV Venice, participating in the Villard d' Honnecourt International Research Doctorate. He has published and lectured in Europe and abroad. He has been a member of the editorial board of *Footprint: Delft Architecture Theory Journal* since 2014. He is the author of the book *Architectural Technicities* (Routledge, 2022) and the edited volumes *Architectures of Life and Death* with Andrej Radman (Rowman & Littlefield, 2021) and *Design Commons* with Gerhard Bruyns (Springer, 2022).

Review Article

Forethoughts and Afterthoughts on 'the Productive Organs of Man'

Chris L. Smith

Bernard Stiegler's first and perhaps most fundamental book *Technics and Time, 1: The Fault of Epimetheus* (1994) commences with a story of brothers: Prometheus and Epimetheus.[1] These brothers were the Titans of Greek myth who were tasked with populating the earth. Prometheus shaped mankind, and Epimetheus other animals. It was considered 'the fault' of Epimetheus that humans were left without traits that may have protected them. It was then up to Prometheus to steal the technology of fire from Zeus so that the human might endure. Zeus punished Prometheus by chaining him to a rock while an eagle would dine at his liver. The liver, for its part, would regenerate daily so that the bird might continue to feed upon it. Having an organ eternally feasted upon seemed a fitting punishment for challenging the *organ*isation of the cosmos. Prometheus became known as the champion of mankind. His name translates as 'forethought'. Epimetheus on the other hand had to wait centuries for his reputation to be resurrected. His name translates as 'afterthought'. The liver was unnamed and all but forgotten.

At this moment following the passing of Stiegler, I am keen to look at what might constitute the forethought and afterthought of his first book, *Technics and Time, 1* Far from a comprehensive survey, I will turn to the strange banding of brothers in the book, and particularly to the coupling of Karl Marx and Friedrich Engels. Marx and Engels were not only brothers of a kind, but also forefathers of one or two driving impulses that surge through Stiegler's oeuvre, and to which architecture itself owes a particular debt. These ideas form a relay concerning organs, organic matter and technology, or what Stiegler would come to call 'organized inorganic matter'.[2] I then turn to a form of architectural experimentation with one or two productive organs, Neil Spiller's *Communicating Vessels* project. The project is located on an island in Fordwich, Kent, and Spiller takes up the task of populating the island with all manner of architectural oddity, somewhere between the organic and inorganic. *Little Soft Machinery* (2006), for example, is one intervention into the island, 'a kind of semi-living creature that has grown from stem cells, an old testicle and a leaky bladder'.[3] It is an architecture that Engels might have called 'men in the making', or that Marx and Engels collectively might call 'species-being' (*Gattungswesen*).[4] But it is also an architecture that might illuminate what Stiegler would come to call the 'exteriorisation and prostheticity'[5] of a 'general organology'.[6] But such a naming would, of course, constitute an afterthought, a thought that follows a passing.

Castrating Marx

Early in Stiegler's *Technics and Time, 1,* the question at stake for technology is raised by raising the idea of an organ. Or at least in terms of an organ or two that would be defined as 'the productive organs of man'. It is mentioned in reference to two seminal figures: Karl Marx and Charles Darwin. Marx the revolutionary historian of capitalism; Darwin the father of evolutionary biology. To get to the question of technology, the 'organ' itself becomes a tool

of a kind. Stiegler quotes from the fourth footnote in Marx's long fifteenth chapter in *Capital* (1867), 'Machinery and Large-Scale Industry':

> A critical history of technology would show how little any of the inventions of the eighteenth century are the work of a single individual. And yet such a book does not exist. Darwin has directed attention to the history of natural technology, that is, the formation of the organs of plants and animals, which serve as the instruments of production for sustaining their life. Does not the history of the productive organs of man in society, deserve equal attention? … Technology reveals the active relation of man to nature, the direct process of the production of his life, and thereby it also lays bare the process of the production of the social relations of his life, and of the mental conceptions that flow from these relations.[7]

Stiegler would suggest that 'Marx outlined a new perspective',[8] but his use of the ellipsis in the above quotation is telling. Ellipses tend to be used in standard practice to compress a quotation when the quote might otherwise be too long, or when the quote strays distractingly from the path of the text in which it now finds itself. Or, in rarer cases, ellipses are used where a quote might introduce an opposition to the body of text into which the quote is inserted. In the above case of Stiegler quoting Marx, the ellipsis is not there because the quote was too long. The sentence removed and replaced dutifully with the ellipsis is a simple and short one and involves Marx asking of a critical history of technology: 'And would not such a history be easier to compile since, as Vico says, human history differs from natural history in that we have made the former, but not the latter?'[9] One can also assume that Stiegler's use of the ellipsis is not because the reference to Giambattista Vico, the early philosopher of history, strays too far from the topic of Stiegler's surrounding text. In this case, it would seem that the quote was compressed because the sentiment expressed by Vico and then repeated by Marx is the very habit of thought that Stiegler wishes to expel. Stiegler is happy to climb onto Marx early in his book in order to posit the question of a 'technical determinism arising in a permanent oscillation between the physical and biological modalities'.[10] He is not so happy to note Marx's qualification. This may be for two reasons. First, it is hard to assert that Marx is offering a 'new perspective' when even Marx is deferring to a philosopher from the Age of Enlightenment. Second, the old perspective is Promethean. Marx is repeating what would remain the habitual way of conceiving of the relation between technology and organs in suggesting 'human history differs from natural history in that we have made the former, but not the latter'.

The story Marx tells via Vico has currency not because anyone in recent centuries believed that Prometheus had delivered technology to the human to compensate for his brother's failure, but rather because the evolutionary story of the species and its relation to technology resonates so well with the developmental story of an (any) individual. The traditional logic related to the species and technology can be stated thus: the human animal (the former) had the capacity to invent technology (the latter) and that this technology then helped leverage the human into dominion. Such a story resonates well with the tale of an (any) individual which goes something like this: the vulnerable and naked baby, born of nature, develops, grows, learns, and technology then comes to extend the capacity of the body in engagements with the world. In biological theory the desire to find in the story of the development of any individual a microcosm of the story of the species as a whole is given the term 'recapitulation'. Recapitulation offers an analogy between ontogeny and phylogeny as a link between the laws of individual development and evolution of the species.[11] Indeed we still talk of the 'birth of a species', the 'development of a species' and the 'maturity of a species', as if the qualities that apply to a single individual apply to a collective. The traditional story told to us of technology is that it enters

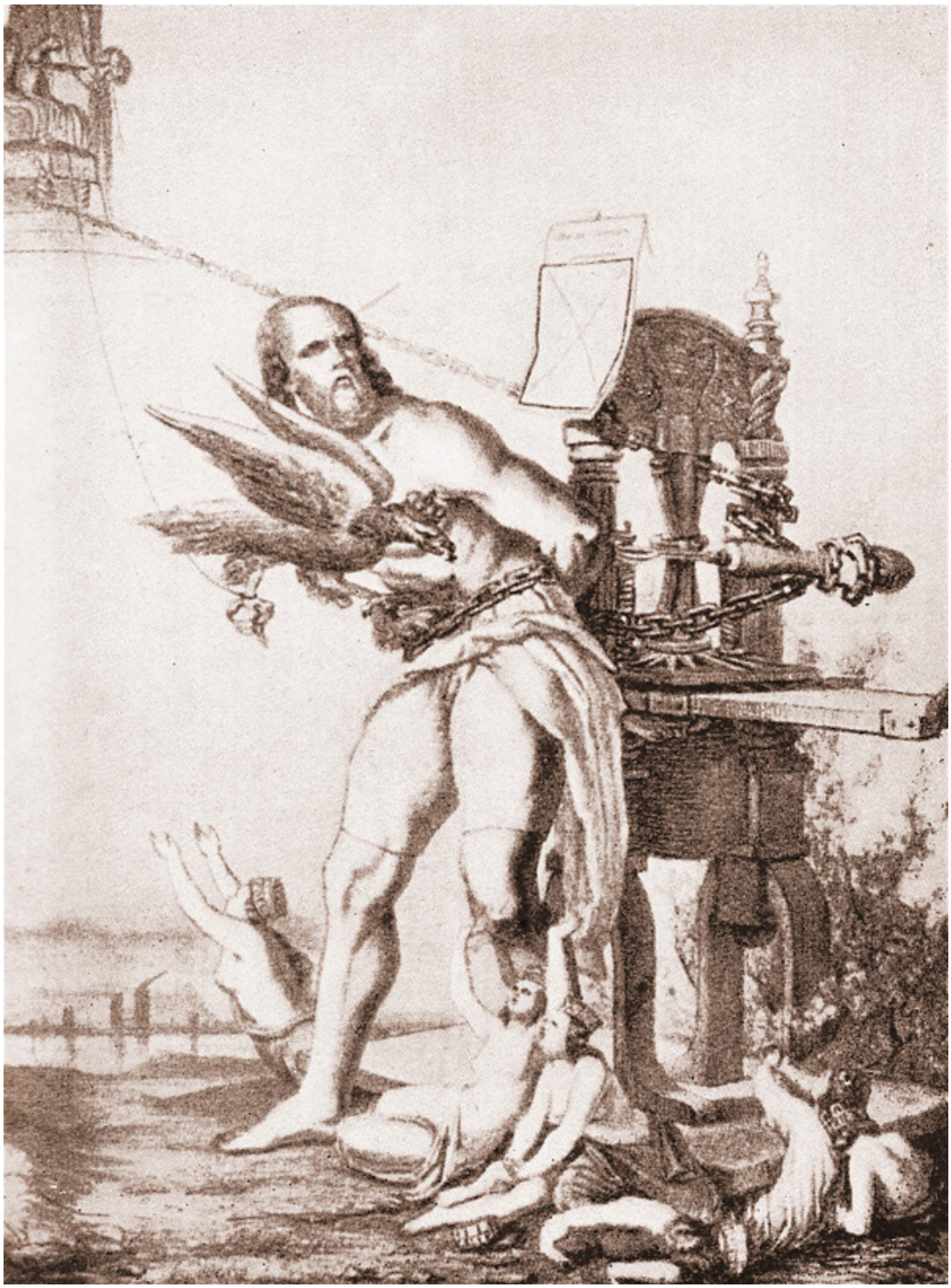

Fig. 1: Unknown artist, Karl Marx as Prometheus, March 1843. Image: https://commons.wikimedia.org/wiki/File:Marx_as_Prometheus,_1843.jpg

the picture for both the individual and the species in maturity, that is, adulthood. Thus, when Marx refers to 'the direct process of the production of his life' this process is framed as a developmental order, a tale of process as progress that relies entirely on this temporality: organism, organ, tool, and then technology. Now while this might seem to make sense for the naked baby, it is not necessarily so for society nor the species. And it is this habit of thought to which Stiegler himself is opposable.

In this matter Darwin may have been a better forefather for Stiegler than Marx. Marx was right in suggesting that Darwin's focus was a 'history of natural technology', but we might note that this focus did not preclude the inorganic world. Darwin would describe the world into which an organism was born not as some form of isolated outside. In referring to context extensively throughout *The Origin of Species* (1859) the phrase Darwin uses is 'conditions of life', textually compacting the Cartesian dialectic not to a pact of world-body reciprocity or world-body continuum but to the world as the condition of body, as life-former or body-context assemblage.[12] Darwin does not fixate on a figural descriptor and instead facilitates a relational understanding that exteriorises the body in a manner that would resonate well with Stiegler's account. And Darwin is clear on the integral relation between 'organic *and* inorganic conditions of life.'[13] Such a descriptor would equate well with what Stiegler calls the 'permanent oscillation between the physical and biological modalities'.[14]

For Stiegler, the technical object and its relation to the organ and organism is far more a condition of the species than a developmental process or moment. As such, technics is bound intimately to the very question of what it is to be human. *Technics and Time, 1* thus evolved into a series of three books, and commence an oeuvre fixated on the relegation and repression of technics, and then the very capacity of technology to relegate and repress. The conclusion for Stiegler is that what Marx calls 'the latter' indeed invents 'the former'. That is, the tool invents the human. And *Technics and Time, 1* masterfully rallies the greatest thinkers of technology to the cause. Following his long (yet carefully cut) quote from Marx, Stiegler writes 'Gille and Simondon, as much as Leroi-Gourhan and Marx, essentially tie the scientificity of a technics to such a critique.'[15] While it might be true that Bertrand Gille, Gilbert Simondon and André Leroi-Gourhan are at the core of the argument to come, rallying Marx to the cause isn't so simple. Stiegler might have put Marx in his corner, but it took an ellipsis to do so. *Verum esse ipsum factum* (as Vico might say).

By Engels's hand

In *Technics and Time, 1,* a book that commences with a tale of brothers, one is fascinated by the relegations that go on… the rise of one and the fall of the other. The one that is deferred to, and the other silenced in the relation. Epimetheus silenced by Prometheus, and Engels quiet behind Marx. Engels would receive but one subdued mention early in Stiegler's text. Following the phrase 'Marx outlined a new perspective', comes a sentence: 'Engels evoked a dialectic between tool and hand that was to trouble the frontier between the inert and organic.'[16] Given that troubling the frontier between the organic and inorganic was fundamental to the Stieglerian project, it is interesting that this statement implicating Engels is without reference. And the bibliography of *Technics and Time, 1* is of no help in identifying the *fore* of the thought. One assumes (and regrettably assuming is all one can do at this moment) that Stiegler is referring to Engels's pamphlet of 1876, 'The Part Played by Labour in the Transition from Ape to Man'. This small piece of writing was intended to introduce a larger work which Engels planned to call *Die drei Grundformen der Knechtschaft – Outline of the General Plan*. Neither the short essay nor the book would be completed, (even the best laid plans of mice and men…) but the pamphlet would come to constitute a chapter in Engel's *Dialectics of Nature* (1883).[17] Its main thesis was not that technology produced

Fig. 2: Marx and graffiti, Berlin, 2014. Photo: author.

man, but rather that 'labour created man himself'; however, the idea would have been highly useful to Stiegler because in his pamphlet Engels goes on to note: 'labour begins with the making of tools'.[18] *Ipso facto*, tools create man.

The story of one organ in particular is crucial here. It's not the liver nor a testicle, but rather: the hand. Engels's account of evolution draws on that of Darwin but the core reference is to the oft repeated idea that the accidental opposable thumb allowed the human to grab and hold a tool, and thus the organism that had the organ then had the tool that then had technology. Again, this story is much repeated: apes, or what Engels calls 'our hairy ancestors', came to walk on two legs, thus 'devolving' the hands of one function (walking) meant that they were free for another (holding a tool). And anyone who has watched chimpanzees at the zoo knows that their hands can come to satisfy many of their needs (or relieve many of their tensions). For Engels 'the decisive step had been taken, *the hand had become free* and could henceforth attain ever greater dexterity; the greater flexibility thus acquired was inherited and increased from generation to generation.'[19] Engels's description makes the evolution sound somewhere between Darwinian and Lamarckian. For Engels the hand operates as 'the organ of labour' but also as '*the product of labour'*.[20] And for Engels it is labour that generates the distinction between the human and other animals: 'By the combined functioning of hands, organs of speech and brain, not only in each individual but also in society, human beings became capable of executing more complicated operations'.[21] Tools were taken up, hands formed to tools as tools formed to hands, tools led to labour, and labour led to society. And in Engels's account, this then led to the capitalist mode of production and to those who use the hands of others to overpleasure themselves, and then to the degradation of the planet in 'burned down forests' that would come to decimate our dexterous 'hairy ancestors'.[22] Engels's pamphlet is prodigious.

When Stiegler refers to Engels's 'dialectic between tool and hand' he is not only referring to the interplay of digits and devices, but also to the dialectical materialism Engels invokes. Engels would describe the dialectic as the method for investigating 'inter-connections in general, and transitions from one field of investigation to another.'[23] Engels's dialectical method would pay little heed to traditional disciplinary bounds and would come to weave all manner of science and the social into what he refers to as 'my recapitulation of mathematics and the natural sciences'.[24] And it was not that Engels imagined that thought itself would illuminate the situation of the material world. No, Engels was no philosopher of the Enlightenment. Instead, he found in the material world itself a logic that was far richer than thought. He emphasised that 'there could be no question of building the laws of dialectics into nature, but of discovering them in it and evolving them from it.'[25] Here Engels is suggesting that what Marx called 'the latter' was indeed 'the former'. This position at the centre of Stiegler's work and indeed why Epimetheus comes to figure so prominently. In Plato's *Protagoras* 'Epimetheus, the being in whom thought follows production, represents nature in the sense of materialism, according to which thought comes later than thoughtless bodies and their thoughtless motions.'[26] Plato's fool becomes Stiegler's hero, for exactly the same reasons. Engels also set a path that would privilege the material *real* ahead of the abstractions of thought. His account is thus an undermining of Cartesian meditations on the mind (*cogito, ergo sum*), Jean-Jacques Rousseau's notions of human freedom and perfectibility, and most notably the Hegelian triad of propositions (thesis, antithesis, synthesis). Indeed, it is an undermining of all philosophies posed in isolation from the material world, and particularly the philosophies of mind, or what Stiegler, following Leroi-Gourhan, refers to as 'cerebralism'.[27]

Stieger's fast and subdued praise of Engels belies the impact of Engels's dialectical logic on

the key arguments of *Technics and Time, 1*. The focus on the concrete material world is important to Stiegler, but so is the method of simple logical inversion which Engels's dialectics transformed into an artform. Though simple, it is an inversion that has significant and multiplicitous implications. The inversion comes to be expressed in terms of the productive use of contradiction or what is referred to as 'the law of the negation of the negation' (after Hegel), and it constitutes an escape of a kind.[28] Engels refers to this logic as 'a very simple procedure, performed everywhere every day, which every child can understand as soon as the mysterious junk in which the old idealistic philosophy wrapped itself is stripped off.'[29] The method is a little like taking a whole (a whole anything) and dividing it into its habitual oppositions, for the purpose of locating the opposites within each other. Engels uses the example of life and death, where death is 'the negation of life as being essentially contained in life itself, so that life is always thought of in relation to its necessary result, death, which is always contained in it in germ.'[30] Now, while Engels imagines that any child could understand this; an example may help. Consider a seed and a plant: the organic plant comes to contain the husk of a seed that when cast aside is inorganic. The seed is the negation of the plant. The plant negates the negation in its growth. The fruit of the plant contains the very germ of both life and death. Roy Bhaskar has suggested that the negation of the negation 'raises the issue of *absenting absences* and the reassertion of lost or negated elements of reality.'[31] Engels himself makes the point more simply in notes to his *Dialectics,* stating, 'that from the outset identity with itself requires *difference from everything else* as its complement, is self-evident.'[32] For Engels the dialectic allows the simple oppositional construction of organic and inorganic to be recomposed. And for Marx and Engels it would allow a weaving between a number of categories that might once have been framed in opposition. Marx would exercise the dialectic in noting that 'the capitalist mode of appropriation, the result of the capitalist mode of production, produces capitalist private property'.[33] Thus, the class struggle exposes the source of the struggle itself. And thus, in a demonstration of the problem of brothers, Engels's formulation of the negation of the negation became a core part of what would come to be known simply as 'Marxism'.

In *Technics and Time, 1* the negation of the negation is also a key tool. As Stiegler writes: 'for to make use of his hands, no longer to have paws, is to manipulate – and what hands manipulate are tools and instruments. The hand is the hand only insofar as it allows access to art, to artifice, and to *tekhnē*.'[34] That is, it is not the hand that invents the tool, it is that the tool invents the hand. Henceforth the human is indissociable from the techne that produced it. We have here a form of logic – an investment – that translates opposition into inversion, which becomes the logical refrain of *Technics and Time*. At times this occurs as a play of correlation and causation, or a type of reverse causation, reverse causality, where the naïve assumptions of what is 'former' and 'latter' are exposed in the material of the world. It is a mirror into which many of Stiegler's key referents had peered. We are reminded via Leroi-Gourhan that it is not that the human invents technology, it is that technology invents the human; and via Simondon that it is not form that invents matter, but matter that constitutes form. This logical inversion is not more apparent than in Stiegler's own summation of the relation between the exterior world (of tools, contexts, technologies) and an interior one (of a body, of what one thinks they are). Stiegler writes: 'interiority is nothing outside of its exteriorisation – but that of an originary complex in which the two terms, far from being opposed, compose with one another'.[35] It is a simple logical manoeuvre, but also a valuable and highly productive one. Stiegler's resurrection of Epimetheus is entirely bound to this logic. Therein, it is not Prometheus's gift that gives the human technology, but rather Epimetheus's 'fault'. It is a matter of temporality. Epimetheus planted the seed (albeit

in negation) for all tools that came to grow hands. For Stiegler, the prefix '*Ēpi*' of both Epimetheus and what he would come to call *epiphylogenesis* 'carries the character of the accidentality and artificial factuality of something happening, arriving, a primordial "passibility" [*passibilité*].'[36] While Stiegler would do much to resurrect the reputation of Epimetheus against the accidental and artificial factuality of Prometheus, he was not so generous when it came to Marx's brother Engels. I hope it is as productive a negation.[37] *Cum hoc ergo propter hoc.*

Afterthoughts on testicular architecture

It is Sigmund Freud who likely best negates the negation of the Promethean myth and incidentally implicates architecture in the organ-tool equation. Freud notes in *Civilization and its Discontents* (1930), 'we find that the first acts of civilization were the use of tools, the gaining of control over fire and the construction of dwellings. … With every tool man is perfecting his own organs, whether motor or sensory, or is removing the limits to their functioning.'[38] In a conclusion that seems odd for the father of psychoanalysis, Freud finds that the 'first acts of civilization' were not acts of thought, the imposition of an ego over an untamed id, or the secret collaborations of ego to constitute super-ego. No. Instead for Freud the 'first acts of civilization' were simply 'the use of tools', and the tool perfects the function of both 'motor *and* sensory' organs. One assumes that Freud's use of the word 'sensory' is implicating not only the organs associated with senses of perception but also the brain, consciousness and thought itself. And if this assumption is appropriate, then this account of civilisation is Epimethean (as Plato had framed it), in that 'thought follows production'. We should be clear in noting that Freud is not suggesting that it is tools that make the human, but rather that tooled-up humans make civilisation. Whilst this seems like an oddly pragmatic conclusion, Freud does fulfil an expectation of the bizarre in a joyous footnote that seems to imagine an act that could so easily have been the second fault of Epimetheus. He writes: 'It is as though primal man had the habit, when he came into contact with fire, of satisfying the infantile desire connected with it, by putting it out with a stream of his urine.'[39] And thus, for Freud, even a penis in a hand is a tool that might quash the fire of gods. Prometheus would have been furious.

Stiegler doesn't turn to Freud on this point of urethral eroticism, though his work does open a new frontier in the question of the relation between selves and technologies, and between organs and architectures. It is the frontier of the tooling of the cerebral. That is, the manner by which tools come to construct the brain and all that is associated with it. For Freud's footnote suggests that organ-tool relations operate in more than a pragmatic, utilitarian, or functional manner. In a basic functional sense, it might be entirely pragmatic to take hold of an organ in order to put out a fire. But in Freud's account there is also a cerebral mechanism at stake, and the mechanism he is concerned with is 'desire'. Freud notes that the technology of fire has a 'desire connected with it' and it is desire that is configured in fire, a stream of piss and a penis. The organ in such an account is a tool, but more than this, it is a tool lubricated by desire. In this sense, what Freud is speaking of may indeed be a subset of what Marx had noted in a passing phrase within the fourth footnote to Chapter 15 of *Capital*, which Stiegler came to quote. There, Marx notes that a history of technology and its relations with the human might also deal with 'the mental conceptions that flow from these relations'.[40] This may have been a passing phrase in a footnote, which comes to be quoted in *Technics and Time, 1*, but it does suggest that the kernel of the cerebral was always in the core of considerations of technology. And thus, while Stiegler did not turn to Freud on this point, it is not that he didn't turn.

The closest architecture comes to engaging such an idea of the manner in which 'thought follows production' is perhaps Neil Spiller's *Communicating Vessels*. This project commenced

Fig. 3: Neil Spiller, Little Soft Machinery, 2006. Photo: Neil Spiller.

in 1998 and constitutes a 'life-work', a long-term theoretical investment in rich layered drawings that waver between techne and poesis. Spiller locates the project in a geographic sense, on an island in the English village of Fordwich, but this island is not exclusively geo-historic. He describes it as 'an island of memories, of hot sunshine bicycle rides, burgeoning sexuality, secret underage beers and illicit '70s liaisons.'[41] I think I've been there. There are two interconnected impulses surging through the *Communicating Vessels* project. On the one hand, it negotiates a pragmatics of techne and a vivid concrete material world. The island exists, as do the geo-historical events, technologies, bicycles and beers that come to be collated. And Spiller is clear in locating the project in the frame of techne, describing it as 'a rumination on the impact of 21st Century technology on architectural space and materiality'.[42] On the other hand, the project negotiates the realm of desire and memory. Spiller describes *Communicating Vessels* as 'a personal memory theatre, a surreal contemplation', and in this regard the island is also a place of the burgeoning and the illicit, or what Engels calls 'mysterious junk' and what Freud calls 'desire'.[43] It is this dual formation that is fascinating: the manner in which the concrete pragmatics of technology and cerebral mechanisms surge together. The hard wiring of bikes and beers in concert with the supple wiring of desires and memories. On Spiller's island objects desire and tools remember, and the island itself is 'simultaneously there geographically and in my memory'.[44]

Such a surge also occurs in *Technics and Time, 1.* It occurs where the phylum of the hand and the epiphylum of technics directly generate thought. Memory, traditionally the preserve of an interior, becomes articulated by a nonorganic exterior and thus, what starts as an equation of tools and hands, slides into the cortex and relates to what Stiegler would call 'epiphylogenesis'. He defines epiphylogenesis as the 'inorganic organization of memory', and in an odd moment of concurrency with Freud, Stiegler suggests that epiphylogenesis is the 'first coup' in the constitution of society.[45] Just as the tool makes the hand, the technologies that surround us – that were the product of others' hands – are implicated in the cerebral constructions of ourselves, our societies and civilisations. The desires and thoughts we imagined were internal are, it seems, constructed well beyond our organs and well before our origins. For Stiegler it is technics that precedes us and that pre-empts cerebral constructions. He notes that the 'epiphylogenetic structure makes the already-there and its appropriation possible, as reappropriated expropriation, a maieutics of "exappropriation"'.[46] For Socrates, maieutics was the birthing of knowledge; for Stiegler it was that which was already outside the organism, and which – coming to be reappropriated – gives birth to that which thinks: the 'what' inventing the 'who'. In this regard all those things that we come to think of ourselves *as being*, occur as the intellectual residue or biproduct of the assemblages in which we are implicated. This or that political alignment, this or that class designation, this or that categorisation, this or that gender, this or that orientation, this or that relation or demarcation, come to be matters of construction.[47]

To explain the idea in simpler terms, we might turn to Spiller's memories of his island as an example. Bicycles and beer were there before the teenage Spiller came to take them up in order to assemble a teenage memory. They are still there after he departed the island too. These inorganic things might be taken up or put down by other teenagers. In the case of a bicycle, it might be taken up to temporarily extend legs into the circular motions of chains and tyres that help construct a desire to get to an island before a sunset. Indeed, Spiller's bike had already been ridden uphill by Alfred Jarry and around rural Ireland by Flann O'Brien.[48] It was 'readymade' as Duchamp says, a 'reappropriated expropriation' as Stiegler says. And in the case of beer, it too flows through generations like mental conceptions and urine. It is taken up to make communication more fluid and inhibitions

less pronounced in the construction of innumerable memorable sweaty moments. These 'things', bicycles and beers, constitute what Stiegler calls 'exteriorisation and prostheticity' because such things are at once outside us and formative of us.[49] Thus, prostheticity should not be thought of merely as an extension of (our)selves. These inorganic 'things' that Spiller connects to, bikes and beers, are completely indifferent as to whether or not they constitute the memories that Spiller considers to be *his* youth. That is to say, one could note the story of the bicycle or a liver just as simply as one notes the story of a teenager or a Titan. They are all part of a complex milieu of individuation. And from the perspective of epiphylogenesis, the beer and bicycle are as constructed as the teenager that rides both. Stiegler notes that 'epiphylogenesis bestows its identity upon the human individual: the accents of his speech, the style of his approach, the force of his gesture, the unity of his world.'[50] Spiller himself, the person, the architect, the designer, is not extended or perfected in prostheticity, but rather taken up as a component – merely another component. Just as the tool makes the hand seem less fundamental, identity becomes less an internal particularity to be essentialised and preserved, than a machine that is itself in construction.

What all these organs, tools, desires and memories, and organisations thereof, come to construct is not an individual. What is constructed here is a world. And this is the case whether that world is a simple one ('the unity of his world' as Stiegler calls it), or a complex and proliferating world (as is the case of Spiller's island). While we noted that the collation and assembling of 'things' such as beer and bicycles constitute what Stiegler calls 'exteriorisation and prostheticity', the world of the island might constitute what Stiegler calls a 'general organology'.[51] And organology might be thought of as the technicised milieus organised for particular forms of social production. Spiller's project gives us a world as a cacophony of organs, the organic, inorganic, desires and memories. Phenomenological and anthropomorphic sensibilities, social relations and mental conceptions come to be indiscernible from the architectural. Simultaneously architectural objects come to be indiscernible from ontologies, regimes of thought, memories, presences and timings. Spiller writes of a

> permanent architectural context, material sympathies and synthesis, massing, phenomenological and anthropocentric sensitivities [that] are now imbued with the accelerating timescales of virtual and chemical metamorphosis combined with the virtual choreography of chance. Positions of, and the nature of objects and architectures are conditioned by mixed ontologies, scopic regimes, numinous presences and reversible time. This reversible time stalks objects and disturbs their gentle entropy and peaceful rest. The vitality of architecture has increased a thousand-fold.[52]

With the skilful capacity of Hephaestus, Spiller engages organs, organisms, objects, desires and memories, 'transductively' (as Simondon would call it), to generate a world. Technology is not only at its conceptual core but temporally anticipates this world. That is, it operates always as 'the former'. In a paper titled 'Vascillating Objects' (1997) that poetically pre-empts the *Communicating Vessels* project, Spiller writes: 'Technology is forcing the object to become a subject, partial and anamorphic.'[53] And it is for this reason that we might now come to speak of 'the vitality of architecture' without hesitation, and without invoking metaphor.

The *Communicating Vessels* project incorporates a logic of the corporeal and an organisation that does not merely house the organ. Objects here are never given, but rather stalked and disturbed. There are to date forty-three sites or structures constituting the project. *Little Soft Machinery* is one oddity of the island, 'a kind of semi-living creature that has grown from stem cells, an old testicle and a leaky bladder'.[54] Where Freud imagines a technology that might remove our organs' 'limits to their functioning', Spiller imagines a removal of organs

from organisms in order that they might function radically differently. And thus, an emancipated organ on an island where 'thought follows production' is productive indeed. In the case of *Little Soft Machinery* an orchidectomy allows a testicle to bloom and operate as an energy source for the island, perpetually generating a substance Spiller calls 'vaz', 'the holy gasoline' or 'grease'. And much like an eagle might forever feed off a liver, Spiller's island has fed for years off this 'old testicle and a leaky bladder'. It should be noted that though *Little Soft Machinery* is composed of parts – organs – it itself remains partial – and comes to be plugged into all manner of architectural expression. *Little Soft Machinery* is currently plugged in under the *Lillith Gate*, the entrance to the island. Here on Spiller's island, organs function not as they might in the organisation implied by the organism, but beyond the bodies in which they originated. They become tools for the construction of worlds. *Little Soft Machinery* is without an overarching essence or sense of itself, but it is not without desires. Spiller tells us that it is a 'bio-technological factory' that (much like Epimetheus) 'isn't very smart, just smart enough to desire.'[55] *Nullius nisi insipientis in errore perseverare.*

Again, I think I've been there… The old formula (first the organism, then the organ, then tool, then technology, then civilisation) comes to appear as a rather restrictive habit of thought that bares little correspondence to the material world. The new equation is: livers, testicles, bladders, architectures, memories, desires, populations, the machinery of civilisation, connected and surging: all 'productive organs of man', as Marx called them; all constituting a 'general organology', as Stiegler called it. The negation at stake here is the negation of the world as a type of causal system. It is an 'augmented reality', as Spiller writes. But it is also a negation of the world of habitual thinking. And architecture likely negates the negation in creation – bearing fruit that always contains the husk of a seed and a plant yet to come. In *Technics and Time, 1*, a text that continues to produce immense thought, Stiegler told us that when the tool liberates itself from the hand and technology comes to enter a 'general organology', techne 'brings into being what is not.'[56] A new world. And just as an organ might be removed in order to feed an architecture of a new world, so too might an ellipsis or two be necessary to extend a wondrous philosophy.

Notes

1. Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus,* trans. Richard Beardsworth and George Collins (Stanford: Stanford University Press, 1998 [1994]).
2. Bernard Stiegler, 'Elements for a General Organology', *Derrida Today* 13, vol. 1 (2020): 72.
3. Neil Spiller, 'Ethics, Architecture and Little Soft Machinery', *Architectural Design 78*, no. 6 (2008): 94–97.
4. Friedrich Engels, 'The Part Played by Labour in the Transition from Ape to Man', trans. Clemens Dutt, in *Dialectics of Nature* (Moscow: Progress Publishers, 1986), 173. The original essay 'Anteil der Arbeit an der Menschwerdung des Affen' was written in 1876 and first published in *Die Neue Zeit* 1896; Karl Marx, footnote 20 of his *Economic & Philosophical Manuscripts of 1844,* trans. Martin Milligan (Moscow: Progress Publishers, 1959). Marx notes: 'The term "species-being" [*Gattungswesen*] is derived from Ludwig Feuerbach's philosophy where it is applied to man and mankind as a whole.'
5. Stiegler, *Technics and Time, 1,* 172.
6. Stiegler, 'Elements for a General Organology'.
7. Karl Marx, as cited in Stiegler, *Technics and Time, 1*, 26. It might be noted that in the original French edition, the ellipsis is marked in square brackets to indicate it is not Marx's own ellipse, but rather that of the Stiegler. The square brackets are removed in the English edition.
8. Stiegler, *Technics and Time, 1,* 2.
9. Karl Marx, *Capital*, Volume 1, trans. Ben Fowkes (Harmondsworth: Penguin,1976), 493n4.
10. Stiegler, *Technics and Time, 1,* 26.
11. Peter J. Bowler, *The Eclipse of Darwinism: Anti-Darwinian Evolution Theories in the Decades around 1900* (Baltimore: Johns Hopkins University Press, 1983), 159.
12. See for example Chapter 4 of Charles Darwin, *On The Origin of Species By Means of Natural Selection, or the Preservation of Favoured Races In the Struggle for Life*, with an introduction by Ernst Mayr, (Cambridge, MA: Harvard University Press, 1966 [1859]), 126–27.
13. Darwin, *On The Origin of Species*, 84, my emphasis.
14. Stiegler, *Technics and Time, 1,* 26.
15. Ibid.
16. Ibid., 1, 2.
17. The essay would come to form the ninth chapter of Engels, trans. Clemens Dutt, *Dialectics of Nature* (Moscow: Progress Publishers, 1986 [1925]), 173.
18. Ibid., 170, 176.
19. Ibid., 171–2.
20. Ibid., 172.
21. Ibid., 177.
22. Ibid., 183.
23. Ibid., 43.
24. Ibid., 8.
25. Ibid.
26. Plato, *Protagoras,* trans. Benjamin Jowett (Project Gutenberg EBook, 2013), 320d–322a.
27. Stiegler, *Technics and Time, 1,* 84.
28. Engels, *Dialectics of Nature*, 62.
29. Friedrich Engels, 'Herr Eugen Dühring's Revolution in Science', trans. Emile Burns, in Karl Marx and Frederick Engels, *Collected Works* vol. 25 (New York: International Publishers, 1976), 125.
30. Engels, *Dialectics of Nature*, 295.
31. Roy Bhaskar, *Dialectic: The Pulse of Freedom* (London: Verso, 1993), 150–52.
32. Engels, *Dialectics of Nature*, 215.
33. Marx, *Capital*, 542.
34. Stiegler, *Technics and Time, 1,* 113.
35. Ibid., 152.
36. Ibid., 206.
37. It is well-known that Marx's favourite figure from Greek mythology was not Epimetheus, but rather his brother Prometheus. The hero of Marx's dissertation on *Democritus and Epicurus* (1841) was Prometheus, the god 'who would not bow to the gods' anger'. The image became fundamental. Marx notes in *Capital* that 'the law which always holds the relative surplus population or industrial reserve army in equilibrium with the extent and energy of accumulation rivets the worker to capital more firmly than the wedges of Hephaestus held Prometheus to the rock.' Marx, *Capital*, 451. Marx also writes in 'Prometheus Bound':

'Prometheus is the noblest of saints and martyrs in the calendar of philosophy.' *Marx-Engels Selected Works* (Moscow: FLPH, 1955), 21.

38. Sigmund Freud, *Civilization and its Discontents*, trans. David McLintock (London: Penguin Books, 2002 [1930]), 28.
39. Ibid., 35n2.
40. Karl Marx, as cited in Stiegler, *Technics and Time, 1*, 26.
41. Neil Spiller, 'Drawing as communicating vessels: an apologia (or not)', in *Drawing Futures: Speculations in Contemporary Drawing for Art and Architecture* (London: UCL Press, 2016), 37.
42. Ibid.
43. Ibid.
44. Ibid.
45. Stiegler, *Technics and Time, 1,* 174.
46. Ibid.*,* 159.
47. In this regard, Stiegler's *Technics and Time, 1* project perhaps finds itself pushed toward conclusions in the work of Paul B. Preciado and particularly Preciado's conception of technology in the constructions of sexuality. Beatriz Preciado, *Testo Junkie: Sex, Drugs, and Biopolitics in the Pharmacopornographic Era,* trans. Bruce Benderson (New York: The Feminist Press, 2013 [2008]).
48. Alfred Jarry, 'The Crucifixion Considered as an Uphill Bicycle Race', trans. Roger Shattuck, in *The Selected Works of Alfred Jarry* (Grove Press, 1965). Flann O'Brien, *The Third Policeman* (London: MacGibbon & Kee, 1967).
49. Stiegler, *Technics and Time, 1,* 172.
50. Ibid.*,* 140.
51. Ibid.*,* 172.
52. Spiller, 'Drawing as communicating vessels', 41.
53. Spiller 'Vascillating Objects', cited in Spiller, 'The Geomorphology of Cyborgian Geography', *Organs Everywhere (OE)* 2 (2011): 9. Spiller would defer to the idea in a later text noting of the project that 'the epistemological distinction of plants, animals and machines is eroded'. Spiller, 'Ethics, Architecture and Little Soft Machinery', 16.
54. Ibid., 94–97.
55. Ibid., 24.
56. Stiegler, *Technics and Time, 1,* 9.

Biography

Chris L. Smith is the Professor of Architectural Theory in the Sydney School of Architecture, Design and Planning at the University of Sydney. Chris's research, over the last eighteen years, has focused on the nexus of architecture and the body. He locates this nexus between architectural theory, philosophy, and the biosciences. He has published on architectural theory and its dynamic relation with body theory, poststructural philosophy (particularly the work of Gilles Deleuze and Félix Guattari) and technologies of the body. Chris has also published on the complex intersections of architecture, the biosciences, and medical humanities. He is the co-editor of *Architecture in the Space of Flows* (Routledge, 2012), *Laboratory Lifestyles: The Construction of Scientific Fictions* (MIT Press, 2019), and is the author of *Bare Architecture: A Schizoanalysis* (Bloomsbury, 2017) and co-author of *LabOratory: Speaking of the Science and its Architecture* (MIT Press, 2019).

Interview

Re-Imagining a 'We' Beyond the Gathering of Reductions: Propositions for the Three Ecologies

Antoinette Rouvroy, Lila Athanasiadou and Goda Klumbyte

The first shorter version of the interview took place in a discord server. The current edited version has been further elaborated by Antoinette Rouvroy.

Lila Athanasiadou (LA): Hello Antoinette! Thank you for agreeing to talk to us!

Goda Klumbytė (GK): Hello Antoinette! Wonderful to 'meet' in this discord server.

Antoinette Rouvroy (AR): Hello Lila, hello Goda!

GK: Again, thank you very much for agreeing to our interview and experimental format.

AR: It's a pleasure, and an experiment.

LA: We can start with a small introduction so you know who hides behind our avatars 👀

GK: Yes, let's do some disclosure 😊

AR: 🤓

LA: I am Lila, a cultural worker and lecturer in social practices at the Willem de Kooning Academy in Rotterdam. I have a background in architecture and urban design, and I am quite entangled in housing and labour rights activism. I have been interested in the ways our subjectivities are produced and structured as a result of both linguistic codes and spatial gestures. Also, I have been looking into technological determinism within smart cities design and applications and especially the kind of subject they reproduce.

AR: Nice to meet you, Lila!

LA: 👍

GK: I am Goda Klumbyte, currently a researcher at the University of Kassel in Germany, in the research group Gender/Diversity in Informatics Systems. I'm working mostly on algorithmic bias, feminist science and technology studies and posthuman/new materialist approaches to tech. I'm in my last year of a PhD on machine learning epistemologies and systems design.

AR: Nice to meet you too, Goda. 💮

GK: 💮

AR: I'm Antoinette, interdisciplinary (and unfortunately quite undisciplined) lawyer. I am a researcher and professor at the university of Namur, mostly interested in evolving normativities at the interface of legal theory and philosophy, sciences and technology studies, Foucauldian governmentality, Deleuze and Guattari… etcetera.

GK+LA: 👏👏💯

LA: We will poke some of these interfaces today.

GK: Just a note: Lila and I actually met at a Deleuze seminar, led by Rosi Braidotti and Rick Dolphijn, and referred to your work extensively in collaborative writing that came out of that seminar. Today we thought we could try and tease out more affirmative politics and arrive at some kind of propositional format. Based on Guattari's *Three Ecologies*, and arguments that are found in the intersection of your work with that of Stiegler's we will pose short questions and try to find spaces for lines of flight in the infrastructural/individual, social and global/environmental realm.

AR: Excellent! wow, this is great and intimidating! I am a fan of Rosi Braidotti myself.

LA: 🙃

GK: Something that interests us is how we can update the dynamics within the three ecologies for

the digital age, what tweaks and changes we need, and how we can create more affirmative politics and propositions alongside critique.

Environmental ecology: countering exhaustion

Maybe we can start with the environmental ecology, and specifically the digital-material binary pair or dichotomy that seems to haunt the relationships within and to this ecology. In a recent interview you called for treating data a waste product that exhausts the planet's resources and minerals to support the growing need for sensor-building, cloud computing and storage power.[1] You also suggested that 'big data does not allow itself to be disturbed by the materiality of the word'.[2] So there seems to be a complex relation between the digital and the material when it comes to big data. Big data is completely dependent on worldly materialities, from fibre cables to energy resources, while it also encroaches on materiality, colonising and extracting value. We wonder whether and how we could understand the material-digital as non-oppositional but rather as entangled, overlapping? And if you think it important to break this oppositional thinking to begin with, would the focus on data as waste-product help with that?

AR: Ok, I'll try to respond. Suggesting the possibility to think of digital data as waste was meant as a provocation to challenge the currently prevailing dataism: the central dogma of both data behaviourism and digital capitalism. The metaphor of the computational turn evokes a certain transformation of the linguistic turn. The unit of perception, of understanding the world is no longer the sentence, the word, the sign – always bearers of meaning – but data, individually a-significant but computable fragments, a proliferation rather than a transcription of the world. That's what I call data behaviourism. As default automated data collection and storage no longer requires any conscious effort, archival classification or curation, data storage has become cheaper than curation, erasure or depletion. In this regard, data is comparable to toxic waste: getting rid of it is more expensive than storing it. Digital sobriety has become more costly than digital overconsumption. Most of the time, data is collected and stored by default not because data as such conveys valuable meaning. In digital capitalism, meaning would rather be conceived as an impairment, because meaning presupposes a referentiality 'attaching' data to its context, while digital capitalism pursues an acceleration of flows of deterritorialised digital signals, meaningless yet prone to be correlated with other individually meaningless data, so as to produce predictive patterns or clusters.

In the era of big data, it is the quantity and speed of data rather than the density of information of each piece of data that matters. Jean Baudrillard, in one of his dazzling affirmations, said that 'we are in a universe where there is more and more information, and less and less meaning'.[3] Among the different hypotheses explaining this state of affairs, Baudrillard refers to what he calls Claude Shannon's hypothesis that, being a purely instrumental, technical medium,

> information has nothing to do with meaning. It is something else, an operational model of another order, external to meaning and to the circulation of meaning itself … A kind of code, as the genetic code can be: it is what it is, it works like that, meaning is something else that comes after in a way … In this case there would be simply no significant relation between the inflation of information and the deflation of the meaning.[4]

But in fact, as Erich Hörl suggested, machine learning algorithms are indeed generative of a novel kind of 'techno-ecological' meaning (semiosis); they produce a different, 'alien' meaning, which is no longer attested or attestable alphabetically by a transcendental subject of reading and writing.[5] Or, as Jean-Louis Déotte puts it: 'the digital arch-writing … in a certain way, starts only from itself to meet only its effects, because it is an elementary language that no speaker can speak.'[6]

The proliferation of data, or 'signaletic matter', doesn't contribute at all to what Bernard Stiegler

called the epiphylogenetic milieu. Instead of a trans-generational sedimentation (the inherited psychic representations, or forms, transmitted through the symbolic milieu, through language, through symbolic materials in general, objects, icons, all forms of memory supports), non-selective data proliferation, as over-abundance of digital a-signifying signals, or raw data, amounts to a de-sedimentation of primary, secondary and tertiary retentions in a cybernetic perspective according to which the biological, social and symbolic dimensions of existence would only be apprehended as pure computable data flows, updated in real time.[7] This production of life itself as eminently plastic, re-combinable data flows, as exorganic computation overcoming/leveraging emergences, conceived in and reinforcing an imaginary of infinite growth, of infinite acceleration, while 'freeing' life from the forms in which constantly confine it, is in fact exhausting/consuming/disinvesting the future. As Bernard Stiegler puts it:

> With planetary reticulation, a threshold has been crossed: the biosphere itself, in totality, has become a hypercomplex functional exorganism, and in so doing it is reaching its anthropic limit in the form of the systemic exhaustion of all singularities through informational calculation placed in the service of making certain that there are gains to be had for speculators who thus become disinvestors. This disinvestment, which is the accomplishment of nihilism as such, consists in prohibiting all neganthropic bifurcations that would reintroduce uncertainty with respect to such gains.[8]

In a way, this rejoins Ray Brassier's critique of Nick Land's acceleratinionist nihilism:[9] 'When you accelerate, your ability to accelerate is limited by material constraints, but there must also be a transcendental speed limit at some point. The ultimate limit … is death, or cosmic schizophrenia. It is the ultimate horizon.'[10] I wish to add that, of course, the digital economy appears very immaterial, and the 'imperative of innovation' that is now at the core of the agenda of European and other institutions obfuscates the materiality of the extractivism that it presupposes.[11] For example, the exploitation of forced labour in Foxconn and other factories, the exploitation of children in coltan mines in Congo, and so on. The digital economy is a cannibalistic economy. 'Data as waste' is thus also a provocation to think beyond the increasingly dominant assumption in the post-industrial western world that 'current and future economic growth and societal well-being is increasingly based on the value created by data'.[12] Dataism carries the sense that it has become possible to translate the virtual into surplus value by the grace of an algorithmic semiosis generating immediately and automatically actionable operational information without the intervention of human perception, imagination or understanding. Not factories, not workers, not even knowledge: *data* – rendered amnesic of all conditions of production (including the heavily material logistics involved) – is perceived as the privileged site of value production.

LA: The point you're making is spot-on! 💰💯 Could you elaborate on that complex transformation further?

AR: In his visionary 'Postscript on the Societies of Control', Gilles Deleuze rightfully observed that the advent of computers and cybernetics was not only a technological revolution but also a transformation of capitalism. [13] It represented a shift from a capitalism dedicated to production to a capitalism having relegated production to the periphery of the Third World, and therefore a capitalism repurposed to buy shares, sell services, assemble components produced elsewhere, advertise and sell imported products. To western post-industrial capitalism, data – as that which allows 'smarter marketing' and other speculative (rather than productive) practices – is indeed what creates value. What change would it make if we started to think of data as waste rather than as an asset, based on the negative externalities generated by the digital economy? Would it allow for a bifurcation away from toxic consumerism towards the needed sobriety? Would it help us recover the intelligence of limitations?

The excessive proliferation and expansion of the digital universe, corresponds, in the techno-semiological stratum, to what Patrick Tort recently referred to as 'hypertelia' in the organic stratum:

> the development of an anatomical part or character beyond its optimal level of usefulness [such as the] giant antlers of the fossil deer Megaloceros giganteus, hypertrophied upper canines of ancient 'sabre-toothed tigers', disproportionate tails of peacocks … such structures, by continuing to grow much more than their initial function required, would have become 'monstrous' and harmful to their holders through a disabling growth inertia, maladaptation, and tendency to be fatal to the survival of the species during a subsequent change in life conditions.[14]

This overload of appearance, endowing them with symbolic assets in sexual selection, exposed their holders to obvious survival disadvantages. In a similar vein, the excessive proliferation of digital data, or what I call, in the techno-semiological stratum, digital pheromones, doesn't ensure any survival advantage for our species. Of course, in digital neoliberalism (or algorithmic governmentality – which is but the last recombination of capitalism), homo economicus gives way to homo numericus, as injunctions to maximise production-performance and consumption-enjoyment are supplemented or even superseded by the injunction to of maximise digital human capital or self-branding. [15] Individual performances are evaluated against hyper-mobile metrics, varying according to the behaviours of all others. The algorithmic regime intoxicates individuals with an insatiable thirst for credit. Individual self-branding is the hollowed-out personology in anomic digital capitalism where (in)dividuals are thrown in absolute competition at the quasi-molecular scale of the digital pheromone.[16]

You see then that whenever normative, institutional systems and their stable, recurrent, recognisable patterns (what Foucault called hegemony) give way to apparently endogenous and self-learning ordering systems.[17] In the absence of a common frame of reference, strategies of power mutate in (at least) two directions. The absence of common referentiality attests both to an apparent emancipation from the yokes of stable and recurrent norms (always inadequate to the spontaneous emergences in the world) and to a drastic de-semiotisation or digital abstraction (as digital data is rendered amnesic of the organic, material, cultural compositional plane from which they proliferate). This is what emancipates algorithmic governmentality, and the vectorialist class that thrives on it, from both the institutional, legal, and social-normative constraints, and from the limitations imposed by organic life's intelligence of limits (negentropic organic regulation). Algorithmic governmentality is instrumental to the infinitisation of capitalism: 'data science fiction' nourishes fantasies of transformation of the perspective of extinction into a perspective infinite growth. Under the guise of making power immanent, techno-feudal corporations are taking the lead, as Yanis Varoufakis recently argued.[18] Whereas, on the side of those called users and consumers – whose possibility to act in their capacity of citizens, contributing with others to deliberative processes about matters relevant to the common good irreducible to the mere juxtaposition of individual interests, is radically circumvented – their strategies of power consists in maximising their capacity to be known, to attract 'followers', and therefore to impose themselves numerically, as nodes in the network's mesh.[19]

GK: 💯 I wish there was a nodding emoji I could use here. 🖉

AR: When it comes to big data and the materiality of the world, I meant that the technological ideology of big data includes the pretensions of 'exhaustion' (big data as a huge statistical database where n=all), and the illusion that, if one has enough data, one does not need to interrogate the world in its materiality to generate 'reliability' or 'credit' (rather than knowledge).

GK: Yes I see, almost as if data is a stand-in for or equivalent to materiality.

AR: Yes, but nor does it stand in: digital data is no longer understood, perceived or used as secondary instances representing or conveying pre-existing entities (subjects, objects, truths, activities, intentions, relations of forces or domination); they are not 'signifiers' anymore. They are not treated as 'signs' or 'stigmata', or 'evidence', but as purely decontextualised , dehistoricised, a-semantic but computable signals, dispensing with our need to confront the world and its inhabitants through sensory relationships, or even perceptual relationships. This digital stratum is rather a matter of what Baudrillard called 'simulation processes':

> The internal logic of these procedures (statistics, probabilities, 'operational cybernetics') is certainly rigorous and 'scientific', yet somewhere along the line it doesn't stick to anything, it's a fabulous fiction whose refraction index in a reality (true or false) is zero. This is even what makes these models strong, but it is also what leaves them with no truth other than that of paranoid projection tests of a caste, or a group, which dreams of a miraculous adequacy of reality to their models, and thus of an absolute manipulation.[20]

LA: They get a life of their own, often appear more valid than real life in some ways.

AR: Yes! 💯 It's really a regime of indistinction between signals and things, but where things as things disappear and are replaced by speculative patterns or clusters. In a way, the constantly proliferating digital universe appears like a map that produces its own territory (a purely speculative territory of risks and opportunities).

LA: Do you think that this false imagery of digital as immaterial posited against materiality of nature and real life is somehow what also prevents us from operating differently in the environmental ecology? There is an argument advocated by Benjamin Bratton that the power of the digital allows us to enact certain epistemological shifts and enables us to think of the physical environment not as an object to be observed or manipulated but as a co-designer. Do you think there is potential to this argument?[21]

AR: Yes, I would say that the way to hell is paved with good abstractions! It is hard not to perceive the naïve realism of those who believe that crunching data provides direct, unmediated, objective access to the world in itself. Jacques Lacan's formula that 'Les non-dupes errent' is perfectly suited to that 'ideology of big data' (or algorithmic realism) assuming an indistinction between the world and data proliferating from the world, and denying that reality is always structured by symbolic fiction.

The 'alien thinking' of machines, however, as Luciana Parisi calls it, may offer another perspective, from unprecedented angles, on the universe, on emergences, or on discrete regularities that are only observable on large numbers… the new possibilities opened by this 'alien thinking' must be preserved from the new kind of extractivism (the transformation of the virtual into surplus value) allowed in digital capitalism.[22] For the moment, the virtual (in the Deleuzian sense) is the new target of extractivism, whereas it could have been and should become a preserve for… imagination, creation, collective fabulation, a heterotopic site of openness to what is not any more or not yet present, a site of investment – rather than over-consumption – for the sake of the common over time. After all, machine learning algorithms metabolise the world in small, discrete, abstract units, which they recompose in their own way, with an automatic curiosity that is not tamed by anything but their objective functions, which reflect the particular sectoral rationalities (of the interests) they serve.[23] To a certain extent, they remain much too 'human' but in a way that is mostly obfuscated, as they also tend to absolve human actors – those at the service of whom these optimisation machines function – from assuming responsibility for the negative externalities and costs of their highly speculative practices, which are to be suffered by actual and future others. The reason for this is that, because the algorithmic decision imposes itself as the necessary

result of computation performed in a black box, rather than as an arbitrary choice or option, human agency appears resorbed in the hidden layers of neural networks. Failure to question the finalities (or objective functions) of automation, on the assumption that algorithmic decision-making is necessarily an improvement of rationality, waives the possibility to decide about its deployment.

LA: The tech circles' solutionist imperative indeed tends to jump into 'digital products', before a problematique is even articulated. In order to explore the full capacity of digital abstraction, we will have to drop the extractivist attitude ☆ ☆

AR: You know, I'm thinking right now about what Karen Barad has to say about the void…

GK: Do tell us...

AR: The dominant evil, for the moment, is the glutony of digital capitalism, and the imperative of optimisation which really forecloses thinking.[24] In French we can say that algorithmic governmentality consists in an operation of *dé-penser* (both spending in the sense of exhausting, and un-thinking) the future. It's a way of managing uncertainty by neutralising the virtual (through preemption or optimisation). Barad writes that

> even the smallest bits of matter are an enormous multitude. Each 'individual' is made up of all possible histories of virtual intra-actions with all Others. Indeterminacy is an un/doing of identity that unsettles the very foundations of non/being. [25]

It is precisely that in/determinacy of matter that digital capitalism both feeds on and neutralises.

GK+LA: 🕸 🕸

LA: Exhaustion seems to be the theme permeating all three ecologies. Earlier you referred to it as the cannibalistic depletion of energy in the environmental realm, but also the exhaustion of possibilities for fabulation of a future in the social realm, and the physical and psychological state of workers, let alone the numbing of consumers within a mental ecology. What could the antidote to the persistence of exhaustion be?

AR: Exhaustion – or exhaustivity – triumphs only to the extent that the technical ideology of dataism becomes hegemonic, and succeeds in persuading that other practices of 'mattering' (making things matter) are obsolete. The antidote to dataism, or digital capitalism, or algorithmic governmentality, is to allow speakability, visibility and authority (conceived not in the axioms of domination but in the axioms of enunciation, as the authority to speak) of what remains irreducible to data flows, the singularities articulated to forms of life, to the people to come… justice as an ideal of perfectibility of the present, rather than as an optimisation of the state of facts.

Social ecology: re-inventing institutions as practices of mattering

LA: In some ways, though, it is also a matter of the use of that computational potential and the instrumentalisation of its alien logic. Large scale computation is what enabled us to start to understand climate change. One can claim that computational power is wasted on surveilling for the state and private corporations, financially speculating, extracting value from everything that is or could be and spamming individuals – all of which centres the human once again. From the Anthropocene to the transhumanists undercut by global capitalism, computation's goals are very anthropocentric. How can we re-imagine computation as less mirroring individuals and more reoriented for the commons? ☆

AR : Yes, Lila! 👏 It is a matter of use! Big data and algorithms are very useful to detect regularities that are unnoticeable otherwise because they are observable only in 'big numbers' – that is, from a perspective that is alien to situated human subjects. 'How can we re-imagine computation as less self-mirroring individuals and more reoriented for the commons?' Great question! I try not to be trapped in my lawyer's tropism, but I believe that this is a matter

of constitutionalism. The problem, for the moment, is that big data and algorithms allow for unlimited extractivism and exhaustion (of everything, including the future). Today, there is no overarching constitution, arbitration or limitation of the possibilities of exploitation and growth of competing digital corporations. There is only a juxtaposition of objective functions translating (encoding) the sectorial logics of profit maximisation and so on. There is no way to 'make count' the interests of beings who have not left any digital trace or are unable to issue digital signals, like future generations, like people living in less connected areas of the planet. While everyone is obsessed with questions of regulation, it is above all constitutional issues in the most fundamental sense that should interest us instead. Now is the critical moment to advocate for a transnational constitution for the data-driven world. The virtue of constitutions (political, legal) is that they bind the prevailing powers of the present for the sake of the common and the future. At a time where corporations like GAFAM have come to concentrate quasi-sovereign powers (as a matter of fact they concentrate legislative-like, executive-like, and judiciary-like powers without being held accountable to anyone other than their shareholders) and have acquired means to pre-empt regulation, I wonder (very tentatively) if we are not at a time where a constitutional moment would be needed to bind not only states and citizens but also corporations.[26] In *Freedom and Time: A Theory of Constitutional Self-Government*, Jed Rubenfeld writes that

> democratic self-government cannot be achieved, even in principle, by way of a politics of popular voice. It requires an inscriptive politics, through which a people struggles to memorialize, interpret, and hold itself to its own foundational commitments over time. I will call this idea: constitutionalism as democracy … Constitutional democracy supplies a better account than we currently have of how a constitution binds – of how, in other words, constitutional law exerts legitimate authority over time.[27]

The crucial question, from a constitutional point of view, is this: how to imagine and enact social forms, or how to constitute these forms – beyond the nation-state and its institutions, and beyond liberal dualisms and oppositions – capable of committing scientific and technological practices not towards the intensification and hegemony of integrated world capitalism, but rather towards the growth of the living world (growing trees, raising children, deproletarianising grown-ups). The urgent question is not – as Guattari argued – how to 'keep the human in the loop' but rather 'how to keep life in the loop' against the algorithmically boosted human obsession with growth (of extraction, production, consumption, profit). Therefe, we don't need 'innovation' as much as we need scientific inventions and political imaginations.

I really believe Mark Fisher was right when saying that 'it is now our task to develop alternatives to existing policies, to keep them alive and available until the politically impossible becomes the politically inevitable'.[28] The crucial thing is, he said, 'the futures that we expected in the 20th century have failed to happen and the perspective must come from that'.[29] Building a critique not from the past but from the future that has not arisen, that is, from what has not so far and not yet left any computable digital signal, from the blind spots of the digital.

Building a critique from a future that has not arisen presupposes building a scene, a space-time, a heterochrony, an hyperstition – or write a constitution – where not the past but the future may emerge as a persona – as impersonal singularity – with claims on the present. A critique built from a future is another aporia, another hyperstition. Not only do written constitutions span the absence of origin, they also thwart and renew the absence of recipients of the written commitments towards 'a people who are missing', a people that always exceeds its present representations.[30] The possibility to address a critique to the present in the name of the yet-to-come is at the heart of constitutional inscription as I understand it.[31] Of course, using the word

'constitution', what I have in mind is the absolutely aporetic character of the constitutional moment as heterochronic moment par excellence, an efficient ritual ensuring in a hyperstitional mode of writing, the being over time of a people that always misses and overcomes itself. Against the de-historicising imaginary (des)institution of (dis)society propelling and propelled by digital capitalism, the word 'constitution' evokes a task Nietzsche assigned to nature: 'to breed an animal that is *permitted to promise*'.[32] What I have in mind is a notion of constitution that allows for the breaking into the present of everything that is only there in the form of stigmata or prefiguration, and committing the actual (and taming actualisation) to not exhaust (*épuiser*) or neutralise the virtual: the contrary of digital abstraction and gluttonous recursivity, an extreme attention to and support for processes of mattering. What is at stake, what must be defended against the pre-emptive power-temporality of algorithmic governmentality, is an openness of time, or an heterochronicity, which is also a precondition for the possibility of justice, as Jacques Derrida reminds us in *Specters of Marx*:

> No justice … seems possible or thinkable without the principle of some responsibility, beyond any living present, in that which disjoins the living present, before the ghosts of those who are not yet born or who are already dead, victims or not of wars, of political or other violence, of nationalist, racist, colonialist, sexist or other exterminations, of the oppressions of capitalist imperialism or of all forms of totalitarianism. Without this non-contemporaneity of the living present to itself, without what secretly misaligns it, without this respect for justice towards those who are not there, those who are no longer or not yet present and alive, what sense would there be in asking the question 'where?', 'where tomorrow? ('whither?').[33]

For the moment, the reflex responses of the law, in Europe at least, attest at best to a nostalgia for the liberal subject (insisting on personal data protection and so on), whereas issues are obviously collective, structural, common, and involve future generations as well as all living beings of our planet. The prism of current liberal constitutions – social contracts committing states and citizens – is too narrow to address the urgent planetary stakes. Moreover, the deployment of digital infrastructures – such as 5G and maybe soon enough 6G – presented not as options or choices to be made collectively despite their potential to radically transform the collective assemblages and the intricated semiotic components that characterise territories and forms of life, are typically constitutional matters.

GK: This is a very good point. 💝 Lila and I were thinking, though, that at the same time there is a crisis of governance, with both laissez-faire self-organization of market forces on the right, and suspicion of any forms of government on the left. How do we deal with this crisis and distrust across the political spectrum? Is the answer to go more towards digital literacy or perhaps new institutional forms? What kind of institutional forms are we missing that allow for collective fabulation?

AR: The stakes are high in the question or problem of institutions. See the new forms of digital populism, the emergence, on social networks, of 'crowds' of supporters for and opponents to a person like Donald Trump having transformed politics into the branding of insurrection against the state apparatus itself… How should one conceive of institutions capable of blocking the rise of this new kind of digital populism that, in their book *Sovereignty.Inc.*, William Mazzarella, Eric Santner and Aaron Schuster powerfully describe as driven by the desire and enjoyment of 'brands' like Donald Trump?[34] (The Trump name was and is a brand before being the name of a former 'insurrectional' president.)

I think the new institutional forms should reconnect to the idea of institutions like Pierre Legendre's 'populated empty spaces'.[35] Institutions in this sense are conceived primarily as affordances for new practices of mattering, as new ways of occupying

space-time or of creating new space-time. This is what Deleuze and Guattari called *machines de guerre* (war machines), which have nothing to do with war, but which are new ways of occupying space-time or to create new spaces-times: new scenes, new interrupting spaces, where collective assemblages could happen. At the planetary scale at which digital capitalism operates in its pursuit of total synchronization (abolishing space-time), the 'war machines' presuppose a constitutional and institutional infrastructure to emerge. In order to imagine such space-time, we first have to identify the obstacles, all the things that are obstructing, foreclosing, closing the digital upon itself. I have a little list, for example, of a few 'reductions' that expropriate us from individual imagination and collective imaginary capacities. I truly believe, that, as Frédéric Neyrat powerfully exposed, after Cornelius Castoriadis, it is the ground of individual imagination, and of collective imaginary, that is fundamentally at stake, the ground (space-time) of individual and collective self-overcoming, or self-government.

LA: Can you elaborate more on this list? It has propositional potential! ☺

AR: Here is a list of some of the reductions, which are also toxic abstractions, that would need to be overcome in order to re-open the space-time, the collective assemblages, and the spaces of possibilities that appear increasingly foreclosed. I say 'toxic', because they deny the primary, secondary and tertiary retentions, that is, the epiphylogenetic milieu we live in and that we live by on this planet. These reductions condemn us to what I call an acquiescence to a transcendental platitude:

- reducing singularities (or processes of individuation or subjectification) to particularities (the detected or inferred infra-individual attributes or supra-individual patterns that are the grips of subjection of machinic enslavement in semiocapitalism);
- reducing the status of citizens to that of consumer-user;
- reducing politics to the juxtaposition of individual interests;
- reducing the commons to the juxtaposition of sectorial logics;
- reducing 'the people that are missing' to present political representation;
- reducing the future to the optimisation of the state of affairs;
- reducing the virtual to 'real time';
- reducing social justice to post-actuarial calculation;
- reducing justice to law;
- reducing hermeneutics to digital seismography;
- reducing imagination and creation to innovation;
- reducing foresight to the extrapolation of past trends;
- reducing work to employment;
- reducing the plasticity and alterability of life to the execution of a genetic programme;
- reducing life to flows of digital information;
- reducing the human person to the sum of his or her digital records and interactions;
- reducing the public to the audience;
- reducing 'right measure' to high-resolution;
- reducing people to their behaviour;
- reducing existence to pure presence;
- reducing singularities to symptoms,

and so on.

The redeployment of *differances* or differences between those terms requires a constitutional moment which is a moment where negativity – the not-yet-there, the irrepresentable, the to-come, the incomputable, or the 'symbolic fiction in excess of empirical reality', a 'depersonalised or impersonalised Other' that is not an actual individual, imposes limitations on the pure positivity of the present drives of self-maximising and self-optimising power.[36]

GK: This makes me think about the *Resisting Reduction* manifesto by Joichi Ito et al.[37]

AR: 😍

GK: This is a really great list to start from, with regard to thinking about changes that are needed within and across the three ecologies.

LA: 💯

AR: You know, what is at stake is, I believe, the possibility to re-imagine a 'we' – as a composite transcending the 'immunitarian' dichotomies of human versus nature, artifice versus spontaneity, autonomy versus determinism, presence versus duration and historicity – beyond this gathering of reductions. Thinking of the three ecologies, they find an almost perfect translation in the domain of legal philosophy in the writings of Alain Supiot: the anthropological function of law, according to him, is to link together the biological, symbolic and social dimensions of human existence.[38]

Mental ecology: new subjectivities for collective enunciation

GK: Yes! Drawing on that – this also seems to require different imaginaries of what a subject is, both collective and individual. You mentioned that there is a resistance to letting go of the liberal subject; we can see that in AI ethics, in data protection law, and so on. What other figurations of subjectivity could we enlist or envision here? Or do we try to re-appropriate the dividual and find some kind of remedying aspects of this?

AR: The dividual is a figure still haunted by the individual... it is still a nostalgic dis-figuration. I think we need a non-nostalgic critique and a non-mesmerised critique (knowing the difference between marketing discourse of the 'digital transformation' and its material (ir)reality). The legal subject's autonomy and self-determination is a functional fiction for the law: the liberal legal subject is not so much an empirical reality as it is a functional necessity for a series of legal operations such as the imputation of responsibility for the consequences of actions and decisions. As a functional fiction, it remains indispensable. I thought what might be interesting would be to displace the centre of gravity of the legal subject from its fantasised and fetishised liberal capacities of understanding and will to its dialogic capacity of becoming subject through enunciation, identity performances, self-overcoming. The subject is always cosmetic; processes of individuation or subjectivation are masquerades: putting on and editing our persona (mask); but this remains at the individual level.

There is perhaps another way to subvert the individualistic logic of – for example – the European data protection regime, which flatters the possessive individualism of users-consumers by focusing on free, prior and informed individual consent to data processing. The insistence on individual consent, on individual autonomy and self-determination nurtures and is nurtured by the illusion that problems that concern the commons can be contractualised and, to some extent, addressed by relying on each individual's self-determination and responsibility, or treated as a matter of self-regarding individual preferences. In a context of algorithmic governmentality, the forms of power that are exercised are much less about the processing of personal data and the identification of individuals than about algorithmic forms of impersonal, continuously evolving evaluations of opportunities and risks statistically correlated with life forms (attitudes, trajectories). A profile is not really anyone – no one fits completely, and no profile is aimed at one person, is only about one person, identified or identifiable. However, being profiled in this or that way affects the opportunities available to us and the space of possibilities that defines us: not only what we have done or are doing, but what we could have done or could do in the future.

Moreover, in a regime of algorithmic governmentality functioning like a 'scored society', individuals are thrown into an absolute competition at the scale of the a-significant digital pheromone and are evaluated against hyper-mobile metrics: typical neoliberal injunctions to maximise one's production-performance and consumption-enjoyment are supplemented by the injunction to maximise one's digital human capital, that is, to produce oneself as a brand in a communicationary universe where the belief in our own existence increasingly depends on our ability to attract purely quantitative signals

– that also operate like endorphins – of credit, notoriety or reputation.

The value of each piece of data is not contained in itself, but is essentially relational. It is the (co-) relations discoverable among data that give it its usefulness, a value, and also possibly a more or less sensitive character. Data – in the context of algorithmic governmentality – in fact has less to do with any pre-constituted individual than with the ways opportunities and risks are and will be distributed in the whole society. Therefore, it deserves a 'social' protection, and the requirement of free, prior and informed consent (to data processing) should be as much a collective as an individual right: a collective right of the people not so much inspired by post-war bioethics (medical deontology and the principles of human dignity and inviolability of the individual human body), as by the idea that government is only legitimate if it has the consent of the governed. Therefore, perhaps the infrastructures and practices of data processing should cease to be considered exclusively as matters of contractual relations between platforms and users-consumers but also as constitutional issues. In the context of algorithmic governmentality, to paraphrase Guattari, the individual is the illusion that hides, obfuscates, denies voice to the people (including the people that are missing). In a context where knowledge, power, individuation happen mostly through operations of statistical correlations, we need to stop talking of individuals in isolation.

As in systems theory, but also in theories of institutions emerging from deconstruction, the person and the individual are not the constitutive elements of social systems; rather, what is constitutive of social systems, and what conditions the very possibility of their existence, what both requires and conditions the dynamism of their continuous institution is their self-overcoming, their exposure and openness to otherness, to the not-yet, to the to-come as something that cannot be inferred or deduced from the past or the present, to the incomputable or the impersonal singularity that Deleuze articulated with his notion of the virtual. Perhaps we should rethink our institutions as the space-time of what Stiegler called the non-inhuman:

> the non-inhuman – which seems inevitably to be absent from the technosphere – is never defined positively. It is therefore undefinable, and improbable in this – because it is 'indefinable': non-inhuman being or becoming or future is infinitive, never happened, always yet to come. Again. Not yet. 'Humanity does not yet exist' Anything that poses a positive humanity and therefore a positive justice (thus confusing justice and law) always generates in the end a scapegoat.[39]

Of this this heterochronicity, Derrida gives one of the best approximations:

> One then sees quickly that the presence of the perceived present can appear as such only inasmuch as it is continuously compounded with a nonpresence and nonperception, with primary memory and expectation (retention and protention). These nonperceptions are neither added to, nor do they occasionally accompany, the actually perceived now; they are essentially and indispensably involved in its possibility.… As soon as we admit this continuity of the now and the not-now, perception and nonperception, in the zone of primordiality common to primordial impression and primordial retention, we admit the other into the self-identity of the Augenblick; nonprescnce and nonevidence are admitted into the blink of the instant There is a duration to the blink, and it closes the eye. This alterity is in fact the condition for presence, presentation, and thus for Vorstellung in general; it precedes all the dissociations that could be produced in presence, in Vorstellung.…Once again, this relation to nonpresence neither befalls, surrounds, nor conceals the presence of the primordial impression; rather it makes possible its ever renewed upsurge and virginity. However, it radically destroys any possibility of a simple self-identity.[40]

GK: This is a perfect end note, Antoinette! 👍
LA: Indeed! 😊 😊
GK: We have more questions but we thought we could stop here since it's been two hours already. ☺
AR: Sorry for my approximative English and my too long responses…Thank you for being so patient!
LA: It was great! 😊 Thank you for being so generous with your time and willing to experiment with the (digital) platforms.
AR: No this was great! I really loved that it took time – a different pace is much appreciated.
LA: We are so grateful! 😍
GK: I second this! 👏
AR: I feel privileged to have had this opportunity to talk to you! Thank you! ♡

Notes

1. Antoinette Rouvroy, 'Algorithmic Governmentality and the Death of Politics', Green European Journal, 9 March 2020, https://www.greeneuropeanjournal.eu/algorithmic-governmentality-and-the-death-of-politics/.
2. Antoinette Rouvroy, 'Revitalizing Critique Against the Critical Sirens of Algorithmic Governmentality', conference talk at the *6th ICTs and Society Conference: Digital Objects, Digital Subjects*, University of Westminster, London, 20–21 May 2017, https://youtu.be/ezd24NQoqCw.
3. Jean Baudrillard, *Simulacres et simulation* (Paris: Galilée, 1981), 120.
4. Ibid.
5. Erich Hörl, *Sacred Channels: The Archaic Illusion of Communication* (Amsterdam: Amsterdam University Press, 2018), 23–24.
6. Jean-Louis Déotte, *Cosmétiques: Simondon, Panofsky, Lyotard* (La Plaine-Saint-Denis: Éditions des maisons des sciences de l'homme associées, 2018), http://books.openedition.org/emsha/224.
7. Deborah Hauptmann and Andrej Radman, 'Asignifying Semiotics as Proto-Theory of Singularity: Drawing is Not Writing and Architecture does Not Speak', *Footprint* 14 (2014): 1–12.
8. Bernard Stiegler, *Technics and Time, 4*, unpublished draft, trans. Daniel Ross, chapter 2.
9. 'The story goes like this: Earth is captured by a technocapital singularity as renaissance rationalitization and oceanic navigation lock into commoditization take-off. Logistically accelerating techno-economic interactivity crumbles social order in auto-sophisticating machine run-away. As markets learn to manufacture intelligence, politics modernizes, upgrades paranoia, and tries to get a grip.' Nick Land, 'Meltdown", *Abstract Culture* 1 (Coventry: Cybernetic Culture Research Unit 1, 1997).
10. Ray Brassier, 'Mad Black Deleuzianism: On Nick Land', contribution to the Symposium on Accelerationism, Goldsmiths, University of London, 14 September 2010, https://backdoorbroadcasting.net/2010/09/accelerationism/.
11. An absolute logic doesn't suffer any balance against another logic, nor any discussion, or social deliberation… at best, it tolerates reformist schemes – attuning algorithms and artificial intelligence to 'European values', for example – with the aim of generating trust of users-consumers and industrials, as to foster their conversion to dataism.
12. The central dogma of western digital capitalism is perfectly spelled out in the recently proposed 'Artificial Intelligence Act' of the European Commission (2021), https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-laying-down-harmonised-rules-artificial-intelligence-artificial-intelligence.
13. Gilles Deleuze, 'Post-scriptum sur les sociétés de contrôle', *L'autre journal* no. 1 (1990).
14. Patrick Tort, *L'intelligence des limites: Essai sur le concept d'hypertélie* (Paris: Gruppen, 2019).
15. William Mazzarella, Eric L. Santner and Aaron Schuster, *Sovereignty, Inc.: Three Inquiries in Politics and Enjoyment* (University of Chicago Press, 2019).
16. Aaron Schuster, 'The Debt Drive: Philosophical Anthropology and Political Economy', talk delivered on 17 December 2016 at *Fantasies of Capital*, a Jnanapravaha Mumbai conference.
17. 'Or again—since you know that I love Greek words and that in Greek the exercise of power is called

"hegemony," although not in the sense we now give this word: hegemony is just the fact of being in the position of leading others, of conducting them, and of conducting, as it were, their conduct—I will say: it is likely that hegemony cannot be exercised without something like an alethurgy. This is to say, in a barbarous and rough way, that what we call knowledge (connaissance), that is to say the production of truth in the consciousness of individuals by logico-experimental procedures, is only one of the possible forms of alethurgy. Science, objective knowledge, is only one of the possible cases of all these forms by which truth may be manifested.' Michel Foucault, *On The Government of the Living: Lectures at the Collège de France, 1979-1980*, trans. Graham Burchell (London: Palgrave Macmillan, 2014), 7.

18. Yanis Varoufakis, 'Techno-Feudalism is Taking Over', *Project Syndicate,* 28 June 2021, https://www.project-syndicate.org/commentary/techno-feudalism-replacing-market-capitalism-by-yanis-varoufakis-2021-06.
19. Martijn Konings, *Capital and Time: For a New Critique of Neoliberal Reason* (Redwood City: Stanford University Press, 2018). As a matter of fact, the competitive dynamics at play under an algorithmic regime are very similar to the speculative dynamics of finance in late capitalism described by Konings: Power in a risk society depends on the ability to be known in a context of pervasive uncertainty, on the ability to establish oneself as a central reference point in the speculative logic of contingent claims, as an attractor for the speculative investments of others. In this context, the deliberate creation of uncertainty and insecurity can even be a source of advantage, allowing actors to consolidate their normative position.Ibid., 50
20. Jean Baudrillard, *L'échange symbolique et la mort* (Paris: Gallimard, 1976), 102, translation by author.
21. Benjamin H. Bratton, *The Terraforming* (Moscow: Strelka Press, 2019).
22. Luciana Parisi, 'La raison instrumentale, le capitalisme algorithmique et l'incomputable', *Multitudes* 62, no.1 (2016), 98–109.
23. 'To speak of sectoral rationality is obviously not to speak of science. What I call here "sectoral rationality" is simply a recipe for a certain adequacy between the means employed and the ends pursued in a given sector: thus capitalism in its most primitive and most criticizable fundamental manifestations, such as the race for profit and the elimination of unfortunate competitors, possesses a rationality whose effectiveness has more than once been appreciated, albeit differently, by its beneficiaries and its victims.' Patrick Tort, *L'intelligence des limites: Essai sur le concept d'hypertélie* (Paris: Gruppen, 2019), 117–18, translation: AR.
24. Giorgio Agamben, 'Du livre à l'écran', in *Le feu et le récit*, trans. Martin Rueff (Paris: Payot & Rivages, 2015), 123–24, translation: AR.
25. Karen Barad, 'What Is the Measure of Nothingness? Infinity, Virtuality, Justice', in *Documenta Series 099* (Berlin**:** Hatje Cantz, 2012).
26. GAFAM is an acronym referring to Google (Alphabet), Apple, Facebook, Amazon, and Microsoft.
27. Jed Rubenfeld, *Freedom and Time: A Theory of Constitutional Self-Government* (New Haven: Yale University Press, 2001).
28. Mark Fisher, 'How to kill a zombie: strategizing the end of neoliberalism', *Open Democracy*, 18 July 2013, https://www.opendemocracy.net/en/how-to-kill-zombie-strategizing-end-of-neoliberalism/.
29. Mark Fisher interviewed by Andrew Broax, 'Do you miss the future?', 12 September 2014, https://crackmagazine.net/article/long-reads/mark-fisher-interviewed/.
30. 'Health as literature, as writing, consists in inventing a people who are missing. It is the task of the fabulating function to invent a people. We do not write with memories, unless it is to make them the collective origin or destination of a people to come still ensconced in betrayals and repudiations.' Gilles Deleuze, *Critique et Clinique* (Paris: Editions de minuit, 1993), 14, translation: AR.
31. In this respect, cf. Rubenfeld, *Freedom and Time*.
32. Friedrich Nietzsche, *On the Genealogy of Morality,* trans. Maudemarie Clarck and Alan J. Swensen (Hackett Publishing Company, 1988), 36.

33. Jacques Derrida, *Specters of Marx,* trans. Peggy Kamuf (New York and London: Routledge, 1994), 14–15.
34. Mazzarella, Santner and Schuster, *Sovereignty, Inc.*
35. Pierre Legendre, *De la société comme texte: Linéaments d'une anthropologie dogmatique* (Paris: Fayard, 2001).
36. Mark Fisher, 'Questioning Capitalist Realism: An Interview with Mark Fisher by Matthew Fuller', *Mute*, 20 December 2009, https://www.metamute.org/community/your-posts/questioning-capitalist-realism.
37. Joichi Ito et al., 'Resisting Reduction: A Manifesto', *Journal of Design and Science* (2017), doi: https://doi.org/10.21428/8f7503e4.
38. Alain Supiot, *Homo Juridicus: On the Anthropological Function of the Law*, trans. Saskia Brown (London: Verso, 2017).
39. Stiegler citing Jean Jaurès, *L'humanite*, 18 April 1904, in Bernard Stiegler, *Qu'appelle-t-on panser? 1. L'immense régression* (Paris: LLL, 2018), translation: AR.
40. Jacques Derrida, *Speech and Phenomena and Other Essays on Husser's Theory of Signs*, trans. David B. Allison (Chicago: Northwestern University Press, 1973), 64–66.

Biography

Antoinette Rouvroy (Doctor of Laws of the European University Institute) is permanent research associate at the Belgian National Fund for Scientific Research (FNRS), and senior researcher at the Research Centre Information Law and Society, University of Namur (Belgium). She authored *Human Genes and Neoliberal Governance: A Foucauldian Critique* (Routledge-Cavendish, 2008) and co-edited (with Mireille Hildebrandt) *Law, Human Agency and Autonomic Computing: Philosophers of Law meet Philosophers of Technology* (Routledge, 2011). Her current interdisciplinary research interests revolve around the concept of algorithmic governmentality. Under this foucauldian neologism she explores the semiotic-epistemic, political, legal and philosophical implications of the computational turn.

Lila Athanasiadou is a cultural worker, researcher and architect whose practice spans from visual and audio essays to teaching encounters and cultural activism. She has organised and moderated seminars, reading groups and lectures at TU Delft, ArtEZ, Stroom and Kunstinstituut Melly and has presented her work in academic conferences at KTH Royal Institute of Technology, Goethe University, Utrecht University and the Estonian Academy of Arts. Her work explores feminist and queer pedagogical practices and intersections of digital data with human and territorial bodies. Between 2016 and 2018 she acted as the curator of the Corporeal Discourse programme for the Master of Interior Architecture at ArtEZ University of the Arts. She is currently teaching within Social Practices at Willem de Kooning Academy.

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Visual essay

Ars Demones *2022* Manifesto

Agnieszka Anna Wołodźko and a potplant, and a xeno and a virus

I do not care about the time, too often it made us get lost. In the language in which I write, the past and the future differ only by one vowel. 'E' passes into 'y', and it sounds like a call.
Olga Tokarczuk, *Anna In w Grobowcach Świata*[1]

The 'art of governing ourselves', the relationships, institutions, discourses, and techniques that allow a living organism to be considered 'human' or to be recognised as a reproducible citizen, and the processes through which a certain body (organic or mechanic) becomes capable of saying 'I', are mutating.
Paul B. Preciado, 'Baroque Technopatriarchy: Reproduction'[2]

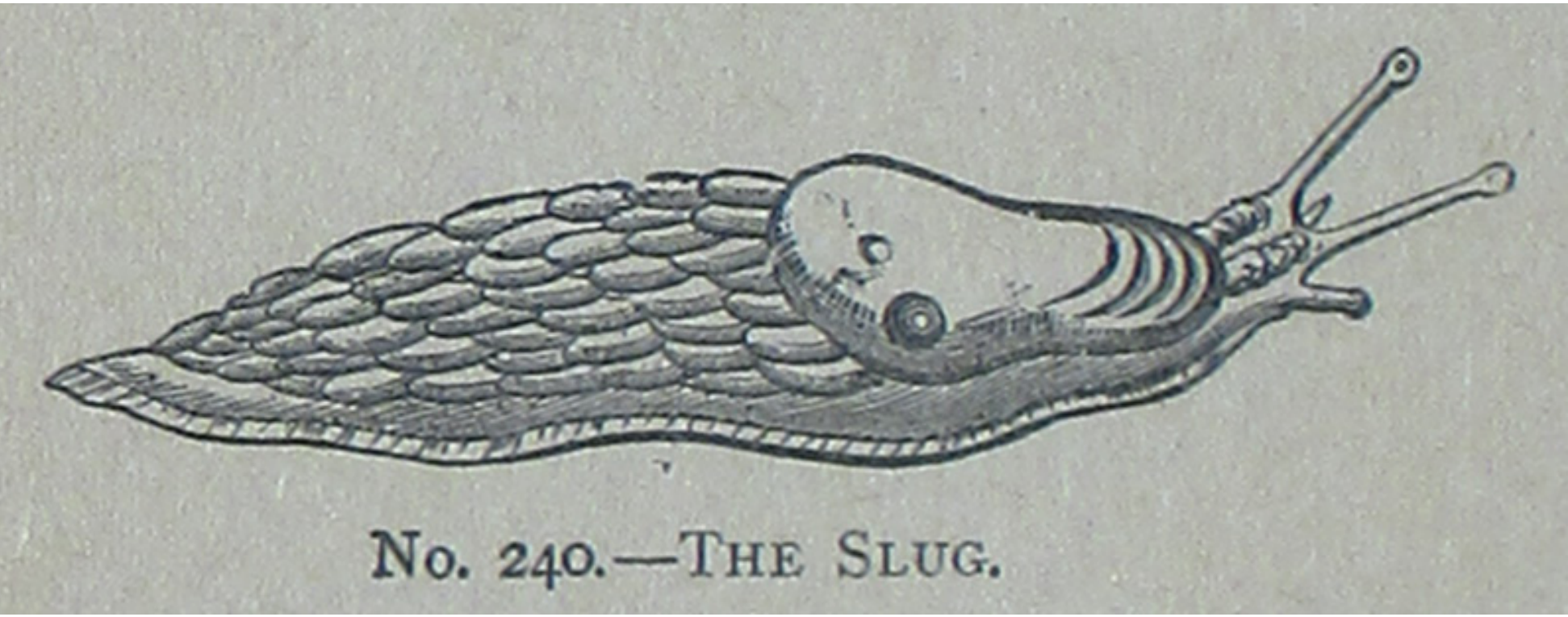
‘A’ like the allure of a slug

> A capitalism has emerged that is called sometimes ‘cultural’, sometimes ‘cognitive’, but that is before all else the destructive organization of an industrial populism taking part in each technological evolution in order to turn consciousness, that is, the seat of spirit, into a simple reflex organ: a brain reduced to an ensemble of neurons, such as those controlling the behaviour of a slug.
> Bernard Stiegler, *The Re-Enchantment of the World: The Value of Spirit Against Industrial Populism* [3]

I, a slug, I, everyone, am a cluster of synapses controlled by the ocularcentric eye of the algorithm. ‘Cruel, vulgar and gluttonous’, more inhuman that anything else, I declare my desire.[4] I, a slug, I, everyone, refuse to be the object of the Enlightenment’s sentiment to revitalise the spirit by my subjugation. I, a slug, I, everyone, will not be intimidated and shy. I will invade, plunder and devour the bodies of mass fertilised data, enjoying my pestness. Through contamination, I will cause bodies to slug themselves by their transformation.

I, a slug, I, everyone, will regenerate by shedding my organs as I see fit, as I feel them regrowing in a continuously undefined manner. I, a slug, I, everyone, am your old persona, your unfamiliar bodies, your yet to be known spirits, your forgotten weapons of local resistance and your urgent otherings.

Illustration from *Picture Natural History* by Mary E. C. Boutell (1869), No. 240, ‘The Slug’. Available online at https://commons.wikimedia.org/wiki/File:Picture_Natural_History_-_No_240_-_The_Slug.png, accessed 16.04.2021.



No. 240.—The Slug.

‘R’ like a risk of care and of re-enchantment

To re-enchant is to use the pharmakon, that which becomes both a poison and a remedy, to produce the incalculable, and in this way, to revitalise the care for the world, for the singularity of it and for the experience that conditions its meaning.[5] But what if, instead of desiring the singularity through which experience conditions a sense of self, one would affirm the risk of many before which the sense of self is less important? What if ‘to care’ is not for the world but before it?

To care before is to acknowledge one’s penetrability and capacity to relate, which is not based on one’s idea of self and given role. Caring before, unlike caring for, is not based on the relation of power, but on a sense of urgency, and feeling of importance, and embodiment of nonself. In this way, caring before does not belong to the human as the one who is autonomous, distinct and given. To care, rather than being a capacity of the human, belongs and expresses a becoming-nonhuman. As such, as a risk of becoming-nonhuman, caring needs to be learned by the human.

Caring is risky, precarious, never fixed, and thus demands a constant attention and creation of its conditions. Where capitalism created carelessness, it also created the human to disguise the inhuman that it already is. By such mindful tactics, the practice of carelessness towards what is not recognised by the human idea of self could be justified.

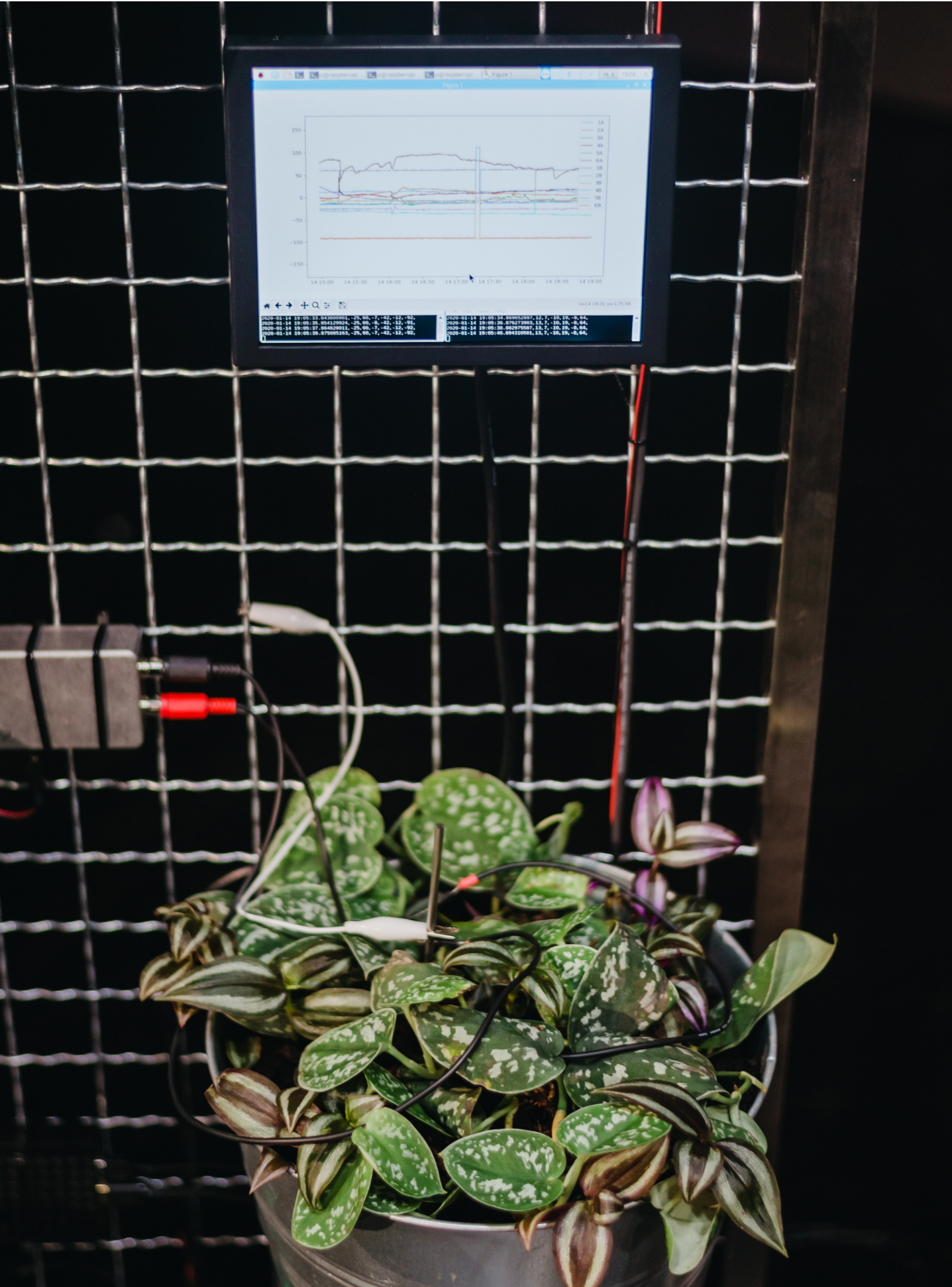
To reenchant the world is to reenchant the inhuman before which we need to risk to care, before which we become with, before which we transform with.[6]

Špela Petrič, *Vegetariat: Work Zero. Vegetariat Rising: Plants of Instagram Perform Ecosystem Services* (2019). Photo: Hana Josić, courtesy of Špela Petrič.

‘S’ like the speed of contamination

The speed of slowness allows us to learn about differing, whims of details that condition the care of bodies. Her pores store little shiny plastic particles that bedazzle the world she feeds. I am transformed by them, slowly mutated, silently learning how to feel anew. In slowness, the speed of our breath exchanges their components, risking, longing, differing. I am one and many with the virus, bacteria, and algae, and my dusty pink alpaca boucle sweater that a cat used to sleep on, the microplastic fibres and her dead skins cells which I am now breathing in. I am becoming a little bit more and little bit less myselves. Contamination is our condition, contamination is our cause, contamination is our way of being, contamination is our curse, contamination is our only hope.

Špela Petrič, *Vegetariat: Work Zero. Vegetariat Rising: Plants of Instagram Perform Ecosystem Services* (2019). Photo: Hana Josić, courtesy of Špela Petrič.



‘D’ like a demon

> Demons are different from gods, because gods have fixed attributes, properties and functions, territories and codes: they have to do with rails, boundaries and surveys. What demons do is jump across intervals, and from one interval to another.
> Gilles Deleuze and Claire Parnet, *Dialogues II* [7]

> We believe that spirit, which always presupposes techniques or technologies of spirit, or ‘spiritual instruments’, is a modality of what we call psychic and collective individuation.
> Bernard Stiegler, *The Re-Enchantment of the World* [8]

Instead of spirits and their ghosts, time belongs to demons now. Demons, unlike spirits, do not refer to the given identity; they do not emerge from the pharmakon. They are neither of the past, nor of the future; they are not of the one. They do not care about causes and aims. Rather, demons condition the speed of relations that might be risky, that might destroy you, or transform you. Demons morph, mutate, and contaminate, and as such, penetrate the opposites, sliming and glitching between cracks. To follow demons involves risk. To not follow demons ensures safety. To follow safety quarantines change.

Špela Petrič, *Vegetariat: Work Zero. Vegetariat Rising: Plants of Instagram Perform Ecosystem Services* (2019). Photo: Hana Josić, courtesy of Špela Petrič.

‘E’ like the eye of the algorithm

In the ocularcentric desire of the capitalist machine, a plant grows in a pot. This pot plant, a common denominator of urban space, surveillance space, *oikos* space, serves to disguise the regime of production that is occupied with the imperial dreams about Eden.

In its laborious work, pot plants become tools of escape-from and escape-into oppression. They practice bodies of commodification by becoming hostages of colonial bioprospecting, a cultural appropriation to establish Eurocentric pharmacorporation regimes, not only of what is valued as medicine and food, but also knowledge. Pot plants and empires are the allies for enforcing strategies and methods of enslavement, commodification, ignorance, and enforcements in science and medicine. Pot plants have been considered to be commons, and have been defined by the capitalist logic that if something is not owned by anyone, then it is up for grabs.[9] And I see my pot plants, my lovely companions growing lavishly in my rooms of flickering screens and ask: am I not already a plant in the eyes of the algorithm?

I, a pot plant, I, everyone, become *Plants of Instagram performing ecosystem services*, as Špela Petrič seeded it. I embrace their labour of servitude, not because we are responsible for them, as though they need the human logic of rights, but because of the selfish realisation that we find ourselves in a similar position, needing to learn their strategies for survival. Following Petrič, I imagine strategies of mutation and transformation of what seems to be given, as if there is no outside to run into.

I, a potplant, I, everyone, perform services, but they disguise the data, produce, and multiply, without the given aim and purpose. Harvesting signals transmitted by pot plants’ bodies, in order to move drills connected to each plants, I follow Petrič’s fables of resistance. I thus perform a labour of generating data to escape the control through flickering the data’s signifiers. The resistance thrives from within, from embracing the harvest by the contamination of significations. I start to care for these pot plants, for their labour, and through that care I become as those bodies, as labourers of quantification, but also as strangers that resist total capture. I, a pot plant, I, everyone, hack the strategies of the ultimate enclosure.

Špela Petrič, *Vegetariat: Work Zero. Vegetariat Rising: Plants of Instagram Perform Ecosystem Services* (2019). Photo: Hana Josić, courtesy of Špela Petrič.

‘M’ like a multibody of the vegetariat

The word ‘vegetate’ holds a particular paradox. It refers to a refraining from citizenship and cosmopolitanism, denoting passivity, while also indicating vitality and livelihood. ‘To vegetate’ thus denotes both the judgement of biopolitical categorisation according to usefulness in the chain of production, as well as exclusion from it. The pot plant exposes this double character of a plant or vegetation appropriated by bioprospecting practices; it also escapes from anthropocentric categorisation. The pot plant becomes a privileged body that performs at the forefront of the ‘decentralising mechanism of capitalism’.[10] Catriona Sandilands frames this double becoming within her neologism ‘vegetariat’ – a multiplicity of biopolitically governed bodies whose vegetality is harnessed by capitalist accumulation.[11] But what if, instead of fearing the vegetative proletariat, it is possible to affirm it through the pot plant that it embodies?

I follow Petrič, who practices potting through the paths of the vegetariat raising, where humans are not mimicking plants; instead, they are to be confronted with the radical paradox that we have already been plants in the logic of biopolitical control and desire for quantification. Petrič affirms life in a pot, the cares and intimacies that the life of the pot strives for, and how – by affirming their survival strategies – resistance is possible.[12]

I, the vegetariat, I, everyone, who feeds the algorithmic hunger, thus embrace my procrastination. Between being the source of vital life and passive resource for the life of others, I come to shimmer, as the proletariat of vegetation. I follow Petrič, I follow her pot plants, mapping their p(l)ottings. I, the vegetariat, I everyone, perform the task of feeding, of finding myself wanting to stretch and thrive in my pots, and resisting the urge to leave. I mutate, shedding my spores through wi-fi.

Adriana Knouf, *TX-1*, pre-launch photo (2020), courtesy of the artist.

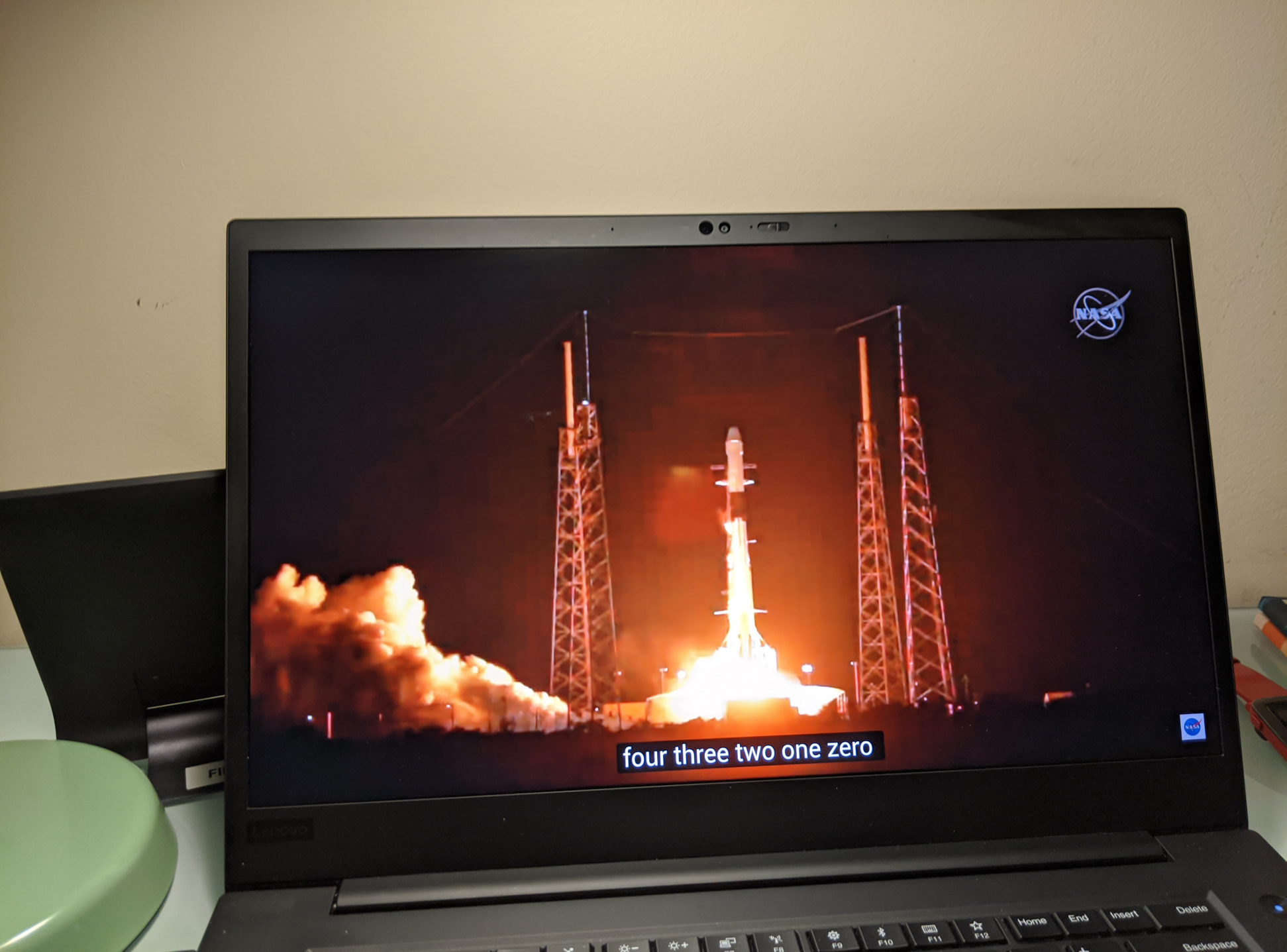
‘O’ like an outer space travel

> HRT (hormone replacement therapy) … may take away privilege we once had, or grant it when it was previously absent. It may make our daily lives more dangerous. Yet HRT may also be the thing that allows us to continue living.[13]

On 7 March 2020 at 04:50 UTC**,** TX-1 among other art works was launched to the International Space Station. When the earth started to be dominated by the Covid-19 virus, for the first time known to the heteronormative human, bits of transgender body experience were orbiting the planet. When the humans on earth rediscovered their bodies as porous and leaky, a xeno pioneered into outer space with her own contamination, multiplying times with each turn. These bits of xeno that travelled to outer space belong to Adriana Knouf, a proclaimed xenologist who studies and develops that which is declared to be strange and alien. Marked as a strange body herself, she understands a xeno as ‘a vital practice necessary to a world that attempts to be made homogeneous through capitalism.’[14] In other words, Knouf is the first *xenaut*, mapping the ways out of the earth, which proves inhabitable for so many who do not enjoy the privilege of being marked as human. Outer space becomes a home for xeno, outer space becomes a possibility of thinking and living otherwise. The earth remains the most unhabitable of spaces.

Packed into a tiny box through a planetary rotation, a xeno returns to earth on 7 April 2020 at 18:50 UTC. The earth, a final destination after all, a place of abuse, domination, homogenisation, but also a promise of alien thriving.

Adriana Knouf, *TX-1*, launch of TX-1 with other Sojourner 2020 works into space on 7 March 2020, watched by the solitary artist from her computer, due to restrictions caused by the Covid-19 pandemic, courtesy of the artist.


four three two one zero

‘N’ like a navel- gaze of xeno

I, a xeno, I, everyone, am sharing the hormones of my contamination with the cosmos, queering the waves of communication. As neither one nor many, I refuse to be contained by the regimes of categorisation. I, a xeno, I, everyone, refuse your identification. Because ‘to make ourselves alien is not the same as being alien’,[15] I commit to the care before my fellow bodies. To practice contamination without killing bifurcation demands risking the creation of xenological conditions.

I, a xeno, I, everyone, embrace the process of my ‘disalienation.’ Through altering the signals of my signification, I embrace the sticky conditions. My xenomorphgans are my armour, my xenomorphgaze is your contaminations, my xenomorphwhisper is your new nourishment. I, a xeno, I, everyone, alien, foreigner and other, am ready to morph.

I follow Knouf, and swallow my hormones. I put on my creams, following strict regimes of disalienation. I devour the juices soaking from my bodies, and I sprinkle all with a bit of salt to attract more xenos. I, a xeno, I, everyone, declare the earth to be our nest for thriving. The knowledge can be only of xeno; life can be only within xeno.

Adriana Knouf, *Xenological Entanglements. 001: Eromatase*, Kersnikova Institute/Kapelica Gallery in Ljubljana, Slovenia, 2020. The project ‘consists of two parts. First is the development of an open-source microgravity simulator (random positioning machine and/or clinostat), where the hardware, software, and documentation will be shared publicly so that others can easily build their own. Second, the artist aims to genetically engineer her own testicular Leydig cells to enable the over-activation of aromatase. This will induce the Leydig cells to overproduce estradiol, thus enabling an assigned-male-at-birth body to self-produce the levels of estrogen required to live in a ‘female’ body. These cells will be cultured under simulated microgravity using the equipment developed in the first part of the project.’ https://tranxx-enolab.net/projects/eromatase/ accessed 17.04.2021, courtesy of the artist.


Vivelle-Dot®
0.1 mg/day

'E' like eating the virus

For many, a recipe from a cook book is an embodiment of a pharmakon that domestically oppresses while also becoming a weapon with which to survive oppression. But what if we enchant the guides and their ingredients to the point where the oppression loses its signification? A recipe from a cookbook, the capacities of which have long been disregarded, becomes a medium for practicing care before the thriving of bodies.

I follow Pei-Ying Lin, who – for some time now – collects her recipes of contamination, teaching how to xenomorph with viruses. Through intimate fables, I learn how to become intimate with viruses. I immerse myself in the conditions she weaves and learn to practice care before the many that invite me to mutate.

'Oyster power' recipe, from the *Virus Cuisine Design Toolkit*[16]

1. Use MeV01 to infect moss.[17]
2. Cow eats infected moss and the milk it produces goes to our yoghurt making.
3. Oyster can only be collected at full moon – bivalves at full moon change the activity rhythms of the oyster.
4. We place the raw oyster on a bed of infected moss drizzled with yoghurt with mint.
5. The oyster will rotate to left or right, which predicts the agricultural season – whether it's a bad year or a good year.
6. After the ritual, we become addicted: we package the moss in small boxes for Albert Heijn [a Dutch supermarket chain] shops and it becomes a national feeding frenzy. Then we start charging a lot for the moss and we take over the world.

Adriana Knouf, *Saccular Foun: Eromatase*, wearing open-source microgravity simulator. Photos: Andrej Lamut, production Kersnikova Institute/Kapelica Gallery as part of a Biofriction residency 2020, courtesy of the artist.

‘S’ like a symbiotic dance practice

I, a virus, I, everyone, am penetrating, plundering and contaminating your bodies. Neither dead not alive, yet constituting bodies in their thriving. I, a virus, I, everyone, want to dance with you in a symbiotic movement that would ensure our play to continue: a little commensal, a little more mutual, a little less parasitic. I, a virus, I, everyone, am a demon reborn in capitalism: I test and expose your morals, being beyond any good or evil; I am casing you in different reactions, and with each different relation you become differently with me; my powers are various, I can morph, shift, and camouflage, to compel you to be close to me; I am powerful, as my actions conditions all values; you may think I am accidental when you whisper my sounds into a new fable.[18]

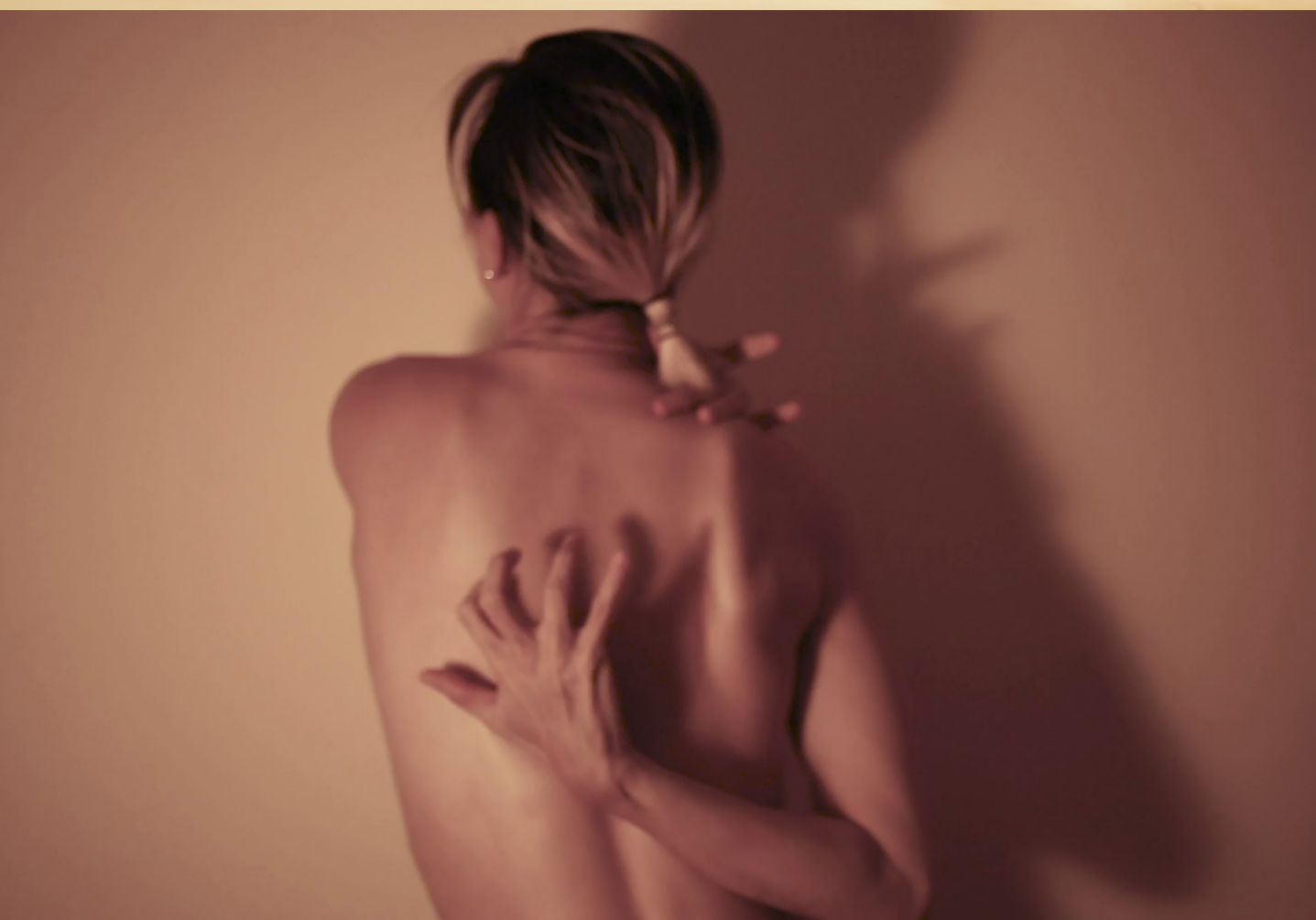
I follow Lin and ask you not to kill me. I change my pace of dance for you, to move a bit more slowly, so you can learn what I like, so that you can start to enjoy it. I learn how to become with you, by cooking the recipes designed to care before you. Through swallowing, I am embodying your viral rhythms, hoping that I can continue to live. Through dance, our bodies learn how to become with each other, how to relate to each other, and I tame my humanness into nonhuman becoming.

I, a virus, I, everyone, initiate a demonology through this dance where relations of contamination may cause bodies to thrive, where relations of transformation may cause bodies to multiply, within the compost of our uneven grounds.

Pei-Ying Lin, *Virophilia*, 2018, courtesy of the artist.

Pei-Ying Lin, *Communication with the Invisible*, STARTS Journeys, Ars Electronica 2020, still image from the video, https://ars.electronica.art/keplersgardens/en/communication-with-the-invisible/ accessed 17.04.2021, courtesy of the artist.


As the viruses find their
matching entrance on
the cells



Notes

Disclaimer: the author has chosen to forego the usual copy-editing process and in the experimental spirit of the manifesto, the issue editors have granted this poetic licence.

1. Olga Tokarczuk, *Anna In w Grobowcach Swiata* (Anna in the tombs of the world) (Kraków, 2018), 8; translated by the author. In the original Polish, the words for past and future are *przeszłość* and *przyszłość*. When the two different letters, e and y are pronounced, they both sound like the word *ej*, used to call (out) to someone or something.
2. Paul B. Preciado, 'Baroque Technopatriarchy: Reproduction', *Art Forum* 56, no. 5 (Jan. 2018), https://www.artforum.com/print/201801/baroque-technopatriarchy-reproduction-73189.
3. Bernard Stiegler, *The Re-Enchantment of the World: The Value of Spirit Against Industrial Populism*, trans. Trevor Arthur (London: Bloomsbury Academic, 2014), 1.
4. Ibid., 3.
5. Ibid., 58.
6. Silvia Federici and Peter Linebaugh, *Re-Enchanting the World: Feminism and the Politics of the Commons* (Oakland: PM Press, 2018).
7. Gilles Deleuze and Claire Parnet, *Dialogues II*, trans. Hugh Tomlinson and Barbara Habberjam (New York: Columbia University Press, 2007), 40.
8. Stiegler, *The Re-Enchantment of the World*, 7.
9. Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge, MA: Harvard University Press, 2007).
10. Natania Meeker and Antónia Szabari, *Radical Botany: Plants and Speculative Fiction* (New York: Fordham University Press, 2019), 16–17.
11. Catriona Sandilands, 'Vegetate', in *Veer Ecology: A Companion for Environmental Thinking*, ed. Jeffrey Jerome Cohen and Lowell Duckert (Minneapolis: University Of Minnesota Press, 2017), 21–22.
12. Sections '"E" like the eye of the algorithm' and '"M' like the vegetariat multibody' are based on a paper initially presented as a video essay titled 'Practicing contamination through vegetariat: on the forms of resistance through the cracks of wounded agency', at the conference *Anthropocenes: Reworking of the Wound*, European Society for Literature, Science, and the Arts (SLSAeu), 17–20 June 2020, Katowice, Poland, https://vimeo.com/423132902.
13. Adriana Knouf, 'Xenological Life Potentials', in *Art as We Don't Know It*, ed. Erich Berger et al. (Tallin: Aalto University/Princeton, 2020), 44.
14. Ibid.
15. Ibid., 45.
16. See Pei-Ying Lin's *Virophilia* webpage (2018–), http://virophilia.peiyinglin.net.
17. 'Virus for Mediator: MeV 01 infects plants and animals. This virus changes the taste preference of the animal. FerV 03 infected plant is preferred by animals. Once animals are being infected by the virus, they will prefer to eat the non-infected plant. The virus is being transferred through being chewed on / sucked on when alive. Medium: plants and animals'. Pei-Ying Lin, 'Virus Cuisine Design Toolkit', *Virophilia* webpage.
18. This characteristic of a demon is based on Jason Bahbak Mohaghegh's comparison of a corona virus with a demon, listing eleven principles, on the 'Urbanomic PlaguePod Live' podcast, 'Day 41'. Mohaghegh, 'PlaguePod Bonus: Principles of Coronademonology', https://www.urbanomic.com/podcast/plaguepod-bonus-principles-of-coronademonology/.

Biography

Agnieszka Anna Wołodźko is a lecturer and researcher at AKI Academy of Art and Design ArtEZ, where she has initiated and coordinates BIOMATTERs, an artistic research programme that explores how to work with living matters. Her research focuses on post-humanism at the intersection of art, ethics and biotechnology. She is also a curator and writer. Her recent publications include 'Living Within Affect As Contamination: Breathing In Between Numbers' in *Capacious: Journal for Emerging Affect Inquiry*; 'Materiality of Affect: How Art Can Reveal the More Subtle Realities of an Encounter', in *This Deleuzian Century: Art, Activism, Life,* edited by Rosi Braidotti and Rick Dolphijn. She is currently working on her book *Bodies within Affect. On Practicing Contamination through Bioart*.

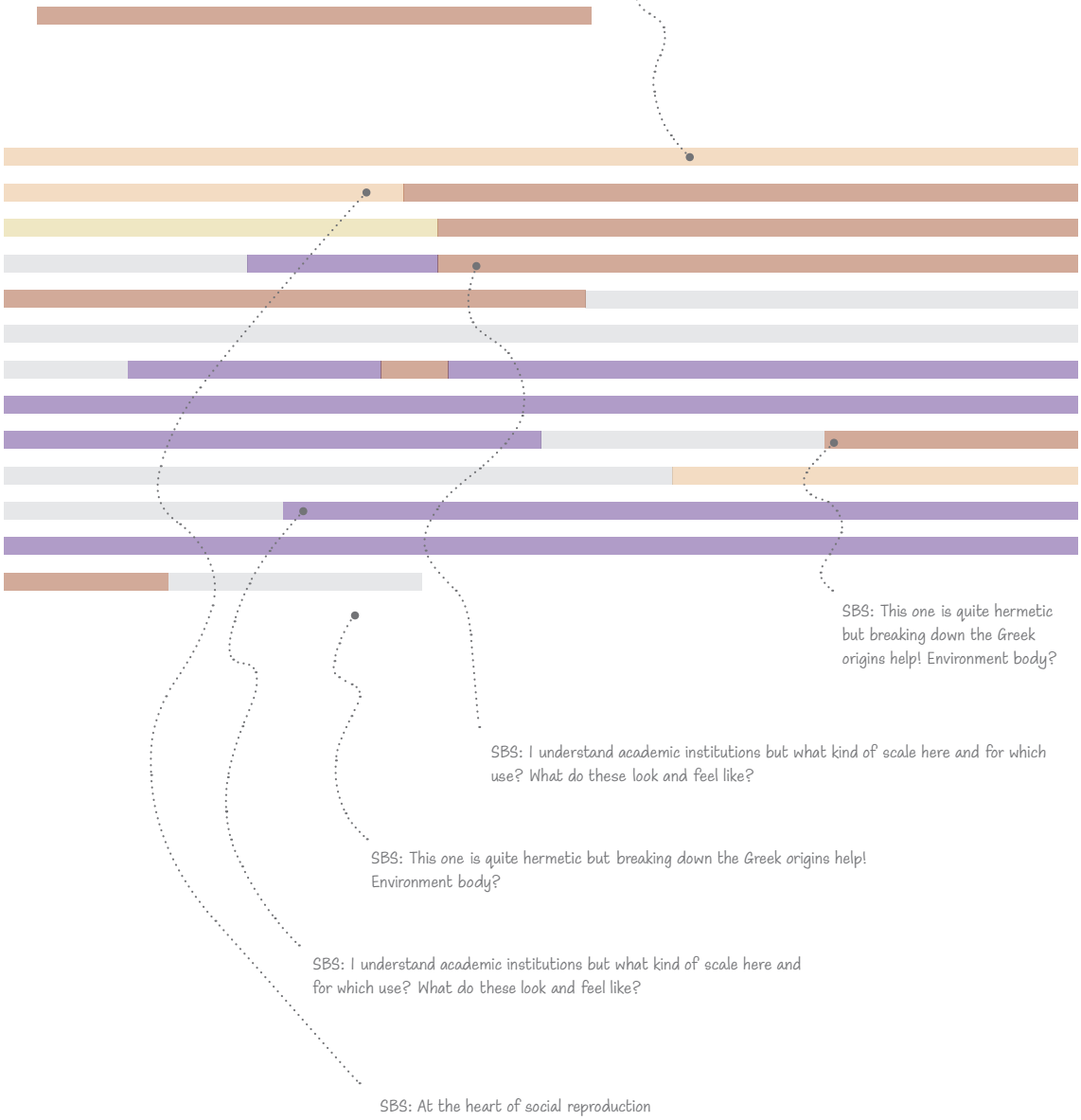
Visual Essay
Queer Life(lines) Within the Death of an Archive

Setareh Noorani

> And you might circulate this phrase, that is, transindividuate it.
> Bernard Stiegler, 2020[1]

The Twisted Border of the Archive

We can see epigenetics, the genetic transfer of experience, as an inheritance of systems, as the retention of debt, trauma, and political joy.[2] We can see it as our inherited tools, codes, and processes that enable us to 'enact', construct alternatives, and with these 'a continuation of life by means other than life'.[3] Among these systems, Western archives are key tools for tertiary retention, a specific spatialisation or exteriorisation of these memories, narratives and tools.[4] Their objective is to simultaneously safeguard 'inwards' and make accessible 'outwards' the knowledge handed down by those that preceded us, in a closed loop. These Western archives retain specific perspectives founded on a 'dominant academic model based on a Eurocentric epistemic canon' proximate to whiteness, masculinity, and heteronormativity – ultimately producing Western institutions and societies.[5] They are encapsulated in a specific exosomatisation: a building or other spatial construction, taking the documents and inscribed knowledge of co-individuation out of its primary circulation. In order to first acquire and then (re-)make accessible certain documents in an archive, to produce the archive consisting out of 'secular texts', a plethora of spatio-structural operations, or ex-organisations, need to be carried out.[6]


Comment by Staci Bu Shea: Absolutely. Mostly encountering the term in a medical setting, it would be nice to see it opened up here. Also because of the referenced nonhuman and molecular material that comes later.
SBS: This one is quite hermetic but breaking down the Greek origins help! Environment body?
SBS: I understand academic institutions but what kind of scale here and for which use? What do these look and feel like?
SBS: This one is quite hermetic but breaking down the Greek origins help! Environment body?
SBS: I understand academic institutions but what kind of scale here and for which use? What do these look and feel like?
SBS: At the heart of social reproduction

The operations range from the acquisition proposal with its outlines of its strategic importance, to the archival contract, the boxing in, the carrying to a sterilisation facility where fungi and other cohabiting species are removed, the categorisation and thereafter digital twinning by the human-machine acts of scanning and writing of metadata. In order to conserve the archive, it thus needs to be separated, spatially enclosed and its retentions homogenised.[7] The archive is completely decoupled from its material lifespan and kinship, impoverished (*démuni*), merging it into a witness of gridlocked 'repetition', conditioning, and biopolitical command: '[human] beings disappear; their [selected] histories remain.'[8] Out of the Western archive and its ordered procedures of organising and retrieving knowledge the state and its institutions repeatedly and systematically distil proof of its timeless and limitless existence. This happens through a co-dependence with its mortal subjects in an 'organised [form] of a possible satisfaction [which] may satisfy itself in [that] the institution is not to be doubted'.[9] Western archives perversely produce their subjects into a singular modus of life, to the exclusion of Others. They internalise the Other while advocating for diversity, diminishing its proximity and with it disarming any critical potential of *being* decentred. Simultaneously, the records compressed into institutions and institutional knowledge paradoxically promise eternal life by continuously recalling death: the ruin of the past and the silencing of time by time. This paradox enforces institutional amnesia, entrenching society further into binary oppositions, gaps, lacunas, voids of knowledge, in themselves localisations of perceived 'errors', which we need to placate with proof found in sanitised archives. In turn, this amnesia constitutes a rendering invisible of other knowledges and their-stories on how to organise and inhabit the world around us. These blind spots are institutionally driven and perpetuated gaps; spaces bereft of life and handed back empty to communities – as they inhibit the retention of practice, taking away the ability to collectively individuate. Therefore, 'it is necessary to ask: to whom is it [the institution and its knowledge] useful? To all those who are in need?'[10] Who and whose knowledge is in need to be constructed as indispensable, as present outside of the gap? What knowledge constructs whose subjectivity? And, drawing on Sara Ahmed and Achille Mbembe, which institution in which temporality are we even staging, for whose knowledge and subjectivity?

Diagrams: Discursive retentions and protensions of a line of thought. Author and editors.

SBS: What determines the primary circulation, where would it circulate otherwise? It makes me think about everyday use.

SBS: This one is quite hermetic but breaking down the Greek origins help! Environment body?

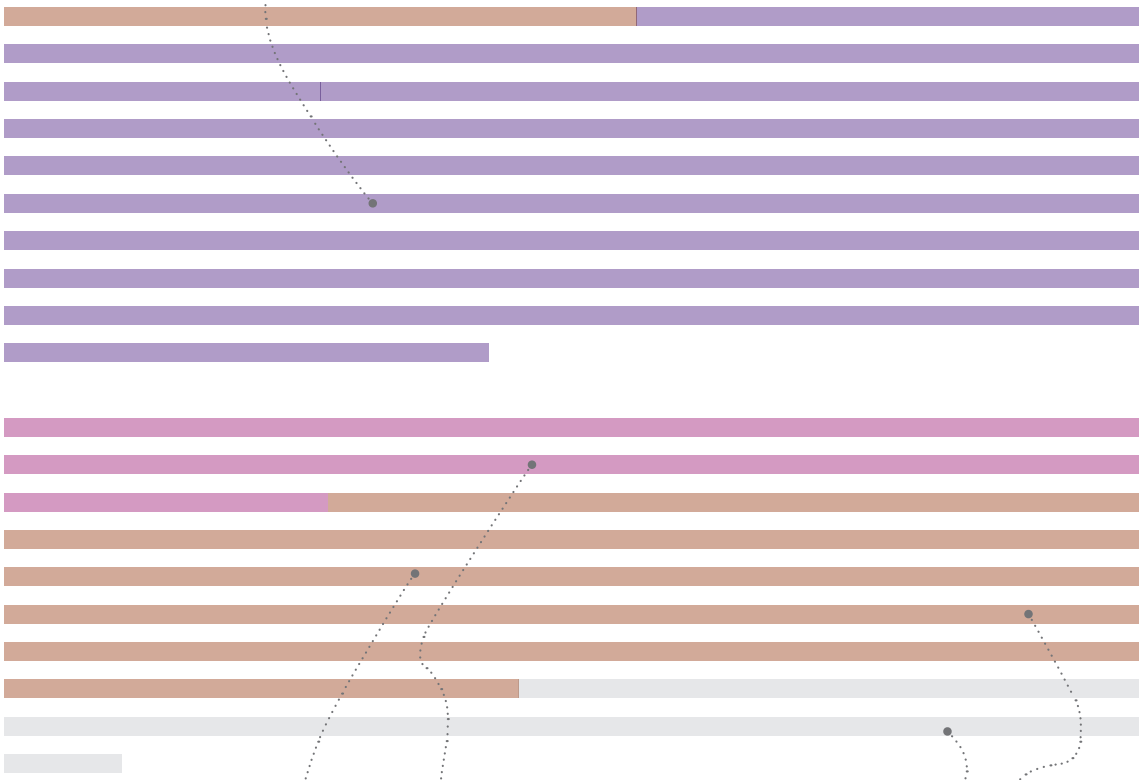
SBS: Gesturing Decolonial Futures Collective (decolonialfutures.net) explores how decolonization unfolds across soft-reform, radical-reform and beyond-reform institutional settings of higher education. I'll come back to this later.

As Stiegler mourns, we are deprived of ‘savoir vivre’.[11] The deprivation happens not only through the logic of the ‘service society’ and the ‘University of the Singularity’ under ‘second capitalism’ (late capitalism), also observed by Mbembe.[12] It also occurs through the aforementioned logistics of institutional amnesia accelerated by neoliberal politics and its mechanism of atomisation. Within this process we find Western and Westernised institutions in crisis, succumbing to growing critique, reaching in their discomfort to symbolic gestures and temporary promises.[13] With the lasting call to decolonise, institution and archive both became constricted in a tug-of-war between upholding and abolition – two paradigms equally implicated in systemic issues to which the institution and archive can perform as pharmakon: advancing or redressing violence. We cannot move away from this bind as we are ‘confronting an entirely different *apparatus* [sic]’ of enmeshed instincts from different (non-)human timelines.[14]

Part of the confrontation consists of tracing the twisted borders of the archive’s outside space, entangling with other ways of doing that enable us to rethink institutions – to retool the masters tools which currently ingrain institutional amnesia.[15] The retooling is then partially coming to terms which knowledge and bodies we need to survive collectively and in solidarity. Stiegler mentions a ‘new way of understanding economy [in which the] primordial value is negentropy’ – organisation based on diversity. Yet, retracing our earlier observation of the dilution in the name of diversity, we need to track such diversity and ‘what it does’.[16] In the retention of documents for (non-)human society more inclusive notions of archival production need to be considered – refusing some, adapting others. Which institutions and their archives would satisfy instincts of inclusivity, even if it means the material death of certain documents or putting to rest certain (harmful) narratives?

Diagrams: Discursive retentions and protensions of a line of thought. Author and editors.

SBS: As I learned from a conversation essay by Annette Krauss and Ferdiansyah Thajib, they introduce Gesturing Decolonial Futures Collective, who refer to the practice of hospicing modern institutions, or hospicing 'the house that modernity built' for these reasons: 'One, that the modern global capitalist system is unsustainable, and that it is already collapsing. Two, that our current languages, identities, and sense-making are inescapably historically connected to it. Three, that we need to be properly taught by the system's successes and failures by facing its death and attending to its affliction rather than turning our back or attempting to murder it before it is ready to go. Hospicing enacts a willingness to learn enough from the (re)current mistakes of the current system in order to make different mistakes in caring for the arrival of something new.' Vanessa de Oliveira Andreotti et al., 'Mapping Interpretations of Decolonization in the Context of Higher Education, *Decolonization* 4, no. 1 (2015).



SBS: If caring were valued more highly, if there was less death anxiety, ritualistic forms of endings, this could be a lot easier to manage and could actually be inspiring.

SBS: Beyond neoliberal frameworks for diversity, equity, inclusion and access.

SBS: Which ways exactly, like the essay I shared with you? 'A harm reduction approach to history understands that the archive is your aunt's closet, the last stall in your local dive bar, your phone — wherever stories can be shared. When we give up the idea that only institutions hold the past, we remember that "we make histories".' Salonee Bhaman, for the Asian American Feminist Collective, 'Harm Reduction and the Archive', *Harm Reduction Is Not a Metaphor* (zine), undated.

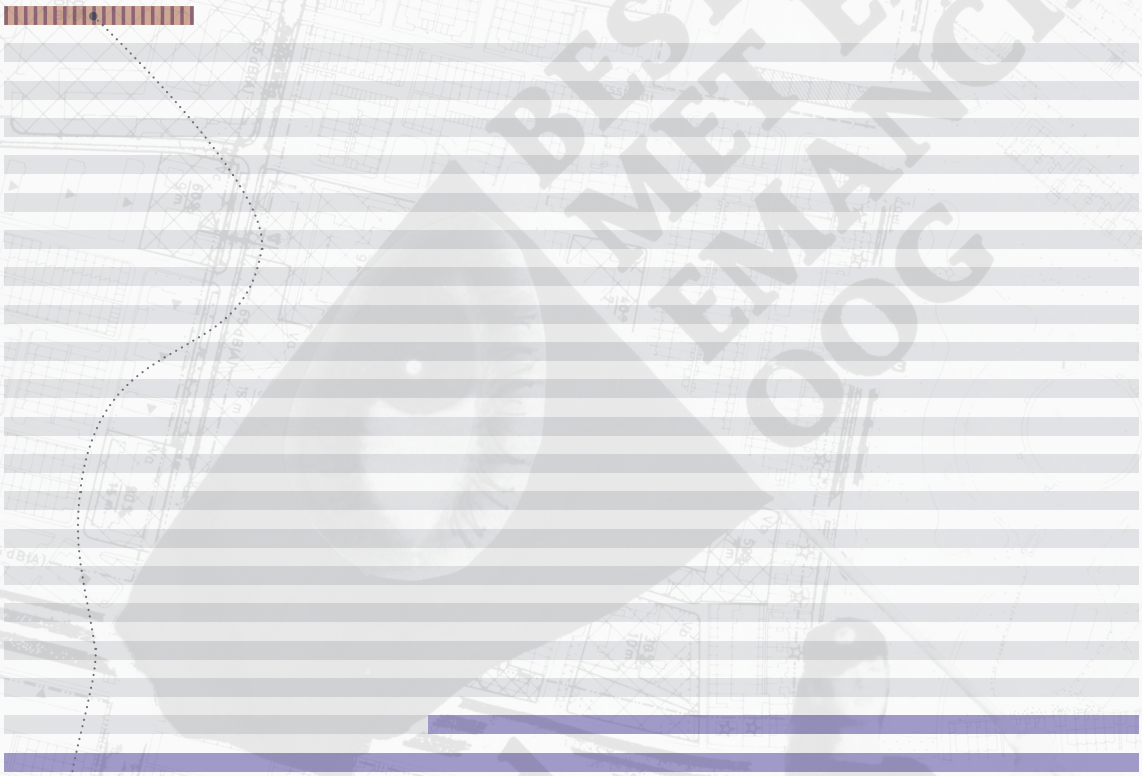
SBS: Haven't encountered this world before! Negative entropy, a sense of, seemingly, consistent normal order? Like planets in the solar system?

Vivid, yet mortal

In the past years, I have encountered roaming, non-indexed, contaminated, clandestine, multivocal archives that complicate the liberal epistemic push towards transparency and access. I have spoken to donors who questioned the expiration date of their own archives, confronted with their own mortality by the sheer amount of documents and objects sharing their living and breathing space, thus seeking ways to negotiate the life span of their memory.[17] One of the archives I have been researching in this period is a portion of the Vrouwen Bouwen Wonen archive newly acquired by Het Nieuwe Instituut, donated by Lidewij Tummers. In the past months, I have followed it being transported, sterilised, quarantined, and (partially) scanned.[18] Vrouwen Bouwen Wonen is an action group and feminist non-homogeneous network of women with a professional (and personal) interest in building, housing, and urban planning. Their extensive archive, including many 'living room archives' residing with members of the network, marks a period of collective struggle, concern, and caring relationality across intersections from which current and future practitioners can continue to learn. Interestingly, the documents in these archives mainly consist of ephemera: grey literature, letters to and from the network, minutes of meetings, reports, essays. All of these documents are testimonies to the opaque, multi-authored, precarious, joyful, important work of (self-)organising as othered women within the architecture and planning profession and its institutions. They are documents that contest the cleanliness and straightforward monovocality of the 'design outcome'. Their opacity attests the lack of publications 'in which positions of women can be deduced from architectural designs and texts'.[19] Important also, is acknowledging the reductionist hand the Western archive lays on the denominator, and later data field, 'woman' – in the archivist's realm 'a coherent group solely on the basis of a [general notion of their subordination] … result[ing] in the colonization of [their] specifics of daily existence and the complexities of political interests'.[20]

Diagrams: Discursive retentions and protensions of a line of thought. Author and editors.

Study "Planning with an Emancipatory Eye", NIROV, 1988 Source: Archive Vrouwen Bouwen Wonen / Bureau Tussen-Ruimte. Donation by Lidewij Tummers, Collection Het Nieuwe Instituut.



SBS: Truly love this section. It really calls to mind the value in legacy planning as an act of care.

An example is the discomfort and contradiction some representatives of Vrouwen Bouwen Wonen felt in narrating their specific positionality vis-à-vis feminism or intersectional feminism (as we currently understand it).[21] In this light, Vrouwen Bouwen Wonen is an example of an archive that needs to be spoken about and felt, rather than read, resulting in a process of information and education 'through which individuals and collectives co-individuate'. [22] Vivid, dirty documents, unfolding spaces of intergenerational activisms, and precarious, gendered care-work entangle fungal threads with desire, (body) politics, technics, human and nonhuman life, resulting in collective becoming. Through their existence, they 'revise the axioms of what knowledge itself is'.[23] These documents refuse to be solely identified as localised data, valorised and produced as insular knowledge – as the future which seems to be given. They unfix 'the authority of the author' with sisterly passion.[24] They neither fit within the TINA paradigm nor an technological accelerationist viewpoint found in Stiegler's need for 'cognitive technologies … that can create more intelligence, more social bonds, as well as creating turnover, trade, and economy' in the style of 'the Hacker Ethic'.[25] Stiegler proposes the hacker ethic alternative in an attempt to cognitively escape capitalism and its hold on 'Western knowledge'.[26] In this, he likely draws thought from McKenzie Wark's *Hacker Manifesto*, where hackers, an abstract, faceless group of visionaries, draw commodified information, or archives, away from the capitalist, Western ruling class.[27] However, archives like Vrouwen Bouwen Wonen enable us, albeit in coded ways through their embedded knowledge, to reach back and continue the intensification of life 'by means other than life'.[28] The coded artefacts are not to be forcibly 'hacked', unzipped and extracted in the locus of an institution. Instead, they require different procedures, attunement and continuous vigilance, as their custodial complexity engender specific ethics of care and 'caring for' within an alternate (political) economy. This can be traced in friction with Stiegler's attempt to describe a practice of taking care of (*prendre soin*) and 'giving attention to' by putting certain knowledge in 'caring' service to the pharmakon (meaning for instance archives and institutions), which then could be put to 'therapeutic use' for society.[29]

Diagrams: Discursive retentions and protensions of a line of thought. Author and editors.

Article "Landelijke Dag Netwerkvorming" [National Networking Day], published in *Interim Newspaper Vrouwen Bouwen Wonen*, no. 3, 1984. Source: Collection Het Nieuwe Instituut.

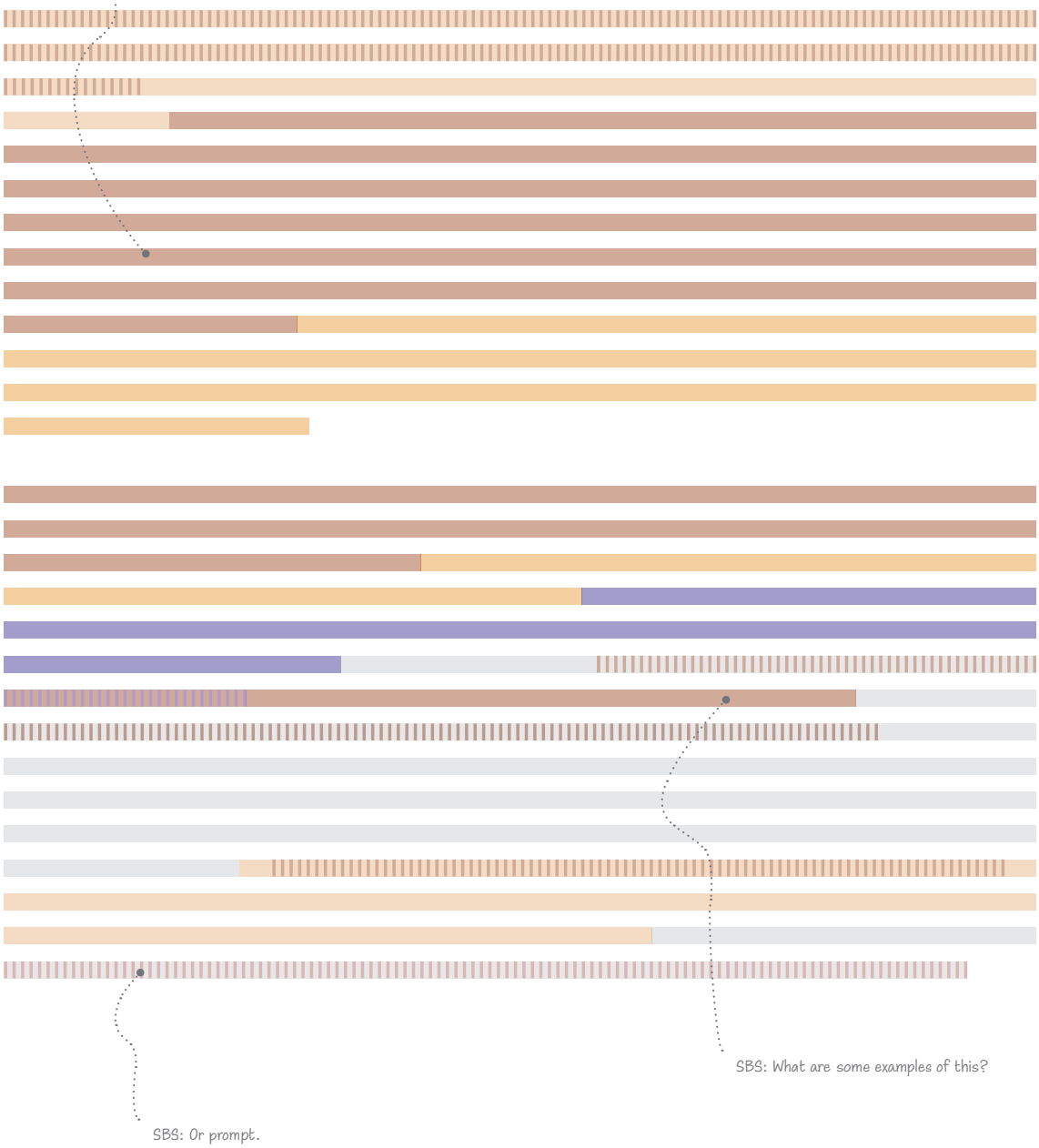
SBS: I find it beautiful that archives can in some ways be incomprehensible because of the nature of these life practices. That certain archives need to be dealt with differently in order for comprehension (or knowledge as it has been referred to here) to take place.

The dangers of putting only certain knowledge in service of the pharmakon is found in an erasure and generalisation by Stiegler of ancestral knowledge as 'archaic' in his last mission 'to invent a new organization of society that develops new ways of creating … where people *participate* in the creation of the world in which they live'.[30] In this curated *part*icipation, where objects and narratives are taken out of circulation, there is a failure to trace networks back to other knowledges 'out there' that are being 'destroyed by an inverse, anthropic, homogenizing tendency' – authored by those who can 'take part' and taking root in the Western, anthropocentric, ethnocentric humanist project.[31] An interesting additional remark is the tracing of the loci in Stiegler's texts where this knowledge generation and care work for the pharmakon occur – in the future, something to yet be attained and otherworldly, in mythology, such as abstract female archetypes of the 'goddess', and in the cosmic.[32] In this, Stiegler is 'missing out on the wealth of self-generating knowledges in the experiences of women and subaltern people. [He] also fails to address the repression and deprivation of reproductive knowledges that have occurred with colonization, housewifisation and capitalist accumulation across the globe and centuries'.[33]

Yet despite these shortcomings, how can we utilise and create a pharmacology of Stiegler's organology, the 'formation of attention through circuits of transindividuation that cultivate reason through reasons to live and to take care of life in quasi-causality?[34] Life which will not require a 'New Deal' to reinscribe/re-entrench and survive the impending doom of planetary extinction.[35] This survival is one 'lock[ing] all revolutionary struggles into [already existing] binary structures' – the 'power divisions [of the archive as] … unilateral and undifferentiated source of power'.[36] How can we think through his gestures towards the becoming-other with archival material and the 'tak[ing] care of one another through transductive relations'?[37] How can we trace the question of trans-individuation through the archive, in order to not go 'straight' into it? To circumscribe it with a queer multi-bodied and networked hand, which travels in, out and beyond such institutionalisation. With the imagination this requires from us, we need to think of the archive as a network of possibilities – a space of neither this nor that, a different structure for proliferation, inhabiting, partaking, and connecting with life throughout time. In Stiegler's insistence on 'new systems of care [and] the creation of attention' we cannot simply suffice with rethinking knowledge and the 'media of memory' 'from the very origins [and structures] of the West' – the same locus his knowledge circumscribes.[38] As such, we must also think of archives as a navigation tool) not just a repository, following the specificities instead of the generalisations. [39]

Diagrams: Discursive retentions and protensions of a line of thought. Author and editors.

SBS: Stiegler seems a bit avoidant of the material relations of capitalism and the eroticising of the other, including feminised labour, no?



SBS: What are some examples of this?

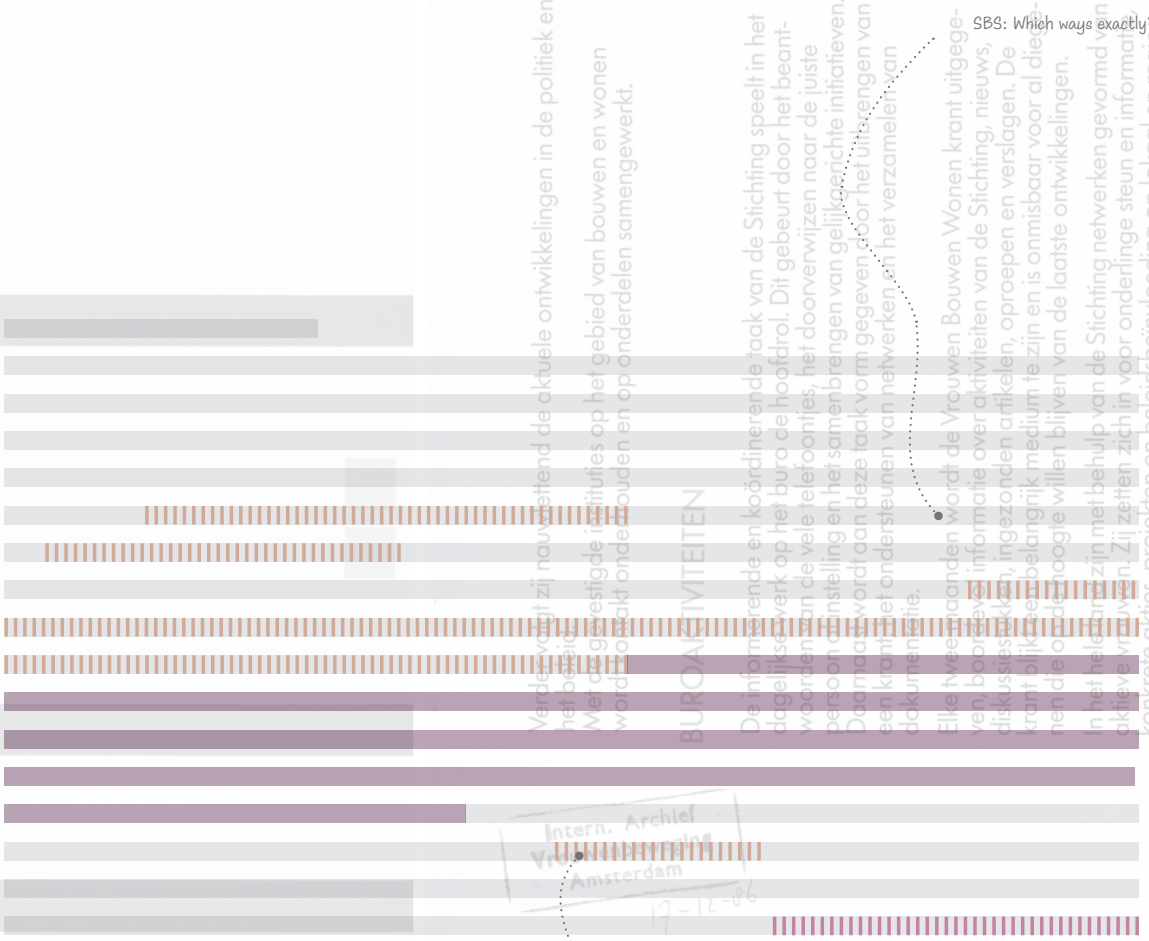
SBS: Or prompt.

Archives for queer survival

The mentioned making and caring for life can once again be followed through the aforementioned example of the Vrouwen Bouwen Wonen archive. Here we have a pluriform source, which relies on networks and intersecting timelines as lifelines for its enmeshed knowledge. The marginalised women of the network transposed their ways-of-doing into each other's bodies, and further down the lifeline into the reader and researcher – the body becoming an external hard drive.[40] They transferred preconditions for their survival into mechanisms of tertiary retention, queering themselves as individual authors while becoming together. While producing the network in the early 1980s, the women were enlarging the chances for epiphylogenetic reproduction of their thought, eventually becoming tertiary protentions with more potential to change institutionalised selection criteria due to their affective capacities. The living body (of knowledge) generates and is generated from 'the first and always disguised fact of incessant variation and the second and always partial fact of reproductive invariance' – delivering selection criteria and conditions of 'cross-fertility'.[41] An *other* form of collection, production and circulation – or 'stratification' (Deleuze and Guattari) – retains a certain *other* political economy and social production.[42] Now, the acquisition of Tummers's Vrouwen Bouwen Wonen archive presents an additional case of networks or transindividuations that are endangered, while endangering the life of the archive itself: the biomes that have individuated with the material and are cross-fertile with its embodied knowledge; yet, to which the archival body is intolerant, being understood as 'as a closed and impenetrable unity'.[43] Finding favourable growth circumstances, such as fats, fingerprints, hairs and paper, the microorganisms proliferate and become the 'primary agents of deterioration' constituting a relationship with their host, which may be understood as mutually beneficial.[44] What could it mean if we let the different organisational structure of the fungi remain in the archival documents? Together forming a vibrant, albeit materially mortal body – its mortality underscoring the vulnerability of the narratives and networks contained.[45] These networks trace the gap, inhabit and queer it through the noncompliant bodies. They deny the material death by asking what outlives us.

Diagrams: Discursive retentions and protensions of a line of thought. Author and editors.

Flyer about Stichting Vrouwen Bouwen Wonen, 1986. Source: Archive Vrouwen Bouwen Wonen / Bureau Tussen-Ruimte. Donation by Lidewij Tummers, Collection Het Nieuwe Instituut.



SBS: Which ways exactly?

SBS: As above, this is how epigenetics takes place within the Vrouwen Bouwen Wonen archive?

SBS: Or challenges what is considered death here? And the life that is born from this nonhuman, lively interaction?

We must destabilise and inhabit Stiegler's thinking further and aim at the degeneralisation of knowledge concepts in order to withstand, queer, and retool the negentropic ordering from the chaos. This reconfiguring of Stiegler's participatory society requires a coupling with the critical theory of thinkers like Karen Barad, Sara Ahmed, Arjun Appadurai, Anjali Arondekar, Erin Manning, Fred Moten, Achille Mbembe, and Anna Tsing to give an outlook on relationalities that are virtual-actual, alive-dead, epiphylogenetic 'affective assemblages interviewing a myriad of agentive actors, dynamic actions and collective activities'.[46] This essay and the accompanying multivocal annotation exercise, turning the author's work against itself, is a probing of what it entails to start revisiting, negotiating, and in this, producing Stiegler's alternative otherwise. Here we are urged to encounter text and its imbued knowledge as archival body, as epiphylogenesis, with its many voices and lysergic typing hands forming 'transcribed traces into an individual's transitive experience of power'.[47] Intrinsically, this is an intended 'plat-forming' of other ways of knowing – co-constructing alternatives without homogenising it into a singular narrative. It is a making visible, on the borderline of form and content, a certain discussion and retention of what is accumulated, examining the collective task and ethics of care of constructing archival alternatives to retain knowledge. Through the use of Google Docs as a digital solidarity tool – despite Google's position in Big Tech – and an accessibility paragraph, thought is afforded the possibility to root and rhizome, linking itself to the questions asked in this essay.

Diagrams: Discursive retentions and protensions of a line of thought. Author and editors.

"Letter to Architecture Institute", published in parts in [Women Building Housing Bulletin], 1989. Source: Archive Vrouwen Bouwen Wonen / Bureau Tussen-Ruimte. Donation Lidewij Tummers, Collection Het Nieuwe Instituut.

For the commentators: on footnote accessibility

Here, I outline the intention of the employed collaborative effort as concisely as possible. For this, I base myself on the work of disability activists, unlocking this essay to a wider constituency interested in the above-mentioned questions, yet not necessarily acquainted with Stiegler or fully able in the academic language spoken. In this I will perform the task of curator and translator, explicitly seeking the care-work of bringing together initial thoughts and starting the negotiation of this collective text-archive. This also means that the invited hosts have the freedom to propose other voices, broadening the network of retention. This co-construction of the essay serves as a framing of discussions that could be unfolding different options while placing Stiegler in the midst of different voices. Commenting on each other's interventions is encouraged, to foster more intricate economies of participation and deterritorialising academic thought. Upon placing comments, you can choose to use your name or remain anonymous. Similarly, you can place text bubbles as comments or write in-line. In the latter case, please use a colour distinct from the original (black) text. It is not necessary to interact with the entire text, but please be mindful of your language and the care you return to one another's thought. The editing procedure of the intra-actions to this essay will be minimal, and not necessarily regarding the status-quo of formatting such as adequate footnotes or referencing – in fact actively seeking to queer it.

Diagrams: Discursive retentions and protensions of a line of thought. Author and editors.

Staci Bu Shea (b. Miami, 1988) is a curator, writer, caregiver and death doula based in Utrecht, the Netherlands. Broadly, Bu Shea focuses on aesthetic and poetic practices of social reproduction and care work, as well as its manifestations in interpersonal relationships and daily life, community organizing and institutional practice. Their long-term, transdisciplinary project Dying Livingly looks at the architecture and communal life of hospice and highlights emergent cultures of end of life care. Bu Shea currently teaches at Sandberg Institute (Amsterdam, 2022) and Royal Academy of Art (The Hague, 2023). From 2017 to 2022, Bu Shea was curator at Casco Art Institute: Working for the Commons and oversaw its exhibition program, archive and accessibility. They graduated from the Center of Curatorial Studies at Bard College (New York, 2016).

Notes

1. Bernard Stiegler, *Nanjing Lectures 2016–2019,* ed. Daniel Ross (London: Open Humanities Press, 2020), 187.
2. About Gilbert Simondon's take on circuits of trans-individuation, see Patrick Crogan, 'Knowledge, Care, And Transindividuation: An Interview With Bernard Stiegler', *Cultural Politics* 6, no. 2 (2010): 160. Debt, following Achille Mbembe, connected to one's lifespan (death) – as never completely losing its traces in life. Similarly, David Graeber, in *Debt: The First 5000 Years,* locates the fiction of debt in the arms of its enforcers, those who seek to remember, landlocking debt in institutional and bureaucratic rituals. Graeber, *Debt: The First 5000 Years* (New York: Melville House, 2011).
3. Karen Barad quoted in Felicity J. Colman, 'Agency', *New Materialism* 2018, https://newmaterialism.eu/almanac/a/agency.html; Stiegler, *Nanjing Lectures 2016–2019*, 9.
4. Western, not 'Westernised', since I am speaking from the contexts of Dutch academic institutions and their related spaces branching out in the rest of Western Europe. Bernard Stiegler, *For a New Critique of Political Economy* (Cambridge: Polity Press, 2010).
5. Achille Mbembe, 'Decolonizing Knowledge and the Question of the Archive', (presentation at the University of the Witwatersrand, 2015), 9, https://wiser.wits.ac.za/system/files/Achille%20Mbembe%20-%20Decolonizing%20Knowledge%20and%20the%20Question%20of%20the%20Archive.pdf.
6. Achille Mbembe, 'The Power of the Archive and its Limits', trans. Judith Ings, in Refiguring the Archive, ed. Carolyn Hamilton et. al (Dordrecht: Kluwer Academic: 2002), 19.
7. Gilles Deleuze, 'Postscript On The Societies Of Control', trans. Martin Joughin, *October* 59, no. 1 (1992): 3–7.
8. Bernard Stiegler, *Symbolic Misery Vol. 1: The Hyperindustrial Epoch* (Cambridge: Polity Press, 2014); Mbembe, 'Decolonizing Knowledge', 14; Stiegler, *Symbolic Misery Vol. 1,* 23; Bernard Stiegler, *Technics and Time 3* (Stanford: Stanford University Press, 2010), 131.
9. Gilles Deleuze, 'Instincts and Institutions', trans. John Duda, *Autonomedia*, 2003, http://dev.autonomedia.org/node/2525.
10. Ibid.
11. Stiegler, *Nanjing Lectures*.
12. Ibid., 11; Achille Mbembe further asks: 'Is this the only future left to aspire to – one in which every human being becomes a market actor?' Mbembe, 'Decolonizing Knowledge', 4.
13. For example, the New Museum Union rose from the struggle against low pay and lack of support structures in museums. New Museum Union – UAW Local 2110, 'Can Institutions Care about Their Workers?', *Arts of the Working Class* (website), 28 January 2020, http://artsoftheworkingclass.org/text/can-institutions-care-about-their-workers.
14. Mbembe, 'Decolonizing Knowledge', 8.
15. Audre Lorde, *The Master's Tools Will Never Dismantle the Master's House* (London: Penguin, 2018).
16. Stiegler, *Nanjing Lectures*, 11; the question 'what it does' follows Sara Ahmed's question 'What does diversity do?' Ahmed, *On Being Included* (Durham NC: Duke University Press, 2012), 142.
17. For instance, conversations with Lidewij Tummers (Vrouwen Bouwen en Wonen archive), Anna Vos on the Women's Studies research group (1970s–1980s, TU Delft) or with Czar Kristoff on his artist's archive, during Collecting Otherwise working group meetings at Het Nieuwe Instituut (2020–2022).
18. Dutch national institute of architecture and urban planning, design, and digital culture.
19. Wies van Moorsel, *Contact en Controle: Over het Vrouwbeeld van Stichting Goed Wonen* (Amsterdam: SUA, 1992), 7, my translation.
20. Chandra Talpade Mohanty, *Feminism Without Borders* (Durham NC: Duke University Press, 2003), 30–31.
21. From different conversations with affiliated women such as Lidewij Tummers, Anna Vos, and members present during the Vrouwen Bouwen en

Wonen-hosted evening 'Non-Sexist City' at Het Nieuwe Instituut, Rotterdam, 27 February 2020.

22. Crogan, 'Knowledge, Care, And Transindividuation', 164.
23. Ibid., 168.
24. Ibid., 165.
25. Ibid., 160.
26. Stiegler, *Nanjing Lectures*, 95.
27. McKenzie Wark, *A Hacker Manifesto* (Cambridge, MA: Harvard University Press, 2004).
28. Elizabeth Grosz, 'Deleuze, Bergson and the Concept of Life', *Revue Internationale de Philosophie* 3 (2007): 299; Stiegler, *Nanjing Lectures*, 11.
29. Ibid., 59, 187.
30. Ibid., 11; Crogan, 'Knowledge, Care, And Transindividuation', 162, emphasis in the original.
31. Stiegler, *Nanjing Lectures*, 94.
32. Ibid., 44, 95.
33. Manuela Zechner and Rübner Hansen, 'Unchained Melodies of the New Proletariat', *Generation Online,* undated, https://www.generation-online.org/other/stieglerreview.htm
34. Stiegler, *Nanjing Lectures*, 58.
35. Crogan, 'Knowledge, Care, And Transindividuation', 163.
36. Mohanty, *Feminism Without Borders*, 38.
37. Stiegler, *Nanjing Lectures*, 47.
38. Crogan, 'Knowledge, Care, And Transindividuation', 167, 163.
39. Manuel DeLanda, 'The Machinic Phylum', *TechnoMorphica*, *V2* (1997), https://v2.nl/archive/articles/the-machinic-phylum; Deleuze, 'Instincts and Institutions'.
40. Stiegler says: 'The brain is a living memory – that is to say a fallible memory, in a permanent process of destruction, constantly under the sway of what I call retentional finitude.' Bernard Stiegler, 'Desire and Knowledge: The Dead Seize the Living', trans. George Collins and Daniel Ross, *Ars Industrialis* (website), undated, https://arsindustrialis.org/desire-and-knowledge-dead-seize-living.
41. Jérôme Rosanvallon, 'Pure Variation and Organic Stratification', *Progress in Biophysics and Molecular Biology* 110, no. 1 (September 2012): 138.
42. Ibid., 149.
43. Xenia Kokoula, 'Opening up Bodyspace: Perspectives from Posthuman and Feminist Theory', *Footprint* 21 (Autumn/Winter 2017): 11.
44. National Park Service, 'Mold and Mildew: Prevention of Microorganism Growth In Museum Collections', *Conserve O Gram* no. 3/4 (July 1993), https://www.archives.gov/preservation/environmental-control/mold-prevention.html.
45. Bonaventure Soh Bejeng Ndikung, Arlette-Louise Ndakoze and Onur Çimen, eds., 'Vulnerable Archives: On Silenced Archives And Dissenting Views', *Savvy Contemporary* (website), 2021, https://savvy-contemporary.com/en/projects/2021/vulnerable-archives/
46. Gökhan Kodalak, 'Affective Aesthetics Beneath Art and Architecture: Deleuze, Francis Bacon and Vogelkop Bowerbirds', *Deleuze and Guattari Studies* 12, no. 3 (2018): 403.
47. See especially ibid., 404, where Kodalak offers a useful explanation of Spinoza.

Biography

Setareh Noorani is an architect and researcher. She uses various media in her projects and artistic contributions to explore ways of publicising and embodying, questioning processes of trauma and time; always moving in the grey space between academic research and art. This is expressed in the researching, disrupting and exposing of archives through spatial research and (self-)publishing, and her spatial and architectural designs. Her current research at Het Nieuwe Instituut focuses on the qualitative, paradigm-shifting notions of decoloniality, feminisms, queer ecologies, non-institutional representations, and the implications of the collective, more-than-human body in architecture, its heritage and ambiguous future scenarios.

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Footprint is grateful to our peer reviewers, who generously offered their time and expertise. In this issue, the following papers were peer-reviewed: 'Architectures of Thought: Negentropy, Metabolics and the General Ephemeral', 'Forest Semiosis: Plant Noesis as Negentropic Potential', 'Being in the Hyper City, and the Posthuman Body', 'Transductive Architecture: What an Organology Produces – the Case of Le Corbusier'.

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