

# **From Avant-Garde to Negentropy: An Aesthetic Deployment of Bernard Stiegler's Genealogy of the Sensible**

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## Summary:

This thesis mobilises Bernard Stiegler's call for a genealogy of the sensible<sup>1</sup> in order to elucidate a peculiar phenomenon in art, which is the increase in the autonomy and efficacy of technology in the making and production of artwork. In doing so, the thesis follows a historical trajectory that considers works by Marcel Duchamp, John Cage, Samuel Beckett, Klaus Obermaier, *Chunky Moves* and Driessens and Verstappen.<sup>2</sup> These artists have been selected because it is held that their works are quintessentially avant-garde in their nature. Of particular interest to this study is the fact that each of their works engages artistic production in a *systematic* way, at the nexus of chance operations and new technologies / techniques. The main analytical methodology that is used for examining these works is the aesthetic theory of Bernard Stiegler, a contemporary French philosopher working in the tradition of continental philosophy. Stiegler's main interest is the philosophy of technology, which he analyses using a synthesis of theories of individuation, anthropology, phenomenology and cultural critique. This gives rise to an aesthetic argumentation that is deeply cogitative on the overlapping sectors of the philosophical, historical-material and political domains.

The purpose of this genealogical investigation is to show, on the one hand, that historical avant-garde strategies of investigating the thematics of indeterminacy via new technologies are still useful and effective in the contemporary digitalised world, and on the other hand, that the resulting 'chance' inventions are reflective of a more general, societal inclination towards fabricating increasingly naturalistic, autonomous agents that display quasi-organic characteristics. By tracing the increasing use of

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<sup>1</sup> Stiegler calls for a genealogy of the sensible in order to emphasise the need for a renewed understanding of the history of knowledge and being as material lines of evolutionary development arising from interactions between individuals and collectives across an equally evolving expressive milieu of tools, traces, texts and artefacts. A historical mapping of the uptake and deprecations of tools, techniques and artefacts can reveal important questions not only in relation to ontological implications for the physical and intellectual self, but also in relation to broader sociopolitical crises and successes.

<sup>2</sup> The study also involves a cursory examination of the methodologies of Jackson Pollock and Joseph Beuys, but they are not treated as central subjects of analyses in the genealogy that constitutes this thesis.

‘automatisation’<sup>3</sup> in the generation of aleatoric, avant-garde artworks,<sup>4</sup> this thesis elucidates parallels between the increasing agency of machines and the (in)determinate efficacy they hold over humans, in both art and broader sociological processes. In this way, for Stiegler, avant-garde creative endeavours are treated as cutting-edge experiments where the relational boundaries between technology and the mental / physical self are undermined, fragmented, reconfigured and at times completely obliterated. The philosophy of Stiegler is employed in order to reflect on how the objects of discussion are considered precursors of a more general sociopolitical and economic trajectory towards generalised and pervasive processes of automatisation. As such, the thesis asks how artists, and the general public, can respond to the increased pressures and mutated subjectivities brought to bear by the ubiquity of the digital. The thesis concludes by contending that the avant-garde’s exploratory methodology and praxis is the domain where these questions can be best engaged, because it still maintains the power to ameliorate ‘a people’<sup>5</sup> (Deleuze, 2005, 209) by forging new realities through the experimental reinvention and repurposing of artefacts.

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<sup>3</sup> This thesis uses this term over and above its more commonly known and used related term, *automation*, because, for Stiegler, ‘automatisation’ is more evocative of the idea that the technical milieu is constituted by processes that are the automatic prosthesis of the physical and mental self; that is, the becoming of the self as automaton.

<sup>4</sup> This thesis does not purport that all avant-garde art pursues the strategy of chance operations; rather, it follows a particular genealogy that is concerned with a specific cross-section of avant-garde artworks that are engaged in aleatoric thematics.

<sup>5</sup> Stiegler is very drawn to Deleuze’s notion of the artist as an inventor of ‘a people’ and he returns to it on several occasions in his aesthetics. As such, this conception also plays an important role in this thesis.

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## Introduction

Any contemporary invocation of the term or concept of the avant-garde is loaded with a century's worth of historical and rhetorical encumbrances, and this thesis is no exception. The decision to invoke the term avant-garde, in the context of an analysis of contemporary art, quite rightly demands a substantial explanation as to the validity and plausibility of its usage, because it is always already loaded with a long history of aesthetic-political theory. The term is deeply and inextricably associated with early twentieth century experimental artistic activities and, as such, it is deeply divisive in relation to those supporting the use of the attributive noun, and those opposed to yet another recuperation. The problem with many instances of the term's invocation, in a contemporary context, is that it is deployed erroneously; that is, the term is often used to think only about the formal qualities of an artwork because they are out of kilter with the prevalent taste, and therefore neglects to consider their collision with the content – which often focuses on the process of its production – and the abstract sociopolitical protest that arises from this conflict.

This thesis adheres to theories championed by theorists like Renato Poggioli, Peter Bürger and Paul Mann, all of whom advance progressive developments of the belief that the artistic avant-garde is not exclusively linked to any singular historical epoch, but is in fact a transhistorical phenomenon that is recursively recuperated and continues to persist, even now, in the age of computation. This thesis argues that the avant-garde is a cultural niche that is inherently linked to technological advancements in productive and administrative systems, but also that the relationship is by no means simplistic or straightforward. It is proposed that avant-garde art is not simply a cultural niche that is straightforwardly linked to technology, or motivated by a will to rupture sociopolitical processes. Conversely, it is immanently tied to both the technological and the sociopolitical, in a three-way relational process in which none of the three operate in exclusivity, but are in fact affected and modulated by – sometimes small and other times significant – topological shifts in either of the other two related milieus. As such, the avant-garde is not only fundamentally dependent on the technological and the

sociopolitical at its starting point, but it is also deeply influential on those two areas. Furthermore, given the increasing sophistication of the technological milieu and the resultant complex webs of sociopolitical intersubjectivity, impelled by digitalised administrative machine-processes, it is reasonable to surmise that so too do artistic processes undergo an analogous evolution towards deep technical sophistication and a profound technological opacity. However, contrary to earlier occurrences of the avant-garde, in its current, *digitalised* manifestation there is a new emphasis on an understanding of, and fluency in, mathematics – and/or certain areas of science – in order to *really* engage the tools, techniques and technologies that could offer a critique of intersubjectivity, in the new industrial world. The historical avant-garde was rooted in a time that was suffused with political tumult and their work, which was heavily underpinned by an uncompromising non-conformism, aimed at revolutionising the world. In an epoch where activist or reformist politics is often either dismissed as naïve Utopian rhetoric, or classified as extremist and therefore detrimental to stability, and omnipotence of the (liberal capitalist) centre-right is at the brink total hegemony,<sup>1</sup> what

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<sup>1</sup> This genealogical investigation of the avant-garde is constituted by the critical theory aesthetics of Stiegler who has formulated his philosophical project in the aftermath of postmodern cultural theory provocations by the likes of Fredric Jameson and Mark Fisher. They have each argued that projects aspiring to conceive an alternative to the tempo-spatial configurations of capitalism need to acknowledge the epistemological stance of it within the dominant late capitalist, globalised cultural dynamic that continually transforms and determines human perception, cognition and, straightforwardly, limits of the imaginable and the possibility of going beyond. It will be shown in Chapter 1 how Stiegler reinterprets Derrida's notion of *différance* and the trace and synthesises it with theories of individuation in order to compound the point that, despite its apparent concreteness, technology represents a fluid relational subjectivity that influences the individual every bit as much as political and economic configurations. What emerges through his philosophising is a conceptualising towards an understanding of being-in-the-world that is constituted by fluid oscillations between the individual, the group and the environments they inhabit, which is, in contemporaneity, a technocratic milieu after the shock of the emergence of digital technologies. As such, Stiegler maintains that whilst computational technologies are a major driving-force of hyperindustrial neoliberalism that threatens to exacerbate misgivings that capitalism may summon up – e.g. wealth divides – they also represent the site of remedies, inventions and possibilities for fabricating beneficent, fair and equal futures.

In corollary to the softening suggested by Jameson, Fisher and now Stiegler, it should also be acknowledged that globalised, late capitalism is a socioeconomic paradigm that is pervasive with good reason. Historically speaking, despite its apparent flaws – especially in relation to wealth distribution – the contemporary manifestation of *hyper*-capitalism may well represent, on a global scale, the most stable and secure modus operandi of political and socioeconomic intersubjectivity to have yet emerged.

could another recuperation of the avant-garde possibly add to an already overloaded, and for many an exhausted, discourse?<sup>2</sup>

## Defining the Avant-Garde

Any invocation of the term ‘avant-garde’ demands that the framing be clearly defined and its usage be focused in the context of its ongoing, contemporary relevance. The subject of the avant-garde and its corresponding definitions has provided a ripe landscape for varied and often polemical views, by theorists and practitioners, in regard to its meaning, life cycle and social significance. The earliest use of the term, in a context that was not strictly militaristic, is thought to have been made by Henri de Saint-Simon (1760-1825). He employed the term to refer to the role of imaginative and creative people in the context of a Socialist revolution.

It is we artists who will serve as your vanguard; the power of the arts is indeed most immediate and the quickest. We possess arms of all kinds: when we want to spread new ideas among men, we inscribe them upon marble or upon a canvas.<sup>3</sup>

Here already, in a pre-industrial epoch, it is evident that art is identified as a powerful tool of political persuasion. However, this thesis does not attempt to cover every invocation of the term, since its first conception, throughout the entire history of art; rather, it is concerned with the use of the term since the quintessential period from the early twentieth century – referred to hereunder as the *Historical Avant-Garde* – with a view to unpacking and understanding present day (early twenty-first century) activities – referred to hereunder as the *Contemporary Avant-Garde*.

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<sup>2</sup> This is precisely the central topic of discussion in Paul Mann’s *Theory-Death of the Avant-Garde*, wherein he suggests that the avant-garde is and always will be consistently subjected to processes of annihilation and ‘recuperation’ within the discursive economy.

<sup>3</sup> Saint-Simon, H. de “L’Artiste, le savant et l’industriel,” *Oeuvres complètes de Saint-Simon et d’Enfantin*, vol. 10 (1867), p. 210.

The Historical Avant-Garde covers a broad range of the early twentieth century movements ranging from the Bauhaus School in Germany, Der Blaue Reiter group, Expressionists of Die Brücke, the Cubists, the Dadaists, the Suprematists and Constructivists of Russia, the Futurists, those who wrote and created under the banner of the arts publication *De Stijl* (sometimes referred to as The Neo-Plasticists) and ultimately, the Surrealists (Friswell 2013). What all of these movements (comprised of artists from disciplines as diverse as visual arts, music, poetry, writing and architecture) had in common was that their representations, ‘in the midst of a world dominated by utility... as the other of this world, as exempt from the mechanism of the social process of production and reproduction’ (Adorno 2002, 393), maintained a utopic agenda to redirect attention away from the past and toward a re-constructionist world view of the future.

In his paper “Avant-Garde and Neo-Avant-Garde: An Attempt to Answer certain Critics of *Theory of the Avant-Garde*,”<sup>4</sup> Peter Bürger problematises the notion of defining the avant-garde once and for all. Drawing on Hegel, Nietzsche and Lacan’s oppositional stances towards the act of definition, Bürger asserts any such act would only serve to divest the avant-garde ‘of what keeps it alive: the contradictions that it unites within itself’ (Bürger, Brandt, and Purdy 2010, 696). Nevertheless, to invoke loaded terminology, as this thesis does, means that definition is crucial before proceeding. In an attempt to centralise his discussion Bürger does tentatively venture a few categories that help delineate the subject: ‘For many academics and critics the term only refers to whatever is the most current (most progressive) movement in modern art’ (Bürger, Brandt, and Purdy 2010, 696), while others use the term in a ahistorical sense; that is, some authors use the term to refer to what was known to be cutting-edge during a given period in history. In both cases, a simple but necessary explanation of the intended use of the term is sufficient for surmounting any ambiguity. Although Bürger’s discussion is centred around the activities of aesthetic movements of late

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<sup>4</sup> Bürger’s paper was written as an elaboration to his previously published book, entitled *Theory of the Avant-Garde* (1968), which caused something of a consternation upon its publication.

nineteenth to mid-twentieth century Europe, his suggestion that the avant-garde is ambiguously bound to the notion of recuperation is the salient point of his discussion. In this regard, this thesis follows this understanding; that is, that the avant-garde be understood as a transtemporal term that is periodically recuperated as a means for understanding what is most cutting-edge in given historical epochs. However, it will be demonstrated that historical epochs are constituted by political and technological subjectivities and, as such, any discussion of the avant-garde demands an in-depth consideration of those deeply influential and constantly evolving factors.

In his book *The Theory-Death of the Avant-Garde*, Paul Mann, who finesses Bürger's theories, contributes the valid point that, 'Definition is the first and perhaps main task of traditional studies of the avant-garde,' but it is not just a central tendency of ostensibly extrinsic studies, 'it is also a matter of concern to the movements themselves' (Mann, 1991, 8). For the members of an aesthetic group, every bit as much as for historians and critics on the outside, definition is a process of publicity and self-affirmation that facilitates their self-positioning in relation to possible allies and adversaries. For Renato Poggioli this is its most important facet. In his book, *Theory of the Avant-Garde* (1968), he offers psychosocial categories – 'activist' and 'antagonistic moments' – defined 'largely along sociological lines, as an expression of alienation from concrete social and cultural conditions' (Mann, 1991, 8).<sup>5</sup> Charles Russell

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<sup>5</sup> Poggioli proffers that the avant-garde, as artistic movements that direct challenges against normative institutions, can largely be categorised under two main taxonomies: 'activism' or 'antagonism'. Poggioli gathers the term *activism* to describe the more therapeutic agenda of the avant-garde and it tends to evoke a mentality of gratuitousness and altruism. The term points more directly at the metaphorical nomenclature, which (in military terms) connotes an exploration or reconnaissance of difficult or unknown terrain, with a view to territorial gain. This optimistic outlook, or confident belief, in the activities of a movement began with modernity, under the auspices of the project of enlightenment, which sought to overcome tradition, superstition, religious abuse of power and psychological intimidation of the poor and uneducated by embracing scientific method, scepticism and intellectual interchange. The overall agenda was to ameliorate society through reasoning and education, thus "elevating psychological revolt to the level of practical and social reform" (Poggioli 1968, 27). Poggioli uses the term *antagonism* in order to describe an attitude of opposition and hostility. It is the more virile and aggressive aspect of Poggioli's taxonomic binary; indeed, the word itself suggests a sort of resentful or sarcastic contempt. But, for Poggioli, it is necessary for describing movements – such as the Futurists, Dadaists and Surrealists – that were largely politically and ideologically abrasive, or even anarchistic.

critiques Poggioli's thesis by contending that all of his avant-garde moments should be gathered under the singular parent category of "aesthetic activism," which always produces an "activist art" that is "inherently political" (Russell 1981, 13). Whereas Peter Bürger only validates one type of activism: that which is directed against the institution of art, 'and denies authentic avant-garde status to any movement that does not demonstrate such opposition' (Mann 1991, 8). In agreement with Russell and Bürger this thesis does not attempt to cogitate on the psychosocial differences between categories of aesthetic mentality, but understands the avant-garde as an aesthetic pursuit of innovative subject-object relations that challenge the status quo and is therefore, by virtue of its innovation, immanently political. However, amongst all of these authors there are incommensurable gaps in relation to the importance that the technological plays in relation to the subject of the avant-garde, and this thesis attempts to fill in these gaps whilst remaining loyal to the discursive economy of avant-garde theory.

Poggioli – perhaps the first writer to offer a dedicated and comprehensive volume on avant-garde theory – was the first to suggest that the avant-garde should be thought of in terms of a 'movement'; that is; a group constituted by a collective of individuals with shared beliefs and objectives. He sets it up as an oppositional binary to that of a traditional 'school,' which he claims advocates 'old-fashioned' ideologies. In setting up this binary Poggioli writes:

The school, then, is pre-eminently static and classical, while the movement is essentially dynamic and romantic. Where the school presupposes disciples consecrated to a transcendent end, the followers of a movement always work in terms of an end immanent in the movement itself. The school is inconceivable outside the humanistic ideal, the idea of culture as a thesaurus. The movement, instead, conceives of culture not as increment but as creation—or, at least, as a centre of activity and energy. (Poggioli 1968, 20)

He asserts that 'movements' will, almost always, be accompanied by phenomena which epitomise the avant-garde: self-defining periodicals. These short, non-commercial publications, or 'little magazines', are a manifestation of the *need* for self-



definition and a will to transmit the ideas, motivations, ‘proclamations and programs... announcing the foundation of a new movement, explicating and elaborating its doctrine, categorically and polemically’ (Poggioli 1968, 22). These proclamations are, more often than not, the manifestation of the movement’s political beliefs. They express a willingness to discuss and ameliorate facets of life that remain imbalanced, suppressed or unjust, whereas institutions, typically represented by the school, only intend to teach, to rework ‘variants of traditional poetics and rhetoric, normative and didactic simply by nature’ (Poggioli 1968, 24/25). Whereas schools have a tendency to concentrate on the resurrection or prolongation of *tekhnē* most often associated with the plastic arts, the avant-garde may be understood as that which pursues art as *epistemology*, and is therefore diametrically opposed to *making as an exploration of the beautiful*, an agenda traditionally pursued in art schools and institutions. Another notable, and possibly more significant, characteristic of a movement is that, via its praxis, it tends to transcend the confines of art and culture and bleed into the extraneous substance of daily life. Romanticism, for example, through its use of such permeable strategies, may be noted as possibly the first movement not to be called a school. Furthermore, ‘movement’ is a term used by both the observers *and* the proponents of a particular genre of art and therefore has a definite objective reality beyond its corresponding abstract utterance. As such, the movement is a challenge directed towards established institutional methodologies, and it is the prerogative of an avant-garde movement to disrupt, agitate and shake-up the establishment, the school, the institute of art, with a view to revolutionising quotidian life beyond the boundaries of its existence. Poggioli’s thesis supplies an invaluable set of categories for explicating how sociopolitical and economic conditions impact on and affect artists into a stylistic and thematic trajectory that is identifiable as typically avant-garde. However, his thesis does fall foul of Bürger’s dichotomy raised at the beginning of this section; that is, it refers only to what was the most progressive movement in during a particular period of history – the early twentieth century – and fails to consider the recursive nature of avant-garde activities, as well as its discursive economy, outside of that quintessential epoch. For Bürger, the sociological concerns, as well as the strategies for engaging them, are recuperated periodically throughout the history of modern art. As such, those two main mutually conditioned artistic ideologies

transform, respectively, into the more general concerns of, on the one hand, the problematisation of the autonomy of art, and on the other hand, the role of sociopolitical engagement in art.

Peter Bürger's thesis differs substantially because he suggests that the main significance of avant-garde movements is that they are immanently related by their interpenetration of two main and mutually conditioned artistic ideologies: firstly, to instigate an attack on the institution of art; secondly, to use art as a revolutionizing mechanism for life as a whole. He problematises the notion of political engagement and autonomy to a greater degree than Poggioli, in the sense that he adopts Adorno's strategy of self-reflexivity under the auspices of historicity. Bürger draws on case studies from the Historical Avant-Garde,<sup>6</sup> of the early twentieth century, and the Neo-Avant-Garde, of the mid twentieth century, in order to historicise, analyse and gather them together under a theory of the avant-garde that he then expands into a general theory of modern art. In the opening lines of his book he explicitly states: 'If one assumes that aesthetic theory has substance only to the degree that it reflects the historical development of its subject, a theory of the avant-garde becomes a necessary element in the thought that is devoted today to a theory of the arts' (xlviii, full citation). In the formulation of this theory, Bürger posits two demands: firstly, to join his project by participating in an analysis of the institution of art and its means of production, dissemination and spectatorship; and secondly, to acknowledge the historical avant-garde as our precedent in this undertaking and, henceforth, re-direct its energies into our own 'patient, dialectical critique' (Bürger 1984, 9). He posits that the early avant-garde strategy of montage – which, at the time, was a new, non-organic, compositional form greater than the sum of its autonomous parts – aesthetically legitimates the incorporation of political subject matter into art and irreversibly changes the landscape of modern art. Henceforth, a new subjectivity is brought to the table because the apparent autonomy of the individual elements demand that the spectator reconsiders the assemblages in the context of their sociohistoric reality.

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<sup>6</sup> Bürger uses this term to refer to the European avant-garde movements of the early 20th century, of which he examines primarily Dadaism, Surrealism, and Constructivism.

Considering the institution of art, Bürger advances the notion that the historical avant-garde's attempts to 'sublate' art into the praxis of daily life – thereby abolishing its autonomy – inevitably lead to a polemic against art as a bourgeois institution. As a result, that institution becomes aware of itself for the first time. Bürger writes: 'the apartness from the praxis of life that had always constituted the institutional status of art in bourgeois society now becomes the content of works' (27). As such, movements are dialectically linked to the avant-garde because they establish a necessary precondition for the manifestation of a contempt that is inevitably re-channelled into a criticism that champions autonomous values. In addition, by rejecting the idea of autonomy, and adopting that of purposiveness, the artist is forced into the position of surrendering 'his special social position and thereby his claim to genius' (Bürger, Brandt, and Purdy 2010, 697). Analogously, it bequeaths upon the artistic product a use value that 'is subordinated to the project of revolutionizing living conditions and thus [... strips it of] its aura and its illusion of metaphysical being in equal measure' (698).

For Bürger, 'theory' is a loaded term, and this is a knock-on effect of the self-reflexive strategy that he advocates. The interaction between his theory and the artworks under scrutiny is a mandatory outcome of an epistemology which demands that metaphysical concerns should be relinquished in subordination to processes of self-historicisation. This may be partially achieved, as per Adorno's methodology, by dialectically meditating on its stage of evolution, through and by its own critical taxonomies and phenomena, beginning with import against function, and expanding towards categories employed in general, contemporary commentary and criticism.<sup>7</sup> In employing Adorno's methodology, Bürger is, by association, also aligning himself with Marx, to whom he pays tribute on several occasions in the volume. Bürger makes it his prerogative to historicise his own theorising while simultaneously taking ownership of his unique theoretical perspective on the historical avant-garde. This bi-polar stance is enabled by his methodologically deft strategy of analysis that becomes very useful

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<sup>7</sup> Adorno's aesthetic theory is explained in more detail in Section 1.2.4

when deployed as a means of negotiating between conflicting views of history; that is, the past understood simply as a precursory, fixed chain of events leading to the present, over and against the modern historicist assertion that disinterested objectivity is governed by a fluctuating relationship to the past. As such, Bürger's book is something of an exemplary piece of aesthetic theorising that offers, on one hand, a specifically modern epistemological attitude to social formations of the past, while on the other, an illumination of the avant-garde works under scrutiny, thus forging a comprehensive proposition for a new direction in aesthetic theory. Bürger conducted his study in the disillusioned aftermath of 1960s radicalism. Therefore, he is remorsefully ushered into having to, not only, admit the failure of the avant-garde to 'sublate art in the praxis of life,' but also, by the double-bind of his self-reflexivity, cogitate upon the repetition of that failure in contemporary art production – where the only visible assimilation of art to life is a false one: the aesthetics of commodity consumerism and popular culture. Ultimately, Bürger is left with no option but to sink back into the dystopianism espoused by Adorno, arguing that the works of the neo-avant-garde (which he situates in the 1950s/60s) re-present an institutionalisation of avant-gardist endeavours that short-circuits any genuine attempt at the original activist project. Some years later, in his ensuing article entitled, "Avant-Garde and Neo-Avant-Garde: An Attempt to Answer Certain Critics of *Theory of the Avant-Garde*," Bürger attempts to clarify this notion when he writes: 'The unification of art and life intended by the avant-garde can only be achieved if it succeeds in liberating aesthetic potential from the institutional constraints which block its social effectiveness' (Bürger, Brandt, and Purdy 2010, 696). Such an anti-institutional stance is a necessary condition for any visionary unification of art and life, and this is why Bürger only attributes avant-garde validity to projects that attack the institution of art itself.

Bürger's delineation of the failure of the activism at the heart of avant-garde praxis, its assimilation to the institution and the recursion of self-reflexive theorising is precisely the nexus of the debate that is taken up by Paul Mann in his volume, *Theory-Death of the Avant-Garde*. By the time the neo-avant-garde had wound up, or evolved into postmodernism (c.1970), many of the innovative montage techniques had been broadly stripped of claims to innovation and, as such, their effectiveness for political critique.

This led to the generalised cultural paradigm of scandalising through parody and pastiche that is now commonly thought to be quintessentially postmodern. Paul Mann concurs that the critical strategies and techniques – as well as the proponents – of the avant-garde have been assimilated to the very art institutions that were initially the object of the critical assault, resulting in a recursive *discursive economy*. In view of Mann's concurrence with Bürger, a primary source of interrogation for this thesis is, how can a re-mobilisation of the avant-garde still have any critical substance now, in the twenty-first century?

Building upon the self-reflexive methodology championed by Bürger, Mann is exquisitely thorough in his self-examination. He frequently punctuates the continuity of his own historical and critical analysis in order to point out the contribution that his book brings to the very 'discursive economy' that he has set out to critique. As such, Mann's book is a sort of performative critical gesture that proceeds in a cyclical, as opposed to linear, style that periodically revisits the moment of 'theory-death,' thereby mimicking the circularity of the discursive processes described. The book thoroughly lays bare the outcome of responding to another author's writing, and on several occasions goes so far as to predict likely critical responses to his own work. It is henceforth understandable how the essay was initially, to a large extent, dismissed as nihilistic; indeed, he openly admits his guilty flirtations with the pessimistic belief in the following passage:

It is not difficult to imagine whatever little response this essay is liable to. For the most part dismissals of what will be taken as its nihilism, its cynicism, its defeatism, its adherence to this or that dubious theory, its outmoded obsession with recuperation. But the essay was not written for those who reject an insistence on recuperation only in order to conceal from themselves the extent of their own recuperation... It was [...] written precisely so that it could be dismissed. (Mann 1991, 141)

Nevertheless, throughout the essay he persistently reiterates that his position is not to discourage input; on the contrary, Mann dedicates most of his book to making the point that the fundamental goal of art and theory – however resistant to dominant culture

they appear to be – is to propagate more discourse, to keep the discursive economy alive. Mann rightly anticipated the hastiness of the opposition to classify avant-garde theory as passé, or ‘outmoded.’ However, the view that his thesis is old, or belated, and advocates a fatigued discursive currency only serves to reinforce the very point he aims to communicate: in the discursive economy of art production and criticism, including the discourse on the avant-garde, the category of newness, or originality, prevails over all others. Indeed, paradoxically, such an economy *demand*s that Mann’s position quickly become fatigued in order for general discourse to continue thriving. To this view then, the salient argument of Mann’s book does not address the typical topic of whether, or not, the avant-garde presents a real antithesis to a dominant bourgeois capitalistic regime; it is rather more concerned with the structural agreement – between the contesting (art) form and the conviction it attempts to debunk – and how it operates in the discursive economy.<sup>8</sup> In this regard, just as dialectics sets up binary oppositions in order to decode and understand phenomena, the discursive economy thrives on hypotheses and antitheses to the extent that it is more important to continue asking the questions rather than finally resolving the answers to them.

Throughout the history of the avant-garde, these polemics play themselves out over and over again, to the extent that ‘one must ultimately see this dialectical exchange itself as a primary function of so-called bourgeois culture’ (8). For Mann, the key issue arising out of this paradigm is that the contradictory nature of bourgeois culture itself establishes these oppositions in order to resolve them; that is, it ‘sets up resistance in order to establish power’ (Radin 1998, 42). The irony of this aporia, if we push it to the limit, is that according to the dialectical nature of bourgeois culture, Marxism is ultimately a bourgeois genesis.<sup>9</sup> It is apparently this fundamental contradiction that

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<sup>8</sup> Barthes also discusses this in *The Pleasure of the Text*, pp. 54-55, wherein he defines it as a ‘versus’ myth.

<sup>9</sup> Although Mann does not explicitly state this, it is a key argument discussed by Baudrillard in *The Mirror of Production* (1973). Redundancy in the wake of postmodern theorists, like Baudrillard, is one of the major criticisms that has been levelled at his book, despite the fact that Mann pays homage to him on several occasions throughout the book. For more on critical reviews of Mann’s book see: Arthur, Rose. Rev. of *The Theory-Death of the*

provokes Mann to attempt to avoid the well-trodden dualistic path that explores whether the avant-garde presents real cultural opposition to the bourgeoisie, or whether it is its inevitable functionary. Instead, Mann chooses to adopt, with relative success, something of a Derridian, deconstructionist approach by attempting to occupy an ‘other’ position outside the binarism. However, contrary to Derrida, his objective is not to trouble the structural relations, by demonstrating how they disintegrate into a differential field. He is more concerned with how, on one hand, the avant-garde exists at one point in time, and on the other, it develops and evolves through time. Just as Bürger did previously to him, Mann deploys a historicist lens over the history of the avant-garde as a methodological strategy in order to, on one hand, break out of the irresolvable internal conflict, and on the other hand, examine its legacy and the repeated attempts at its revival. He makes it clear that he is fully aware that by adopting this position he is merely repeating the act of engaging in the discursive economy, just as his predecessors have done. However, Mann chooses to reflect on this very fact by turning the dialogue back on itself in a sort of self-examination, thus maintaining a shrewd awareness that the discursiveness of art is the very kernel by which the avant-garde – as both aesthetic and political critique – can be, and is, recuperated. By opting to participate in the discursive economy, as opposed to total silence – which is for Mann the (only other) nihilistic way to address the debate – Mann identifies the performative nature of his own text as a vector for the discourse and its inevitable recuperation, and debunks accusations that the book be labelled as nihilistic rhetoric.

His historicisation covers several of the ‘historical’ and ‘neo’ avant-garde movements with a view to revealing how there is a constant re-emergence of the binary opposition between resistance and conformity; that is, each historical occurrence of an avant-garde movement is fundamentally and immanently underpinned by a conflict between provocation and compliance. Time and time again, throughout the book, Mann asserts that the avant-garde is not straightforwardly the resistant or provocative aspect of a movement; rather, it is the conceptual vehicle through which the binarism is

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*Avant-Garde*, by Paul Mann. Arts Magazine November 1991: 103-04; and Oren, Michel. Rev. of *The Theory-Death of the Avant-Garde*, by Paul Mann. Art Journal Spring 1993: 107-11.

articulated. What is most crucial for Mann is that the questions continue to be asked, that prevalent sociopolitical and economic models continue to be challenged. It is this logic that allows Mann to make the assertion that the avant-garde is always already, at one and the same time, dead and recuperated. That which commands the death of the avant-garde is the very thing that sustains and prolongs its life cycle: ‘the discourse of the avant-garde is its death and in death it continues to reproduce itself as a death-discourse’ (Mann 1991, 40). This is what he means by theory-death. As such, it continues to be written about, generating epitaph after epitaph, each article another occasion of recuperation.

In reflecting upon Mann’s book and the discursive micro-economy that it generated – repackaging of postmodernism and outmoded nihilistic rhetoric – Philip Auslander cogitates very seriously on the discussion when he writes:

the real problem is that if we (i.e., critics, theorists) were to relinquish the vocabulary of critical discourse on the avantgarde, the discourse of oppositional art, or critical art, on the grounds that postmodern culture has rendered such terms impossible or irrelevant, what would be left to say about the art we want most to address? (Auslander 1993, 197)

For Auslander, the issue most at stake for the discursive economy is the worrying possibility of the complete and final abandonment of the pragmatics of critical discourse; that is, the cessation of recuperation. This would paradoxically place Mann’s critics in the same terrain as the very characteristic criticism that they level at his book. Recuperation of critical theory and praxis is the key concept in Mann’s meta-critical analysis of that which is always already at once dead and recuperated. He says it himself most succinctly when he writes: ‘recuperation is the syntax of cultural discourse,’ and the circular discourses of the avant-garde, as well as their performative exploits, are ‘the most fully articulated discourse of the technology of recuperation’ (Mann 1991, 15). Mann wrote this book precisely so that we could get past the urge to endorse or disparage another utopian, revolutionary romance; indeed, to debunk the issue of whether or not it is outmoded to invoke the term and its century’s worth of discursive encumbrances. Furthermore, recuperation shows no signs of relenting; Mann



writes: ‘The death of the avant-garde will be described here not just as an aesthetic or ideological but precisely as a discursive event. And one instance of an epidemic of deaths whose end we have not yet witnessed’ (Mann 1991, 15).

It is precisely this aporia, inherent to the avant-garde, and its critical discourse – as an entity already dead but continually commanding resurrection, as an exuberant entity tirelessly in need of rejuvenation – that I would like to focus on in this thesis. The aim of this is to show that the need for a recuperation of critical art consistently raises its head time and time again – in postmodern theory and beyond – because it re-casts art as a self-conscious process that has been structurally altered by the activist ideals of the historical avant-garde. Mann’s call for a recursive critical discourse also displays affinities with contemporary philosopher Bernard Stiegler’s even more recent deployment of the concept in *his* project, and who similarly allocates more concern to the issue that *critical questions continue to be asked*, rather than whether an attributive noun, a strategy, a theory or a methodology is outmoded. In addition, the issue that all of the aforementioned specialists in avant-garde theory – Poggioli, Bürger and Mann – fail to analyse in any great depth is the colossal impact that the coming-into-being of the modern, automatic technologies of reproducibility have on the sociopolitical and economic landscape of Western culture, where such aesthetics could be conceived and flourish. Each of these avant-garde theorists, in their own right, pay a certain homage to Marx and the role of ‘the new’, but they all also skirt around any seriously deep discussion of technological culture and avoid becoming embroiled in passages that would attempt to tease out the profound efficacy that technology and techniques have exerted in bringing about an avant-garde mentality. There is presently no historicist reading of the avant-garde that deeply considers how epochal evolutionary leaps in the technological milieu initiate a new recuperation of self-awareness, not just in art, but in material culture and economics generally, which are fundamentally, originally and inescapably bound to politics through (technicised) means of production. This is the technological analysis that Stiegler’s philosophy can bring to the discussion and make an innovative recuperation. It is for this reason that I have chosen to decode the selected genealogy of avant-garde art works under the aegis of Stiegler’s philosophical project. It is also worth noting that, despite the fact that Stiegler does address the new

sophisticated nuances of technological and digital culture, he weighs in very heavily on the *other* side – the high philosophical theorising – and fails to supply either a cohesive genealogy of art, or a substantial critical analysis of avant-garde works. As such, there are still incommensurable gaps between his pure philosophy of technology and the historicist lens deployed by the art critics, and it is precisely these gaps that this thesis means to fill.

In a recent interview, conducted by *The Aesthetics Group*,<sup>10</sup> Bernard Stiegler expressed his view that the overarching trajectory of contemporary art is dependent on, on one hand, ‘new articulations of the avant-garde’ (Desmond et al., 2015, p.73), and on the other, the need for ‘a new concept of critique’ (Desmond et al., 2015, p.74). That is to say, he calls for a recuperation of oppositional criticism in the domain of practice whilst also engaging new paradigms of critical discourse. Stiegler’s two-pronged strategy, and his willingness to invoke the concept of an artistic avant-garde, gives support to my decision to pursue an analysis of digital culture in terms of the theory of the avant-garde, and it puts to rest convictions that avant-garde critical discourse is outmoded or exhausted. Stiegler’s mobilisation of the concept for the field of contemporary aesthetic practice was not subject to logo-centric haphazardness; he has made related statements, in aesthetic and educational publications, which reinforce his position. For example, in *Art Futures: current issues in higher arts education*, he writes:

I understand the potential of creative territories: as the possibility of an *avant-garde* territory, that is, an area capable of inventing a new cultural, social, economic and political model, of offering prefigurations of alternative “lines of flight” to those of a consumerist society that has now reached exhaustion.  
(Stiegler 2012, 13–14)

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<sup>10</sup> *The Aesthetics Group* (Colm Desmond, Jeanette Doyle, Cathy O’Carroll, Elizabeth Matthews, Néill O’Dwyer, Mick O’Hara, Connell Vaughan) is an aesthetics seminar that operates within the ambit of *GradCAM* (Graduate School of Creative Arts and Media) at the DIT (Dublin Institute of Technology), in Grangegorman.

This statement is clearly one that is searching for a redemptive milieu that encompasses and facilitates reinvigorated dialogue between social, cultural and political economies and therefore positions Stiegler as a proponent of keeping the discursive economy alive, but it also does more than this. His citation of possible “lines of flight” is a direct reference to the thought of Deleuze, which (in the context of a ‘consumerist society’) is to conceptualise toward a re-configuration of labour-power within the contemporary, globalised socio-economic model, by fundamentally re-programming interconnective relations between the individual and the group. That is to say that the transformation of the nature of interconnectivity and intersubjectivity can open up new possibilities for individual and collective becoming in the new industrial world. This is quite a loaded statement, which will be unpacked, in detail, over the course of the following chapters; for now, it is important to understand that Stiegler’s aesthetics is one that encourages a *reactivation of the political aspect of creative artistic practice* with a view to invigorating a rejuvenated conception of socioeconomics and therefore politics, thereby, in the words of Deleuze, ‘contributing to the invention of a people’ (Deleuze, 2005, 209). This, in itself, is nothing remarkable or new; indeed, the entire discourse of continental aesthetics, since Hegel, has been focused on its relationship to politics. The fact that they are inextricably linked is unchanging; the thing that is variable however, is *how* they are linked, *how* they interoperate and cross-pollinate. And this is precisely what this genealogy of the sensible hopes to elucidate, because it is held that a historical mapping of this relationship, in the capacity of quintessential avant-garde strategies, reveal the emergence of a deeper problematic in relation to an increasing technological efficacy in the domain of representation that has profound sociopolitical repercussions.

## **Chapter Overviews**

The first chapter in the thesis opens with a biographical analysis of Marcel Duchamp in order to introduce a theoretical concept that is central to Bernard Stiegler’s philosophical programme: *individuation*. This is the ability for individuals and collectives to advance learning processes through the documentation, preservation and transmission of knowledge, which always take place through the exteriorised trace. He

advocates the notion that knowledge, as both technical skills and epistemological wisdom, is passed down from one generation to the next through the medium of exteriorised artefacts – concretised traces – be they written words, artistic renderings, architectural edifices, mechanised equipment and so forth. However, following Heidegger, Stiegler notes that in post-industrial societies, productivity is primarily motivated by increasing efficiency and reducing costs through the automation of everything. Thus, artefacts become increasingly devalued and the automation of labour precipitates the loss of skills (knowledge). The chapter then moves into a discussion of *3 Standard Stoppages* (1914), which is considered to be the first crucial rupture in the series of historical aesthetic undertakings that constitute this genealogy. The reason for selecting this work is to introduce one of the two crucial and powerful avant-garde strategies that are central to the genealogy: *chance*. Following a description and analysis of the work the thesis then proceeds to philosophise, using the thought of Peter Bürger, on the sociopolitical relevance of chance in avant-garde art. The section concludes by opening up a discussion of Duchamp's infamous *Readymades* (c. 1914 – 1919), which are also considered to be an aesthetic rupture but for different reasons to *3 Standard Stoppages*. The second section of the first chapter introduces the background of Stiegler's thesis on technology. The fundamental link between technology and human cognition is of primary concern to Stiegler and it is this question that he dedicates his six-part thesis, *Technics and Time 1 – 6* (1998 – present),<sup>11</sup> to unpacking. In this regard, this second section is a summary and explanation of Stiegler's techno-philosophical thinking that he proposes in the first three volumes of his thesis. It outlines his inspiration – the selection of philosophers and their concepts that provide the foundation for his thought – which he gathers together and builds upon in order to formulate his own original and innovative account of technology. This section crucially introduces the second major theoretical concept that underpins the entire corpus of Stiegler's work: the *pharmakon*. The section explains in detail how Stiegler inherited this concept from his mentor Derrida, who in turn developed it, via a rereading of Plato, at the embryonic stages of developing his

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<sup>11</sup> Currently Stiegler has only published volumes one, two and three of the six-part series, both in French and in English.

deconstructionist movement. The pharmakon permits Stiegler to declare that all technological advancements have both positive and negative aspects to them and it is the locus of the expansion of his techno-philosophy to the sociopolitical spectrum. The discussion then moves to a reflection on the inherent connections that Stiegler identifies, using the thought of Adorno and the Frankfurt School, between technology and politics in terms of the culture industry and societies of control.

Following a detailed account of the mutated relationship between mass culture and politics, the chapter then returns to the work of Duchamp for a second reflection on his *Readymades*. This discussion also enables the introduction of a crucial development that Stiegler contributes to the theory of individuation and its relationship to the realm of artefacts; that is, *transindividuation*. This is a special type of individuation that not only operates transhistorically, but so too does it work transglobally, and in this sense it finds its ideal expression through the medium of art. Stiegler holds that art – in any of its various forms – is a special and powerful type of trace that has an enduring quality, which allows it to communicate across generations, *trans-epochally*. Furthermore, the processes of interpretation and identification summoned by the artwork have the ability to inspire and motivate audiences into action; that is, into *actively* thinking. He is not suggesting that contemporary artists should emulate the formal aesthetics of the historical avant-garde or any of the manifestations in which it re-emerged throughout the twentieth century; conversely, he is calling on contemporary artists to take up the *question* of the avant-garde, which is a political question that is approached by reharnessing new technical processes. In this regard, the concept of transindividuation is absolutely crucial to this genealogy of the sensible because it expresses the notion of intergenerational re-engagements with consistent art ideas; more specifically to this chapter, transindividuation promotes transhistorical re-engagements with chance operations. Henceforth, the chapter concludes with an analysis of John Cage's employments of chance operations for generating musical compositions, in the 1950s, on the understanding that it is both a transindividuation and a crucial leap in the genealogy of the sensible, because it helps clarify how avant-garde art contributes to the evolution of quasi-organic technical systems.

The second chapter focuses on an analysis of Samuel Beckett's *Krapp's Last Tape*. This play is identified as a quintessential avant-garde, techno-aesthetic event because, through its employment of automatic mechanical processes, it is a pioneering advancement in the arts towards automating artistic processes, that is both ground-breaking and catastrophic: ground-breaking, because the event of its staging blows open a new horizon of possibilities for incorporating automatic processes in all aspects of art and design; catastrophic, because the performative agency of the tape recorder implies a situation in which the actor/performer is made redundant, and this has pernicious repercussions at the sociopolitical level. However, Beckett's play is not just chosen for its avant-gardist characteristics, so too is it used as a means for introducing some of the key concepts and neologisms that are so central to Stiegler's technological philosophy, without which one would be quite at sea in trying to comprehend his texts. It will be demonstrated that the play is a very appropriate object of analysis for comprehending Stiegler's philosophy, not just because it effectively elucidates the evolving and peculiar attributes of mechanically reproducible technology, but also because it demonstrates the impact that these technologies have on humans from ontological, psychosocial and political perspectives; that is, the cognizant mind of human individuals can be reorganised by the temporal specificities of mechanical technology. In this regard, not only is Beckett's play held up as an exemplar of the problem that Stiegler identifies with the way technologies were deployed in the epoch of mechanical reproducibility, but so too is it considered to astutely chart the experiential terrain of contemporary, technocratic life. Finally, and crucially for this genealogy of the sensible, that is tracing the evolution of a technological efficacy in the generation of artwork, it marks a historical milestone in the automatising of the performer that straightforwardly spells the outset of a situation in which the identities of artist, the artwork and the art-going public are challenged by the ontological efficacy of machine processes.

The second half of chapter two expands the argument, which is catalysed by the analysis of *Krapp's Last Tape*, out into broader sociological considerations of the impact of technological advancements on society in general. It is at this point that Adorno's theory of the culture industry as well as Freud's libidinal economy become

central to the argument of the thesis and provide a basis for Stiegler's recuperation of avant-garde aesthetics. Stiegler identifies the digital epoch as an era that has brought about a rupture of sensibility that is analogous to the one caused by the industrial revolution and the advent of mass reproducibility, which he characterises as the first and second mechanical turns of sensibility. As such, he is impelled to suggest that the situation that Adorno describes, as a consequence of the all-consuming, all-pervading culture industry, is now happening at a rate thousands, if not millions, of times faster than it was in Adorno's era (only half a century ago), due to the hyper-acceleration of processes of automation. In this regard, Stiegler is compelled to appeal for a recuperation of avant-garde values, to expose the clandestine political processes that have been forged by the hyper-aestheticisation of politics. However, in discord with Adorno – whose overriding pessimism impels him to doubt the possibility of ever overcoming the injustices carried out under capitalist socioeconomic and cultural policy – Stiegler demands a more positive outlook by suggesting that artists have *only temporarily* abandoned their political duty, for short-term financial rewards in the service of the culture industry. Their task now is to re-engage the political question by employing the new tools, skills, knowledge, techniques and technologies of the hyperindustrialised world, because it is only by reconfiguring the technical milieu that any such critique is possible. But, for Stiegler, it is crucial that all aesthetic or noetic endeavours be contextualised within the ambit of analogous historical activity, and this is why the avant-garde is so important to his aesthetics. In this regard, the concluding sections of Chapter Two are dedicated to explicating the characteristics of avant-gardist praxis that Stiegler maintains are, on one hand, redundant and can be deprecated, and on the other hand, useful and should be re-engaged in the context of digital media. In summary, the first half of Chapter Two is focused on the art object whereas the second half concentrates on a broader discussion of aesthetics and politics and the role of the avant-garde therein.

The inclination and will to scandalise their publics was a strategy that was central to much of the historical avant-garde's aesthetic activity. Goals of political activism or social antagonism were, historically, often achieved through means of provocation or shock, but Stiegler maintains that, due to the ubiquitous penetration of violent or

subversive imagery in mass culture, scandal is a strategy that is now redundant. This is an important point because, for a thesis that holds that the avant-garde is still possible and is undergoing another recuperation, one must ask: what strategies are still available to artists that could move art-going publics to a position of discomfort and henceforth solicit deeper questions relating to broader sociopolitical totality? The idea of placing the audience in a position of discomfort is a concept that is neither unique to, nor innovatively applied by, the avant-garde. Indeed, it has been widely acknowledged as a valid type of aesthetic experience, impelled by art, since Burke and Kant identified it as the sublime in their first aesthetic investigations of the area during the eighteenth century. The sublime is an experience that the avant-garde cherish and try to instil in their audience because it is believed that, in being moved to a position of psychological discomfort or incomprehension, the audience would be impelled to question the analogous absurdity of reality and the prevailing sociopolitical and economic narratives, fictions and beliefs that constitute it. The third chapter is concerned with understanding mutated experiences of the sublime in digital culture, through the analysis of two digitally engaged dance performances. In the first half of Chapter Three, the analytic of the technological sublime is read through an analysis of Klaus Obermaier's computational performance, entitled *Apparition* (2004), and then those reflections are expanded out into broader, sociopolitical considerations of the work's relevance in the context of digital culture. The discussion embarks on a hypothesis of how, or in what domain, an experience of the sublime can be attained in the digital epoch. By synthesizing Stiegler's philosophy of technology with Kant's analytic of the sublime it is proposed that a new technologically-impelled experience of the sublime is one actuated by the transfigured domain of speed; that is, a speed in terms of both the speed of electronic automation and the speed of technological evolution, which contribute to an overriding feeling of individual and collective disorientation in digitalised culture. The second half of the chapter attempts to ground the discussion – which is somewhat abstracted by a quasi-transcendental discussion of speed and its political repercussions – through a more technically specific consideration of similar computational performance, entitled *Mortal Engine* (2007), by Australian performance collective, *Chunky Moves*. I maintain that the analyses of these works not only help elucidate the technological philosophy of Bernard Stiegler, but so too do they engage



the new, topical aspects of technological subjectivity and exemplify original avant-gardist methodologies for critical praxis. Therefore, they are better understood when viewed through Stiegler's aesthetic-technological-political lens. The analyses of these performances is central to this thesis because, on one hand, they provide a contemporary dialogical counterpoint to the discussion on the development of the machine-as-performer initiated by the analysis of *Krapp's Last Tape*, and on the other hand, they exemplify the genealogical narrative that is so central to this thesis: the positive and negative aspects of the progressively evolving phenomenon of technological efficacy and the role of art as both early adaptor and harbinger. In this regard, the final section in this chapter expands the argument, catalysed by the computationally actuated performance works, out into a broader societal reflection on the new digital, open-source software and hardware tools that are available to both amateurs and professionals alike. Considering the opaque and specialised mathematical complexity that comprise the new tools and techniques of the digital epoch, the chapter finishes by asking how the artistic avant-garde can engage with digital specificities and hence deploy new forms of aesthetic-political critique.

The final chapter in this thesis brings together all the ideas, concepts and terminology that are introduced and discussed in the preceding chapters, through and by an analysis of a selection of artworks by Driessens and Verstappen, an art duo from the Netherlands. The works that they make and the strategies that they employ are held up as being quintessential examples of avant-garde practice in the age of computation because of: firstly, the political and sociological activism articulated by the artists; secondly, their tendency to employ the most cutting-edge tools and techniques in the construction of their works; thirdly, their willingness to allude to and draw on methodologies of the historical avant-garde, while yet avoiding straightforward mimicry; and finally, their inclination to employ the technologies, techniques and epistemic knowledge in provocative, inventive and challenging ways, thereby by showing an infinite horizon of thought relating to the way people engage with objects and each other. The chapter opens with some descriptions and analyses of two works by Driessens and Verstappen, *E-volver* (2006) and *Accretor* (2012), and then offers some information on the artists' backgrounds and their theorising. The chapter then

proceeds to introduce Stiegler's crucial and most up-to-date techno-political-philosophical theory that he calls *negentropy*. The concept is drawn from a sector of systems theory, known as thermodynamics, and represents the latest theoretical advancement in his aesthetic-political theory. For Stiegler, the globalised economy of late capitalism has a tendency to wreak havoc on global ecosystems in order to maintain itself, and this represents a fundamentally *entropic* system. But, in staying true to systems theory, Stiegler points out that the topology of any entropic system is alterable, even reversible. He maintains it is the duty of the avant-garde to create ruptures ('bifurcations') in the topology of the capitalist system with a view to reversing the direction of a socioeconomic flux that is largely detrimental to the world's environment and therefore also to its species, including humans. The chapter draws on some primary resource material, such as a seminar with Stiegler,<sup>12</sup> and reflects on some key citations, which also demand a digression into Nietzsche's philosophy concerning ontogenesis and the genealogy of morals. Evolutionary theory plays an important role in both Nietzsche's and Stiegler's philosophical thought and the artificial life praxis of Driessens and Verstappen, through their mobilisation of cell division algorithms. Evolutionary theory therefore provides an excellent artefactual reference point for, on the one hand, exemplifying the abstract theories, and on the other hand, unpacking, thinking about and discussing the nuanced abstract visualisations by the art duo. The final section of the thesis concerns a reflection upon how the aesthetic endeavours of Driessens and Verstappen's exemplify how art created at the nexus of the technological and political milieus maintains the power to open up a horizon of infinite thought and contribute to the *invention of a people*. It is held that the art duo and their oeuvre embody both the intellectual and inventive aspects of avant-garde theory and methodological praxis, which Stiegler calls for in order to tackle the environmentally damaging entropy coerced by hyperindustrial capitalism. That is to say that, the artistic avant-garde of the computational epoch *are the bifurcations*, which maintain the capacity to change the direction of the capitalist socioeconomic paradigm that exhibits very little concern for the ecological effects of its activities. Such an

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<sup>12</sup> The seminar was hosted by *GradCAM* (Graduate School of Creative Arts and Media), at Dublin Institute of Technology (DIT), in May 2015.

absence of concern raises the ethical question of what repercussions this has for humanity, the value systems we invent and the codes we live by.

# **Chapter 1: From Duchamp to Cage: Avant-Garde Experimentalism and Transindividuations of Chance.**

## ***Chapter Overview***

*This chapter examines the work of Marcel Duchamp, Jackson Pollock & John Cage in order to catalyse a discussion of a particular niche of art that originated in the historical avant-garde: the generation of art through a confluence of chance procedures with new technology or techniques; otherwise known as artistic practice as a process of experimentation or invention. It is held that the event of the coming-into-being of an experimental methodology in art has been vectorised by a general increase in technological efficacy; that is, the ability for technology to produce a desired result. The chapter draws on examples from the first half of the twentieth century, from Duchamp's original experimental praxis in which he produced 3 Standard Stoppages (1914), to John Cage's chance operations, which he started composing from 1951. I maintain that Duchamp's introduction of inductive experimental processes into the production of work marks the beginning of a (sensible) genealogical trajectory that continues through John Cage and which elucidates the genesis of an avant-garde technique that is the design, or engineering, of a system that generates indeterminate artworks. It will be shown over the course of the thesis how the strategy of systemically generating chance operations can be broadly understood as a phenomenon whose character ontogenetically evolves – in the technological milieu – from agency towards autonomy; that is, in the age of computation generative art systems are no longer agents but are indeed 'organized inorganic beings' or 'quasi-organic beings'.*

## **1.1 – Duchamp and the Aesthetics of Chance**

### ***1.1.0 – Prelude to Art as Experiment***

*... A young artist is kneeling down, poised over an elongated, prepared canvas that lies on the floor of his studio. His arms are extended out over the canvas and a piece of*

*string, measuring one meter in length, extends between each hand. Two more canvases, prepared in an identical manner, lie off to one side awaiting their similar fate. On a desk to one side there are scraps of notes, on pages torn out of sketchbooks and notepads, all scattered in and around a tin box. The notes contain barely decipherable handwriting and cryptic notation that appears to be a hybrid of mathematical equations and poetic musings. A cigarette smoulders in an ashtray at the corner of the desk. At either end of the canvas on the floor there are vertical yardsticks rising to a height of one meter above the horizontal plane. The thumb and forefinger of each hand pinch each end of the string. The artist checks his right hand, then his left and then his right again, ensuring that the pinched ends of the taut string are both at a level of one meter. He checks again one last time and then synchronously releases each end of the string. He watches intently as its body twists and falls under the weight of conflicting forces exerted upon it by its own internal tension and all-powerful gravity pulling it downwards. The barely audible impact of its apparently aleatory coming to rest on the canvas belies the immensity of the theoretical blast wave that is to reverberate through the art world for a century and counting. The artist observes and cogitates the serpentine, inanimate body of the string on the canvas and then glances over at the next two lying in wait. The corners of his mouth curl upwards into the mischievous beginnings of a wry smile, but the corners of his eyes don't move.*

### **1.1.1 Duchamp: Crisis, Individuation and Scandal**

Marcel Duchamp (1887 – 1968) is arguably the most influential, and therefore one of the most important, artists of the twentieth century. Indeed, contemporary opinion polls suggest that his *Ready-mades*, such as *La Fontaine [Urinal]* (1917), are the most significant and influential artworks to this very day (“Duchamp’s urinal tops art survey,” 2004). It is widely accepted that his decision to sign a urinal and hang it in an exhibition context<sup>13</sup> was underpinned by an ambivalence directed against the institution

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<sup>13</sup> It was planned to exhibit the urinal at the inaugural exhibition of the *Society of Independent Artists*, at the Grand Central Palace, in New York, but it was in fact rejected by the society’s board of directors, who took exception to the work. It was signed under the pseudonym of ‘R. Mutt’ – an allusion to the popular comic book characters of the time *Mutt and Jeff*, as well as to the manufactures of the urinal, the *J.L. Mott* ironworks company – and

of art, which affirms it as an avant-gardist gesture par excellence. The source of this ambivalence can in fact be traced back and attributed to a conflict that arose in the Cubist *Section d'Or* exhibition, at the *Salon des Indépendants* (1912), and which actually involved a rejection of his work by the curator of the show, Albert Gleizes, and his own siblings, Jacques Villon and Raymond Duchamp-Villon<sup>14</sup> (Brooke, 2013).

At the beginning of his artistic career Duchamp was keeping company with a group of Cubist painters known as the *Puteaux Group* [*Groupe de Puteaux*], which included his elder brothers. However, considering the entire oeuvre of his work and especially the conceptual, experimental artworks that he was to undertake in the immediate years following the discord, such as *3 Standard Stoppages* and *The Bride Stripped Bare by Her Bachelors, Even* [*Large Glass*], it seems that Duchamp was exploring something different to that which would have been discussed in the conversations he was having collectively with the Cubists; analogous but different. Although he did share some similarities with Cubism, for example their intention to explore four-dimensional space, for Duchamp, they were still locked within the 'crisis of the old scopic regime based on perspectivalism' (Molderings, 2010, p. xiii), which was an expressive paradigm that fell short of the ideas he was attempting to exteriorise: the relationship between movement to time. He was to have a confrontation with the group over differing views on art that resulted in his departure from the collective in preference for a pursuit of the conceptual aesthetic, for which he is best known in a contemporary context.

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secretly submitted by Duchamp. It is thought that Duchamp concealed his identity in order to 'test the principles of his fellow board members [and...] the commitment of the new American Society to freedom of expression and its tolerance of new conceptions of art' (Howarth, 2000). The widely known photograph was taken by Alfred Stieglitz after it was recovered from the exhibition storage. It was presented and photographed lying on its back, presumably at the request of Duchamp, and that is now the normal way that the work is exhibited.

<sup>14</sup> Jacques Villon was originally named Gaston Duchamp and Raymond Duchamp-Villon was originally called Raymond Duchamp. They changed their surnames because they felt that Duchamp, which literally translates as 'of the field', did not hold the punchy and salubrious connotations appropriate for the bourgeois market.

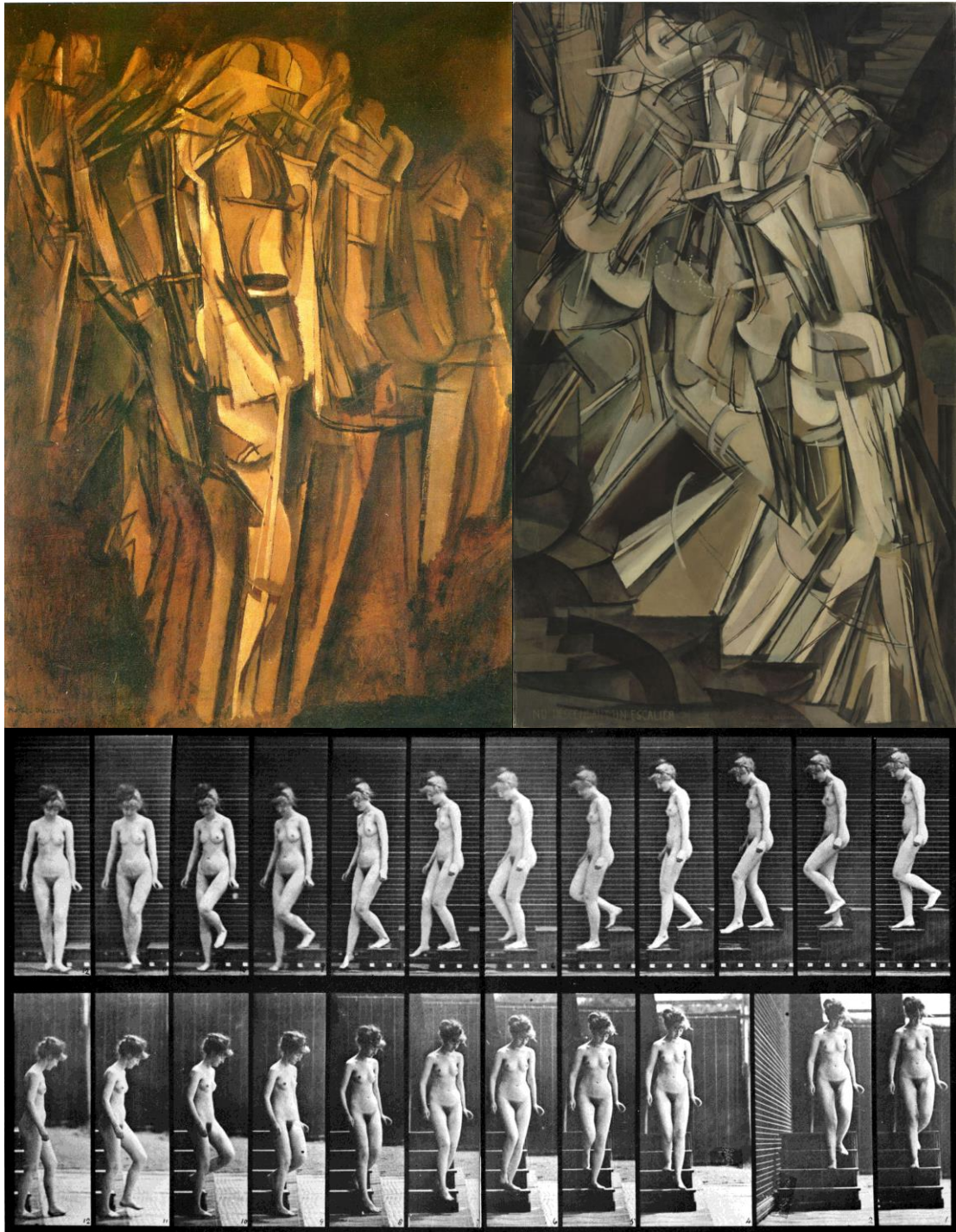


Fig. 1.1a (top left), *Sad Young Man on a Train* (1911–12) by Marcel Duchamp, fig. 1.1b (top right), *Nude Descending a Staircase, No.2* (1912) by Marcel Duchamp, fig. 1.1c (bottom), female nude photographic motion study (1887) by Eadweard Muybridge.

Duchamp was a proficient mathematician and, at that time, he had taken a particular interest in non-Euclidean geometry and the writings of mathematician Henri Poincaré,

who provided a great source of inspiration for him. For Duchamp, the concepts that he was problematising were fundamentally related to movement and time and his artistic endeavours of that period – *Sad Young Man on a Train* (1911–12), see fig. 1a above, and *Nude Descending a Staircase, No.2* (1912), see fig. 1b above – demonstrate an attempt to fuse the mathematical theorems of Poincaré with the visual expressive medium of paint. In speaking about the paintings, Duchamp says:

First, there's the idea of the movement of the train, and then that of the sad young man who is in a corridor and who is moving about; thus there are two parallel movements corresponding to each other. Then, there is the distortion of the young man—I had called this elementary parallelism. It was a formal decomposition; that is, linear elements following each other like parallels and distorting the object. The object is completely stretched out, as if elastic. The lines follow each other in parallels, while changing subtly to form the movement, or the form of the young man in question. I also used this procedure in the *Nude Descending a Staircase*. (Duchamp, 1971, p. 29)

The pictures are something of painterly composites of time-based frames, or 'standard stoppages,' of a figure in movement, somewhat evocative of Eadweard Muybridge's photographic sequences depicting the walk cycles of nude subjects descending steps (see fig. 1c above). In the way that he arranges the theme, content and subject matter of these paintings it is clear that the artist is very much concerned with pushing the limits of what was possible on a two dimensional canvas, a quality that was, for better or worse, to cause consternation amongst the purists of Cubism. It was disputed by his contemporaries, including his brothers, whether *Nude Descending a Staircase* should be exhibited in the collective Cubist exhibition. This was not because of the quality of the work but because it was questionable as to whether it was fitting of the Cubist genre at all: 'the dispute was not over whether the *Nude* was hung or not but *where* it was to be hung, i.e. whether or not Duchamp was to be hung with the Cubist group' (Brooke, 2013, emphasis added). His brothers were sent to him, by the hanging committee, with the ultimatum to either change the title or take the picture down, because it was not really consistent with that which the rest of the group was exploring. Some years later, in conversation with Pierre Cabanne, Duchamp recalls the two major



criticisms that the hanging committee – spearheaded by Gleizes – levelled at his picture:

1. There was the accusation that he had bestowed it with ‘too much of a literary title’ (Cabanne, 2009, p. 44), which does seem rather tenuous in retrospect.
2. They objected to the subject matter. Duchamp quotes Gleizes: ‘One just doesn’t do a nude woman coming down the stairs, that’s ridiculous... A nude should be respected’ (Cabanne, 2009, p. 44). At that time many people may not have ever encountered an image of a nude figure descending a staircase; that is, there was no referential ground zero and this served to suffuse it with something of a scandalous nature thereby providing further basis for its rejection on what Duchamp describes as a ‘religious, Puritan level’ (Ibid.).

Duchamp expert, Francis Neumann, expands on Gleizes’ concerns by positing that his fundamental mistrust of the picture was related to the fact that it was too close to the works of the Futurists, who were operating at the same time, and he did not want their movement (Cubism) to be confused with a rival movement from Italy (Futurism). At a first encounter one is compelled to ask: How is this a figure of a nude descending a staircase? The best way to think about it is in the context of its exhibiting at the Armoury Show (1913), in the USA, where it became the sensation of the exhibition, because while the spectators were looking for the nude figure you cannot clearly see one; that is, it is difficult to make it out because Duchamp adopts the Futurist strategy of obliterating perspectivalism (Geoghegan, 2014). This begs the question as to whether Duchamp really belonged in their conversations and indeed the Cubist movement generally. In an interview, with Calvin Tomkins some years later, Duchamp is clear about his discontent with the group’s decision: ‘I said nothing to my brothers. But I went immediately to the show and took my painting home in a taxi. It was really a turning point in my life, I can assure you. I saw that I would not be very much interested in groups after that’ (Tomkins, 1966, p. 15). It appears that the Cubist movement, which was initiated as an expression of dissatisfaction against art schools steeped in rigorous formalist tradition, did itself fall foul of the consensual majority paradigm that it originally set out to critique. Duchamp found nothing of the like-minded spirit for an exploration of the transitory and the dynamic in the Cubist group,

which itself had already become a closed movement and practical validation of a majority in agreement, spearheaded by one individual: Albert Gleizes.

The disappointment suffered by Duchamp in relation to the conflict between himself and his peer group allows for a positive reading of the invariably stressful and emotional encounter, in which he must have experienced a state of failure, albeit temporarily. Despite the fact that it was a traumatic event for him, when examined using the philosophical lens of *individuation* advocated by Bernard Stiegler, it can nevertheless be better understood and read as a positive, developmental occurrence in the formation of his identity and the performative nature of his praxis. Introducing the concept of individuation is central to the genealogical narrative of this thesis because it will be shown that the aesthetic practice that Duchamp pursues is a fundamental milestone in the greater avant-garde programme of questioning a technological efficacy.

### **1.1.2 Individuation**

The term individuation is employed here under Bernard Stiegler's understanding of the concept, which is heavily influenced by the work of Gilbert Simondon.<sup>15</sup> It is one of the key foundational ideas of Stieglerian philosophy, to which all of his other concepts are inherently related. Stiegler inherits the concept of individuation from Gilbert Simondon, who drew up his understanding of its rules and conditions in *L'individuation Psychique et Collective* (1989). In this book Simondon takes a historical-materialist view by conceiving of human heritage, tradition, experience and skills as a body of knowledge that is accumulated by any given socio-ethnic collective over time, which he calls the *pre-individual milieu*. Its survival depends on its

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<sup>15</sup> *Individuation* is a philosophical principle that dates back to Aristotle who used the term to express the ability of individuals of a similar type to distinguish themselves from the group. In this regard, it is a criterion of identity. The concept has been employed by numerous great philosophers throughout history, but more specifically in relation to this thesis, it has been used in modern philosophy by the likes of Carl Jung, Gilbert Simondon, Bernard Stiegler, Friedrich Nietzsche, Arthur Schopenhauer, Henri Bergson and Gilles Deleuze.

continual reactivation by being passed down to ensuing generations, and hence being singularly adopted by each individual, who in turn *individuate* themselves as independent, cognisant beings over-against their peers (the group). Said differently using the terminology of Simondon, individuation is a process whereby ‘the individual and the group *co-constitute* each other through the *intergenerational transmission (synchrony)* of the pre-individual fund and its *individual adoption (diachrony)*’ (Stiegler and Rossouw, 2011, p. 53). Ultimately, according to Stiegler, individuation is ‘a theory of singularity’ that privileges ‘the manner in which processes constitute themselves’ over and above the subjectivities which bring them about (Stiegler et al., 2012, p. 166). In *Technics and Time III* and again in *Symbolic Misery*, Stiegler outlines what he believes are the key aspects of Simondon’s theory. He writes: ‘The *I*, as *psychic individual*, cannot be thought except to the extent that it belongs to a *we*, which is a *collective individual*: the *I* constitutes itself through the adoption of a collective history, which it inherits and with which a plurality of *Is* identify’ (Stiegler, 2014a, p. 50). The pre-individual milieu is transhistorical and therefore is shared by and connects generations. Each generation will adopt certain elements and discard others depending on what is useful, relevant and necessary. This adoption takes place through processes of dialogue between any given individual and the group with whom they interact. In this respect, individuation is a constantly developing process; it is always in flux; never in a static, fixed state. Therefore, we are all – as human beings – engaged in a continuous process of individuation, which makes it something akin to Deleuze’s notion of *becoming*.<sup>16</sup> Stiegler writes: ‘An *I* is essentially a *process* and not a state, and this process is an *in-dividuation* (this is the process of psychic individuation) in that it is a *tendency* to becoming-one, which is to say *in-divisible*’ (Stiegler, 2014a, p. 50). This tendency towards ‘becoming-one’ can be understood as the political element of individuation whereby, through processes of consensus, individuals deploy forces of negotiation and persuasion towards a singular unitary objective. But, Stiegler notes, as per the cyclical logic of politics, that ‘this tendency never comes to a conclusion

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<sup>16</sup> Stiegler also is profoundly influenced by the thought of Deleuze and held many discussions with him before, during and after undertaking his thesis on *Technics and Time* (6 parts). For more information on Deleuze’s theory of Becoming, see especially his collaborative effort with Felix Guittari, *Capitalism and Schizophrenia Vol. 1 & 2*.

because it encounters a counter-tendency with which it enters into a metastable equilibrium' (Stiegler, 2014a, p. 51). This statement is not just straightforwardly founded on the art of persuasion (politics); equally pertinent here is, on one hand, the sustained balance between philosophy as art and philosophy as science, and on the other, the instinctual needs driving the behaviour of the individual – something akin to Freudian drive theory. The *We* then, as the collective *I*, is also a process in a state of continual flux that is vectorised towards the establishment of a collective identity. Stiegler writes: 'the individuation of the *I* being always inscribed in that of the *we*, while, inversely, the individuation of the *we* only takes place through the conflicting individuations of the *Is* that compose it' (Stiegler, 2014a, p. 51). That is to say that they are not straightforward binary opposites, but rather they are both existing within and above each other, determining each other through and by processes of consensus and dissensus, which are themselves fluid and subject to economies of scale. Any definition of the *I* and the *We* depends on the size of the set that constitutes the said process of individuation.

Thinking about individuation in the context of Duchamp's discord with the Puteaux Group will show that while initially it appears that Duchamp may have been hurt by the rejection and may have undergone a self-judgement of failure, a positive reading of the incident will reveal that he was in fact liberated to pursue the ideas he wanted to, in a way that was unconstrained by an aesthetic dogma forced upon him by a majority. According to Stiegler, all individuations – which are ultimately appropriations of knowledge – are a positive thing. Duchamp's discord with the Puteaux Group only served to affirm that which he was already becoming aware of, thereby further illuminating the path which he had already begun to venture down. His endeavours consisted in the progressive abandonment of the regime of 'retinal' art,<sup>17</sup> a paradigm to which even the most cutting-edge avant-garde movements, including Cubism, were still very much answerable. Duchamp felt that the retinal paradigm needed to be

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<sup>17</sup> Duchamp employs the term 'retinal' to describe the dominance of the visual regime in painting, sculpture and the plastic arts generally, a regime which he sets out to debunk by placing more emphasis on the conceptual.

abandoned in order to attain the level of conceptual questioning needed to punch through the limits of contemporaneous epistemological systems of subjectivity normally codified into the warp and woof of daily life. Thus conceived, the event of the encounter with the hanging committee is a crucial element in the formation of, not just Duchamp as a conceptual artist, but indeed the entire legacy of conceptual art.

### ***1.1.3 Standard Stoppages – Introduction***

When asked which he felt was the most important work of his entire oeuvre Duchamp declared that it was the *3 Standard stoppages* (1914) (Molderings, 2010, p. xi). Why did he feel this, especially when one considers that contemporary opinion polls suggest that his *Readymades*, such as *La Fontaine [Urinal]*, were the most important and influential? Indeed, in a conversation with Walter Hopps, of the Pasadena Art Museum, Duchamp is noted for having stated that *3 Standard stoppages* was in fact his ‘favourite work’ (ibid.).



Fig. 1.2, *3 Standard Stoppages* by Marcel Duchamp, Permanent Collection of MoMA (Museum of Modern Art), New York.

*3 Standard Stoppages* is a work comprised of three pieces of string, with a uniform length of one metre, dropped – from a height of one meter – onto three separate ‘prepared’ canvases, of equal dimensions, and then glued in place using varnish (see fig. 1.2 above). Duchamp’s notes from the famous *Green Box*<sup>18</sup> testify to his employment of a meticulously accurate (Baconian<sup>19</sup>) scientific methodology to ensure the accurate reproduction of the experiments. Despite his methodological accuracy, the strings inevitably come to rest in arbitrary forms and positions, which is the locus of the mischievous humour manifest in the work. Considering Duchamp’s rigorous formal training as well as his associations with the Cubist movement, why would he identify this work of art, with such a simple visual outcome, to be so important? The answer is of course timing. The work represents the endeavours of a crucial transitional stage in Duchamp’s artistic career when he became aware of his personal interest in escaping from traditionalist expressive paradigms and forging new epistemic pathways in creative practice. He says: ‘That was really when I tapped the mainstream of my future... it opened the way – the way to escape from those traditional methods of expression long associated with art ... For me the Three Stoppages was a first gesture liberating me from the past’ (Moure and Duchamp, 2009, p. 232). The work symbolises a crucial event in the artist’s life when ‘he first reached beyond the cubists’ still young definition of the painting as an autonomous composition toward a scientifically underpinned notion of the image as a functional epistemic object’ (Molderings, 2010, p. xiv). It is henceforth understandable that Duchamp should assign such importance to this work; but, more specifically for this thesis, is the fact that in this pioneering series of performative experiments *Duchamp re-proposes the figure of the artist as an inventor* engaged in a series of experiments, wherein methodological

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<sup>18</sup> The *Green Box* was literally a green, tin box in which Duchamp kept the preparatory notes for his magnum opus aleatoric artwork, entitled *The Large Glass* (also known as *The Bride Stripped Bare by Her Bachelors, Even*), which he claimed was not so much a picture as a ‘delay’, thereby assigning its temporal connotations. According to his notes *3 Standard Stoppages* was initially a preparatory study for *The Large Glass*, but then became a standalone work after he exhibited it publicly at an exhibition some twenty years after conducting the experiment.

<sup>19</sup> Francis Bacon (1561 – 1626), was an English philosopher, statesman and scientist. He is known for having established and standardised inductive methodologies for scientific research and enquiry, which is now often called the Baconian method. For this reason he is also often referred to as the father of empiricism.

process prevails over visual outcome. By doing so, he redefines the meaning of artistic practice as something that includes ‘the invention of experimental set-ups in which “images” are both the instruments and the results of an experiment’ (Ibid.). In this regard, Duchamp unites both the autonomous and functional notions of image, which only very slowly reveal themselves in the twenty-year material genesis of *The Large Glass* (see fig. 1.3 below). With these attributes in mind, it is fair to say that in *3 Standard Stoppages* Duchamp initiates the new artistic paradigm which is central to the genealogical mapping of this thesis; that is, art as *experimental visual thinking*.

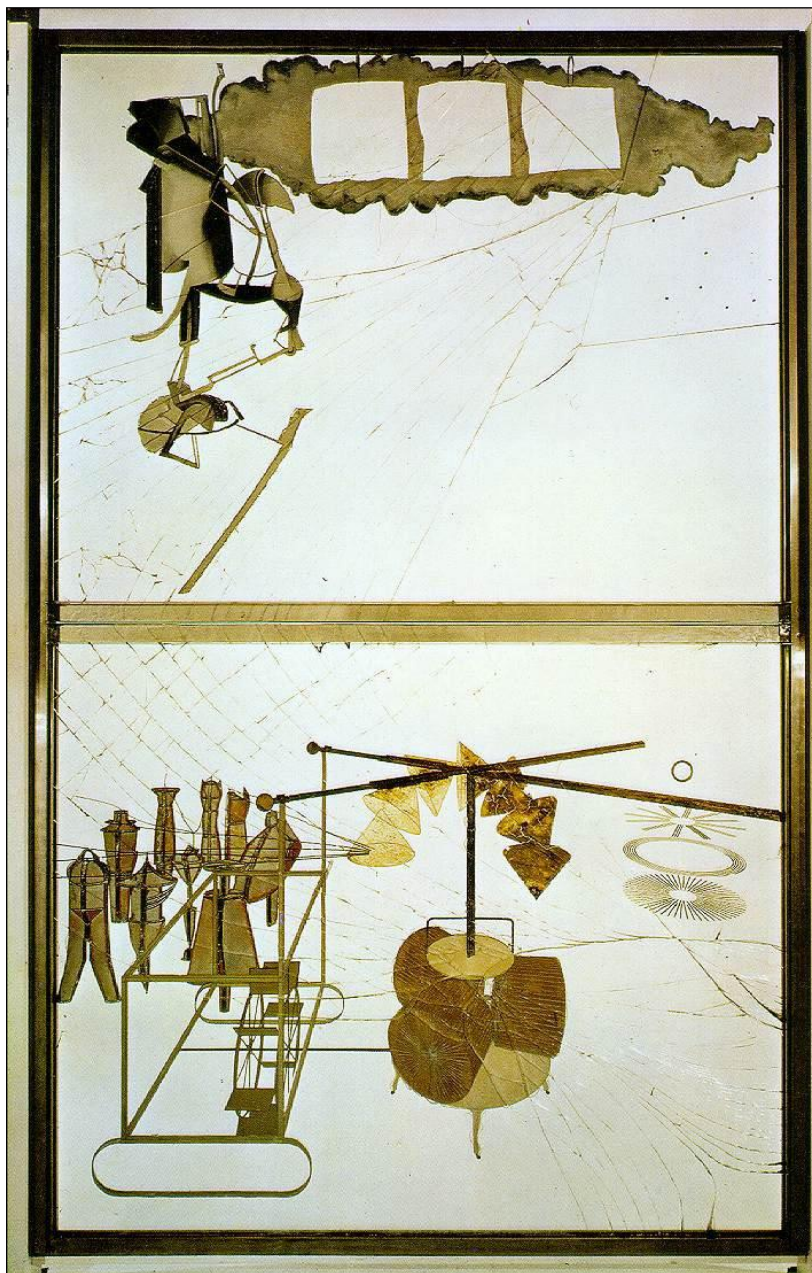


Fig. 1.3, *The Bride Stripped Bare by Her Bachelors, Even* [*La mariée mise à nu par ses célibataires, même*], or most often called *The Large Glass*, by Marcel Duchamp. Housed in the permanent Collection of the Philadelphia Museum of Art, Philadelphia.

#### ***1.1.4 Adorno on experimentalism***

Duchamp's shift towards an experimental methodology of visual thinking represents an aesthetic event which establishes experimental artistic practice as a dogma that becomes highly cherished by the avant-garde. However, the emergence of this dogma cannot be attributed to a singular creative act by one artist; on the contrary, it should be understood as an evolutionary process that can be traced back to the emergence of photographic processes, and Duchamp's gesture is a tipping point. The impressionists can be understood as early innovators and experimenters in the visual arts because they were pushed to produce artefacts in alternative ways to straightforward realism, due to the fact that the mechanical camera was more accurate, efficient and cost effective at realistic visualisation. Reflecting on this development Theodor Adorno, who is the go-to philosopher for reflecting on the historical avant-garde,<sup>20</sup> writes: 'When impulse can no longer find preestablished security in forms or content, productive artists are objectively compelled to experiment' (Adorno, 2002, p. 23). The emergence of photographic technology, for example, destabilises the role of the artist who, hitherto operating as a functionary for the realistic representation of form and content, is now proletarianised in terms of this operation; that is, the technological innovation vectorises an efficacy that impels artists to constantly develop their techniques and produce work in ever *newer* and fresher ways. Further on in the same passage, Adorno notes that by virtue of the inherent connection between the new and the unpredictable 'gesture of experimentation' there is a technical mutation that impels a synchronous shift in emphasis from artist, as authoritarian messenger, towards: firstly, the process of production; and secondly, the consistency of the object. This development gives rise to

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<sup>20</sup> Although Adorno does not explicitly state that his aesthetic theories are primarily concerned with the avant-garde, it must be acknowledged that his claims about art stem from his reconstruction of the modern art movement. Adorno's aesthetics are intrinsically linked to his broader philosophical programme, which is cultural critique under the aegis of the *Frankfurt School*; that is, a critique of capitalism via a re-reading of Marx as a Hegelian materialist. The two salient questions which surface in his aesthetic theory are accordingly inline with the thinking of Hegel and Marx, respectively: firstly, how can art survive in late capitalism? And secondly, how can art contribute to the transformation of this world? These are two questions of pivotal importance to the theory and praxis of the avant-garde and this thesis is concerned with discussing their persistent relevance now, in the age of computation.



an artistic paradigm that is ‘qualitatively different: that the artistic subject employs methods whose objective results cannot be foreseen’ (Ibid., p. 24); that is, the final outcome is cast into the realm of indeterminacy, thus calling for an enthusiastic uptake and espousal of chance procedures.

### ***1.1.5 Duchamp: From 3 Standard Stoppages to Chess***

The pseudo-scientific aesthetic that constitutes the *3 Standard Stoppages* was something of a radical departure from the conversations Duchamp would have been having collectively, only two years earlier, with the *Puteaux Group*. It has been established that Duchamp had high level of proficiency in mathematics and had taken a special interest in Henri Poincaré’s writings on non-Euclidean geometry. In *3 Standard Stoppages* a further departure from the regime of perspectivalism can be observed in his methodological application of artistic experimentalism that is founded on a synthesis of scientific inductive methodology with visual expression. His inclination to fuse Poincaré’s theorems with his artistic practice demonstrates Duchamp’s shift away from the sensuous and towards the purely theoretical, and gives rise to a pseudo-scientific methodology that finds creative expression in his time–motion preparatory studies for *The Large Glass* and marks the beginning of his on-going abandonment of *retinal art*.<sup>21</sup> He maintained this was an essential move in devising an expressive paradigm that could facilitate an intensity of conceptualising needed to challenge the known limits of technical and epistemological systems; that is, an aesthetics ‘closely bound up with the category of the possible’ (Molderings, 2010, p. xiv). This aesthetics of possibility was to be continued in a trajectory that would carry him away from the Cubists and retinal art, through an exploration of pseudo-scientific experiments and sculptural fabrications and, ultimately, into a lifelong preoccupation with chess. His foray into the world of chess should not be misunderstood as an abandonment of art, but very much the opposite: the vitalisation of his conceptual aesthetics and, henceforth, the decampment of the same to the realm of chess; that is, a performativity

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<sup>21</sup> ‘Retinal art’ and the ‘scopic regime’ are terms that Duchamp used on many occasions. He proposes them as binary opposites of the ‘conceptual’ realm, in order to help position the field of study to which he was dedicated.

of his life as an artist which sought to question the codes of reality and enact a pushing of possibilities. For Duchamp, there was nowhere left to go; the dense concepts with which he was grappling could only be thought, reasoned and consolidated in the space of the mind; the canvas, like language, could only go so far. Chess offered an archetype for the idea that he was trying to communicate: the idea of infinite possibility locked within and generated by a subset of relatively simple rule-based systems.

### ***1.1.6 Duchamp and Sociopolitical Activism***

What exactly was Duchamp trying achieve in his triptych of experiments, which involved dropping a one-meter length of string on to prepared canvases? He openly declared that *3 Standard Stoppages* was ‘at once pseudoscientific and artistic experiment’ (Duchamp cited in Molderings, 2010, p. 4) in which he sought to challenge the formal authority of the cherished platinum-iridium standard meter, housed at the Pavillon de Breteuil in Sèvres, France. Through a performative parody involving three lengths of thread, his goal was to challenge and thus transform the worldwide standard unit of measurement into something of a random variable. This he would achieve via the incorporation of chance or contingency into the production of the experiment:

The idea of chance’, which many people were thinking about at the time, struck me too. The intention consisted above all in forgetting the hand, since, fundamentally, even your hand is chance. Pure chance interested me as a ways of going against logical reality... This amused me. It’s always the idea of ‘amusement’ which causes me to do things... My *Three Standard Stoppages* is produced by three separate experiments, and the form of each one is slightly different. I keep the line, and I have a deformed meter. It’s a ‘canned meter’, so to speak, canned chance. (Duchamp, 1971, pp. 46–47)

The historical period in which Duchamp was operating, at the beginning of the twentieth century, is commonly identified as the quintessential avant-garde epoch. The willingness of the proponents to embrace spontaneity and flux advanced the notion that randomness should have a significant and contingent contribution to creative impetus. The three lines on the canvas, embodied by the threads glued in place, were determined

not by the hand of an artist but rather evince a contingent downward trajectory, set in motion by a simple rule-based system, wherein the artist is not the godlike authorial cause, but merely one element of the system. This system has the effect of dethroning the artist as author-supreme. The threads' apparently self-referential and arbitrary coming to rest, have the effect of walling themselves into their own world thus 'leading a material existence as threads independently of anything existing beyond the image' (Molderings, 2010, p. 4). Heretofore, it is clear that Duchamp embraced the notion of indeterminacy; however, what remains unexplained is his reason for doing so. What did he hope to achieve via the introduction of chance operations into his artistic methodology? The threads are the traces of a series of parodical experiments that seek to bring awareness to the fact that the initial 'rationalisation' of distance and the resulting establishment of the metric unit, and henceforth the structural code which governs dimension, is itself founded on something of an arbitrary gesture. The aesthetic experiments interrogate how this distance between two points was designated the privilege of being the ground zero of dimension, above all other possible distances. The artwork asks why is it that the distance from one end of the platinum-iridium standard meter to its other extremity was not a hair's breadth closer, or further away? This provocative and mischievously antagonistic poke at the structural language of measurement that dominates the global standards of dimension is typical of a more general tendency of the avant-garde, which is to level criticism at dominant systems of codes that constitute behaviour.

One could say that his intellectually challenging and positively ironic (visual art) work was amongst the first forays into what would later become termed as conceptual and/or performative art, not only because his goal was to challenge the boundaries of knowledge as demarcated by epistemology and science, but also because he sought to question the systematic codes that were championed by structural linguists, sociologists and anthropologists, who purported that all phenomenal systems, and aspects of life in general, could be broken down into workable, comprehensible parts and then

systematically interpreted and ordered using linguistic paradigms.<sup>22</sup> The (sociological and anthropological) poststructuralist view is fundamentally underpinned by a profound scepticism directed toward the structuralist tendency to analyse everything as a formal system of differential elements. They maintain that the structuralist methodology of organising language and signs with a view to leveraging meaning is essentially founded ‘on an essential endemic disorder in language and in the world that can never be mastered by any structure or semantic code that might assign it a meaning’ (Rivkin and Ryan, 2004, p. 334). The poststructuralists therefore shared a theoretical affinity with the praxis of Duchamp – albeit half a century later. This fact is, in itself, pertinent to the validity of the avant-garde because the art practitioner is asking questions that philosophy does not approach for another fifty years and therefore testifies to the importance and effectiveness of making-as-thinking. Through his art practice as research – which is concerned more with performative gestures than it is with visual outcomes – and especially his documentary notes, Duchamp made it his prerogative to challenge and question the rationalised structural codes that dominate processes of intersubjectivity in a modernised reality that is essentially abstruse and enigmatic.

The provocation at the heart of Duchamp’s artistic praxis is exemplary of that quintessential avant-gardist mentality, first identified by Renato Poggioli and widely supported by ensuing theorists: *activism*. He defines activist avant-garde praxis as a ‘movement [that] takes shape and agitates for no other end than its own self, out of the sheer joy of dynamism, a taste for action, sportive enthusiasm, and the emotional fascination of adventure’ (Poggioli, 1968, p. 25). This activism is an optimistic

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<sup>22</sup> *Structuralism* was a concept and methodology introduced by Ferdinand de Saussure, a Swiss linguist and semiotician, in a series of lectures that he gave in Geneva. His most famously known work, *Course in General Linguistics* (1916), was published posthumously by a collective of his students who gathered and assembled notes taken from his lectures. Structuralism advocates the view that that order and meaning can be deciphered from any system, no matter how chaotic, by deploying the linguistic (semiotic) methodology of formalizing differential elements into the comprehensible categories of *sign*, *signifier* and *signified*. The methodology was later adopted by areas such as anthropology, sociology and philosophy.

characteristic of the avant-garde that points directly at its metaphorical nomenclature, which, in military terms, connotes an exploration or reconnaissance of difficult or unknown terrain, with a view to territorial gain. As such avant-garde activism is an inherently political gesture championed by a movement whose prerogative it is to undermine the authority or prestige of incumbent institutions and their exponents who are considered culturally unwholesome and toxic. It is this understanding of the avant-garde that is primarily followed over the course of the genealogy that constitutes this thesis. The next section explains in detail how the introduction of chance, or indeterminacy, into the working methodologies of artists offer, or open up, an abstract protest that can be directed against the institutions, structures and codes that are perceived by the avant-garde as being unjust, oppressive or limiting.

### ***1.1.7 The Role of Chance in Avant-Garde Art***

In his book *Theory of the Avant-Garde*, Peter Bürger analyses various methodological strategies employed by the avant-garde. In doing so he identifies a statement by Wolfgang Köhler<sup>23</sup> as a pithy summation of how chance procedures could contribute to the avant-garde's attempt to antagonise, not just the institution but also the public and the political base underpinning it: 'The enthusiastic submission to the material was not the cause but the consequence of a state of society where only what chance reveals is immune against false consciousness, free of ideology, not stigmatized by the total reification of the conditions of human life' (Köhler cited in Bürger, 1984, p. 64). Following from this citation Bürger embarks on his discussion of what he identifies as the political strategy of avant-gardist chance operations. He observes that an aesthetics of chance exhibits a two-tiered paradigm of political activism, which is always the prerogative of the avant-garde: firstly, it embodies the hopes that artists have for chance as an external and non-human creative impetus; and secondly, it offers a means

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<sup>23</sup> Wolfgang Köhler (1887 – 1967) was a German psychologist and phenomenologist who is best known for his contributions to Gestalt theory. He was critical of the Nazi regime from the beginning of their domination and is known to have been the author of the last oppositional article, entitled *Gespräche in Deutschland [Conversations in Germany]* (1933), to have been published in a national journal. He emigrated to the USA (1935) after having fallen out of the favour with the regime.

of critiquing prevalent capitalist ideological constructs (Bürger, 1984, p. 65). The first tier operates as a means of critique through a sort of ironic humour that implies the proletarianisation of the artist by the aleatoric operation. The second tier functions as critique because, when considered from the Marxist strategy of analysing deterministic social structures, indeterminism takes on a profound pertinence. Based on the principle that capitalist society of the early twentieth century was organised on a means–ends rationale, which had the effect of limiting an ‘individual’s scope’ (Ibid.), the avant-garde sought to interrupt the mediocrity and monotony of over-rationalisation by seeking out, focusing on, and elevating the importance of the unpredictable. Chance is henceforth perceived as a force that opens on to a world of infinite possibility, which flies in the face of that tightly regimented one under the aegis of capitalism.

Considering Duchamp’s *3 Standard Stoppages* again will elucidate that the critique at the heart of his work runs far deeper than the simplistic, minimalist visual outcome would imply. His inclination to turn the standard meter into a random variable not only exposes a widely accepted universal absolute – the metric system – as an intellectual construct, but so too does it lay bare the capitalist system’s tendency to invent standards, categories and general fictions in order to ensure its own smoother operation. As such, a celebration of indeterminism implicitly unearths a comment on the rigid temporal and spatial regulation of individuals within the capitalist system. In their championing of unspecified meaning through the chance configurations of objects and events, the avant-garde seeks to advance a reflection on the regulated condition of stoicism endured by masses. The objective of their aesthetic strategy is to disrupt the deterministic ordering of capitalist society and the bourgeois position therein. The abstract protest underpinning the activism championed by Duchamp, and his fellow practitioners, is therefore to be found in their anarchistic advocacy of disorder. Bürger writes: ‘Since the active element in the shaping of reality by man is monopolised by a society organised around means–ends rationality, the individual that protests against society has no recourse but to submit to an experience whose characteristic quality and value are its purposelessness’ (Bürger, 1984, p. 66). This statement, while representative of a palpable Nihilism at the heart of Duchamp’s project, is also indicative of an equivocal political contradiction inherent within the aesthetics of the

avant-garde generally: attempts to decode and re-communicate meaning from the semantic contradictions would re-cast it to means–ends rationale thus compromising the challenge immanent within the void of arbitrariness. Duchamp, for his part, was apparently aware of this aporia because he never tried to explain the politics underpinning his own work; he simply let others draw their own conclusions. However, aside from the internal intricacies of aesthetic-political rhetoric the essential point here is that, by using chance operations as the fulcrum of an activist moment, Duchamp serves up a criticism, not just of the principle of measurement, but also of ratio generally. He henceforth, castigates the means–ends *rationale* that underpins profit as governing mechanism of bourgeois-capitalist society. Bürger observes: ‘Paradoxically, chance, which subjects man to the totally heteronomous, can thus seem a symbol of freedom’ (Ibid.); that is, indeterminism, which is a phenomenon that gives rise to fear and anxiety, is embraced by the avant-garde and celebrated for its potential to liberate.

### ***1.1.8 The Various Guises of Chance: Natural versus manufactured***

Bürger identifies two main genera in which chance operations can manifest: either as a naturally occurring phenomenon, or manufactured using a highly engineered system. The natural order makes use of the dialectical relationship that it shares with nature by promoting the reduction of meaning-making to ‘a natural product that must be deciphered’ (Ibid.). This was the strategy, for example, of the abstract protest championed by the early Surrealists in their mobilisation of *Objective Chance [Hazard Objectif]*,<sup>24</sup> but is not pertinent to the central genealogy that comprises this thesis. The manufactured, or engineered, genus – which occurs when the unexpected is located in the work itself – however, *is* of pivotal importance to this thesis. Manufactured chance

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<sup>24</sup> *Objective Chance* is a Surrealist construct which may be defined as what is commonly understood as coincidence in the quotidian usage of the concept; that is, those surprises which surface in day-to-day interactions due to the overlapping of objective elements and events, which are then attributed subjective importance by the observers via a process of linkage and refamiliarisation. These coincidences were duly noted by the Surrealists who then became an external documentary force of ‘concordant semantic elements in unrelated events’ (Bürger 1984, 65).

originates from an opposite domain to that of the natural order, in the sense that it is fabricated by a meticulously crafted process or system and it can be further subcategorised into two child taxonomies: *direct* and *mediated* production.

### ***1.1.9 Direct Production of Chance***

Direct production is the more straightforward of the two strategies and can be observed in its quintessence in the action painting of the American Abstract Expressionists – most famously by Jackson Pollock – as well as the European Tachists. The aesthetic methodology employed by these movements was one that rejected the concept of expressing an interpreted, or subjectively reiterated, version of reality. This renouncement of creating a largely autonomous totality, through a relinquishment of authorial control, opens up a paradigm that aims to allow chance to dictate the outcome of the produced artwork. Their thinking was based on the idea that by short-circuiting subjective awareness the artist could access a more pure, basic and original truth. According to Bürger, this is representative of an internal contradiction in abstract expressionism: in the artist's endeavours to attain total negation of psychological agency 'the subject that has freed itself of all the constraints and rules of creation finally finds itself thrown back into an empty subjectivity' (Ibid, p. 67). The resultant product is likened to that which is accidental, because total arbitrariness becomes the only perceivable characteristic, and the subject risks becoming swamped by a ubiquity of randomness. Thus the total rejection of subjective intercedence serves only to deliver the subject to a realm not of freedom but of arbitrariness, which can then be, at best, 'interpreted as individual expression' (Ibid., 67). However, Pollock's methodology and Bürger's analysis both fall foul of retrospective analysis of the pictures using modern scientific technologies of visual analysis as well as a deeper, contemporary understanding of chaos and systems theories. Adapting analytical techniques for identifying fractals in natural systems Richard P. Taylor, Adam P. Micolich and David Jonas are able to assert that 'the drip patterns of Jackson Pollock's paintings... are fractal' (Taylor et al., 2000, p. 149). By considering factors external to Pollock's corporeal being – such as gravity, the constant stream of paint and the horizontal canvas – as well as the interiorised (corporeal) factors – such as the pendular motion of his arm and his decision to approach the canvas from all sides – in the



context of chaos systems, ‘where the motions within the system are extremely sensitive to the surrounding conditions’ (Taylor et al., 2000, p. 140), the authors are able to establish that Pollock’s painting technique was constituted by ‘painting motions [... that] were chaotic’ (Ibid.) in their essence. In this respect, his technique is undergirded by the dynamics of nature’s processes and, straightforwardly, the visual records left behind by this approach are fundamentally highly organised fractal systems. Henceforth the authors are moved to declare that, by adopting rules of construction based on ‘statistical self-similarity,’ Pollock ‘generated “pure Nature” in his paintings’ rather than compositions based on a paradigm of imitation (Ibid., p. 149). In synthesising the above assertions with the earlier ones, by Bürger, we can surmise that in attempting to free himself from external subjective intervention Pollock achieved in delivering himself over to a fundamental natural subjectivity that was essentially organised by an organic, logical quality, not ‘an empty subjectivity... of total arbitrariness’ as Bürger suggests. This scientifically enabled thesis therefore serves to undermine the idea that a total separation from subjectivity is possible when the process of production remains immanent in embodied gesture and therefore calls into question the validity of avant-garde attempts to produce a ‘direct’ genus of chance. In this regard, any attempt to introduce chance to a process of (absolute) embodied expression must always be short-circuited by the fact that humans are always already pre-conditioned by exterior, subjective modes and codes that constitute our being in the world. This brings the discussion to a consideration of the second genus of chance: *mediated chance*.

### ***1.1.10 Mediated Production of Chance***

Mediated production of chance is diametrically opposed to that of the direct taxonomy and may be understood instead as meticulous calculation in the handling of the material, even if that calculation only extends as far as the means leaving the outcome largely indeterminate. In the quote below, taken from *Aesthetic Theory* (1970), Adorno observes that the combination of the largely indeterminate with a system of rules creates something that is even more highly fabricated than a product produced solely by embodied means of creative expression:

Progress in art as the process of making, and doubts about just that, run in counterpoint to each other; in fact, such progress has been accompanied by a tendency toward absolute involuntariness, from the automatic writing... to... Tachism and aleatoric music; the observation is correct that the technically integral, completely made artwork converges with the absolutely accidental work; the work that is ostensibly not the result of making is of course all the more fabricated. (Adorno, 2002, p. 26)

An artistic inclination towards a methodology that is preoccupied by complying with the auspices of mediated chance introduces a strategy that is based upon devising a rule-bound system whose focus is on the process of construction. This methodology runs in opposition to the traditional artistic doctrine that tends towards a celebration of the authority of the subjective, creative imagination. The mediated aleatoric paradigm is central to Duchamp's *3 Standard Stoppages* because he carefully constructs a system in which indeterminate, even imperceptible, factors (gravity, aerodynamics, temperature, the weight and elasticity of the string and so on) play a central role in the artistic outcome, over and above the artist's hand. Duchamp's gesture is exemplary of the avant-gardist inclination to shift the emphasis from the artist as *a singular, authoritative, subjective modifier of material* towards an identity more akin to that of a *designer, engineer or inventor of a rule-based system* that in turn modifies the material through its own contingent agency, which is constituted by the system's ability to generate an infinity of possible material renderings. In this regard, *3 Standard Stoppages* confirms that Duchamp's aesthetics were firstly and obviously 'closely bound up with the category of the possible' (Molderings, 2010, p. xiv), which is immanently intertwined with *invention, or discovery*,<sup>25</sup> through processes of experimentation. But on a second, more discreet, level there is the ever-present provocateur looming in the background mischievously reminding his audience of the more disturbing message: the work points towards a more general tendency in cultural processes, where artefacts are increasingly determined by an evolving efficacy in the

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<sup>25</sup> The word invention, comes from the Latin *invenire*, 'to discover' or 'to find out', which in the early modern period began to take on the more familiar meaning of inventing or devising.

technological domain; that is, *the negation of the artist's hand from the creative process*, which is a central tenet of the genealogy of this thesis. When these themes are considered in tandem with his avant-gardist tendencies towards activism, the chronology of his oeuvre bears witness to his will to increasingly push the concept of provocation to greater and greater extremes.

### ***1.1.11 – The Readymades, Part I***

The series of experiments that constitute the preparatory studies for the *Large Glass* – of which the *3 Standard Stoppages* are but a few – are also paralleled by another, asynchronous series of experimental and provocative sculptural fabrications, famously entitled the *Readymades*. They are not experimental in the sense that the artist conducts a series of inductive experiments, as in *3 Standard Stoppages*; conversely, they are experimental in the sense that they innovatively readdress the way in which the artist communicates with his audience. Considering the innovative and unorthodox nature of the works, the artist was entirely uncertain as to how they would be received. In this controversial and profoundly influential series of sculptures, Duchamp pushes his aesthetics of the possible and the concept of eradicating the artist's hand from the creative process to the limit. The *Readymades* – of which the urinal, entitled *Fountain*, is the most famous (see fig. 1.4 below) – were chosen and ordained their status, by Duchamp, on the condition that they were preassembled, mass-produced, machine-made objects ‘with no [a]esthetic qualities whatsoever, chosen on a basis of “visual indifference, and, at the same time, on the total absence of good or bad taste”’ (Tomkins, 2014, p. 154).<sup>26</sup> Each preconstructed object could only be admitted to the strange and deeply provocative, and yet now highly revered, sculptural category through and by the artist's performative act of assigning it a title and inscribing it with his signature. Each work was created by the conscious, psychic decision of the artist rather than by any act of skill or creative, physical gesture. In this regard, the series

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<sup>26</sup> The *Bicycle Wheel* and *Pharmacy* are generally attributed the title of being the first two Readymades, but they are in fact precursors to the oeuvre, which was conceived slowly over the course of two or more years. They are actually artistic assemblages in which the artist's hand played a deterministic and decisive role in altering them. As such they are not visually indifferent and are therefore not *pure* readymades.

marks another leap in the shift towards conceptualism that was to become the primary focus of art in the mid to late twentieth century.

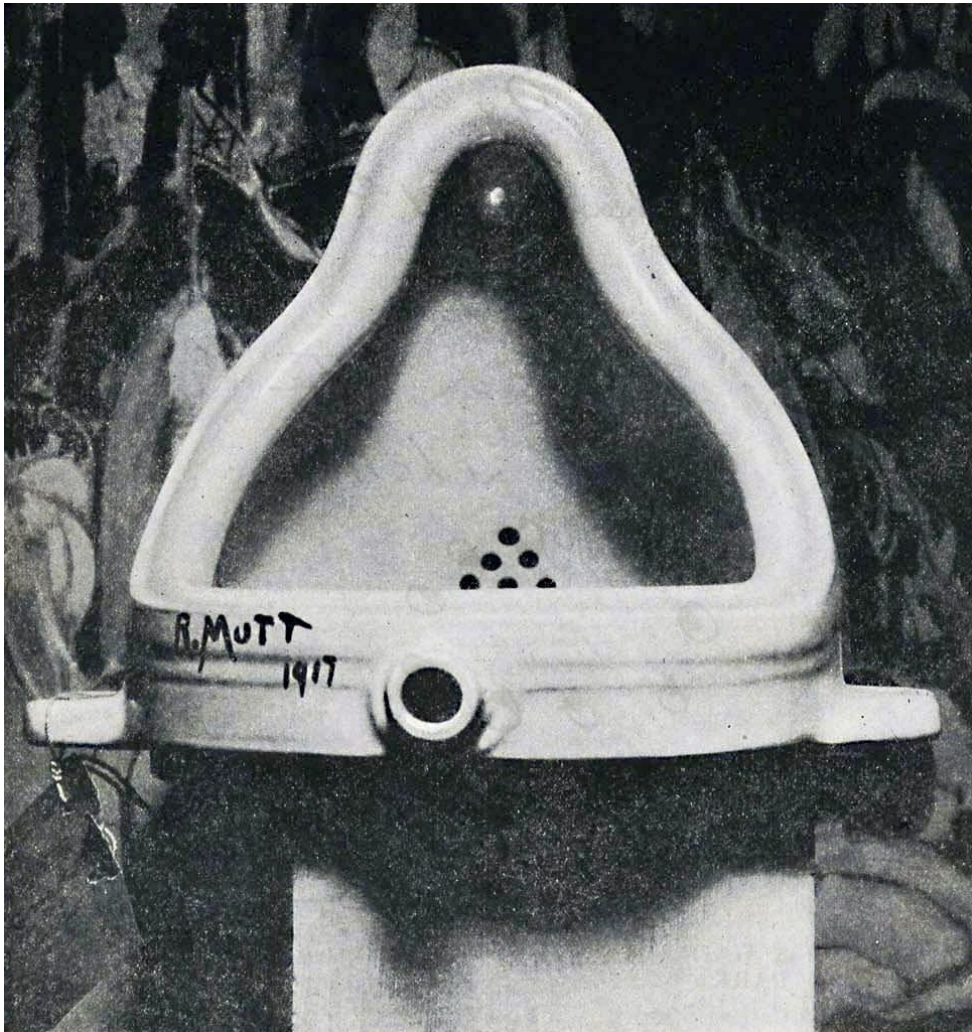


Fig. 1.4, *Fountain*, photograph of sculpture by Marcel Duchamp, 1917. Photographed by Alfred Stieglitz (American, 1864-1946). Photo Credit: © Succession Marcel Duchamp, Villiers-sous-Grez, France

Despite the fact that in these sculptures Duchamp does not integrate the phenomenon of automatisaton into the creative process per se, he does nevertheless interrogate the problematic of an increase in the pervasiveness of automated processes in the mass production of cultural artefacts. The act of placing his *Readymades* in a gallery setting represents Duchamp's attempts to direct attention towards the industrial system of reproducibility that increasingly suffuses every aspect of making and doing since the

outset of the industrial revolution; that is, an economy in which the possibility of being an artist becomes increasingly strained by the superior (more accurate and efficient) abilities of automatic machines to produce cultural symbols; indeed, where the artist is proletarianised. This is what Jean-Francois Lyotard describes as the ‘the challenge posed by the realisms of industry and mass communication to painting and the narrative arts’ (Lyotard, 1984, p. 74) and constitutes the problematic, not only of this thesis, but also of the technological theory that underpins it: Bernard Stiegler’s philosophy of technology, in which technics is perceived not only as something that is fundamentally inseparable from the human, but also as a relational subjectivity that has qualities of ontological efficacy. In a digression from the examination of Duchamp’s *Readymades*, the next section will offer an overview of Bernard Stiegler’s thesis on technology because it is so central to the argumentation of this thesis, which holds that the increase in technological agency in the production of art works reflects a more general, societal inclination towards fabricating increasingly naturalistic, autonomous agents that display quasi-organic characteristics. Following this account, the discussion will then return to this analysis of the *Readymades* with the view to further unlocking some of the nuances of Duchamp’s influential sculptural series.

## **1.2 – Bernard Stiegler’s Thesis on Technology: Individuation, the Pharmakon, General Organology & Transindividuation**

### ***1.2.0 – Towards Technical Individuation***

Before continuing with the interrogation of Duchamp’s *Readymades*, it is worthwhile giving some background on Stiegler’s techno-philosophical project. Stiegler’s work may be understood as a philosophical oeuvre that has evolved out of, on one hand, a legacy of deconstruction inherited from his mentor Derrida, and on the other, what was initially a phenomenological study of technology. In *Technics and Time* (his thesis on technology) he primarily draws on the work of Heidegger, Derrida, Leroi-Gourhan and Simondon in order to explicate that technology and human society co-constitute each other right from the very origins of human existence, and share an inseparable horizon

of meaning, action and evolution. In his book, entitled *Gesture and Speech* (1964), Leroi-Gourhan proposes the convincing paleoanthropological argument that there is a fundamental and continuous evolutionary trajectory, from the biological to the sociological, mediated via technology. As such, all technologies, including those that facilitate the most advanced forms of intersubjectivity, are all still always reducible to the biological. Leroi-Gourhan analyses the two-tiered phenomenon brought about by the evolutionary development of humans transitioning to the upright posture: firstly, that the mouth is freed from grasping and liberated for complete commitment to the tasks of communication and language development; and secondly, that the hands are freed from the duty of mobility, allowing them to also become part of the process of ‘exteriorisation.’<sup>27</sup> Ever since this evolutionary development exteriorisation has been transferred from the territory (or ‘milieu’) of the zoological to that of the technical. Because of this new corporeality, the human body becomes less specialised in relation to the fulfilment of any one particular task; and instead, the specialisations occur, only when required, through and by a prosthetic deployment of specialised skills in the technical milieu. Analogously, the exteriorisation concurrently operates in the inverse as a process of interiorisation, whereby the humans embody the technologies that they use. This simultaneous reciprocation of interior and exterior is a process that fundamentally defines the nature of what it is to be human. It is continually in flux and is vectorised by the co-constitution of human and technology. It is precisely this vector that drives Stiegler to borrow the key term, ‘technicity,’ from the other great influencer of his thesis: Gilbert Simondon.<sup>28</sup> By employing the term technicity, Simondon, and Stiegler thereafter, is referring to ‘to technology considered in its efficacy or operative functioning’ (Hoel and van der Tuin, 2013, p. 187); that is; it is an ontological force simultaneously modulating, and being modulated by, humans’ relationship with the

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<sup>27</sup> Leroi-Gourhan borrows this term from the field of biology and Stiegler continues the interrogation of this subject. It is a binary initialised for understanding human cognition in relation to its environment. The ‘exterior milieu is understood as “everything materially surrounding the human.”’ The interior milieu is understood as “that which constitutes its intellectual capital... an extremely complex pool of mental traditions” (Leroi-Gourhan cited in Stiegler, 1998, 57).

<sup>28</sup> Stiegler did not introduce the thought of Simondon until the second volume of *Technics and Time*.

exterior world of objects. It is a way also of perceiving humans as existing in a fluid system that is ‘a relation of equilibrium and of reciprocal tensions’ (Simondon, 2011, p. 407). It is also something material and historical, because without it we would be unable to experience the past and henceforth select the ‘inorganic organized beings, or technical objects’ (Stiegler, 1998, p. 17) – artefacts, knowledge, objects, tools, information and so on – that bring about the invention of possible futures. We would conversely exist in the animal, biological state, which is one of an unending present without any means of transcending it. Henceforth, this is what moves Stiegler to assert that technicity is the constitutive transcendental horizon of the human that brings about the conditions of the temporal, the social and the cultural.

Under the aegis of that theoretical trajectory from Leroi-Gourhan through Simondon to Stiegler, there is a fundamental intertwining of the technical and the human that has important ramifications for how we perceive that relationship. Thought about in this way, technology ceases to be something straightforwardly outside of, or separate from, the body and more specifically something fluid and vectorised, which resides at the very source of our humanity. As such, when humans design and build technological systems we are simultaneously designing, not only the type of humans we are, or want to be, but also the types of social systems that we want to live in, and analogously the reality that we want future generations experience. This is where the pertinent – already explained – principle of individuation comes in to play. It has been established that individuation is a fluid process through which the individual and the group co-constitute each other’s identities and is therefore inherently political; however, what has not been established is the transhistorical nature of the process. Individuation takes place by way of accumulating a repertoire, of exteriorised artefacts and symbols, which acts as a sort of bank that holds, safeguards and transmits knowledge from one generation to the next. Stiegler writes: ‘The *I* and the *we* are bound in individuation by the *preindividual milieu*, with its positive conditions of effectiveness coming from what I have called *retentional apparatuses*’ (Stiegler, 2014a, p. 51). By this he means that the transactions and processes that constitute individuation are mediated through and by the material domain of exteriorised artefacts that comprise the preindividual milieu, whether they be the products themselves – text, objects or audiovisual

documents – or the tools that facilitate their coming into being. It is through these concretised ‘retentional apparatuses’ (Ibid.) that knowledge is transferred from one generation to the next; as reified, tangible objects they represent assemblages of skills, tradition, culture, invention and so on. In the stasis of their finality, they also withhold the possibilities of the past, whilst challenging forth new ways of thinking about trajectories for the future. But, what is crucial is to understand that these concretised artefacts are always only possible because of the precondition of the existence of the technical milieu, which not only facilitates (or vectorises) the encounter between the psychic individual and the collective *We*, but so too does it assert its own organisational logic, which is an *individuation of the technical system*. So just as the technical system supports the fundamental possibility of retentional apparatuses, so too do those retentional apparatuses ‘condition the organization of the individuation of the *I* with the individuation of the *we* in a single process of *psychic, collective and technical* individuation’ (Ibid.); that is to say, the technical system can and does individuate. Furthermore, in individuating itself, the technical system also individuates, on one hand, the technical processes, and on the other, the technological knowledge of how those processes are conducted.

### ***1.2.1 – A General Organology***

It is precisely on the topic of technical individuation that Stiegler’s philosophy bifurcates with that of Simondon’s. Simondon consistently says that only living beings can individuate, whereas Stiegler argues that technologies – as ‘inorganic organised beings’ – not only influence human individuation, but so too do they themselves individuate.<sup>29</sup> In synthesising Simondon’s concept with cybernetic theory,<sup>30</sup> Stiegler

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<sup>29</sup> Stiegler finds it quite amazing that Simondon refused to give credit to the notion of technology individuating. In an interview he says: ‘one little thing in Simondon that seemed very striking to me was that in all he published, psychic individuation had nothing to do with technical individuation. Moreover, he doesn’t talk of technical individuation; he describes it. He talks of technical individuals, but – perhaps one day a letter will be found where he talks about it – never about technical individuation. I think that for him it’s diabolical to talk of technical individuation, for the reason he lays out in his critique of Wiener, which is that technical individuation requires cybernetics: the cybernetic object is capable of individuating itself. For Simondon, that is impossible. He says consistently that only the living being can



posits that individuation is actually a three-way dynamic process that modulates the relationship between the psychic (individual), the social (organisation) *and* technical (organs). This is what he means by proposing the need for a *general organology*, which is an analytical process for understanding all human activity in the context of ‘triple individuation’ (Stiegler et al., 2012, p. 166). He writes: ‘the conditions of individuation are organological: they pass through the organs of perception, but they endlessly recombine the assemblages [agencements] of these organs through technical mediations’ (Stiegler, 2011, p. 14). This statement aims not to differentiate technology from the body but rather to conflate them and in that respect to admit technological organs to the project of evolution, just as biological organs already are. Technologies, thus conceived, are not simply means for conducting tasks or straightforward prostheses of the human, but rather ‘artificial organs’ that are modulated by trans-figurative linkages in relation to the sense organs and collective organizations.

In this regard, the technical system is an apparatus that has a specific role to play in the greater on-going and uninterrupted process of individuation, to which everything is answerable. As such, the technical system is a vessel<sup>31</sup> that holds the objects, which themselves only make sense in relation to: firstly, other objects within the apparatus; secondly, the individuals and groups that gather around, and themselves become reorganised by, the object in question; and thirdly, the historical moment of their entry into the apparatus. This last (historical) aspect is important because the concept of entry also raises the possibility of its diametric other: *exit*. Exit from the technical apparatus also implies the more perplexing possibility of exit from the pre-individual milieu, which is always determined by a failure of either: synchrony – intergenerational transmission – and/or diachrony – its individual adoption – that would effectively

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individuate itself in that way.’ (Stiegler et al. 2012, 166)

<sup>30</sup> For example, Norbert Weiner, William Ross Ashby and Alan Turing.

<sup>31</sup> I gather the term *vessel* because not only does it convey the idea of a container that holds technical objects, but so too does it connote the idea of a ship at sea, in movement, navigating a fluid and indeterminate trajectory. In this way it helps conjure up the indeterminate path of human history and possible futures.

indicate a loss of knowledge: a *dis-individuation*. It is primarily for this reason that Stiegler appeals for a ‘politics of memory,’<sup>32</sup> a concern which continually raises its head throughout his broader philosophical programme.

By selecting what knowledge and information is retained and what is discarded we are contributing to the intergenerational body of knowledge that shapes the possibilities of being for ensuing generations, and frames how they will perceive and think about human history, via the retentional apparatuses which are always established by the exteriorised traces and artefacts that enable a ‘genealogy of the sensible’ (Ibid.). The double-helix bind of the human and the technical means that they are co-evolutionary and therefore always already bound up in one another. The technical is not something alien that we can choose to eliminate; it is part of the substance of the fundamental building blocks encoded in the genetic make-up of the human phenotype. Thus considered, technology becomes the domain that not only provides impetus for some of the most essential questions relating to what it means to be human, but so too does it ensure that these questions continue to be asked in fresh, unexpected and innovative ways. Therefore Stiegler is moved to appeal for a redressal of the issue laid bare by what he calls the ‘de-fault of origin’<sup>33</sup>; that is, we need to re-address the concerns of the

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<sup>32</sup> Stiegler has been espousing a politics of memory since the inaugural volume of his thesis, *Technics and Time I*. The theoretical axiom constitutes a conceptual fulcrum around which much of his philosophy revolves.

<sup>33</sup> Stiegler writes: ‘One must understand “de-fault” here in relation to what it is, that is, a flaw in being. And yet, whereas animals are positively endowed with qualities, it is tekhnē that forms the lot of humans, and tekhnē is prosthetic; that is, it is entirely artifice’ (Stiegler, 1998, 193). He draws the concept from the myth of Prometheus, in Plato’s *Protagoras*, in which humans come into being because Epimetheus forgets to allocate a ‘quality’ to man, leaving him naked: in a default of being. As such humans lack any balancing quality that would place them in harmony with nature and are therefore doomed to supplement their condition through ‘protheses, instruments’ (Stiegler, 1998, 114). Throughout the work Stiegler repeatedly emphasises the *originary default* of the human species that engenders its becoming technical, as opposed to other living species. Consequently, humans are therefore indeterminate and contingent. Stiegler deploys the term, on one hand, in a deconstructionist sense in order to establish an ambiguous play between fault and default, while on the other, to retain the connotations of a lacking, a failure, an error, a ‘deficiency’ or ‘defect’. The concept represents a strategy that attempts to think through the limits of diverse fields of human practice and thought—including the human, social and experimental sciences as well as religion, politics and art—via the attendant reflection on the relationship between humans and technics.

pre-Socratic ancient Greeks in their positioning of technicity as the central philosophical question. In this respect, Stiegler is taking up the mantle from his mentor, Jacques Derrida, in his reproach of the canon of Western metaphysics, and this brings this discussion to another key concept of Stieglerian philosophy: *the pharmakon*.

### **1.2.2 – The Pharmakon**

In his protracted, but indispensable, chapter from *Dissemination* (1981), entitled ‘Plato’s Pharmacy,’ Derrida initiated his landmark shift from grammatology to deconstruction by famously critiquing Plato’s discord with the Sophists. In *Phaedrus*, Plato asserts his position that writing – as a technique of inscription – is a pharmakon; that is, at once poison and cure. The statement is bi-motivational: firstly, Plato maintained that the written word could divorce speech from meaning, because the absence of interlocutory presence advances rhetorical contamination and thus leads to possibilities for (mis)interpretations, ultimately leading to untruth; and secondly, the very act of writing is an exteriorisation of the mind which ultimately leads to the inhibiting of pure recollection and thought. In *Dissemination* Derrida recounts the key passage in which Plato reflects on the invention of writing:

The fact is that this invention will produce forgetfulness in the souls of those who have learned it because they will not need to exercise their memories [...], being able to rely on what is written, using the stimulus of external marks that are alien to themselves [...] rather than, from within, their own unaided powers to call things to mind [...]. So it’s not a remedy for memory, but for reminding, that you discovered [...]. And as for wisdom [...], you’re equipping your pupils with only a semblance [...] of it, not with truth. (Plato, 370 BC/1985, 274e-275b, cited in Derrida, 1981, pp. 102, emphasis in original)

Plato insists that writing is a cure for reminding, not for memory. But, the paradox of the pharmakon insists that its deployment has the adverse effect of repeating without thought. In his re-examination of Derrida’s invocation Noel Fitzpatrick points out that the distinction that Plato makes is between artificial and true memory, where true memory is conceived of as ‘the dialectic, dialogos through which truth can disclose itself as *alethea*’ (Fitzpatrick, 2013, p. 10). For Plato, it is only through an

unmediatised dialogue between two or more people that truth can emerge or become disclosed, or unconcealed, and henceforth contribute to successive progressions in our understanding of the ontological world and meaning-making generally. Plato's dismissal of writing as a veil of truth and a placeholder for memory provides the locus for Derrida's critique of the Western penchant towards logocentrism in post-Socratic metaphysics; that is, he calls into question the preference for privileging spoken word over text. By invoking the *pharmakon* – that which is at once poison and cure – Derrida shows us the ambiguity of language and the complexity of maintaining a singular, intended meaning, a unitary signifier. On this point, Fitzpatrick writes: 'Indeed the *pharmakon* demonstrates the dispersal of the signifier which is the very basis of Derrida's (1981) deconstruction' (p.11). By setting up a dualistic opposition of memory (*mnemes*) against reminders (*hypomnema*), Plato establishes the basis of Western philosophy and Derrida makes his prerogative to debunk this.

Stiegler, who was Derrida's student, has similarly taken up this debate on the *pharmacology* of memory exteriorisations, and the resulting dialectical exchange between *anamnesis* – pure, mindful recollection without having to rely on external memory supports – and *hypomnesis* – the 'making-technical' of memory, originally through the process of writing, or mark-making. Stiegler extends Derrida's concept of the *pharmakon* by delineating the curative aspects of the pharmacology of writing thereby 'building upon Derrida's (1981) identification of the semantics of remedy that are present in Plato's text' (Ibid.). For Stiegler, writing is, through its taxonomic procedures and acts of 'meta-categorisation,' a fundamental condition of the 'reflective, recursive' thought process (Ibid.), and furthermore, it is a form of technology that allows cogitation to develop. But, what is truly progressive about Stiegler's analogy is that he extends the concept into modern technologies of inscription: *mnemotechnologies*. These are the electro-mechanical technologies that facilitate the inscription of audio and visual exteriorisations to technical devices, what he calls the 'technologies of the spirit.'<sup>34</sup> He identifies 'artificial memory' as a

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<sup>34</sup> Stiegler uses this term widely and liberally in multiple publications and seminars to convey the idea of exteriorising the mind – thoughts.

prosthesis of the spirit, which is continuously evolving and wholly answerable to the technohistoric juncture of human development.

Stiegler asserts that every technological development is pharmacological and this aphorism has become increasingly pronounced by the advent of automation in productive processes. At the most obvious level a pharmacological reading of automata implies, on one hand, the replacement of human labour by automated processes, and on the other hand, a reduction in production costs and a democratisation of epistemic and productive means. This is the binary that constitutes reservations Luddites would have. However, when technology becomes more enmeshed with the retentional and cognitive aspects of the self the problem becomes much more complicated. Humans are now compelled to hypomnesia through a variety of retentional substitutes and spiritual prosthetics such as writing, photography and audio-visual recording, all of which have recently been migrated to the digital platform. *Analogico-digital*<sup>35</sup> technologies now function as a placeholder for memory in an analogous manner to the way writing did for Plato. In this respect, technology is the pharmakon which, on the one hand, allows us to document and record knowledge with *increasing efficiency*,<sup>36</sup> ultimately contributing to a massive and exponentially expanding global repertoire, ‘extending the knowledge of mankind and its power,’ while on the other, causes ‘us to lose an ever-greater part of our [individual] knowledge,’ because we increasingly ‘confide a greater and greater part of our memory [... to] these cognitive technologies’ (Stiegler, 2006). As such, technological progress is always shot through with an essential forgetting of who we are, a forgetting of our *originary*, organic nature. The theory of individuation, understood in relation to Simondon, permits Stiegler’s conception that mnemotechnics are fundamentally linked to knowledge, hence his use of the term *retentional*

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<sup>35</sup> Stiegler coins the term ‘analogico-digital’ to describe technologies that pull in real-world data and discretise and formalise it, thus breaking it into manageable and workable material. Derrida, Jacques, and Bernard Stiegler. ‘The Discrete Image,’ *Echographies of Television: Filmed Interviews*. Wiley, 2002, pp. 145 – 163.

<sup>36</sup> Increasing efficiency is a major main concern of Heidegger’s in his *Question Concerning Technology* wherein he posits that the primary ‘coefficient’ of poiesis is a combination of the human and the technical instrument.

*apparatuses* and his distinguishing call for a ‘politics of memory’ (Stiegler, 1998, p. 276). This appeal is made in the wake of a digitally propelled mass condition of total disorientation brought on by the new ontological, organological and socio-political efficacy of a habitat, constituted by spectacular cultural symbols that continue to exceed all expectation. For Stiegler, the cause of this condition is reducible to a fundamentally bewildering *speed*, a sort of elemental and primordial speed that vectorises all life and constitutes the essence of, on one hand, the light-speed processes of telecommunications and electronic mental and physical prosthesis, and on the other hand, the incomprehensible evolutionary speed of the technological milieu.

### 1.2.3 – *From Efficiency to a Transductive<sup>37</sup> Speed*

There are two historical trains of thought that Stiegler draws on to substantiate his argument on the existence of a quasi-transcendental speed. As per the previous section the first is, through an indebtedness to Derrida’s Deconstructionist rethinking of “Plato’s Pharmacy”, the revaluation of *tekhne* as integral to – not separate from – *episteme*, which facilitates Stiegler’s proclamation that *différance* is the technical and grammatical articulation of the human,<sup>38</sup> and is exemplified in the speed of technical supplementation. The other important text, that influences Stiegler’s tendency to raise speed to a position of transcendental authority, is Heidegger’s existential analysis of technology, of which Stiegler conducts an extensive re-reading through that restituted Derridian lens. The Platonic inclination to cast technics out of the epistemic arena on the basis that it is a contaminator of pure, truthful thought and an obstruction to living, self-present memory constitutes the foundation of Stiegler’s theoretical advancement towards the transcendental nature of speed. Stiegler’s tendency to return to this concept on numerous occasions, throughout his entire philosophical oeuvre, elucidates a strong, pervasive thematic concerning, on one hand, the immortal soul as

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<sup>37</sup> *Transductive speed* is a term introduced by Ulrick Ekman in his analysis of Stiegler’s thesis, not by Stiegler himself, but I would like to re-employ the term because I find it to be pithy and useful.

<sup>38</sup> Stiegler’s reading of Derrida’s concept is controversial and has given rise to much debate – even engaged by Derrida himself. Furthermore, Stiegler doesn’t see any difference between technics and grammatology; for him they are co-constitutive.

embodied by genuine, infinite memory (anamnesis), and on the other, the technicised human qua the threat of forgetting by way of supplemented memory (hypomnesis). In this sense, human ontology is conceived as a consistent modulation between these two poles and it is this aporia of memory that permits Stiegler ‘to read in Heidegger a dominant theme of forgetting’ (Ekman, 2007, p. 48). This necessitates a brief digression into Heidegger’s *Question Concerning Technology* (1954) to explain how and why.

Heidegger’s existential analysis of technology is motivated by a will to debunk the conventional, means–ends account of technology and he goes about this by considering the ‘craftsman’ in the context of Aristotle’s fundamental ontology; that is, by breaking up poises into a process involving the four originary causes: *the material*; *the formal*, which is the form wrought upon the material; *the end*, which is the aim, purpose or honour conferred upon the object; and finally, *the efficient*, which is the energy that ‘brings forth’ the product, through an amalgamation of heterogeneous raw elements and subjectivities, into a state of singularity. One might intuitively think that the efficient is the craftsman himself; however, Heidegger deftly establishes an important assertion to counter this assumption by declaring that the maker’s actions are always firstly determined by the technology (tools) at his disposal, which is to say that humans are always fundamentally intertwined with technology. Proceeding from this point, one might also be inclined to assume that the efficient is the most significant of the four causes; however, although the efficient plays an important role in the unification of the four causes, Heidegger maintains that each of them is equally co-responsible for the produced item.

Heidegger’s paper is dominated by a concern for *efficiency*, which should not be confused with Aristotle’s ontological category of the *efficient*, although he does cleverly construct his argument by moving from the particular to the general understanding of the concept of speed. In his view humans are entrapped by a propensity towards progressively increasing the speed of productivity; that is, by a primordial tendency towards efficiency. Given the human preoccupation with

accelerating processes of production, ever since the outset of the industrial revolution and the modern technologies of automation, *poiēsis*, as the process of making, has been shifted from producing in the mode of ‘bringing-forth’ to that of ‘challenging forth’ (Heidegger, 2003, pp. 286–287). For Heidegger, producing in the mode of challenging forth is hugely problematic in comparison with that of bringing-forth. He describes challenging forth as a ‘setting-upon... the energies of nature’ (Heidegger, 2003, p. 287); that is, the elements of a situation are exposed in nakedness, challenged into a state of submission and leveraged towards the ends of maximising profit. His deployment of the term ‘setting-upon’ here occupies a double meaning: firstly, in the sense of ordering; and secondly, it connotes a rapaciousness that evokes a sense of being set upon by a pack of dogs. But, most importantly is Heidegger’s assertion that challenging forth is fundamentally underpinned by an ‘expediting [Fördern]’ (Ibid.), and it is this statement that compels Stiegler to contend that a *primordial speed* has suffused the endeavours of the *Anthropos* since the outset of an originary technicity. The two modes of production are furthermore different in the sense that in bringing-forth humans used to be *one* element, albeit an important one, amongst others in the process of revealing; whereas, in challenging forth, humans can step outside the process and are thereby endowed with the ability to control the productive process. It is primarily in response to this conceptualisation that Stiegler deploys his pharmacological framework over Heidegger’s analysis, in order to progress his own synthesis. An approach to this problem through the Platonic *pharmakon* and its reversal shows that, one on hand, challenging forth threatens humanity with a general proletarianisation due to the fact that automated production coerces a pandemic ‘forgetting’ of skills and knowledge because the worker is short-circuited by the machine, while on the other hand, considering the human faculties of thought, invention and innovation that lie behind the technology there is a choice to grasp the ‘saving power’ (2003, p. 297) and produce responsibly, under the aegis of ‘care’ and ‘concern’ for the totality of human history.



The other concept that arises from Heidegger's delineation of the ontological shift in modes of production – from bringing-forth to challenging forth – is his postulation of the existence of something that he calls *Ge-stell* [*Enframing*],<sup>39</sup> which he holds is 'the essence of modern technology' (2003, p. 291). This is an existential phenomenon 'which sets upon man, i.e., challenges him forth, to reveal the real, in the mode of ordering, as standing-reserve' (Ibid.). By "standing reserve", Heidegger means that materials are rendered to a status of disposability, firstly, in the sense that they are easily ordered and arranged, and secondly, in the sense that they have little value and are thus assigned a short life span; that is, they are categorised and ephemeralised. In regards to the concept of *Ge-stell*, Heidegger offers some further, albeit cursory, clarification: '[It is] neither only a human activity nor a mere means within such activity... And it cannot be rounded out by being referred back to some meta-physical or religious explanation that undergirds it' (Heidegger, 2003, p. 291). We can glean from this statement that he is ruling out any spiritual deferral of the concept, yet nonetheless maintains that there are mysterious, extra-human powers at work in the organisation of reality. To understand precisely what Heidegger means by introducing the concept of *Ge-stell* it is useful to refer back to a particular, analogous concept that he posits in *Being and Time* (1927):<sup>40</sup> *the they*. Of the *they*, he writes:

In utilizing public transportation, in the use of information services such as the newspaper, every other is like the next... In this inconspicuousness and unascertainability, the *they* unfolds its true dictatorship. We enjoy ourselves and have fun the way they enjoy themselves. We read, see, and judge literature the way they see and judge. (Heidegger, 1996, p. 119)

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<sup>39</sup> *Ge-stell* is a rather abstruse concept and one has to wonder why Heidegger introduces it at all given the fact that he only dedicates one paragraph to its substantiation, within the immediate text. Heidegger himself, in an interview with *Der Spiegel*, admitted that it is 'an expression which has often been laughed at and is perhaps somewhat clumsy' (Heidegger 2003, 38). It is furthermore rather tenuous that he seeks to denounce 'the merely instrumental, merely anthropological definition of technology' (Heidegger 2003, 291) through the announcement of this phenomenon. This denouncement was targeted at the Frankfurt School for their over simplification of the human-technical problem into a means–ends binary.

<sup>40</sup> In *Technics and Time 1*, Stiegler also conducts a comprehensive reading of *Being and Time* in order to help unpack some of the concepts in *The Question Concerning Technology*.

From this statement, it can be understood that the they is the collective consciousness of society, and Heidegger holds that it is a *false* consciousness. The they is a condition arising from the circumstance of having been 'thrown' into the world, where the individual is always already impelled to see things through the eyes of the collective; it is the dominant consciousness of society for which no one individual is entirely responsible, nor ever wholly absolved from its future shaping. For Heidegger, Ge-stell is a fundamental contributing element of the they in modernised societies because the dominant consciousness obliges humans to think, and therefore to reveal, in the mode of challenging forth and, as already noted, this drives a paradigm where humans and natural resources alike are stripped of dignity and placed in standing in standing-reserve.

Standing-reserve is an important concept for Stiegler because it represents a fundamental abstraction that underpins all human activity. Humans are bound by a tendency towards classifying and organising *everything*, from: grammar and vocabulary, towards the ends of language and communication; through material resources, towards the ends of making as a process of exteriorisation; to human resources, towards the ends of identity, politics and economics. This penchant towards organisation is always fundamentally underpinned by calculation, a calculation that can be stripped back to its bear component: *ratio*.<sup>41</sup> For Stiegler, ratio should be considered in its originary sense, as that which constitutes the foundation of all thought, including knowledge which resides outside the field of mathematics, a field to which its modern understanding is most often attributed. Stiegler responds to Heidegger's questioning on

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<sup>41</sup> It is possible to trace the origin of the word "ratio" to the Ancient Greek term *λόγος* [*logos*], which obviously enjoys a rich history in philosophy as a principle for the ordering of knowledge. Early translators (c.1630) rendered it into Latin as *ratio*; that is, as "reason" as thereby establishing the originator of the word "rational". In his book *Etymology and Grammatical Discourse in Late Antiquity and the Early Middle Ages*, Mark E. Amsler cites Virgilius' book *Epitomae* (c. 7th Century), wherein Virgilius notes that 'ratio is whatever pertains to the faculties of judgment and discrimination' (Virgilius cited in Amsler p.206). Further on, Amsler notes that in opposition to origio, which designates linear, temporal origin, 'ratio designates conceptual, spatial origin (cf. Donnellan 1967)' (Amsler, 225). The point being that in long periods of history ratio, as a term and concept, enjoyed liberal deployment in epistemic discourse before being primarily given over to calculation.

technology by supporting the notion that ratio – as ‘a technical process that constitutes the *Gestell* [*Enframing*] of all beings’ (Stiegler, 1998, p. 4) – be supplanted to the domain of calculation. In doing so, Stiegler – for want of a better word – *rationalises* Heidegger’s quasi-transcendental notion of Ge-stell, thereby making it more tenable while at the same time giving himself over to the abstraction. His motive for doing so is underpinned by an attempt to, on one hand, conjoin the dismally separate fields of epistēmē and tekhnē, and on the other, attempt to secure the position of the ‘technicisation of knowledge’ (Ibid.) firmly at the root of his thinking on the history of being. This compels Stiegler to read not just the existential analytic, but also ‘destiny’ and ‘historiality’ (or historicity)<sup>42</sup> [Geschichtlichkeit] in terms of an originary technicity. Following on from this reading, Stiegler is enabled to assert that the ‘theme of forgetting dominates Heidegger’s thinking of being,’ which is historial and therefore ‘is nothing but its inscription in technicity’ (Ibid.) because a pharmacological reading of truth’s [aletheia’s] relation to an *originary forgetting* reveals that anamnestic and hypomnesic memory simultaneously constitute ‘the destiny of being as the forgetting of being’ (Ibid.). Henceforth, one is impelled to think ‘time within the horizon of an originary technicity qua an originary forgetting of the origin’ (Ibid.). For Stiegler, the origin of the human – that he depicts by appropriating the myth of Epimetheus, in which the modality of being human is understood as one of an originary ‘de-fault’, a condition of lacking, leading to a situation of persistent technical supplementation – is something that we must endeavour to remember. Yet, it is something which is becoming steadily more obfuscated due to, on one hand, our tendency to defer more and more existential tasks over to machinery, and on the other hand, the experience of being thrown into an increasingly falsified collective consciousness – one tending towards total artifice.

Stiegler engages a consideration of the origin of being by mobilising the thought of Derrida, in which he makes a bold advancement by reducing *différance* to a history of life, thereby arousing a certain ambivalence amongst deconstructionists towards his

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<sup>42</sup> Depending on what translation is engaged.

project.<sup>43</sup> It is this position that impels him to draw in the – already mentioned – paleoanthropological approach of Leroi-Gourhan resulting in a philosophical oeuvre that is something of a ‘*phenomenological anthropology of deconstruction*’ (Ekman, 2007, p. 51). As such, in Stiegler’s project, Derrida’s quasi-transcendental movement of *différance* is bound up in the evolutionary history of exteriorisation as delimited by the emergence of the consciously intentional *Anthropos*, which is concurrent with the emergence of *grammē* (the unit of writing: *grammatology*) qua *tekhnē* (instrumental processes). The demands of this methodology, under the aegis of the pharmacological *aporia*, impel that polemical understanding of the human–technological relationship that recursively re-emerges throughout Stiegler’s body of writing. On the one hand, the human is pictured as being subject to a systematic disappearance into *tekhnē*, convincingly portrayed as a generalised quasi-transcendental entity, in which *technics* manifests itself as ‘a profound and overwhelming threat to ‘our’ life-form’ (Ekman, 2007, p. 51), and on the other hand – given our modality of being always already transformatively entangled in *technicity* – technically supplemented and historically constituted humans can pave the way towards a *technicised* world that places ‘care’ at the forefront of all acts of exteriorisation. Stiegler therefore seeks to elicit the best out of the precarious situation in which the accelerating development of the technologies of the spirit (which are now digital) has both positive and negative results. On the one hand, there is the expanding repertoire of global knowledge, but on the other hand, there is the increasing reliance on digital technologies to supplement knowledge and memory. A protracted quote from the closing paragraph of *Technics and Time 1* elucidates how Stiegler progresses his argument from a notion of primordial (or quasi-transcendental) speed, through a manifestation of that speed in concrete technical objects over epochal time, towards an urgent politics.

Today memory is the object of an industrial exploitation that is also a war of speed: from the computer to program industries in general, via the cognitive sciences, the *technics* of virtual reality and telepresence together with the

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<sup>43</sup> Geoffrey Bennington, for example, expresses his view that Stiegler’s reading tends to gather the concept of *Différance*, which is generalised and ‘logical’, towards conducting a localised reading of Leroi-Gourhan in *Of Grammatology*. Bennington, Geoffrey. 1996. “Emergencies.” *Oxford Literary Review* 18 (1): 175–216. doi:10.3366/olr.1996.009.

biotechnologies, from the media event to the event of technicized life, via the interactive event that makes up computer real time, new conditions of event-ization have been put in place that characterize what we have called light-time. Light-time forms the age of the *différance* in real time, an exit from the deferred time specific to the history of being that seems to constitute a concealing of *différance* and a threat to all kinds of difference—which is why one can speak of the end of history or of a change of epoch. Today this light-time raises demands for exceptional measures: hence “the cultural exception.” There is therefore a pressing need for a politics of memory. (Stiegler, 1998, p. 297)

Stiegler’s approach to the human–technical problem is henceforth conducted through the transductive<sup>44</sup> relational normal of speed; that is, psychic organs and collective organisation are fundamentally conditioned by the transformative power of a quasi-transcendental speed that is manifested as an ontological efficacy through the technical milieu. He is compelled to appeal for a ‘politics of memory’, because the ‘conditions of event-ization’ that are constituted by, but not limited to, the list of examples that he offers comprise a mode of existence that surpasses all expectation. The types of technically mediated intersubjectivity that typify the quotidian labours, tasks and habits of computationally engaged societies and their inhabitants present an experience of reality that is far beyond any prediction of society as a spectacle; indeed, as a message in circuit, even the most banal of gestures or utterances are attributed infinite duration and breath-taking embellishment, under the auspices of electronic hyper-acceleration; as such, all acts of intersubjectivity are enriched encounters. The beyond-spectacular nature of contemporary technicised life, the infinite processes at work beyond the liquid crystal display terminal and the mind-boggling speed of their execution that collapse time and space into what he calls ‘light-time’, create an opacity in relation to any understanding of the totality of the socioeconomic system and straightforwardly the (false) social consciousness that it erects; that is, ideas of truth and falsehood are as

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<sup>44</sup> Transduction, in the terminological coinage of Simondon, is a relational concept that ‘opens up possibilities of internal resonances in a process of psychic and collective individuation, and that thus (re)constitutes its terms’ (Stiegler, 2009, p. 47). Although Stiegler did not integrate the thought of Simondon in the first volume the congruencies of their thinking are already apparent.

easily constructed as they are erased. It is these consequences, of a hyper-technicised and hyper-aestheticised society, that impel Stiegler to appeal for a politics of memory, because as more and more human endeavours are transferred from the domain of physical exteriorisation to that of psychic exteriorisation – through and by mechanically automated devices of spiritual prosthesis – there is a pressing need for, not just, the preservation of *all* types of knowledge, but also their legitimation and integration into the ‘purposively rational’ administrative systems of the new industrial world. This includes, perhaps most urgently, the knowledge types that promote ‘linguistically mediated interaction’ and ‘communicative action’.<sup>45</sup> This political agenda marks the point of Stiegler’s synthesis of the existential analytic with the Frankfurt School’s tradition of socio-political and cultural critique, which permits his proffering of some original and important philosophical views.

The question that must be asked now is how do Stiegler’s theories of *individuation*, the *pharmakon* and *transductive speed* relate back to Duchamp and avant-garde art? In the opening lines of his magnum opus on aesthetics, entitled *Symbolic Misery*, Stiegler states: ‘The question of politics is a question of aesthetics and, vice versa’ (Stiegler, 2014a, p. 1). His aphorism is representative of a general concurrence in Western philosophy, but nowhere is this statement more truthful than in the territory of the avant-garde, where creative exploits are fundamentally determined by an inherent cultural and political activism. Given the provocative activism at the heart of Duchamp’s creative projects Stiegler henceforth supplies us with some powerful conceptual tools that can help unpack the complex metaphors at work in the aforementioned selection of his artworks. Despite the fact that Duchamp’s hand had no

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<sup>45</sup> Stiegler draws on Habermas’ decision to create a binary opposition between ‘purpose-rational activity’ and ‘linguistically mediated interaction’ (Habermas 1989, p.107). Habermas formulates his argument in response to Lyotard’s positing of postmodernism. Although Stiegler does find the opposition useful his deconstructionist methodology is wary of the dialectical strategy because he finds it unhelpful in overcoming the deligitimation of artistic endeavours in hypertechnicised societies as it ‘is a repetition of a traditional and decidedly “metaphysical” theme – namely the antagonism between logos and techne’ (Stiegler 1998, 12). Stiegler’s discord with the Frankfurt School is discussed in more detail in a forthcoming section.

bearing on the *visual* form of the *Readymades*,<sup>46</sup> it will be shown that the oeuvre is wholly engaged with the technical–political problematic, which positions them as ripe for a Stieglerian re-reading. The point of the analysis is not simply to better understand Duchamp’s artworks given Stiegler new theoretical tools; in addition, it is suggested that Duchamp’s progressions toward disconnecting the artist’s hand from creative processes open the way for a merger of chance operations with new technologies that occasions the evolution of non-human aesthetic agency, which is techno-politically critical and constitutes the central axis of this genealogy of the sensible. However, any discussion of the techno-political problem firstly demands an account of the historical background of the theorising, which necessitates another digression into the critical theory of the Frankfurt School, spearheaded by Theodor Adorno, whose pioneering work provides an important foundation for the *other* theoretical strand that constitutes Stiegler’s techno-philosophy.

#### ***1.2.4 – Theodor Adorno: Aesthetic Theory and the Culture Industry***

Adorno’s aesthetics holds on to Kant’s view that ‘fine’ or ‘beautiful’ art is characterised by formal autonomy, and combines this notion with the prominence that Hegel gives to its *intellectual import*,<sup>47</sup> as well as Marx’s insistence on its embeddedness in the broader societal programme. Adorno’s book, entitled *Aesthetic Theory* (1970) and published the year after his death, is a body of aesthetic concepts which thinks through art and culture under the auspices of modernity.<sup>48</sup> It provides the

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<sup>46</sup> Aside from the signatures that he inscribed on to the works, usually with a fine paintbrush.

<sup>47</sup> *Import* represents the work’s social function and potentially has applications in various social contexts. Given his historical context of writing in the eighteenth century, for Hegel, this primarily means education, social and moral cultivation, provocation, embellishment, and so forth. But above all, for Hegel, arts proper and distinctive function is to open up congenial channels of sensuous expression that enable freedom of spirit. However, for Adorno, this notion becomes significantly more complex in the industrialised and global exchange of late capitalism.

<sup>48</sup> It is important to note that *Aesthetic Theory* was not edited by Adorno Himself, but by Rolf Tiedemann and Gretel Adorno (the philosopher's widow). It was assembled from Adorno's working drafts and unfinished manuscripts composed between 1961 and 1969. This

foundation of avant-garde theory and remains a key referent in understanding (modern) art in terms of its autonomy, or lack thereof, its intellectual import and its tendency, as ‘the social antithesis of society’ (Adorno, 2002, p. 8), to function as a sociopolitical provocation. He writes: ‘Insofar as a social function can be predicated for artworks, it is their functionlessness’ (Ibid., p. 227). That is to say that, through and by their state of non-functioning they call into question the capitalist paradigm of rationalised production and means–ends rationale generally. He focuses primarily on ‘the fetishism of commodities’ as a vector for critiquing the ideologies that capitalism sustains and needs. This produces a leftist discourse that pursues the idea of freedom and equality in society, but due to the historical totality formed by the relationship between culture and society, that quest ‘is inseparable from the pursuit of enlightenment in culture’ (Zuidervaart, 2011). This is precisely where Adorno’s aesthetic theory owes so much to his influential collaborative efforts with Max Horkheimer, under the aegis of the Frankfurt School.

*The Culture Industry: Enlightenment as Mass Deception* is an influential essay by Adorno and Horkheimer, in which their critical aesthetics of dialectical materialism argues against the culture industry’s tendency to appropriate the latest artistic styles and devices for economic ends. Their thesis outlines how innovative cultural artefacts, techniques and gestures – which constitute the essence of avant-garde works of art – quickly become appropriated by an industrial system of production, which recirculates them, via commodities, for mass exchange and consumption. They henceforth assert that what consumer masses experience in quotidian life is a homogenised cultural gestalt, which gathers into itself, all styles and artefacts without exception, discrimination or empathy: ‘The irreconcilable elements of culture, art and distraction, are subordinated to one end and subsumed under one false formula: the totality of the culture industry’ (Adorno and Horkheimer, 1990, p. 144). This colonisation of autonomous artistic devices and techniques renders them impotent through a process of general artefactual homogenisation, thus enabling processes of reification to penetrate

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thesis relies on this edition but a new edition has been recompiled, re-translated and re-published as of 2013.



deep into the fundamental subjective fabric that constitutes the psychic and social formation of individuals and communities. They claim that this cultural phenomenon has a two-fold social repercussion: on the one hand, it causes individuals to ‘increasingly experience themselves as exchangeable ‘things’ within a social arena dominated by principles of market exchange;’ while on the other, it conflates art and marketing thus causing ‘a condition of universal spectacle and narcissistic consumerism that increasingly precipitates regressive forms of failure to achieve ego independence’ (Sinnerbrink, 2009, p. 3). Ultimately they propose that abstract forms of modern, instrumental rationality promote the replacement of autonomous subjectivity with commodified forms of ‘pseudo-individuality,’ thus, nullifying any attempt by avant-garde art to invite spectators to reflect critically on their precarious, and continuously homogenised, societal position (Ibid., p. 3).<sup>49</sup>

In *Aesthetic Theory* Adorno suggests that the critically reflective space of modern art proffers ‘internal tensions’ that give rise to a fundamental ‘truth content,’ (Adorno, 2002) which can serve as a vector for engendering sociopolitical critique, thus propagating freedom and equality. By pursuing artworks’ internal tensions and by linking them to unavoidable sociohistoric conflicts, Adorno’s writings are at once exquisitely nuanced and highly detailed. His strategy is to elaborate categories employed in actual commentary and criticism by setting them up as polarities, or dialectical pairs, with a view to assessing their suitability for decoding what artworks express. His most prominent and useful dialectical opposition is the category of *import* [*Gehalt*] against *function* [*Funktion*], which both as phenomena and as categories, need to be understood in terms of each other. Not only can they be set up as diametric opposites to facilitate dialectical reasoning, but so too would it be untenable to offer a comprehensive account of an artwork’s social function unless import-related considerations are fully engaged. Adorno gives priority to import because, as he understands it, societal mediation and socially signified meaning are paramount to the

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<sup>49</sup> It should be noted that it is this aspect of Adorno’s aesthetic theory that is so pertinent to Stiegler’s aesthetics.

work. Under these auspices, the function of the work is therefore primarily intellectual, but not always straightforwardly political or economic.

Central to Adorno's aesthetic theory is the proposition that 'truth content' resides in autonomous works of art. He asserts that all artworks have an implicit significance (*import [Gehalt]*) that can be accessed via an appraisal of their internal dialectic between content [*Inhalt*] and form [*Form*]. In this way, the work of art invites its interlocutor to a critical reflection on the truths and falsehoods that comprise its being. The internal conflict at the centre of the critical judgement opens up broader external questions relating to the sociohistorical totality to which the artwork and the spectator belong. For Adorno, 'truth content' is not a metaphysical conjecture existing above or beyond the work, but neither is it a totally human construct. Most importantly, it should be considered first and foremost in its historical context; that is, it is always tied to the specific societal subjectivities that bring about and affect its production. Furthermore, truth content demands propositional discussion that is Utopian in its reach. Adorno maintains the best art is that which is politically effective, but its effectiveness is only possible through its ability to comprehensively resolve its own internal contradictions, thus stipulating that society's analogously secreted hypocrisies can no longer be neglected. In this regard, modern art communicates metaphors that 'simultaneously challenge the way things are and suggests how things could be better' (Zuidervaart, 2011). However, Adorno doubts the possibility of the emergence of truly awareness-raising, provocative, agitative art due to: firstly, capitalism's structural shift – that is, the industrialisation of culture – which ensures avant-garde provocations are sublimated to the level of stylistic programme; and secondly, his delineation of modern art's aporia of autonomy. As such, despite his insistence on the need for a politically-engaged art that would offer a critical counterpoint to mainstream aesthetic bankruptcy, its effectiveness is always already ineffectual, leaving things essentially unchanged: 'Art has truth as the semblance of the illusionless' (Adorno, 2002, p. 132).

It is through the concurrence with Marx's dialectical materialist assertions that it is most obvious how Adorno's *Aesthetic Theory* provides a foundation for avant-garde

theory. On one hand, he positions art as a transformative vector that maintains the ability to affect sociopolitical regimes, while on the other, he delineates how modern subjectivities – including global, market-driven economic paradigms and capitalistic means-ends rationale, as well as their modes of production – increasingly exacerbate the conflation of art and life. The coming together of the artist and the sociohistorically laden materials produce unavoidable tensions that ultimately reflect inescapable conflicts embedded in larger socioeconomic processes, to which the artist, the material and the means of production are inevitably and necessarily bound. Under such historically engaged conceptualising – which ultimately stems from Hegel – aesthetics can no longer be conceived as an autonomous philosophical discourse; said differently, via the imminent truth content foregrounded by, on one hand, the work of art, and on the other, dialectical materialism as an aesthetic lens, heteronomous links are forged with society and politics. It is very important to understand that Stiegler’s aesthetics – as set out *Symbolic Misery* – are inherently and fundamentally linked to the Frankfurt School’s identification and analysis of ‘the politico-libidino-technologico-industrial problem’ (Stiegler et al., 2012, p. 168). Indeed, all that he writes about and analyses would essentially be impossible if it were not for the foundations laid by the Frankfurt School – specifically Adorno, Horkheimer, Benjamin and Marcuse. But, Stiegler does not simply accept their views as gospel and insists that everything must be critiqued, reconsidered and re-worked ‘because, if one doesn’t critique it, it becomes dangerous,’ (Stiegler et al., 2012, p. 169) no matter how altruistic it appears to be. What follows below is an account of Stiegler’s critique of the Frankfurt School. This aspect of his philosophy is very important to the contemporary understanding of technology because, in the spirit of Derrida and Heidegger before him, it permits an understanding of technology as something that is not diametrically opposed to the human; it is, in fact, an intrinsically essential ontological component of the anthropos. Stiegler’s synthesis allows this thesis to assert that early avant-gardist fusions of chance and technology open the way for a specific line of enquiry in contemporary artistic practice, which is to engineer increasingly naturalistic, autonomous and quasi-organic productive art systems that continue to question the relations between humans and technology and testify to an increasing technological efficacy in the aesthetic-political domain.

### 1.2.5 – Stiegler’s *Discord the Frankfurt School*

Despite the Frankfurt School’s establishment of an important framework for thinking through the relationship between technics, culture, politics and desire, for Stiegler, their strategy of historical-materialist critique is too ‘ontologically reductive’ and only offers an ‘instrumentalist-anthropological account of technology’ (Sinnerbrink, 2009, p. 3). Stiegler’s deconstructionist schooling allows him to take the view that the Frankfurt School’s tendency to focus on means–ends rationale obscures the question concerning the essence of technology,<sup>50</sup> and its relationship to modern man. This brings us to the central concern of Stiegler’s philosophical programme: how to, on one hand, rethink the relationship between humans and technology, while on the other, mount a constructive critique of the global preference for a socioeconomic paradigm of economic liberalism, with a view to overall societal amelioration? As already established, Adorno holds that modern art proffers a critically reflective space that can serve as a vector for sociopolitical critique, and thus maintains that the best art is that which is politically effective. Stiegler similarly aligns himself with the need for a politically engaged art that would offer a critical counterpoint to mainstream aesthetic ruination. But, their aesthetics differ from the point of view that Adorno’s overarching dystopianism – brought about by a polemical view of capitalist culture – leads him to doubt the emergence of truly awareness-raising, politically agitative art; whereas Stiegler insists that a redemption *is* possible through a redeployment of the avant-garde – one that gives objective expression to overriding subjectivities that define the digital age: metacategorisation, electronic networking, machinic mental and physical augmentation, and so on. I employ the term redemption for two reasons: firstly, Stiegler calls on artists to facilitate the *recouplement* of lost knowledge – caused by the allocation of ‘know-how’ [savoir-faire] to technical devices – that creates a general opacity surrounding technical processes and compounds a trend towards the exclusion of masses from cultural production; and secondly, he assigns the figure of the *mystagogue* to avant-garde artists, because his Kantian re-reading of aesthetic experience – which also obviously exhibits accordance with Adorno’s aesthetics –

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<sup>50</sup> This essence of technology was already explained through the reading of Heidegger’s theory in the overview of “The Question Concerning Technology,” in section 1.2.2.

posits it as a transcendental one whereby the spectator is elevated to a higher intellectual plane, akin to spiritual absolution (Stiegler, 2011, pp. 5–6). The artist, thus conceived, is a shamanistic figure that maintains the ability to clear the mystifying fog discharged by an industrial system of aesthetic production. He writes:

A work only works to the extent that one believes in it... and gets us hooked, to the extent that it directs us towards a mystery: it reveals next to existence... *something other* than the plane of existence – if one believes in it. The experience of art is the experience of a work that opens up onto such a plane, and that appears in this way to reveal this other plane. Every work of art has the structure of a revelation. (Ibid., p. 6)

Stiegler maintains that despite the fact that Adorno and Horkheimer do hold on to key aspects of Kant's aesthetics, for example the formal autonomy of art, they do commit an oversight in relation to other areas such as prosthesis and the artefact; that is also to say that, they overlook 'the very origin of philosophy, which is the relation with technics' (Stiegler et al., 2012, p. 168). This causes them to fall foul of Heidegger's nuanced existential-phenomenological critique of their subject-object, means-ends model of instrumental reason, which he maintains obscures the essence of technics. Stiegler holds that Heidegger's thesis on technology represents the most innovative and important rethinking of technics since Plato cast it into the camp opposing epistemology, by critiquing the Sophists' use of writing as a *pharmakon*. Heidegger essentially delineates that technics shows the way Being and human / non-human beings are ontologically revealed in the modern epoch. According to Heidegger, under the aegis of this technological revealing ('challenging forth') there emerges two important existential phenomena: on one hand, human existence [*Dasein*] is 'destinally thrown' (Sinnerbrink, 2009, p. 3) into the indeterminate historical space of Being, where human beings and non-human beings (natural resources) show up as mere calculable resources; while on the other hand, it opens up the possibility of a historically singular event – what Heidegger calls *das Ereignis* or the *event of appropriation* – involving consensual aggregation between Being, humans and artefactual beings that can facilitate the blossoming or unfolding (*physis*) of a more meaningful world. It is this immanent aporia of technics that presents the option of other, responsible, non-totalising forms of world-disclosure (*poiēsis*), which

Heidegger, and now Stiegler, identify as the domain of art and innovative forms of cultural practice (Stiegler, 1998, pp. 6–9).

Heidegger's ontological deductions on the entanglement of human and technology – that involve a sort of aporetic confrontation between an amassing of 'the "saving power" of a more poetic, world-gathering mode of dwelling' (Sinnerbrink, 2009, p. 4) and the simultaneous danger of conceiving beings as calculable resources – is frequently reiterated in contemporary analyses of technologically vectorised creative processes. What makes Stiegler's re-reading of Heidegger so original is his innovative synthesis of Heidegger's existentialist view with Adorno and Horkheimer's instrumentalist-anthropological account of technics.<sup>51</sup> By compositing the Marxist gesture, that prioritises the materialist inscription of the history of physical and *spiritual* technical prosthesis, over the legacy of Heidegger's pioneering account of technics, as fundamentally inseparable from exteriorisation and therefore inherent to the formation of the self, Stiegler aims to 'enjoin a radical (cultural) politics' (Ibid., p. 11).<sup>52</sup> This synthesis is given further originality by Stiegler because he then advances his hybridised question concerning technics and culture back into the Kantian sphere that emphasises the transcendental, mystical, or transformative character of art works.

### ***1.2.6 – Stiegler's Reading of Kant***

Stiegler asserts that for a work of art to be truly a work of art, and not simply a bi-product of the globalised programme industry, it must arouse a *belief* in its interlocutor. Aesthetic judgement then, for Stiegler, amounts to a state of belief, a belief that, as an idea – whether received independently or shared with a community – is always 'intrinsically doubtful and improbable, un-provable' (Stiegler, 2011, p. 10). As such, it is a condition of *mystery* that is constitutive of aesthetic experience. The *mysterious* is

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<sup>51</sup> This is comprehensively and especially worked out in the first book of Stiegler's thesis, *Technics and Time 1: The fault of Epimetheus* (1998) but the synthesis continues to play an important role in his most up-to-date writings.

<sup>52</sup> This legacy, as I have already stated, includes a trajectory through Leroi-Gourand, Simondon and Derrida.

the extra-ordinary quality immanent in works of art that vectorises ‘a mystagogical performativity of the work’ (Stiegler, 2011, p. 6). Stiegler’s is a Kantian reading of aesthetic judgement that permits an understanding of works of art as objects, or events, that are endowed with a ‘suprasensible faculty’ that, in terms of an ‘encounter with the sensible (*aesthesis*)’ (Ibid.), gives rise to a uniquely subjective experience, which Kant famously analogises with moral judgement. As such, an aesthetic experience is a transformative experience in which the audience learn something; that is, the audience individuate over and against the work of art and are transformed by it. The artwork’s mode of presentation extracts and brings forth, in a way that is in itself quite ordinary, that which is *extraordinary* and accommodates it beside, above and beyond the plane of its own ordinary reality. In doing so, it invites the interlocutor to similarly and concurrently inhabit that extraordinary and mysterious dimension next to her/his real one, and it is on this plane where the mysterious aesthetic encounter can and does take place. Furthermore, it is at this *epi-destination*, or milieu, where a *reflexive*, aesthetic judgement is permitted to take place; that is, a type of judgement that cannot be related back, equated or likened to objects or experiences constituted by established, quantifiable or known parameters. Any such reduction or comparison would deflect that judgement back into the domain of the *cognitive* which, for Stiegler, can never be mysterious. Whereas the cognitive is devoid of mystery, ‘the reflexive, on the other hand, is the mystery of the extra-ordinary itself, but of an extra-ordinary without transcendence’ (Stiegler, 2011, p. 7). This may appear to be an unusual statement for someone who is wielding the (Kantian) transcendental idealist understanding of aesthetic judgement for explicating his own aesthetics, but the statement makes sense when we re-consider the main concept underpinning Stiegler’s entire corpus: individuation. Given Stiegler’s premise that aesthetic experience is central to individuation and furthermore that the audience is individuated (or transformed) by the artwork, we can elicit the nuanced differences between his and Kant’s understanding of a reflexive judgement: one that *transforms*, not *transcends*. Individuation, as a phenomenological concept, is based on the fundamental pre-supposition of history, which is the primary (teleological) circumstance upon which Hegel mounted his critique of Kant’s philosophical programme. This re-reading of Kant, in the context of his own hybridised view of technics and philosophy is precisely what moves Stiegler to

assert that avant-garde art is an assemblage of subject–object relations that communicates in a mystagogical manner, an attribute which he assigns to the work of his avant-garde exemplar: Marcel Duchamp.<sup>53</sup>

### ***1.2.7 – Mystagogy and the Amateur***

The notion of a ‘mystagogical performativity’ (Stiegler, 2011, p. 6) of the work of art is central to Stiegler’s aesthetics. He purveys it as a critical methodology that operates through the invitation of the spectator to a reflexive judgement on the mysterious nature of the work of art, and henceforth challenges the subject to a critical reflection on sociopolitical totality. The tendency for the culture industry to produce cultural products under the auspices of mechanical mass reproduction has the effect of dissolving their *exceptionality* because, as per Adorno’s Marxian views, the producer and the consumer of the artefact are alienated from the transaction – that originally constituted a process of individuation – by the intervention of the machine, which testifies to the rise of a technological efficacy. This homogenising effect serves to negate processes of reflexive judgement, which inevitably, on one hand, mediocritises the artefact, and on the other, evades the transformative process that would invariably arise out of any such judgement. The result of this tendency can only further eclipse the decisive and subjective role that aesthetics plays in the formation of the (psychic) self and the (collective) social organisation, ultimately diminishing opportunities for individuation, and henceforth social amelioration, due to a prevalence of cauterised critical faculties. This creates a tendency towards what may be described as a society dominated by the figure of the *cultural philistine*; that is, a figure whose attentional faculty provides the fuel for an economy consisting of increasingly critically-impotent cultural products. Stiegler describes this situation as ‘the proletarianisation of sensibility’ (Stiegler, 2011); that is, the attentional and cognitive faculties of cultural

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<sup>53</sup> Stiegler also attributes this mystagogical characteristic to Andy Warhol and Joseph Beuys and in *Symbolic Misery Volume 2* he dedicates a substantial portion of the book to making his case. Although the next section does involve a cursory glance at Beuys for clarifying Stiegler’s concept of mystagogue, the genealogy of this thesis endeavours to trace an increasing technological efficacy arising from the implementation of techno-aleatoric systems. Warhol and Beuys are not therefore considered to be central to this genealogical narrative.



audiences are harnessed, capitalised and henceforth put to work under the aegis of the economy of attention.<sup>54</sup> Setting up an oppositional figure to those possessing proletarianised faculties, Stiegler suggests that a redemption is possible by recuperating the tragically depleted figure of the art amateur, whose active enthusiasm could help reinvigorate processes of psychic and collective reflexive judgements. He identifies the target congregation for the mystagogue as one consisting of amateurs and by doing so places the act and reception of cultural production back in the territory of commonplace. Having first alluded to Kant's transcendental idealist view that the mystagogy of the work of art is an inexplicable and unprovable characteristic, which provides a spiritual vector that projects the spectator to an extra-ordinary 'plane of consistency' (2011, p. 8), he then, in deconstructionist fashion, turns the argument back in on itself by declaring: 'The reflexive... is the mystery of the extra-ordinary itself, but of an extra-ordinary without transcendence. In this sense, it is *the mystery of immanence itself*, the *becoming-profane* of the world. That is to say: its *becoming-ordinary*' (2011, p. 7). He henceforth turns to a profane mystagogy that lays bare the mystery at the heart of aesthetic experience, one which is related to an immanence appropriate to the earthly, unsanctified, unconsecrated and shockingly exoteric constellations of the work and the committed judgement of a passionate and energetic amateur. These are qualities that are obviously attributable to Duchamp's readymade, found objects because the unexceptionality, homogeneity and mediocrity of each automatically produced artefact – as a product of mass reproducibility – highlights the increasing pressure that automatised industry places on possibilities for diversity in the shared, exterior milieu.

Stiegler's analysis of the two avant-garde artists Duchamp and Beuys, shows how they both represent, for him, *mystagogical* figures of twentieth century society. By using this metaphor, Stiegler is conjuring a notion of the artist as a sort of spiritual leader that teaches the righteous way to a responsible economic paradigm, while also providing healing for the malignant aspects of society. Beuys famously declared himself to be a

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<sup>54</sup> Warren Neidich has also described this situation, in which he gathers the term 'neuropower' that is analogous to Stiegler's own neologism, 'psychopower'.

shaman and a healer of society by announcing that a vast social wound existed that was in need of treatment, or *therapy*, a service that he would provide through his artefactual and narrative assemblages. ‘He saw his role as a therapeutic artist as transformative in a wider socio-economic and spiritual sense’ (Desmond et al., 2015, p. 85).<sup>55</sup> It is this aesthetic mentality that, for Stiegler, reroutes us back towards the ‘heart of aesthetic experience’ (Ibid.). Thus conceived the mystagogical work of art, championed by Beuys, provides *therapia* that can counteract the tracts of society that have, for Stiegler, been infected by an aesthetic decay. Marcel Duchamp, on the contrary, deferred any attempt to categorise himself in such a self-proclaimed therapeutic capacity. The sophisticated poetry brought into being by his combinations of word games with de-contextualised re-presentations of banal objects deferred any such direct engagement with self-declared occupational categories; nonetheless, the capacity of his creations – which still reverberate, with shocking force, through the contemporary art world – to directly critique society provide solid examples of how his artefacts of puzzlement quietly ask all the right questions.

### ***1.2.8 – The Readymades, Part II: Changing the Rules***

Stiegler’s inclination to promote Duchamp’s *Readymades* as exemplary of his mystagogical aesthetics compels an acknowledgement of theoretical affinities with Peter Bürger, in relation to how the avant-garde facilitate a reclamation of aesthetic experience in terms of the habitual and the quotidian. Stiegler calls it ‘[the] *everydayness* that creativity always trans-figures into something *improbable*, that is, into something singular and as such *extra-ordinary*’ (Stiegler, 2010, p. 12). Here Stiegler, just as Bürger does, is attempting to point out that the avant-garde maintains the ability to re-present mundane objects and places as extraordinary phenomena, through a fantasticised allocation of attention and circumstance. By placing his *Readymades* in an artistic, gallery environment Duchamp is redirecting attention towards the industrial system in which they were produced. Ultimately the point of this

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<sup>55</sup> Stiegler’s invocation of the avant-garde is more thoroughly worked out in an article entitled “In Response to Bernard Stiegler: A Pharmacological Return to the Avant-Garde”, which I wrote collaboratively with the *Aesthetics Seminar Group*, at *GradCAM*.

strategy is to recoup aesthetic experience from an industrial model that is profoundly top-down, and therefore also segregationist, in its method of symbolic production and distribution. In this regard, their disinteresting nature gathers a disconcerting autonomy that is arguably more effective at conjuring up a political activism than many works of art that are explicitly politically vocal, because they metaphorically redirect attention towards the industrialised system of mechanical reproducibility and the mutated aesthetic-political economy in which they are conceived and produced. The political activism at the heart of Duchamp's oeuvre is one geared towards clawing back aesthetic experience from a primarily top-down industrial paradigm in which masses are overpoweringly positioned as passive receivers and a minority of machine-empowered producers are the unquestionable makers and distributors. The *Readymades* are henceforth, on one hand, a rejection of mindless consumer culture encouraged by such a system, and on the other hand, an appeal for artists to engage and experiment with the new processes of exteriorisation that remain widely unexplored and uncritiqued. The tendency for schools to concentrate on training artists only in the traditional methods serves to inhibit a proper engagement with the languages, skills and techniques of the new industrialised world, which could help facilitate an individual and socially beneficial critique of the mutated processes of mass intersubjectivity. Despite the fact that Duchamp does not actually mobilise the processes himself – because his sculptures were already made – he does nevertheless level a powerful critique by mobilising language, through poetic naming processes, and gesture, by signing the works, in unforeseen ways.

Duchamp's decision to pedestal 'readymade', found objects – unadulterated by the artist's hand – in an exhibition context ironically places the problematic of technique at the locus of the oeuvre's intellectual import. The neutral space of the gallery allows the mass produced objects to repose in a state of autonomy, thereby stripping them of their functionality and commanding that the art-going public reflect purely on the consistency of their forms and the relational processes of their coming into to being; that is, their unconcealment. The automated processes of mechanical mass reproduction, which reside at the essence of each object's being, indirectly unearth the problem of artists surrendering their productive role to a machine substitute. A

pharmacological reading of the technological questioning helps reveal added layers of complexity at the heart of the oeuvre. At an obvious level, the thing that is so disturbing about the exhibits is their foregrounding of a bare and unpalatable truth relating to the toxic aspects of mechanical technologies: they are faster, more accurate and have a communicative reach thousands of times greater than even the most dexterous and elite of craftsmen.<sup>56</sup> But, from a positive aspect and as per the thesis of Walter Benjamin, it must be acknowledged that the new technologies have the power, not just to represent reality, but also to facilitate exciting new ways of ordering the real. A deeper inspection of Duchamp's *Readymades* will show that the scandal lies not straightforwardly in the fact that technological fabrication could be a substitute for handicraft – there will always be a place, need and desire for both. Duchamp subjects the, primarily utilitarian,<sup>57</sup> objects to a process of defunctionalisation and refunctionalisation in the sense that they are stripped of their intended use and repurposed in a direction that was not previously foreseen. In this manner, Duchamp breaks the codes and rules of the artefacts and reconfigures them in a way that is thoroughly unconventional and by doing so he analogously reconfigures the way audiences think about them; that is, he transforms the interlocutor–artefact relations from mediocrity to respect. But, his action of changing the rules is not limited to the object itself, it also operates at a sociological level in terms of codes of practice in the art world generally. That which most scandalises art audiences is more specifically located in the doctrinal differences between the avant-garde and the traditionalists, and their differing attitudes to realism. Traditionalists conform to the rules of art they have inherited from institutional prescribers of knowledge. Their methodology of realistic representation serves to maintain a clear and traceable path back to the referent, thereby submitting art to the agenda of preserving publics from doubts about reality in general. Knowing that modern technologies embody a 'constant process of dispossession of the

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<sup>56</sup> This is the crux of the problem that Walter Benjamin raises in relation to the technologies of representation and this point is taken up in detail in Chapter Two.

<sup>57</sup> This analysis refers specifically to Duchamp's 'found' Readymades, all of which can be reduced to utilitarian objects, except for *50 cc of Paris Air*, which is not so much about the glass jar as it is about the contents, or lack thereof. As already stressed, this genealogy does not consider the composite assemblages or bespoke works that he had fabricated, such as the *Doors and Windows* series, to be 'readymades' in the strict sense.

craft of painting or even of being an artist' (Lyotard, 1984, p. 75), Duchamp acknowledges his increasingly marginalised position and seeks to break with the precipitated oppression by *changing the rules*, thereby posing a challenge to the broader sociopolitical rule-base. Thus, in the eyes of the realists, the horror of Duchamp's parodical experimentation is not simply rooted in the straightforward problematic imposed by technology in the face of Luddites: redundancy. It is furthermore located in the re-examination of the rules of art, and therefore of life itself, which are – for realists – underpinned by a desire to re-affirm one's own identity through the satisfying approval of a rationally arranged set of signs. The problem posed by the *Readymades* does not simply consist in rendering the useful useless; since Kant, we already know that the most salient and (dis)interesting thing about art is its purposelessness. Duchamp's blatant perversion of mimesis shifts the problematic from a consensus of beauty, towards one that resides in the question of, what can be defined as art. Analogously there is a difficulty endured by realists in comprehending how the creator of such an exhibit can rightfully lay claim to the title of artist; accordingly, under the auspices of such lampooning there is a general undermining of jobs, ranks and titles, in the context of a broader sociopolitical totality. In this regard, Duchamp demonstrates the positive pharmacology of technology: in the face of proletarianisation, the human is compelled to innovate by rising above the mutated relation and employing the new language, tools, artefacts and techniques in fresh ways that could contribute to *the invention of a people*. For Stiegler, this is precisely the task of the artist: to change the rules and *mystagogically show the way forward* for a society where both the amateur and the philistine are equally threatened by an industrial mystification dispersed by consumer capitalism. Duchamp's art is an intellectual reconfiguration of thought that turns 'mystification... into its raw material' (Desmond et al., 2015, p. 87) and by doing so he demonstrates how artists can surpass the oppressive efficiency of industrial, automatised reproductive systems by reharnessing their specificities, rerouting their functionalities and ultimately out-thinking industrialised thought paradigms. To change the rules is to outwit those technologies whose speed and accuracy is so intimidating.

Stiegler's gravitation towards the notion of a mystagogical artist, however, does not come devoid of its own problems given Beuy's self-allocation of the said appointment. The therapeutic spirit that Beuy's nurtured in his work, to counteract art's submission to the consumer-driven economy, actually only served to further undermine the transformative possibilities that he sought to elucidate, because 'it maintained existing hierarchies of power and avoided the implications of the evolution of art post-Duchamp' (Desmond et al. 2015, 87).<sup>58</sup> This problem is not unique to Beuys' aesthetic doctrine, it also extends beyond his endeavours into broader aesthetic-political deliberations of the avant-garde in relation to how a mystagogical aesthetics can engender a good 'articulation to economy' (Stiegler, 2015a, p. 67); that is, in the sense of Kantian philosophy, how to criticise everything so that there can be a positive trajectory towards the consolidation of the speculative and practical aspects of reason, as established by mystagogical aesthetics on one hand and the economy on the other. Given the antinomy created by the deployment of 'mystagogy' as a therapy for the 'economy,' Stiegler's analysis of Beuys in terms of redemptive avant-garde practices can be best understood in terms of the *pharmakon*; that is; with a view that there are both toxic and curative aspects to it. It furthermore begs the question as to why Stiegler would re-examine the aesthetic exploits of Duchamp and Beuys. Said differently, why would he discuss two artists – active in the early and mid-twentieth century, respectively – when the primary focus of his philosophical programme is an interrogation of cutting-edge technological creativity in a *hyperindustrialised* economy; that is, an economy of pure calculation? The answer is related to a genealogical and organological motive that involves pairing back the works' subjective layers in relation to their technohistorical contexts, in order to access the mysteries at the heart of historical avant-garde projects. Doing so not only allows them to be re-engaged anew thereby facilitating processes of learning and individuation, but so too does it permit those themes and ideas to be *repeated* and *reworked* using new techniques and in the context of contemporary society, thus recuperating the mystagogical spirit. This is what Stiegler calls *transindividuation* and it is a concept

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<sup>58</sup> See Buchloh, B.H.D. "Beuys: 'The Twilight of the Idol, Preliminary Notes for a Critique'" published as an appendix in *Joseph Beuys 'Mapping the Legacy'* edited by Gene Ray, D.A.P. /Ringling Museum of Art, 2001

that is central to his aesthetic programme. He maintains that artists and publics need to continually reconsider and rework the themes and strategies engaged by the historical avant-garde. The temporal lapse since the event of their initial exhibiting allows for the maturation of critical and philosophical reflections that could help contribute to new ways of meditating on current systems of subjectivity and identity. The next section involves a detailed explanation of transindividuation with a view to, on one hand, establishing that this concept is absolutely central to the genealogical trajectory of this thesis, and on the other hand, explaining why this is so, in the context of Duchamp's work.

### ***1.2.9 – Transindividuation***

The amateur is someone who believes in, and is transformed by, the mystery at the heart of the work of art, and so it is the mystery that vectorises the process of individuation. The mysterious nature of the work of art maintains the ability to, not just, reveal 'next to existence... something other than the plane of existence' (Stiegler, 2011, p. 6), but indeed to engender creative activity in the mind and body of the beholder. In the context of a general organology – Stiegler's aforementioned concept that describes how technical organs are as important as physiological organs and social organisations in transmitting and organising knowledge – the work of art constitutes the technical milieu across which the *I* and the *We* individuate over and against each other. Transindividuation is a special type of individuation that finds its ideal expression in art and is a facet of Stiegler's aesthetics to which all other concepts are answerable. The work of art is transhistorical because, due to its protracted lifespan, it can communicate across generations. In this sense, art provides a language and medium that, on one hand, allows individuals and groups to individuate over and against one another across different epochs and spatio-temporal divides, and on the other hand, arms the amateur (the art-going public) with creative impetus. Stiegler writes: 'To see a work by showing *what it makes us do...* this is what initiates a circuit of *transindividuation* (of the formation of an epoch)' (Stiegler, 2010, p. 17, emphasis in original). We can elicit from this statement why the amateur is so central to Stiegler's aesthetics because amateurs, and indeed all artistic lay people, 'are artists in potential'

(2010, p. 16). The sensitive amateur and artist alike are affected by the work and henceforth compelled to action by ‘showing’ their own personal *re*-action, therefore establishing themselves as a transmitter within the circuit of knowledge generation and regeneration. The belief held by the amateur is motivating and therefore gives rise to action, an action that is not necessarily political in and of itself, but has the ability to instigate social change by circumventing the trap of symbolic misery, which is always the result of a *short-circuiting* of individuation. Individuation is a learning process, an experimental process, nested within the process of becoming and fulfilling one’s own potential. The amateur, as a sort of *amplifier* of the art idea, must therefore be cherished and nurtured. Stiegler continues: ‘yet it must also be remembered that such circuits can take a very long time to develop’ (2010, p. 17). Transindividuation operates across epochs by virtue of art’s long life; that is, the sacral, mysterious and priceless nature of art that compels its preservation is the primary means by which humans can *speak* to each other across and down through non-contiguous generations; it is a *long circuit* of individuation. This positions art as a major pillar supporting the pre-individual knowledge fund. These circuits of transindividuation, that negotiate the milieu between author, spectator and the technically charged work of art, are crucial ‘in the constitution of a [sociopolitical-cultural] epoch’ (Ibid.). To speak of transindividuation is to think on a grand temporal scale, that is, epochally. Stiegler references art critic Daniel Arrasse, who declares that it took several pilgrimages to the source of a work, over a long period of his life, ‘before he finally “woke up”’: it suddenly became clear’ (Ibid.). Art works, as well as movements and the theory that constitutes them, need to be continually reconsidered, reassessed and reworked otherwise there is a risk of losing critical knowledge and skills that have emerged out of centuries of hard graft, innovation and experimentation.

Stiegler locates great merit in Duchamp’s ability to reflect critically on his own epoch, an aesthetic agenda that manifests itself in his highly acclaimed praxis. But, his oeuvre was by no means immediately and widely commended; indeed, Duchamp was a largely



unknown and elusive figure in the public realm until the 1960s.<sup>59</sup> His fame came about when a contingency of the neo-avant-garde movement, in New York, realised that he was actually living in their midst and drew him into their conversations, ultimately raising him to the celebrity status that he much deserved. His precocious rhetoric that strikes to the heart of the technical problematic engendered by the modern technologies and mass reproducibility demonstrates his shrewd ability to change the rules and this is the methodological weapon that is so highly coveted by the avant-garde. But, for the artist there is a negative consequence of undermining the rules; it is controversial, or *scandalous*, and the majority – the public and the incumbents presiding over fashions and taste – do not necessarily like that. A decision to change the rules is synonymously a decision to forgo credibility, popularity and success in the eyes of the general public; it is to make one's art unfavourable to the bourgeois patrons and henceforth to condemn oneself to a life of penury; it is the more difficult path. Duchamp, for his part, generated very little revenue from his artworks; he lived out most of his life relying on the generosity of his art-patron friends (including the Arensburgs) and some casual earnings that he made from writing reviews and appearing in chess competitions. For Stiegler, the real merit in Duchamp's works is located in the controversial events surrounding their exhibiting. The scandalous nature, of nearly all of his works,<sup>60</sup> consistently impels theoretical reconsiderations and reworkings throughout the twentieth century and, as such, Stiegler holds up Duchamp's aesthetic endeavours as exemplary of his concept of transindividuation.

### ***1.2.10 – Duchamp: Scandal & Transindividuation***

Stiegler regards the scandal caused by Duchamp's exhibiting of the *Fountain* as a quintessential avant-gardist provocation directed against the socioeconomic and political mutations arising from the phenomenon of mass reproducibility. Scandal was

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<sup>59</sup> Duchamp's name and his exhibits were known in the artworld, but he had by no means achieved the status of the archetypal figure of conceptual art for which he is now known to the general public.

<sup>60</sup> It should be recalled that even his paintings, like *Nude Descending a Staircase*, which seem altogether quite benign in a contemporary context, had elements of scandal attached to them.

an essential element of the avant-gardist toolbox and particularly central to the aesthetic endeavours of Duchamp. Stiegler suggests that in the after event of an artistic scandal there proceeds a liminal state of interruption that opens up a space for reflection on the occurrence; that is, a sort of post-traumatic void opens up which initiates a transindividuation in which psychic individuals and collective organisations are obliged to reason through and reconcile the aesthetic incident that has taken place. In this regard, scandal is inherently related to transindividuation and is therefore, through its ability to rupture the status quo, central to the formation of an epoch, as such, scandals are at once the destroyer of stable continuity and the seed of new possibility.

Stiegler asserts that an ability to produce a scandal constitutes the essence of the mysterious aesthetic experience initiated by avant-gardist works of art, which is obviously consistent with early theories on the avant-garde as set out by Poggioli. He identifies the characteristic as an antagonism, which is analogous to Stiegler's employment of the term 'transgression'. For Stiegler, aesthetic scandal, like any circumstance, can be read pharmacologically; that is, at the outset it is experienced negatively as a sort of slump or depression, but through a long circuit of transindividuation it begins an asymptotic elevation by 'provoking psychic processes experienced as a "[...] sort of *collective levitation*"' (Desmond et al., 2015, p. 82). Aesthetic elevation is determined here by an inverse process analogous to the mathematical expression of a reciprocal, which operates by relating one function to another so that their product is unity. Said differently, the aesthetic elevation of a scandal is experienced as a result of practices performed in resistance to the prevailing aesthetic doctrine, which places pleasure and continuity at the centre of its programme. Employing the pharmacological methodology, avant-garde scandals contain both aesthetic collapse and elevation; collapse in terms of an impulsive reaction, elevation in terms of a slow and protracted communal negotiation as a derivative of the fluid and expanding temporal separation from the event of its initial exhibition. This pharmacological reading of scandal is useful for understanding the nature of avant-garde movements of the twentieth century and furthermore helps to explain, via the concept of transindividuation, why Stiegler places so much emphasis on the work of

Duchamp. But, Stiegler's interest in the scandalous aspect of Duchamp's practice is primarily concerned with his *Readymades*, and while this collection is helpful in demonstrating avant-gardist strategies of provoking new socioeconomic processes and reconfiguring rule sets, this thesis is actually more interested in the more discreet scandal and transindividuation vectorised by *3 Standard Stoppages* – Duchamp's favourite work.

Although Duchamp's principle of using chance operations to create a shift in emphasis from produced object to conceptual process was established in the period of the early twentieth century, his idea did not gain substantial currency until the emergence of the neo-avant-garde, in the 1950s. Artistic investigations of chance and indeterminacy were by no means the sole endeavours of Duchamp. As he noted himself, at that time, many artists were exploring ways of introducing chance operations into their processes of production. However, it is fair to say that Duchamp was pioneering in the *way* that he went about it. Duchamp's work foregrounds a fastidious, Baconian, pseudoscientific method that helps catalyse a bifurcation in artistic production by shifting emphasis away from the final product and towards the process and its documentation thereof. This fosters a tendency to migrate preoccupations from subjective creativity to a territory concerned with the *principle of construction*, thereby positioning the artist as an inventor. However, Duchamp's gesture was more comparable to planting the seed of an idea than championing an innovative concept. His methodologies were not immediately adopted by artists far and wide in a sort of stylistic panic; conversely, it was not until the 1950s that – following a transindividuation – the mediated production of chance began to be recuperated as a plausible methodology, and repeated under the aegis of the American neo-avant-garde. As such, the next section consists in a continuation of the genealogy of chance operations by examining some neo-avant-garde working methodologies of John Cage, who is often held up as the quintessential arranger of chance compositions. It will be shown that his body of work not only exemplifies experimental, avant-garde investigations into chance operations as both epistemic discovery and aesthetic activism, but so too does he effectively demonstrate an increased complexity in systematic art production that paves the way towards the organological emergence of machinic efficacy. The reason for this genealogical tracing

of chance is to, on one hand, help elucidate how the mediated production of chance develops in complexity following Cage's 35-year transindividuation with Duchamp's aesthetic problem, and on the other hand, show that the evolution of the avant-garde aesthetics of chance vectorises a more general organological development in which systems become increasingly influential and autonomous in processes of making both art and general cultural symbols.

### ***1.2.11 – Chance Techniques & the Metaphor of John Cage***

The strategy of migrating aesthetic methodologies from embodied authority to a territory concerned with the *principle of construction*, that is affected by chance operators, becomes substantially more sophisticated in the musical experiments of John Cage. Cage's mentor and profoundly influential composer Arnold Schoenberg, the originator of the twelve-tone technique, described Cage as 'an inventor—of genius' (Kostelanetz, 2003, p. 6). Such a statement is a testimony to the modernist view that the principles of construction and invention are fundamental to avant-garde artistic tendencies, thus implying 'the primacy of constructive methods over subjective imagination' (Adorno, 2002, p. 24). What follows in this section is an examination of the methodological and philosophical underpinnings of Cage's adoption of chance procedures into his constructive systems for music composition. Particular attention will be paid to the writings of James Pritchett who not only wrote his doctoral thesis on *The Development of Chance Techniques in the Music of John Cage* (1988), but also went on to write some of the most important scholarly publications in relation to this genre and crucial period in artistic history. The intention of this section is to provide historical linkage between how indeterminate art-producing systems are engaged in the early and mid-twentieth century.

In the introduction of his thesis, Pritchett juxtaposes two main conceptual models for creating musical compositions. On the one hand, there is the traditional model of approaching the composition *horizontally*; that is, producing a musical score using the conservatoire style of written notation that promotes a straightforward medium of communication, from composer's idea, through page transcription to musical

instruction. On the other hand, there is the *vertical* approach, which is more in keeping with an interpretative, free-flowing, harmonic and unpredictable style of generating music. An obvious example of this is the jazz and blues methodology of relying more on the live moment in a celebration of harmony and magic. Cage's technique of using chance procedures for the generation of musical composition is analogous to the latter, vertical approach. The antagonism between these two approaches may be seen as a microcosm of the broader debate between classicism and romanticism; that is, between the realists and the avant-garde.

In his discussion of Cage's constructive system for generating chance, Pritchett posits a workflow, comprised of three technical components that must be fulfilled in order for chance compositions to come to fruition:

1. A set of fixed predefined elements,
2. A set of rules,
3. The execution of those rules.

What follows is a brief explanation of these systematic components. To propose that chance by itself can generate musical composition is erroneous; a message not only needs a medium but it also needs to know how and when to travel across it, or it will remain a stationary, withheld, potential entity. There needs to be a structure in place whereby the music can mediate. 'Therefore, the composer of a chance work must first design some system in which chance has a role to play. Such a system typically provides for a range of "givens" or fixed elements: collections of musical materials to be manipulated, for example, or an overall structure' (Pritchett, 1988, p. 6). In other words, what are the instruments or musical libraries to be considered? What is the timbre of the sound to be produced? The generative system must also consist of 'a collection of rules or procedures to be followed in order to produce the final score' (Ibid.). Finally, there needs to be a proponent / efficient present that will bring the musical notation into being. Traditionally this was determined by a confluence of the composer's idea and metronomic timing signatures that give reification to the compositional structure; but, in the case of Cage's chance procedure, the human

element is dethroned by a chance operator. Pritchett writes: ‘The rules draw upon the given materials and structures and makes decisions based on some random factor’ (Ibid.). The systematic model can be stated thus: the composer designs a system of rules that, by virtue of additional input from some arbitrary source, produces the musical score.

Cage’s early chance dependent systems were designed around an archetype analogous to magic-square (mathematical) charts. By assigning numbers to each row, and letters to each column ‘each cell in the chart could be identified by a letter-number pair’ (Pritchett, 1988, p. 39). Cage then assigned each row to favour ‘one or more instruments’ (Ibid.). In the early works, which were a development of the *Music for Prepared Piano* works (1938–51), Cage adopted the methodology of ‘letting the aggregates of sounds emerge by themselves... and continuing to experiment with [his] own personal taste’ (Ibid., p. 38). The emergent composition was a result of the composer oscillating between these two poles. In this paradigm, there is still a residue of human subjectivity involved in the creative process and so this technique was not dissimilar to Tachist or Abstract Expressionist aesthetics of indeterminacy, which were concurrently being advocated in the visual arts. However, from an early stage it is clear that, in designing charts and assigning sections to specific instruments, Cage was more interested in a systematic and mathematical approach. Even as early as the last movement in his *Concerto for Prepared Piano II* (1950–51), Cage already began to integrate *I-Ching*, or *Book of Changes*, which was brought to his attention by his student Christian Wolff. The *I-Ching* is a Chinese Classic Text that was traditionally used for divination, usually by tossing a pair of coins. However, Cage used its aleatory, Boolean-type logic<sup>61</sup> as a method for extracting rhythm and structure from his charts. ‘Cage no doubt also saw in its philosophy of mutually-embracing opposites a parallel to his concerto in progress’, in which he sought to express a dualistic resolution of

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<sup>61</sup> Boolean logic is a type of algebra in which all the values are reduced to a truth status of either True or False. The field is named after the nineteenth-century mathematician George Boole and it is particularly important for computer science because its binary logic is perfect for the on–off numbering system wherein each bit has a value of either 1 or 0.

‘expression and non-expression’ (Pritchett, 1988, p. 73). During this project, Cage discovered the type of aleatory systematic process that he had been looking for – one that combined the use of rhythmic structure, charts and chance –, which was to become the quintessential hallmark of his indeterminately produced works. He went on to modify his charts to suit the *I-Ching* system, which evolved into a process of tossing coins, finding the number in the *I-Ching* and then looking up the corresponding cell in the chart. Cage’s random system exhibits a substantial development in sophistication when compared to Duchamp’s one in *3 Standard Stoppages*. Cage consulted his generative systems for every detail of *Music of Changes*, from sonority to duration, dynamics and even silences. In this regard, in contrast to Duchamp’s singular aleatoric force that outputs one indeterminate product at a time, Cage’s system displays a considerable development in efficacy and intelligence because it is a party to more refined decision-making processes. Pritchett writes: ‘In these new chart pieces, the individuality of each event would not be compromised by the conscious choice of dynamics or of rhythm’ (Pritchett, 1996, p. 79), and as such Cage’s working process marks a new stage in the problematic introduced by Duchamp, which seeks to relinquish the creative subjectivity of the artist in favour of systematic procedures. Cage himself admitted that the compositional system transformed his ‘musical idea [into] something quite different than he had originally imagined... producing a fresh and spontaneous world of sound’ (Ibid., p. 83). This statement testifies to: firstly, Cage’s adherence to the philosophy of the avant-garde and their submission to the authority of chance; and secondly, Cage’s transindividuation that is constituted by a remembering of Duchamp’s praxis through ‘the *experience* of repetition, which is to say, of repetition as *apprenticeship*... that Deleuze sought to isolate as difference in *Difference and Repetition*’ (Stiegler, 2015a, p. 86, emphasis in original). That is to say, in Stiegler’s terms, Duchamp’s artistic praxis compels Cage into an engagement with a similar thematic puzzle, but he pieces it back together in a different way thereby demonstrating that he has both learned from and extended the epistemic territory. What was Cage attempting to unpack with his meticulously constructed generative system for the production of aleatoric musical compositions? In disregarding the classical methodology, and henceforth the historical canon of musical pedagogy, what artistic statement was he attempting to make and why?

Citing Earle Browne – also a proponent of such processes, albeit in a different context – Pritchett identifies this compositional archetype as ‘the creation of “the work as an entity, a quasi-organism”’ (Browne cited in Pritchett, 1988, p. 7). By designing the work as a constructive system the composer is essentially programming ‘a life for it, within which it comes to find its shape, extensions of meaningfulness, and multiple formal identities of its basic nature’ (Pritchett, 1988, p. 7). What Cage offers, in a most rudimentary sense, is a semi-autonomous quasi-organism that evolves from the chaotic confluence of dynamic external subjectivities, including: the human hand, the book, the charts, gravity, the tossed coins, musical instrument taxonomies and so on. In addition, no single element is assigned any special hierarchical importance over the other elements in the system, including and importantly the human hand. Cage henceforth asserts his penchant towards an act of dethroning the authority of the subjective imagination. It is also worth recalling that Jackson Pollock sought to undermine the concept of mimesis by enacting, rather than representing, the essence of nature through his action paintings. In much the same vein, was it Cage’s objective to foreground a more *natural* approach to music and the arts in general? All evidence points towards the fact that this was indeed the case. In elaborating on his chance methodologies Cage drew upon the anti-dualistic Zen doctrine of ‘no-mindedness,’ the over-riding philosophy of which advocates the ‘need to rid oneself of conceptual thought in order to apprehend ultimate Reality’ (Pritchett, 1996, p. 77). By bringing this doctrine into his aesthetic process, Cage sought to remove the composer’s will from the creative process, thereby producing a pure, naturalistic composition, free from conceptual interference and emotional baggage, thus delivering the subject to ‘an infinite, completely non-dual space of unique but interconnected sounds’ (Ibid.). Chance techniques offer an archetype whereby the composer could empty his mind of any preconceived or indoctrinated ideas about musical structure and what is said to sound *good*, thereby asserting an identification with, and compassion for, infinite possibility. This was, for Cage, a way of ‘imitating nature in its manner of operation’ (Revill, 1992, p. 91). Just as falling waters or windswept trees emit a random noise or hum that, when measured with scientific instruments, spatters sonic density randomly across a spectrogram, so too, with equally apparent randomness, are Cage’s notes strewn across



the aural faculties of a perceiving audience during a recital of *Music of Changes*. Resonance and dissonance swap positions with apparent carelessness, sometimes surprisingly pleasant and sometimes immanently disconcerting; but, never intentional.

### ***1.2.12 – How chance works as a political activism in Duchamp & Cage***

Cage's process of using chance techniques in the making of his pieces, such as *Music For Changes* and *The William's Mix*, not only exhibits a penchant towards producing a more naturalistic sound, but so too does it forge an identification with avant-gardist activities that champion *purposelessness*, *experimentalism* and an exploration of *unknown possibility*. In his mobilisation of an aleatoric yet highly methodological system of construction, he is alluding to and therefore paying homage to the pioneering aesthetic endeavours of Marcel Duchamp and the historical avant-garde generally. The motivations of such aesthetic strategies are fundamentally underpinned by an interrogation, or probing, of modern society's increasing tendency towards structural rationalisation 'under the reign of logic' (Breton, 1924). The introduction of chance into processes of construction is counterintuitive to the prevailing sociopolitical mind-set advocated by the cultural logic of capitalism and therefore stands in abstract protest to it under the aegis of an erudite and precocious parody. But, their artistic parodies were not simply based on a humour that 'just pokes laughter. Neither was it black humour, it was really a kind of humour that added something... serious' (Molderings, 2010, p. 118). The purposeless inventions that constitute the aforementioned works of both Duchamp and Cage operate by exposing, not only, an antagonistic intention toward artistic conventions, but indeed, an abstract political activism directed at the overly deterministic and reductive means–ends rationale, upon which capitalistic socioeconomic values are founded, and which places *useful*, rational invention and monetisable innovation at the forefront of its ethos. The emphasis that capitalism places on the production of rational and functional products is primarily located in the domain of *invention*, which is always underpinned by progress in science and the development of new technologies and processes, and these are, in turn, ultimately always working towards maximising profit through an increase in productive speed and allocating tasks to machines; that is, proletarianisation through automation. It is precisely for this reason that this domain, where chance and the new converge, is so

highly valued by the artistic avant-garde and henceforth becomes the target area for their exploits. The introduction of chance operators, and their exceptionally purposeless products, into a sociocultural paradigm that advocates logical, *methodological*, *technological* progress undermines the promise of progress by giving primacy to the exception – the particular – thus showing that nothing is certain. This opens up a horizon of possibility for the perceiving audience who are then overwhelmed by a vastness tending towards infinity. As such, the audience are commanded into questioning the subject–object constraints placed upon them by socioeconomic system and the technological means through which they engage with it, which effectively connotes a disempowerment of the bourgeoisie through those very technological means that are deployed with a view to maintaining power and control over populations. On this point Adorno writes: ‘The subject, conscious of the loss of power that it has suffered as a result of the technology unleashed by himself, raised this powerlessness to the level of a program’ (Adorno, 2002, p. 24). The bourgeois subject, whose means of production embodies the power they hold over the poorer working classes, is paradoxically threatened by the very system that guarantees the stability of their status; the sociopolitical underpinnings that operate on the basis of alienating via various screens of reality become re-exposed through the absurd amalgamation of chance and production. The strategic methodology of the avant-garde is thus ‘adaptation to alienation... as the only possible form of resistance to such alienation’ (Bürger, 1984, p. 67), and thus society in general. Bürger’s self-referential strategy of analysis – which draws heavily on the negative dialectics of Adorno – suggests that the importance that capitalism allocates to the areas of innovation and invention demands that art must also assimilate to the socioeconomic paradigm that perpetuates alienation in order to communicate its own message; but, by doing so art paradoxically subscribes to the very system that it sets out to critique.

### ***1.2.13 – Conclusion to Chapter 1***

It has been established that Marcel Duchamp was one of the early innovators to paradoxically combine chance procedures with a Baconian scientific methodology. An explanation of his work has opened up opportunities to introduce, on one hand, important aspects of avant-garde theory and praxis, and on the other hand, the

philosophy of Bernard Stiegler, which is central to this thesis. The identification of *invention* as a key epistemic territory for avant-garde praxis gives credibility to the notion that the intersection of chance and the new is the epicentre where such practice can be carried out. This demands a need for an analysis of Duchamp's other strand of work that specifically targets the question of new technology: the *Readymades*. However, what is surprising about Duchamp is that he does not blend the two categories in any of his singular artworks. That each of his singular art instances lays bare the essence of the categories and exposes the fundamentally clandestine irrationality of capitalism is doubtless, but he does not attempt to blend tekhnē with chance. His aesthetics are concerned with the progressive elimination of the artist's hand from the creative process, in an attempt to show that the job of the artist is to re-programme the rules that constitute poiēsis, which are conditioned and modulated by the evolution of the organological milieu. Indeed, it was not until Cage played Duchamp in the public performance game of chess, entitled *Reunion* (1968),<sup>62</sup> that the transferral of Duchamp's performative, aleatoric aesthetics to the domain of new technology was finally completed. *Reunion* was a 'chess concert', played out on a bespoke, electronic chessboard<sup>63</sup> that 'determined the form and acoustical ambience of a musical event' (Cross, 1999), and was in fact the brainchild of Cage, not Duchamp.<sup>64</sup>

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<sup>62</sup> The original performance was recorded on Tuesday, March 5, 1968 at 8.30 p.m. at the *Ryerson Theatre* in Toronto, Canada. It was released on a 5 inch LP (details can be found in the discography under the *Takeyoshi Miyazawa* label) in 1968, or 1970 accompanying a 275 page book by Shigeko Kubota, consisting mainly of photographs taken during the electronic chess game. More information on the recording can be found in "Art in America" 61:72-9 (November 1972). 'John Cage Complete Works'. 2015. Accessed November 3. [http://www.johncage.org/pp/John-Cage-Work-Detail.cfm?work\\_ID=325](http://www.johncage.org/pp/John-Cage-Work-Detail.cfm?work_ID=325).

<sup>63</sup> Designed and developed for John Cage by Lowell Cross, an electronic engineer and author of the cited article.

<sup>64</sup> An excerpt of the chess concert is available to listen to at The Marcel Duchamp Studies Online Journal. [http://www.touffait.com/issues/volume2/issue\\_4/music/chen/chen.htm](http://www.touffait.com/issues/volume2/issue_4/music/chen/chen.htm)



Fig. 1.5: Photograph of the *Reunion* chess match between John Cage (right) and Marcel Duchamp. The woman on the far left is Teeny Duchamp, Marcel's wife. Photograph by Shigeko Kubota.

Although an incredibly interesting artwork, it has been decided that a detailed analysis of the chess match is not pertinent to the central axis of this thesis, which is one concerned with the evolution of the machinic performativity, because the paradigm that is assembled by Cage, via the electro-technical expertise of Cross, is one that facilitates an engagement between two humans *across* the medium of technology. This thesis is conversely concerned with a direct engagement between humans and machines wherein the autonomy of the machine is increasingly elevated to a point where it is perceived as being quasi-performative. Said differently, the thesis is concerned with a genealogy of the sensible that elucidates a general organology in the capacity of avant-garde practices that experiment with chance and the new and, as such, testify to the existence of technological individuation. Furthermore, to focus on the live, electronic nature of the chess match – at this point in the genealogy – would involve skipping over a crucial stage in organological development, one that has already been delineated in the discussion of Stiegler's pharmakon; that is, the mass technocultural event of the invention of audio and visual recording: *mnemotechnologies*. A discussion of the

relationship between the avant-garde and the new technologies of *re*-presentation is further worked out in the next chapter, which remains steadfast to the avant-garde domain of invention – the intersection of chance and the new – with specific reference to Samuel Beckett’s *Krapp’s Last Tape*. The intention of the next chapter is to discuss the technohistoric specificities of Samuel Beckett’s acclaimed play under the aegis of Stiegler’s technological philosophy. Not only does Stiegler’s contemporary technological theory enable an original re-reading of the artistic metaphors and nuances at work in Beckett’s acclaimed play half a century after its conception, but so too does the play give substance to the established Stieglerian theories – the pharmakon and individuation – as well as command the incorporation and explication of several more. An important concept that needs to be considered is that of technicity; that is, technology considered in its efficacy, or ability to produce a desired (artistic) outcome. Beckett’s script will be analysed through the ontological force accredited to technology by Bernard Stiegler – which is derived from the work of Gilbert Simondon – and therefore aims to elucidate the impact of *technicity* on the theatrical text. I suggest that not only is *Krapp’s Last Tape* charting a kind of conceptual terrain that we now, perhaps belatedly, have some of the conceptual tools to engage, but so too does it chart a conceptual terrain that is very much the experiential terrain of contemporary life. Under Stieglerian terminology, the play should therefore be understood as an ‘epochal rupture’ opening out from its first instantiation, which marks an important development in relation to the evolution of the performativity of the machine. Towards the end of the chapter Stiegler’s technological philosophy be expanded to open up reflections upon broader sociohistoric, ontological and cultural implications that will be considered in more detail in the following chapter on contemporary, digitally engaged theatre.

## **Chapter 2: Samuel Beckett, Scenographic Innovation and the Shift from the Culture Industry to the Programme Industry.**

### ***Chapter Overview***

*This chapter marks the second stage in the genealogy of the sensible that constitutes this thesis. Samuel Beckett's Krapp's Last Tape is identified as an avant-garde event that represents the beginning of a new epoch wherein processes of automation are introduced into systems for generating art. The play is analysed for two reasons: firstly, because it exemplifies many of the key aspects of Stiegler's technological philosophy and, conversely, Stiegler's philosophy helps us to read the play in fresh and innovative ways; and secondly, because the play's unveiling represents an avant-garde gesture, par excellence, by demonstrating new possibilities for deploying automated technology in artistic contexts, thus creating an epochal rupture. This rupture is both positive and negative because, while it points towards a plethora of new creative possibilities and a new expressive language, it also implies a scenario where the actor is replaced by a machine and henceforth unearths Duchamp's problem of the proletarianisation of the artist, which represents one of the key problems underpinning this thesis. Krapp's Last Tape might seem like an unusual choice when compared with the objects of discussion in the first chapter, but it will be demonstrated and explicated that, despite the fact that the play is a fixed text, it is in fact wholly engaged with the topic of indeterminacy. Not only does this apply thematically, inside the frame of fiction through its emphasis on the (in)determinism of technology, but also outside the frame, through the experimental nature of Beckett's engagement with the cutting-edge technology. So new was the technology at the time that Beckett wrote to his friend and colleague, Donald McWhinnie, asking him 'to send operating instructions, so that he could have some sense of how a recorder worked as he crafted his play' (Hayles, 1997, p. 80). This fact raises two important points: firstly, and obviously, that the play is written for a machine; and secondly, that Beckett was experimenting and was therefore uncertain as to what the final outcome would be. The fundamental indeterminism at the heart of technology and the anxiety that it brings to bear is theorised by Stiegler*

according to the thought of Heidegger, and is engaged for this discussion. The intention is to provide a historical mapping and henceforth an analysis of what I maintain to be key events in the development of, not just, the machine as a performer, but also, the performativity of the machine. It therefore elucidates a tendency in the arts – which parallels a broader societal tendency – to allocate more and more agency to machinery to the point where, in the age of computation there is a situation where the human is almost entirely eliminated. Stiegler's philosophy will be engaged to show why the elimination of the human from creative processes is so dangerous. This thesis holds that Krapp's *Last Tape* is a quintessential example of mechanical, preforming scenography and considering it in the context of a genealogy of the sensible can facilitate a better understanding of the experiential terrain of contemporary, hypermodern, digitalised society.

## **2.1 Krapp's Last Tape, Grammatism and the Matter of Memory.**

### **2.1.1 – Background to Krapp's Last Tape**

Recent analyses of *Krapp's Last Tape* have offered some intriguing insights into Beckett's deployment of the tape-recorder as a catalyst for self-referential conflict on stage. Adalaide Morris' edited collection, *Sound States: Innovative Poetics and Acoustical Technologies*, provides two such highly informed readings of the play by Michael Davidson and Katherine Hayles. The former posits that the tape recorder represents 'an ultimate agent of mind control, a machine capable of replacing human communication with a prerecorded script' (Davidson, 1997, p. 99). More recently again, in her excellently researched book, *Beckett, Technology and the Body*, Ulrika Maude also aligns herself with these concepts, by offering a synthesised response, suggesting that the tape recorder serves as prosthetic memory. It is precisely on foot of this analytical differentiation – tape recorder as prosthesis and tape recorder as a separate body, or agent – that this thesis identifies *Krapp's Last Tape* as an important piece in the genealogy of performative machines in artistic processes. Historicising the play within a framework of technical evolution can open up a mapping of epochal specificities that could facilitate critical reflections upon the experiential terrain of the contemporary techno-historical situation: an epoch in the aftermath of postmodernism

– described as by theorists as the end of scandal, the ceaseless circulation of imagery and the absence of aesthetic value, or judgement, in an analogously unregulated, unsympathetic marketplace, ‘beyond good and evil’ (Baudrillard, 1993, p. 14).

In 1958, Samuel Beckett produced his radiophonic-theatrical hybrid masterpiece, entitled *Krapp's Last Tape*, an incontestable milestone in technologically engaged stage production. The work was seemingly a thematic continuation of his experimental and acclaimed radiophonic play, entitled *All That Fall* – which was commissioned by the *BBC Third Programme* in the previous year – in which he completely severed the visual aspects from his work, and migrated his writing to the domain of pure acoustics. *All That Fall* is a montage of recorded sound effects and staged voice-overs that draws out the specificities of the then newly available mechanical recording techniques and the mass medium of radio broadcasting. It is understood that Beckett owes much of his aesthetics, in *All That Fall*, to Pierre Schaeffer's philosophy of *Musique Concrete*,<sup>65</sup> a movement which sought to focus on new and unusual sounds experienced by inhabitants of modernised cultures. Their strategy consisted of recording heterogeneous sounds and editing them together into singular compositions, the goal of which was to re-focus attention on acousmatic sounds in modern culture that have already assimilated to what we perceive as natural. The process of pairing away the visual, and delving into the sonic aspects of his characters' physiology, assisted Beckett in his quest for the privileging of interiority; the radio medium forced his hand in reducing characters to purely acoustic phenomena, thus eliminating many distractions and helping to produce deeply personal characters. On this point Ulrika Maude notes that many early critics support the idea that Beckett migrated his writing to the radiophonic medium ‘because it offered him the most effective means of portraying a character's mind, which humanist critics have considered the author's prime objective’ (Maude, 2009, p. 47).

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<sup>65</sup> *Musique concrete* is founded on Pierre Schaeffer and Jérôme Peignot theories of experiencing *acousmatic* sound in modernity. Acousmatic is a word, derived from Greek, that describes the phenomenon of hearing a noise without being able to identify the causes of its origination. For Schaeffer and Peignot, these noises are specific to and immanent in the experience of sound via modern technologies and therefore shift our understanding of what qualifies as natural sound.



Following his foray into the world of pure acoustics, Beckett had a heightened sense of radiophonic dialogue, the effects of dislocated voice on intonation and inflection and the powerful ability of mechanically reproducible technology ‘to pry an object from its shell’ (Benjamin, 2011, p. 217); that is to say, a character’s soul from its corporeal boundary. However, it is arguable that in *Krapp’s Last Tape*, despite his return to the more conventional paradigm of an audiovisual stage hybrid, Beckett represents a more interiorised character than any of those in *All That Fall*. By adopting the tape recording device Beckett circumvents the traditional theatrical means of communicating the interiorised world of consciousness – the monologue or soliloquy – and thus creates ‘a directness of confrontation between a man’s various selves that produces an effect radically different from earlier’ analogous self-referential or self-reflexive dramas (Knowlson, 1979, p. 83). Upon hearing Patrick Magee’s recital of his earlier texts, Beckett was so ‘impressed and moved by the distinctive cracked quality of [his] voice, which seemed to capture a sense of deep world-weariness, sadness, ruination and regret’ (Ibid., p. 81), that he was inspired to write a monologue for a weary old man with a wheezy and croaky voice. Magee would play the part. The regrettably course name of Krapp, conferred upon the character, evokes disagreeable ‘excremental associations’ (Ibid., p. 81) that consistently steer the tone back to one of obnoxious, rotting bodily matter and the deteriorating visceral demands of decrepitude, which, as the playbacks reveal, Krapp has struggled to cope with all his life. *Krapp’s Last Tape* is a poignantly nostalgic monologue that, at first glance, interrogates the slow, protracted tragedy of ageing and the recollection of youth, of a life once lived, which seems to the protagonist almost otherworldly, or other-bodily. But, this thesis suggests that the idea that is most at stake in this play is not the obvious theme of representing an old man abandoning himself to ‘morbid reflections on his former glories or regretting his past failures,’ (Ibid., p. 83); it is far more simple than that – in the sense that a *grammatisation* is the simplification of *something* by breaking it into its discrete parts. Grammatisation is a term coined by Sylvain Auroux to describe the technical and logical process of creating alphabets by discretising the flow of vocal utterances that constitute language into individual letters and letter combinations; what Stiegler describes as ‘analysis as discretisation of the continuous’ (Stiegler, 2014a, p. 49). As a process of exteriorising reductive logical thought, it is the precondition and structural

archetype for all written language, and by default knowledge in general, including science and mathematics. According to Aurox, the automation of printing technologies amounts to the second *technological revolution of grammatisation* and Stiegler then borrows this concept and extends it by declaring that the third phase can be understood as the ‘generalisation of informational technologies’ (Stiegler, 2014a, p. 54). That is to say – in a parallel to that which was discussed in the last chapter under the concept of the *pharmakon* – Stiegler extends a theory of writing, as the essence of exteriorised rational thought, by applying the same logic to modern technologies of representation: *the technologies of inscription*. In terms of Beckett’s play then, there is a gradual revealing of Krapp’s interior self, via processes of vocalization and phonetic inscription and the resultant depositing of traces on to magnetic tape, thereby turning his vocal exteriorisations into empirical, archivable and therefore sentimental objects. This privileging of interiority is furthermore explored by Hayles in her examination of Knowlson’s article, entitled *Beginnings*, where he points out, by citing Roy Walker, that Beckett’s intention was to use the tape recorder as:

A solution to “a problem that baffled the experimental playwrights between the wars,” namely how to represent the internal monologue that constitutes consciousness, with all of its ephemerality, multivocality, and obsessive repetitions. Perhaps, he muses, “the epiphenomena of consciousness could be revealed by bringing the recorder on stage. *Krapp’s Last Tape* transforms a playback into a play” (49). (Walker cited in Hayles’ citation of Knowlson, 1997, p. 81)

Knowlson’s cogitations provide attestation to the fact that the new mechanical technologies of audio (and visual) inscription offer new possibilities for delving into, revealing and laying bare the intrapersonal spaces of the human mind and spirit by grammatising and archiving them. Stiegler’s synthesis of grammatisation with new inscriptive technologies seems like a straightforward one, but he identifies a problem with Aurox’s concept in that he limits it to language, whereas Stiegler declares that ‘today bodies as well, with the temporal sequences of gestures (including the voice)<sup>66</sup>

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<sup>66</sup> Following Leroi-Gourhan, Stiegler does not differentiate between speech and gesture, because vocalisations are fundamentally a derivative of combinations of muscular movements in the larynx, pallet, tongue and lips. In this sense all human epiphenomena are reducible to exteriorisations conducted through physiological movements.

and movements... are subject to grammatisation through sound and image' (Ibid.). In this respect, Stiegler is able to extend the theory beyond language, into the spatial fields of gesture and movement, because the technological advancements help elucidate the essence of the relations between inscription and the human: temporal relations. This is to say that the physiological, intentional actions that constitute any given task or piece of work are always executed through a temporal succession of moments and now, by virtue of electromechanical knowledge, those moments are recordable, discretisable and archivable. And this is pharmacological because: from a beneficial aspect, knowledge becomes organisable in a way and at a speed that was never before imaginable; but, from a detrimental perspective, processes of knowledge acquisition – learning processes – get short-circuited by the machine which now stands in for memory – knowledge retention. In the words of Lyotard, we become more and more 'inhuman' (Lyotard, 1992). Furthermore, they are exact repetitions, they are automata, they are to repeat without thought. This is the opposite of human repetition, which requires *remembering*, an active piecing-back-together, a participatory rebuilding process that is organic and fundamentally indeterminate. Sometimes the product is worse, but most oftenly it is better, an improvement. This is what Deleuze calls *apprenticeship*, a learning process that is also participatory, and which he teases out in *Difference and Repetition*. Apprenticeship was demonstrated in the last chapter by highlighting the genealogical transindividuation that was demonstrated by Cage in his taking-up of Duchamp's problem. Beckett's play is demonstrative of this process because through the playbacks of the fragments of Krapp's life, not only does it convey a process of discretising, logging, archiving and recalling his oral gestures, but so too does it foreground how the technology organises the human subject, impinging mental and physical gestures upon it; that is, the tape recorder asserts an agency of control over the human both inside and outside of the frame of fiction. It is a presentation of *grammatisation* as drama: a *Grammaturgy*.

### **2.1.2 – Krapp as Avant-Garde: A Deployment of New Technology**

Maude gives us a useful insight when she states that the intention is to examine 'the status of sound as a near-physical object that has the ability to make us relive the past' (Maude, 2009, p. 63). A consideration of this statement in terms of Stiegler's pharmacological analysis of mnemotechnology – as a catalyst for exteriorising and

organising knowledge and as an inhibitor for learning – shows that Beckett provides us with an interrogative praxis that decodes the essence of the then cutting-edge inscriptive technology and its complex relationship with humans. Whether the artist's primary intention was one of foregrounding interiority, or commenting on the grammatisation and prosthesis of memory, the fact remains that Beckett deliberately engaged with a cutting-edge technology in order to convey his artistic idea, which means that the work displays a special affinity with the *coveted* avant-garde category of the new.<sup>67</sup> The technological object therefore represents an object of desire that has the potential to fulfil both a deceitful infidelity and a pure and truthful ecstasy. Domestic tape-recording technology was so new at the time that Beckett wrote to Donald McWhinnie, his friend and colleague, requesting a set of 'operating instructions, so that he could have some sense of how a recorder worked as he crafted his play' (Hayles, 1997, p. 80). Engagement with the latest technologies is always a certain way to get to the crux of the problem of the new. Progressions in new technologies which are, since the *third technological revolution of grammatisation*, so heavily focused on the development of cognitive (or 'spiritual') prosthesis are, for Stiegler, testimony to capitalism's commitment to the industrialisation of all things; that is, a continuous development towards a hypermodernism. In this regard, Stiegler is critical of 'postmodern' theory because it implies the idea of an epoch in the aftermath of modernity, when, in fact, Western society is experiencing ongoing and increasing processes of modernisation. Henceforth, Stiegler displays an area of agreement with Jürgen Habermas who maintains, in *The Philosophical Discourse of Modernity* (1987 [1985]), that modernism is ongoing and postmodernism can be broadly understood as a rhetorical deployment of avant-gardist strategies from the late nineteenth and early twentieth centuries. What follows below is a discussion of the relational confluence between modernism and the avant-garde in the domain of the new, because it is held that the pivotal artistic energy, which is generated at this nexus, promotes a wealth of challenging and fresh art. Considered in terms of the central genealogical axis under examination in this thesis, it will be shown that a progressive coming together of the categories of the new and chance is paralleled by an increasingly organic

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<sup>67</sup> The term *coveted* is gathered here in the sense that it belongs to another, an other that owns the means of production: the bourgeoisie.

indeterminacy that is indicative of an assertion and intensification of autonomy by the technological milieu.

### ***2.1.3 – The New: Modernity and the Avant-Garde***

Central to the relations between modernity and the avant-garde is the category of the new, but it is not a straightforward relationship in the sense that everything new is automatically modern and avant-gardist; the relationship is far more complex. To cast everything new into the taxonomy of modernity is to over simplify a system into authoritarian opposites, and to wholly misunderstand what it means for something to be modern. To cogitate on the contingency of modernity that advocates an avant-gardist mentality it is useful to address Habermas – one of Adorno’s students – who makes it his prerogative to complete the project of enlightenment.

In *Modernity: An Unfinished Project*, Jürgen Habermas traces the etymology of the word ‘modern’ back to the 5th Century, where it was used to differentiate between the Christian present and the tabooed pagan and Roman pasts. He writes: ‘what was considered modern was what assisted the spontaneously self-renewing historical contemporaneity of the *Zeitgeist* to find its own objective expression’ (Habermas, 1997, p. 39). Thus, the prevailing and consistent feature of modern art became located in its moment of novelty, the new; but, Habermas is at pains to differentiate between ‘modish newness,’ which is inevitably devalued and overtaken by newer, fresher stylistic innovations, and ‘modernity’s Newness,’ whose power is in its ability to escape categorisation among the mundanely fashionable, thereby preventing its relegation to yesterday’s trends (Ibid.). In this sense, the category of the new can be grounded in bourgeois capitalist society’s hostility towards tradition. This position is asserted by modernity’s ability to communicate classical ideas; by aligning itself with the classical, modernity signifies ‘that which endures through the ages’ (Ibid., p. 39). Art that stakes a genuine claim in the project of modernity is a work which has relevance to current, contemporary sociopolitical and aesthetic discourse, which ‘has now become past’, and not ‘from the authority of a past age’ (Ibid., p. 40). What is crucial here is that modernity be envisaged not as a period in history but rather as a mentality, an attitude; it is a project that is always ripe for discussion and is

characterised by the ability of the authoring subject, to choose to reflect upon the contemporary status of one's own enterprise. According to Foucault this attitude 'is a mode of relating to contemporary reality; a voluntary choice made by certain people; in the end, a way of thinking and feeling; a way, too, of acting and behaving that at one and the same time marks a relation of belonging and presents itself as a task' (Foucault, 1984, p. 39). But, modernity's ability to metamorphose what is contemporary and relevant into historical significance creates a self-fulfilling aporia. On the one hand, such a methodology necessarily spawns a dogma in the opposite camp, setting up a binary of 'for' and 'against', while on the other hand, 'without the characteristic subjective mentality inspired by the New no objective modernity can crystallize at all' (Habermas, 1997, p. 40). As such, the problem of modernity, and analogously postmodernity, becomes a series of movements set in motion to contradict that which went before it, in a sort of periodicity that oscillates between classicism and romanticism. The thing that needs to be established here is that these are polemics, binary opposites, and although such polarisation can at times be useful, casting movements to such extremes can result in the tendency to overlook the richly nuanced gradation that spans between them.

Following Europe's quintessential oscillation to modernity in the late-nineteenth / early-twentieth century – one preceded by the epochal rupture of the industrial revolution, which shook the foundations of literature, the visual / performing arts and music – the mentality of aesthetic modernity underwent a transformation distinguished by a set of perspectives which blossomed out of an evolved consciousness of time. On this theoretical evolution, Habermas writes:

It is this consciousness that expresses itself in the spatial metaphor of the avant-garde—that is, an avant-garde that explores hitherto unknown territory, exposes itself to the risk of sudden and shocking encounters, conquers an as yet undetermined future, and must therefore find a path for itself in previously uncharted domains. But this forward orientation, this anticipation of an indefinite and contingent future, the cult of the New which accompanies it, all this actually signifies the glorification of a contemporariness that repeatedly gives birth to new and subjectively defined pasts. This new consciousness of time... expresses more than the experience of a mobilized society, of an

accelerated history, of the disruption of everyday life. The new value which is now accorded to the ephemeral, the momentary and the transitory, and the concomitant celebration of dynamism, expresses precisely the yearning for a lasting and immaculate present. As a self-negating movement, modernism is a 'yearning for true presence.' (Ibid., p. 40)

It is precisely this evolved consciousness of time and the collateral celebration of flux that assert themselves as essential aesthetic conditions emerging from the convergence of modernity and the avant-garde. The embracement of the present moment, the dynamic and the spontaneous advance a *carpe diem* mentality that simultaneously advocates an abstract opposition to history, 'which thus forfeits the structure of an articulated process of cultural transmission ensuring continuity' (Ibid., p. 40); that is, it promotes the will to destabilise cultural and administrative institutions that place history and permanence at the foundation of their ideology. Such an attitude conflates distant pasts and recent events with possible futures, in an overall strategy that obfuscates individual temporalities by constantly reorganising them, in much the same way as digital networks re-centralise themselves in relation to the interacting subject. This 'anarchistic intention of exploding the continuum of history,' of eradicating institutions steeped in sentimentality and prudent self-affirmation, 'accounts for the subversive force of an aesthetic consciousness which rebels against the norm-giving achievements of tradition' (Ibid., p. 41). This rebellious and scandalous attitude is obvious upon examining some of the wild and decadent statements in the manifestos of the historical avant-garde, for example Marinetti's delirious call for 'the good incendiaries with charred fingers [to]... heap up the fire to the shelves of the libraries! Divert the canals to flood the cellars of the museums! Let the glorious canvases swim ashore! Take the picks and hammers! Undermine the foundation of venerable towns!' (Marinetti, 1909). The Futurists were something of an extreme and outspoken case, but this same attitude undeniably emerges through Duchamp's gesture of exhibiting the mass produced urinal as a work of art, and more specifically again to this chapter, through Beckett's decision to write a script for a tape recorder. Although his act of placing a mnemotechnology on stage may not have had the same scandalous impact as Duchamp's urinal, Beckett's play does nevertheless depend heavily on an intention to shock the audience, but in this case through a deployment of new technology.

The strategy of the new not simply one conceived with a view to surprise and shock; conversely, the zealous, destructive attitude directed against tradition – via new technology – is carried out in an attempt to open up a sociopolitical schism. The activism at the heart of the work is vectorised by a fundamental departure from, or negation of, a prevalent cultural mentality, which is perceived as being guarded and therefore harmful to the development of creativity. On this polemical praxis directed against history and tradition, Alain Badiou writes:

Avant-gardes only want to think of art in the present and want to force the recognition for this present. This is their way of assuming their newly acquired passion for the real. Invention is intrinsically valuable, novelty as such delectable. Repetition and the old are despicable, so that absolute rupture, which restricts one to the consequences of the present alone, is salutary.

(Badiou, 2007, p. 134)

Avant-gardes engage the most current subjectivities by employing the most contemporary materials and processes, and it is this methodology that gives the work its immanent political expression. Cutting-edge technologies and inventions provide a channel that is wholly contemporary and engaged with the present, across which the artist's individual and idiosyncratic expression collides with the fluid and interpretative subjective concerns of the art audience. This advances an indeterminate aesthetic that demands intellectual analysis, interpretation and evaluation through processes of reflection on the contemporary status of one's existential enterprise. Later in this chapter it will be demonstrated exactly how Beckett's deployment of the new mnemotechnology interrogates and lays bare the ways in which technology alters systems of intersubjectivity at both the psychic and broader, sociopolitical level.

Artistic engagements with contemporary materials and techniques advance a departure from preoccupations with traditionalist, realistic modes of representation and it is the radical quality of this severance that distinguishes the category of the new in modernism from earlier, 'modish' uses of the term. This fundamental 'break with preceding artistic schemata' (Badiou, 2007, p. 132) is not just manifest in the produced work itself; rather, it is relational, in the sense that it advances, an exceptional – that is to say an extraordinary – dialogue between artwork and the bourgeois spectator. The



exceptionality of the material configurations and the relational constellations that they bring forth through their demand for analytical reflections on the present, open up precisely what Badiou identifies as an *Event*: a revolt, an upheaval, a confrontation, a reality-check, a eureka moment which deviates fundamentally from the prevailing, quotidian mind-set and points towards the possibility of ‘truth’ and an opportunity to start afresh. In shedding some further, helpful light on what Badiou means by an *Event*, Peter Hallward writes:

For what is encountered through an event is precisely that void of the situation, that aspect of the situation that has absolutely no interest in preserving the status quo as such. The event reveals “the inadmissible empty point in which nothing is presented,” and this is why every event indicates, in principle, a pure beginning, the inaugural or uncountable zero of a new time (a new calendar, a new history). (Hallward, 2003, pp. 114–115)

According to Badiou then, it is from the void of the situation – that is a negation of all thought – that a new beginning is possible and it is essentially linked to an employment of the category of the new; that is, new materials and new techniques can bring about new aesthetic experiences. It is henceforth comprehensible why Beckett’s deployment of the tape-recorder on stage represents an excellent example of Badiou’s thesis on how innovative implementations of new technology create an aesthetic event; that is, a fundamental severance with preceding artistic paradigms. This desire to create an *Evental* situation, the desire to rupture prevalent cultural norms and, henceforth, sociopolitical mediocrity characterises the aesthetic mentality of the avant-garde. It is for this reason that this thesis considers *Krapp’s Last Tape* to be a quintessentially avant-garde work of art.

When the constellations are correctly aligned, the dialogue between artist, artwork and spectator opens up what Badiou describes as a *truth procedure*; meaning that, the relational forces demand a reflection upon the present, contemporary sociopolitical subjectivities brought to the situation by: the interlocutor, positioned as consumer; the artist, as the creative driving force; and the artwork, as catalytic medium. This avant-gardist methodology of engaging the category of the new, in order to open up subjective reflections relating to the contemporary *Zeitgeist*, manifests itself as a

celebration of the present; that is, a total immersion into the here and now, the spontaneous, the ephemeral and the live moment. Badiou writes:

[It is an...] attestation of beginning as the intense presence of art, as its pure present, as the immediacy and presentness of its capacity. *The tendency of twentieth century art is to revolve around the act rather than the work*, because the act, as the intense power of beginning, can only be thought in the present. (Badiou, 2007, p. 135)

On one hand, this statement explains why Badiou – in agreement with theorists like Kant and Lyotard – gives preference to an understanding of aesthetic experience as a temporal event over and above one located in the object of the work itself, but on the other hand, and more significantly it delineates the increasing tendency of twentieth century art to shift emphasis in creativity away from the produced object and towards action. This shift, which has already been stressed in the analysis of Duchamp's *3 Standard Stoppages*, becomes a fundamental characteristic of avant-garde art and has been progressively gaining currency throughout the course of the twentieth century, as exemplified by the endeavours of Pollock and Cage during the neo-avant-garde. It is for this reason that avant-garde movements so often involve a performative, conglomeration of several different art practices and this positions theatre as a fertile domain for these experiments to be played out. However, considering Beckett again, it must be noted that, in the context of his entire oeuvre, many of his works were not created for the stage at all.<sup>68</sup> He was more concerned with destroying language and the prevalent codes that constitute the fabric of intersubjectivity, in order 'to adequately express the inexpressible' (Bennett, 2015, p. 52). Beckett was seeking out the pure beginning that Badiou identifies as the site where a new world of possibility is presented through the representation of nothing, the empty set. Beckett shrewdly identifies new media technologies as the unchartered and ungoverned creative territory where language and codes can be reborn and rule-sets can be rewritten. *Krapp's Last Tape* is not simply the deployment of technology in theatre; it is, in fact, a phase shift. This is meant in the Simondonian sense that it is not simply a replacement of one temporal moment by another, but there is actually a shift in relations between modes of

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<sup>68</sup> Beckett wrote numerous scripts for radio, television and film.

expression (theatre) and technology, ‘that results in the division of being’ (Simondon, 2011, p. 407): *technicity*. In this regard, Beckett’s play demonstrates the effect of avant-garde praxis because it does not simply celebrate new technologies in creativity, conversely, it attempts to reconfigure relations and disintegrate boundaries delimiting different art forms, boundaries that traditionalists hold so sacred. The avant-garde excels in crushing expectations and in doing so impels audiences to question the limits placed on their expectations in broader processes of intersubjectivity. However, how does this process operate? How is it permissible to make such grand claims about the avant-garde work of art? Just as the first chapter explored the topic of how chance works as political activism, so too now will this chapter digress into a discussion of how the new operates on the art-going public at a political level.

#### ***2.1.4 – How the New Works as Political Activism***

It must be stressed that the ideology that the avant-garde attempts to subvert is, of course, capitalism and the injustices that it perpetuates. Therefore, the aesthetic program of the avant-garde is essentially one that aims to critique means–ends rationality generally, because that is the socioeconomic paradigm that governs all activities of the Western demographic. The fundamental breaks with tradition that constitute the much-cherished aesthetic Event are only possible if the material sociohistorical conditions are in a correct spatiotemporal constellation. Such conditions are essentially dependent on the emergence of what can be called *Grand* technological artefacts: mechanical reproduction, cybernetic simulation, genetic engineering and so on; that is to say that, they are Grand in the sense that they are epochal innovations. These Grand technological artefacts are essentially scientific innovations around which the avant-garde mobilise and it is through an engagement with them that the category of the new is approached through processes of re-invention. These Grand artefacts, in turn, expose a further entanglement of productive forces comprised of producer, on one hand, and technological co-efficient, on the other. Thinking about this in terms of Adorno’s assertions – following Marx – on the culture industry, avant-garde art practice consists in mobilising the very cutting-edge technologies that are themselves the products of industrial technological advancements that aim to increase productivity and reduce labour costs. These are processes that fundamentally advocate proletarianisation in order to further solidify the power of a ruling class that owns the

means of production. In order to *activate* sociopolitical ruptures, the avant-garde employ these technologies and techniques to produce autonomous products. Avant-garde artefacts are autonomous in the sense that they have no purpose, no use value and no end, other than to provoke questions relating to the ideological system within which they are produced; they are heteronomous from the point of view of the materials and processes engaged. This uselessness undermines the concept of commodity, because the work gives nothing but its own presence, thus undermining means–ends ideology and demanding broader reconsiderations of ethics and politics. This in turn spurs a sociopolitical *reaction* by the culture industry, which operates on the basis that everything must be classifiable and sellable through and by promotions targeted at the faculties of desire. The culture industry therefore works towards absorbing, stultifying and diluting the rupture by assimilating the *exceptional* aesthetic gesture to the codes of the commonplace and normalised modes of intersubjectivity; that is, by turning the aesthetic strategy into a trend or fashion. Given that artists exist within, and are therefore always answerable to, the dominant ideology of capitalism, this means that avant-garde art must attempt to stay ahead of the curve, which engenders a recursive process of liberation through innovation and the asynchronous mass-cultural colonisation of the artefact.

In *Aesthetic Theory* Adorno asserts that newness is the alluring category that is used to market and sell goods in consumer capitalist society. This is not limited to the superficial and simplistic repackaging of a product, as suggested by Bürger, but instead extends across factors such as design, function, increased power, control and speed. Paradoxically, this perpetuates a paradigm in which art, in its advocacy of newness, adopts the status of a consumable artefact. On this subject, Adorno writes:

Baudelaire's poetry was the first to codify that, in the midst of the fully developed commodity society, art can ignore this tendency only at the price of its own powerlessness. Only by immersing its autonomy in society's *imagerie* can art surmount the heteronomous market. Art is modern art through mimesis of the hardened and alienated. (Adorno, 2002, p. 21)

Adorno's negative dialectical strategy insists that art must submit to the paradigm of luring a buyer through its appeal of newness. To completely ignore the socioeconomic

model would be detrimental to the avant-garde's aesthetic methodology because total autonomy implies total silence, which would, of course, silence its political voice as well as its economic one. Art therefore apes the 'cash for goods' consumer capitalist paradigm, which itself can only be maintained if the goods produced are sold under the auspices of 'latest innovation.' In a dialectical reversal, modern art foregrounds a resistance to the prevalent socioeconomic paradigm, on one hand, through an adaptation to the very law that governs it, and on the other, by elucidating and therefore critiquing an abstract rationale that has assimilated to what is widely accepted as natural. By imitating the bourgeois capitalist paradigm, art exposes the emphasis that capitalist ideology places on innovation and invention and, in doing so, it simultaneously asserts its own eloquence whilst also stating its intolerance for the innocuous and the traditional. This means that avant-garde art, as per the territorial metaphor previously discussed in the context of Habermas, is ambivalently attached to the system that it endeavours to critique. The emphasis that bourgeois capitalist culture – and the critical avant-garde that it engenders – places on invention, innovation and epistemic discovery is bound up in the over-arching question of *what is possible*. The bourgeoisie engage the question with a view to maintaining power and the avant-garde do so with a view to disrupting it, but both are essentially captivated by a will to push the limits of *possibility*. It was demonstrated in chapter one that the question of *possibility* underpinned Duchamp and Cage's explorations with chance, and now it is clear that the *possible* is analogously the fundamental question underpinning artistic explorations of new technology. In this regard, the domain where these two categories converge – that of *invention* – represents an opportunistic and fertile territory of potentialities, a territory that awaits new epistemic paths to be trodden, new things to be discovered and new processes to be documented and charted. Invention should not be interpreted in its narrow (technical) sense of producing innovative products for the market; rather, it should be understood in the broadest sense that involves inventive amalgamations of *tekhnē* and *epistēmē*. Through and by an aesthetics of possibility, wherein artists elicit the specificities of the new tools, processes and languages and deploy them in unforeseen ways, they open up new circuits of thought that could affect the sociopolitical rule-base. This is precisely what Beckett does in *Krapp's Last Tape*. He repurposes the then cutting-edge mnemotechnology in an unforeseen way; that is, he combines the new technique with an ancient art form and creates a *cultural invention*. He invents a new process, a new way of thinking and this represents an

aesthetic event, in the Badiouian sense, because it opens up a new world of possibility for artists to experiment with technology in artistic contexts. Furthermore, and crucially for this thesis, he confirms that an aesthetics of experimentalism can facilitate a better understanding of the relations between technology and the human, in which the machine is not at all separate from the human and the technological milieu can be understood to have an increasing agency on human behaviour and identity, both inside and outside the frame of fiction.

### ***2.1.5 – Pharmacology of Technological Performance and Preservation***

For Krapp, everything meaningful in his world is condensed into the specificities of the tape recording technology: the humming and static, the clicking cogs and the youthful, solipsistic and arrogant voice recorded thirty years before. The memories held back and revealed through menial rewind, fast-forward and play functions, as well as fumbling through canisters and laboriously loading the data cassettes, of a now almost obsolete technology, demand that the text remain haunted by the thing that constitutes so much discussion around Beckett's work; that is, his final and unwavering plea: the text and stage directions be played out exactly as he originally stipulated. This is itself a pharmakon, a cure and a poison – a blessing and a curse – because while it stipulates that an epochally idiosyncratic technology be preserved for the re-staging of the text, it concurrently binds the hands of the creative director who endeavours to recreate a staging of the text. Beckett's mnemotechnologically engaged performance truly is a theatre for a time, and interestingly it does this fundamentally via gestures, not via language. The bodily actions that constitute Krapp's act of scanning through a somewhat clunky 1950s mnemotechnology are determined by the ergonomic contours of the object engaged. More significantly yet, it opens the question of how will the work be preserved and passed down through ensuing generations? While Beckett's text is perfectly translatable over to the medium of computation, the choreography is not. As the epoch from whence it came and its technological quintessence recede further and further into the past, the logistics of staging the play – as the playwright conceived it to be – become more and more difficult due to the perishability of technology. To engage with technology is to engage with obsolescence, and the more technological variables that there are the more at stake in the endeavour to preserve a proximity to the original. This axiom becomes all the more problematic in the digital age, where

technologically engaged performances become all the more complex through the inclusion of computational technologies, thus requiring that a new vocational stratum be created for the computationally literate computer programmer. Tape recorders will not last forever and neither does computer software, and so this raises the question as to whether institutions, such as museums, will soon be required to provide props for reruns of certain plays? In a sort of paradox, the work of art, the fiction, precedes the fact; Beckett's text demands that a near-obsolete, horrendously inefficient and noisy technology survive, so that the story can be told and retold, in perpetuity. Beckett's play is bound to an epoch; but, it is bound in the sense that the aesthetic rupture, caused by the theatrical deployment of the mnemotechnology, not only marks the outset of a new epoch, but so too does it chart the subjective impact of how mnemotechnologies have become very much integral to the warp and woof of contemporary life, albeit under the auspices of digital functionality. However, an examination of the idiosyncrasies of the technology, in relation to the epoch and the preservation of the work, is only scratching the surface of Beckett's play. As an analytical instrument, the *pharmakon* is very effective for unpacking the deeply nuanced metaphors at work in *Krapp's Last Tape*. Indeed, in her analysis, Maude also picks up on Derrida's pharmacological critique of Western philosophy's tendency to prioritise the spoken word over written text (Maude, 2009, p. 61); that is, Plato's assertion that unmediated presence is more conducive to an attainment of truth than dialogue assisted by technical inscription, which gives rise to forgetfulness and opens up opportunities for falsehood. Maude, for her part, does not dedicate more than a couple of lines to the *pharmakon*, whereas this thesis maintains that Stiegler's pharmacological approach to technical inscription – the weighing up of anamnesis against hypomnesis – is particularly useful in the context of Beckett's play. A deep consideration of mnemotechniques in *Krapp's Last Tape* using the analytical lens of the *pharmakon*, on one hand, permits an original and insightful re-reading of the play, and on the other hand, opens up important avenues of cogitation on contemporary society's technological predicament.

#### ***2.1.6 – Krapp & the Pharmacology of Technical Inscription***

*Krapp's Last Tape* delineates the human compulsion towards hypomnesis; that is, towards processes of retentional prosthesis. It also delineates a critical historical event,

in the sense that retentional prosthesis is now achievable through automated technologies, thereby occasioning a departure from a slavish obedience to the written or printed word; however, it concurrently foregrounds that they are essentially underpinned by the same thing – one can imagine an analogously poignant play concerning a protagonist pouring over old love letters or photographs. Beckett's play is therefore a theatrical deconstruction of processes of inscription, retention and recursion – all embodied by the tape recording technology – that induces a reflection upon: the duality of recollection, the inherent human need to concretise memories by exteriorising them via technical inscription and the acceleration of these processes under the aegis of a new, singular format. What becomes foregrounded then is the fungal spread of amnesia, not necessarily symptomatic of our certain trajectory towards death – although Krapp for his part is doomed and it shall be shown why anon – but, conversely, an amnesia coerced by the domestication, gentrification and mass-dissemination of mnemotechnologies, notably in the post war period of the 1950s. Thus summarised, the play implies that Krapp does *remember* a love affair, but does not exactly *recall* the details until prompted by his machine counterpart, who he consults repetitively, ultimately resulting in an air of pathos and bitter regret. The next section will interrogate *why* the recording has this effect on Krapp.

We recall that Stiegler allocates special importance to memory in his understanding of knowledge as a system, which is a fluid, pre-individual milieu that requires continual reactivation through processes of individuation between the psychic individual, the collective organisation and now also technical organs – this is what he calls a general organology. In *Krapp's Last Tape* Beckett exhibits an awareness of the increasing dependence on information inscribed to mnemotechnologies for processes of psychic and collective individuation – although he could never have known the magnitude of the phenomenon. In this way, *Krapp's Last Tape* is charting a territory where the *becoming* of identity is quantifiably determined by *technicity* – that is, 'technology considered in its efficacy or operative functioning' (Hoel and van der Tuin, 2013, p. 187) and therefore testifies to the 'ontological force of technological apparatuses' (Ibid.), which is another way of framing the central genealogy of this thesis. This happens both inside and outside the fiction. Outside of the fiction, because of the specific impact that the introduction of the tape recorder has on the text itself and the



theatrical representation – especially in regard to the choreography and stage directions. The text only makes sense on the pretext that the tape recorder is present on the stage; the removal of the tape recorder would decontextualise the script and strip it of its meaning. The technicity at work within the fiction is even more interesting, because Beckett shows us the reality of how technology has the organisational power not just to induce specific emotional states – in Krapp’s case his state follows a trajectory from one of longing, through nostalgia towards frustration and rage – but also, and more significantly, to actually shape a person’s identity. Maude notes that not only does the technology provide ‘a means of escape from the confines of constricting identity, but more importantly identity, like Krapp’s tapes, is perpetually written anew’ (Maude 2009, 65). Krapp is individuating, as are his tapes, but over and against whom? Beckett seems to have created a parody of this process. Krapp, for his part, leads something of a hermetic existence, indulging in a narcissistic process of *self*-individuation over and against his own exteriorised memories. Knowlson suggests that he is all but cut off from the outside world, with the tape recorder as his only companion:

With the words they contain, they represent the only form of contact that Krapp can achieve in a depleted, almost totally isolated existence that, ambiguously, he has sought out and yet dreads (‘Past midnight. Never knew such silence. The earth might be uninhabited’, 18). (Knowlson, 1979, p. 83)

This statement is made by the younger Krapp, on the tape-recorder; not the present Krapp. The conceited, confident voice of a man in his prime, manifested on the magnetic tape, indicates a sort of rejoicing in the fact that ‘not a soul’ (Beckett, 2006, p. 217) was present to celebrate his thirty-ninth birthday with him. Furthermore, Krapp refers to the tapes in the third person as if they were a group with which he could share experience. Stiegler warns that a short-circuiting of processes of individuation can only result in, what he calls, ‘symbolic misery’.<sup>69</sup> Beckett’s play supports the notion that an

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<sup>69</sup> *Symbolic Misery*, published in France in 2004 but only released in English in 2014/15, is a two-part aesthetic investigation into the industrialisation of cultural symbols in contemporary, digital mass culture and the mutated sociopolitical role of the arts therein. On his website he gives a succinct definition: ‘Material misery should not be thought of independently of symbolic poverty... Symbolic misery is that which transforms a poor person to a miserable one [un misérable]. From poverty to misery, there is a step that concerns not

inevitable tragedy must come about by short-circuiting processes of organology, that is, by excluding one of the three interdependent elements, in this case, the collective. There is nowhere left for Krapp to take his miserable, solipsistic existence and this ultimately leads to *Thanatos*.<sup>70</sup> Krapp's den is a microcosm of a world in which it is fair to say that memory constitutes the foundation of all knowledge. In this regard, it is not unreasonable to venture that Beckett's play, under the auspices of Stiegler's recent deductions, is a prophetic intervention. The dystopian outlook of postmodernism is testimony to this: novel creativity reaches an impasse that it seeks to overcome by continually reworking past genres, resulting in the ceaseless circulation of audio-visual symbols in a culture of selection, quotation and reassembly.

The gradual transferral of his consciousness to the remote, magnetised metallic strip of tape serves as a metaphor for the broader societal trajectory, which witnesses the transferral of knowledge to machinery. For Stiegler, there is an immanent relationship between technological advancement and an increasing tendency to allocate knowledge to technical devices, which is conducive to a proletarianisation of knowledge that inevitably leads to a depletion of the self.

“A cet égard, le *pharmakon* constitue un facteur de prolétarisation de l'esprit (de perte de savoir) tout comme la machine-outil prolétarisera les corps des ouvriers producteurs (les privera de leur savoir-faire)” (p. 40, emphasis in original).

*In this way, the Pharmakon constitutes a factor of proletarianisation of the spirit (loss of knowledge) just as the machine-tool proletarianised the bodies of the manual workers (Which took away their know-how). (Stiegler cited in Fitzpatrick, 2013, p. 12)*

The allocation of technical know-how to automated devices implies a loss of knowledge on the part of the human, creating a situation where, with the advancements of 'modern science, the major discoveries are paid for with an increasing decline of

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only the level of wealth.' Stiegler, Bernard. 2004. "Misère symbolique". *Ars Industrialis*. <http://arsindustrialis.org/mis%C3%A8re-symbolique>.

<sup>70</sup> In Freudian Theory, Thanatos is defined as the death instinct.

theoretical education’ (Adorno and Horkheimer, 1997, p. xiv); where, according to Stiegler, we are more likely to say and do stupid things. He writes: ‘While this process of proletarianisation may produce a kind of pragmatic intelligence, *métis*, ingenuity, a shrewdness or a cunning through which everyone seems to have become “cleverer,” it in fact leads to a *generalized stupidity*’ (Stiegler and Ross, 2013, p. 161). It is for this reason that technology, as a prosthesis of memory and of the spirit, needs to be approached *pharmacologically*; that is, with the view that there is a good and a bad side to it.

### ***2.1.7 – Temporal Objects & the Time of Consciousness***

Given the reflections in the previous section, there begins to emerge some interesting and original ways of thinking about Beckett’s deconstruction of the relationship between memory and technology, and Stiegler’s technophilosophy continues to offer a wealth of effective theoretical tools to help with this task. Stiegler invokes the Husserlian concept of *temporal objects* in order to tease out the relational problematics between memory and technology. These are objects that are comprised of successive instants, which flow into one another, creating a whole greater than the sum of its parts – for example a musical melody, a cinematic film or a radio broadcast. These objects *flow* past the eyes and ears of the perceiving audience and therefore only become perceivable in their disappearance. Stiegler writes: ‘It is an object that passes, and that in this sense bears a remarkable relationship to its passing, and also, therefore, to a question of the past’ (Stiegler, 2014a, p. 17). What is striking about temporal objects is that they bare similar characteristics to the structure of consciousness itself; it too is temporal. A temporal object has the same structure as an interlocutor in the sense that when one listens to it, one does so in the same manner as one would when listening to a real person. A temporal object can modify the temporality of a listener’s consciousness. To the extent that one’s consciousness is engaged in an object’s flow of moments, the listening subject is modifiable, in flux, ‘that is to say disappearing so as to appear—each person differently and each in a singular relationship to their particular past, and their particular passing, and also, therefore, to their future’ (Stiegler, 2014a, pp. 17–18). In this regard, temporal objects feed into processes of individuation wherein individuals and groups are always continually immersed in learning processes, developing their identities by regenerating knowledge-cells and shedding the dead or

useless tissues that constitute the ‘epiphenomena of consciousness’ (Hayles, 1997, p. 81). Stiegler argues that ‘the most important musical event of the twentieth century was recorded song’ (Stiegler, 2014a, p. 20). The invention of mechanical technology for recording temporal objects brought about a new condition of listening and an altered way of hearing, which represents a technohistoric event because it fundamentally breaks with the tradition of the sensible realm. Until the inception of this technical innovation, it was impossible to listen to the same sonic event twice; but now, by virtue of mechanical automation and temporal objects, it is possible to repeat the event indefinitely, even until the consciousness becomes saturated with it, until it *believes* in it. Which is to say that temporal objects maintain the power to instil belief by organising memories, which in turn organise perception.

Stiegler calls on Husserl’s phenomenological concepts of *primary and secondary retentions* in order to think more deeply on the relationship between memory and perception. He gathers and expands the concepts to conceive a new type of retention, unique to modern technologies: *tertiary retentions*. Tertiary retentions are memory support objects and mnemotechniques that make the recording of traces possible – for example, photograms, phonograms, cinematograms, videograms and now digital encoding, which has expanded the procedure an alarming rate and scale. Husserl explains primary and secondary retentions in terms of the musical melody. Primary retentions can be defined as the here-and-now of a musical melody, the present note is perceived as a note and not as a sound because of its context, which is its relationship to the preceding note and the one before that and so on. In much the same way, a word in Krapp’s monologue (and language in general) is given meaning by the other words coming before and after it. Primary retention ‘belongs to the present of perception’ (Ibid., p. 34). Secondary retention, on the other hand, is the ability to call to mind a melody that one has heard in the past. This concept is obviously related to anamnesis; that is, one could listen to this melody again in their imagination by recalling it to mind. Stiegler clarifies that secondary retention ‘constitutes the past of my consciousness’ (Ibid., p. 34). Husserl is careful to emphasise the difference between perception (primary retention) and imagination (secondary retention). Prior to the invention of the phonograph, it was impossible to listen to a *reproduction* of a melody. Arguably, an accomplished orchestra could replay an overture on two different

occasions with no audible difference to the listener, but to actually hear the same recital played twice was impossible. Since ‘the appearance of the phonogram, which is itself a tertiary retention (a prosthesis of memory exteriorised), the identical repetition of the same temporal object has become possible’ (Ibid., p. 34); that is, the same event is revisitable through the tertiary retention. Through this techno-empowered phenomenon, processes of retention are better understood and Stiegler stresses two important advancements in our understanding:

1. Repetition produces difference: When the same temporal object is played back twice ‘it produces two *different* temporal *phenomena*, meaning that primary retentions vary from one phenomenon to the next’ (Ibid., p. 34, emphasis in original). The retentions from the first time of listening – now assimilated to secondary retentions – bring focus to the primary retentions of the second playback; meaning that, the interlocutor can focus on finer details with each and every repetition.
2. Repetition can cause indifference: ‘difference can be annulled by tertiary retentions just as much as it can be intensified by them,’ because tertiary (recorded) temporal objects assimilate to the role of organising and controlling the relationship between primary and secondary retentions (Ibid., p. 35). For Stiegler, in agreement with Deleuze, indifference is a toxic characteristic because it demonstrates a predominance of uncaring, which is detrimental to apprenticeship. In terms of the play, there is an example of this characteristic surfacing through the old man when he becomes upset by the idea of making one ‘last effort’ (Beckett, 2006, p. 222) in his writing.

These two points bring attention to the fact that tertiary retentions maintain the power to organise primary and secondary retentions and, as such, the issue of control must invariably be raised. The more sophisticated that tertiary retentions become, the more difficult it is to discern the difference between fact and fiction, which makes them very effective for aestheticizing politics. Automation is the defining quality that characterises the mode of production inherent to the epoch of mechanical reproducibility. However, this is not simply the ability to reproduce a tangible object,

because reproduction has been taking place for centuries.<sup>71</sup> More significant yet, is the ability, via recording, to perfectly reproduce a live event. Mechanical automation allows individual tertiary retentions to be reordered, stitched together and played back repeatedly; it permits the ordering of reality. For Benjamin this opens the doors for the new-world art form that was to be the logical development of theatre: film.<sup>72</sup> He takes the (widely supported) position that mechanically reproducible technologies maintain the power to alter ‘the manner in which human sense perception is organized’ (Benjamin, 2011, p. 216). Deleuze follows this thread of thought by positing that the brain is a ‘spatio-temporal volume’ in which cinema can establish new ‘cerebral circuits’ (Deleuze, 1997, pp. 60–61). Both agree on the notion that the technically mediated product ultimately comes together in the interiorised space of consciousness. For Stiegler – who is himself very much influenced by the thought of Deleuze – these circuits are always subject to the question of temporality. By virtue of the technologies of mechanical reproduction, time – as the measurement of moments that constitute an event (i.e. speech or action) – becomes recordable, mappable, configurable and reworkable within the creative space of the here and now. Furthermore, it is archivable: events, now placed in ‘standing-reserve,’<sup>73</sup> can be recalled, replayed and reworked on demand. For Stiegler, these characteristics constitute the pharmacology of the ‘temporal objects’ (Stiegler, 2014a, p. 17) because while there are now amazing new opportunities for creativity, there are equally chances for control and enslavement. In his discussion, Stiegler is mainly referring to cinematic (audio-visual) objects but the concept also applies to temporal objects comprised purely of sonorous qualities, like Krapp’s tapes.

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<sup>71</sup> Walter Benjamin rightly points out that certain types of artifacts were reproducible even in ancient Greece: “The Greeks knew only two procedures of technically reproducing works of art: founding and stamping. Bronzes, terra cottas, and coins were the only art works which they could produce in quantity”

<sup>72</sup> Benjamin opposes film to theatre. Philip Auslander furthers this notion in his book, *Liveness*, by pointing out that in the 1930s film actually mimicked theatre.

<sup>73</sup> Heidegger coins this term to explain a quality of objects produced under the mode of production brought about by modern technologies: automation and reproduction. By this he means that they are disposable, firstly in the sense that they are easily ordered and arranged, and secondly, in the sense that they are cheapened and therefore throwaway.

### 2.1.8 – Heidegger: *Historiality, Facticity, Presence and Futurity in Krapp.*

Mechanically recorded events, like consciousness, are fluid, and they come to modify the temporality of consciousness, ‘that is to say, the totality of consciousness, which is nothing but temporality, being process through and through, and not a stable structure’ (Stiegler, 2014a, p. 21). The examination of Beckett’s play has already revealed that, through the concept of a general organology, the tapes – the technological milieu – are individuating every bit as much as Krapp is – in the psychic milieu. A closer examination of the playbacks, in which he reviews and comments on his impressions of his younger self, reveals that Krapp’s processes of inscription are based on reinterpretations of older tapes and as such the archive, although comprised of stable tertiary retentions, becomes immanently unstable and fluid. This is to say that the temporal totality of Krapp’s consciousness – his past, his present and his future – is continually affected and modulated by the inconsistent stability of the archive, which fundamentally brings the question back to the indeterminacy of existence. Where questions of existence and temporality – that is, being and time – are concerned, the discussion must unavoidably be approached through Heidegger, whose work is appropriately central to Stiegler’s thesis on technology and time. Heidegger proposes the term *Dasein*<sup>74</sup> in order to explicate that human existence (Being-in-the-world) should be understood as a temporal entity constituted by a flux of events in relation to: 1) an inherited past, (historiality or historicality)<sup>75</sup>, which itself harbours possibilities that may not be inherited *as* possibilities but indeed as fact (facticity); 2) presence; and 3) futurity, an indeterminate future on an overall trajectory towards self-

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<sup>74</sup> *Dasein [Being]* is a German word for existence that literally translates as *being-there*. Heidegger gathers the term in order to describe the particular type of *entity* that human beings are. It refers neither to the biological human nor to the person; rather, it conjures ideas of the conscious human’s experience of life as constituted by pre-individual, social issues that are shared by each individual – such as personhood, mortality – and the paradox of having to negotiate these common concerns in relationship with a community, while ultimately being alone in the world. Said differently, it is the *mode* of Being realized by individuals in relation to temporality and their subjective conditioning therein, and is therefore always determined by a combination of the futural, the historical and the present. For further reading see *Being and Time*, especially sections entitled ‘Exposition of the Task of a preparatory Analysis of Dasein’ and ‘Being-in-the-World in General as the Basic State of Dasein’.

<sup>75</sup> They are the same thing; which term is employed depends on what translation of Heidegger’s text is engaged. For the remainder of the thesis I shall employ the term *historiality*, because this is the term that Stiegler uses.

understanding. Human existence extends itself between birth and (the inevitability of) death, and as such is always essentially anticipating its own end; it is organised by and around our Being-towards-death. ‘Any activity on Dasein’s part is always essentially ordered by anticipation of the end, that is “the most extreme possibility,” and that constitutes the originary temporality of existence.’ (Stiegler, 1998, p. 5). *Anticipation* is the keyword here, because it is essentially a symptom of an anxiety that attempts to predict, and thus remove, possibility from a subject that is undetermined; Heidegger calls this *concern*, and Stiegler notes that ‘the support of all concern is “equipment”... and the horizon of anticipation, the originary structure of all worldliness, is the *technical* world—the technicity of the world is what reveals the world “firstly” and most frequently in its *facticity*.’ (Ibid., p. 6). What Heidegger calls concern, and Stiegler dubs as anticipation, constitutes the essence of the aspect of Dasein that manifests itself in equipment (the technical milieu); but, considering the artifice surrounding the technical milieu – which is itself always firstly a product of making and therefore a conduit for, and manifestation of, simulation – the possibilities of the past are always already inherited through and by pure artifice and, as such, can only ever point towards *truth [aletheia]* in its deferral of it. This aporia impels Stiegler to re-read Heidegger in the context of the platonic pharmakon, and ultimately permits an understanding of technology as one set against a horizon of *forgetting* of truth, nature and fundamentally the essence of humanity.

For Krapp, facticity – that which withholds in its core the possibility of alleviating the deficiency of indeterminacy through re-readings of a technically exteriorised past – evinces itself in the technical concretisation of the 1950s tape-recording mnemotechnology. Krapp’s exteriorisations to magnetic tape represent his struggle, via the concrete determinacy of technical inscription, to remove possibility from an essentially indeterminate existence. The concept of a general organology – which is an analogous theory because it relies on re-interpretations of knowledge – has demonstrated that the uptake of information is dependent on individual adoption over-against the collective and technical milieus. In this regard, it is ironic that Krapp’s trajectory towards self-understanding is predominantly comprised of, and therefore compromised by, a dialogue with his own memories; that is, he individuates with himself and technology, but eliminates the collective. He does not relive the memories



in anamnesis but through hypomnesis, technology does the job for him thereby precipitating a sort of lethargy, which is always followed by stupidity. Furthermore, considering Krapp was attempting to be a creative writer, we cannot know for sure if all of the mechanical vocalisations were actual events in his life or the creative utterances and assemblages of a prospective fiction. The past, which Krapp inherits and recursively reflects upon, is therefore all the more so indeterminate; that is to say, that *the possibilities of his past may not be adopted as possibilities, but as fact*. This observation is resonant with Knowlson's view when he writes:

In watching Krapp's Last Tape we come to experience not only the particular sadness of an individual lifetime of faded aspirations and frustrated ideals but the unreality of all past human experience that can necessarily only exist in the memory. (Knowlson, 1979, p. 85)

The past, which is widely taken for granted as something concrete and unchangeable, is henceforth transformed into something fluid and indeterminate, and this is the locus of Beckett's engagement with chance. That he engages with the new is plain and clear to see, but his engagement with chance is far subtler because it is secreted beneath layers of metaphorical strata. He does not engage chance directly in the way that Cage or Duchamp did; but indirectly, by highlighting the contradictory indeterminism that arises from the hyper-determinism of the perfectly reproduced temporal object. The temporality of Krapp's *present* consciousness is continually affected by the factual voice of his own *past* consciousness; his present self is becoming increasingly saturated by the memories inscribed to tape. Maude suggests the opposite: 'The tapes in the play become saturated with memories Krapp has "got by heart"' (Maude, 2009, p. 64); but, does not learning by heart entail processes of repeating and repeating until it becomes embedded in the mind? Stiegler's theory of organology, thought about in the context of Heidegger's facticity, henceforth offers an original and important way of thinking about Krapp's predicament and impels important sociopolitical considerations in the context of the technicised, hypomnesic milieu of contemporary culture. It indirectly demonstrates how retentional technologies are so effective at conditioning and controlling a people, especially when deployed on a mass scale. Krapp's obsessive return to the same memories and his difficulty in vocalising new ones connotes the resultant onset of stupefaction; a notion supported by his need to look up previously invoked complex words in the dictionary. By reliving the same memories, he is

homogenising his more recent past. His mind is caught in a paradigm of diminishing returns<sup>76</sup> resulting in an ever more inward-looking gaze, like a Fibonacci sequence returning to zero. This is the source of his endemic malaise. Demonstrating the paradox of hypomnesic inscription that Plato so vehemently warned against, the tape-recorder which was originally ventriloquised by the man now ventriloquises the elder man with the cognizant retentions of ‘that stupid bastard [... he took himself] for thirty years ago,’ (Beckett, 2006, p. 222). However, this machinic bastard, through its factual retentions of arrogant pride, nevertheless rescues the jaded old man from complete ignominy; it bypasses the decrepitude of the old man by uploading the exteriorised nobility of youth to the temporality of the perceiving audience’s consciousness.

### ***2.1.9 – Time and the Stratification of Memory***

It is a transformation of a character, by time placed in standing-reserve via the real time of the stage, that Beckett so ingeniously stages, and by doing so deconstructs the technology and by default ontology, and by default (ill-)Being. Beckett charts the transformation of a man’s life but he also shows the burden and influence that the chart has on the man, who is transformed by the playbacks once again and for the last time. In *Krapp’s Last Tape* there are multiple temporal layers or sediments of the protagonist’s recorded memories, each one solidified as a temporal object and each recalled and played back in and by the one above. The hypomnesic tertiary retentions reside at the lower levels thereby forming a sort of concrete foundation, but it was established that any such foundation is always undermined by the fundamentally porous and shifting substrata of facticity, which, in terms of sedimentation, is analogous to subterranean crevasses and fissures. Moving up through the sedimentary layers of Krapp’s memory, as identified by his chronological orderings – Krapp 29, Krapp 39, Krapp 69 – gives way to the anamnestic dialogue between the present Krapp and his tape-recorder. This layer is of central importance to this thesis because by conceiving a mechanical object as a performative agent it illustrates a fundamental shift in theatrical praxis, where technology asserts a new and unique efficacy over the work. However, this is not the top layer; the various strata of temporal objects are presented

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<sup>76</sup> In psychology this term is used to describe a trajectory towards extinction.

in and by another temporal object, theatre, which is both anamnestic and hypomnesic. It is interesting that Plato should analogise the actor's calling-to-mind of the text to hypomnesis, yet when compared with the exactness of phonetically inscribed tertiary retentions, the actor's speech becomes far more fluid and dangerous.<sup>77</sup> Beckett's play is always firstly subject to the fundamental indeterminacy of theatre. Alain Badiou says it best when he writes: 'Truth must be granted to the following axiom: A theatrical representation will never abolish chance' (Badiou, 2005, p. 74). In summary, the lower strata are dependent on the reproducibility of analogue mechanical recording technology, whereas, the upper strata are dependent on the liveness of the theatrical stage and the playing out of the playwright's text. Which bring the argument finally to the top level: text itself. Importantly, it is Beckett's text, as a tertiary retention in its own right – exteriorised through the technological invention of pen and paper – that organises all the other sedimentary strata. Therefore, in this sense the anamnesis that Plato holds out as the domain conducive to truth, is always firstly organised by hypomnesis; that is, the exteriorised trace. As such, rather than conceiving the structure as a top-down–bottom-up paradigm, in which reality is sandwiched between exteriorised traces, it is probably more useful to consider existence – Being-there – as a cyclical modulation between the two binarities that is always vectorised by time. Stiegler maintains that our temporality is the one thing that we all share in common and therefore it binds us. We empathise with Krapp through our common temporality, which forms a unique and powerful bond, but one which, by occasion of mechanical technology, has become more fragmented and therefore fragile and therefore challenged. The play seizes on the particular effects produced by the recording and playback of fragments of archived memory, and thus transforms and to a certain extent exalts or sublimates them by making them its central subject. Maude notes: 'The play hence stages the process of remembering, but it simultaneously enacts a curious remembering, a piecing together of the sediments and fragments of Krapp's life' (Maude, 2009, p. 64). The stack of tapes, henceforth, function as a metaphor for the sedimentation of a lifetime of recorded memories, and, in a return to the *epi*-layer – that was encountered in the writings of Hayles and Knowlson in the context of

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<sup>77</sup> This, of course, constitutes the hierarchy of elitism amongst actors, where only the most accurate memories are fit for the live stage; the flawed memories can always find work in film.

consciousness and phenomena – which occurs over and above the physical self, it is an appropriate juncture to introduce Stiegler’s concept of *epiphylogenesis* in order to further unpack Beckett’s practical interrogation of the affective properties of inscribed memory deposits and mnemotechnologies. The next section demonstrates why the concept of epiphylogenesis is central to understanding the evolution of the machinic performativity in the production of art.

### ***2.1.10 – Epiphylogenesis and Layers of Melancholia***

It has been established that Stiegler draws from Heidegger the concept of facticity to evoke the essence of the technical milieu. For Heidegger, facticity is a derivative of historicity, which is the ‘already there’ that is constitutive of temporality; that is, historicity is the past to which present humans belong and take ownership, despite having never lived it. Heidegger’s philosophy, however, is founded on the supposition of existential phenomena, which Stiegler avoids by drawing in and synthesising it with the anthropological phenomenology of Leroi-Gourhan. For Stiegler, historicity is always bound to the technical milieu and as such should be thought, as Leroi-Gourhan conceived, in terms of evolution and the fundamental, originary human departure from purely corporeal functionality. The beginning of tool use is thus conceived as an extracorporeal, non-genetic influence on human gene expression, which Leroi-Gourhan – in a nod to the field of biology – describes as an *epigenetic layer*. Stiegler advances this supposition by proposing that the occasioning of the epigenetic layer is not a singular, prehistoric event; conversely, it is vectorised by an evolving, primordial memory and is sedimented, conserved and passed down through technical exteriorisations. He calls this epiphylogenesis and defines it as ‘that store of memory that is particular to a unique life form – the human – and that is also the “life of the spirit”. It is a matter of memory retained in things’ (Stiegler, 2014a, p. 33).<sup>78</sup> For Stiegler, it is inherently tied to objectified traces that are, on one hand, answerable to the technics whence they were produced, and on the other hand, determinants of futurity. In this regard, the tool invents the human every bit as much as the human

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<sup>78</sup> In biology, phylogenesis is the evolutionary development and diversification of a species or group of organisms, or of a particular feature of an organism.

invents the tool because the human consistently re-invents himself by developing the tool in a fluid process that is a co-constitution of interior and exterior, vectorised by a will towards freedom and mobilisation.<sup>79</sup> Henceforth, epiphylogenesis represents a break with pure, organic life and confers upon the human the defining qualities that constitute the modes of existing as a conscious, cognisant being, from the most basic, primordial manifestations of language and gesture through to the most materially advanced tools and objects that shape ways of being in modernity.

In regards to the theory of individuation, epiphylogenesis is an essential vector for the synchronicity and diachronicity of knowledge because it is a materialisation and a prosthesis of memory. However, Stiegler asserts that, post mechanical reproduction, processes of epiphylogenesis become highly complex, due to the fact that the knowledge is automated and the memory of it is therefore short-circuited and henceforth proletarianised. Faculties of attention and cogitation are refocused towards, on one hand, *calculation* – for the engineering of the tools and processes – and on the other hand, *operation* – for the execution of processes – thereby erecting an opacity between the human and the epiphylogenetic layer, which is indicative of the origin of hominisation. Here again the significance of the platonic *pharmakon*, that suffuses the entire corpus of Stiegler’s work, comes to the fore: the technologies of inscription and retention, which are prostheses of the conscious mind, coerce a proletarianisation of the spirit that, in turn, compels a sociological disorder that is conducive to a forgetting of the origin of the human, which, for Stiegler in the spirit of Leroi-Gourhan, is fundamentally a natural origin that bifurcates at a singular epigenetic moment.

In light of these theoretical advancements, it is an opportune moment to return to the artistic object under consideration. By utilizing technologies of mechanical inscription, Beckett is commenting on the prosthesis of memory, and by default, that mode of memorisation that is unique and essential to human activity: epiphylogenesis. By doing

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<sup>79</sup> For Leroi-Gourhan freeing and mobilization are essential characteristics of life in general, and Stiegler supports this when he writes that ‘life is the conquest of mobility’ (Stiegler, 1998, p.17).

so he is not just providing access to previously inaccessible areas of interiority, but so too is he delving deep into the essence of the human activity of memory exteriorisation, which, in a post-mechanical epoch, is receiving an increasingly heightened sense of both significance and power. Krapp's stack of broad, flat cassette-tins withhold a lifetime of his aspirations, his arduous attempts at creative writing, his heart and soul, all palatalised and inscribed to the 1950s mnemotechnology. The magnetic tape, as symbol, signifies space temporalised; that is, the embodied experiences of Krapp's life are mapped out and transcribed to the linear temporal format. Analogously, Krapp's existence, as a succession of temporal events, is spatialised and sedimented into the voluminous concretisations of the metallic memory deposits. Epiphylogenesis, as 'time spaced and space temporalised,' is the process of production of *tertiary retentions* (Stiegler, 2014a, pp. 33–34). Stiegler notes that epiphylogenesis, as the logic of prosthetic supplementation, 'is both the process of production and the resultant system of these retentions' (2014, p.35); that is; it is manifested both in the act of recording and the inscribed vocalisations. The epiphylogenetic sedimentations, embodied in the tape recorder – as process – and its stack of tapes – as product – serve as a vector for the desire, the wish to repeat, to relive, to 'be again' (Beckett, 2006, p. 223). Krapp's mnemo-inscriptions are an exteriorisation and compartmentalisation, which is to say a grammatisation, which is also to say a fragmentation, of his memory into discrete parts. Given the already established importance of memory to knowledge, it is fair to say that it carries an equal weighting in the formation of identity. Maude points out: 'Audiotapes, as Beckett acknowledged, function as an opportune trope for identity, because of their simultaneously permanent and mutable nature: they epitomise both the stative and active aspects of subjectivity' (Maude, 2009, p. 65). Opposing the tangible, fixed, stable tertiary retentions housed in the tins to the unstable, fluid primary and secondary retentions of Krapp's here and now – that is his perception and *unaided* memory – can offer an insight into the organisational powers of tertiary retentions. The fragmentation of consciousness, just as the splitting of an atom, leads to its volatility and for Krapp, the mechanical precision of tertiary retentions inscribed thirty years before have been relived once too often. The stack of mechanical memories are more like the plugged dome of a volcano rather than that of a sedimented ocean floor – henceforth the violent scattering of the tins and the indifference with which he treads roughshod over them. The stress of the re-inhabitation of Krapp's mind by the younger man is equal to the weight of tertiary retentions on his spirit, as if 'once wasn't enough

for [him]' (Beckett, 2006, p. 223). Henceforth, the play demonstrates the 'authority that objectivised retentions of another kind have assumed' (Stiegler, 2014a, p. 35). This, for Stiegler in agreement with Heidegger, is always a question of facticity. The uncertainty of existence, including the intersubjective indeterminism surrounding love (Eros) and death (Thanatos), offers us a final way of thinking through Krapp's dispiriting situation. Everything meaningful in his world is condensed into the epiphylogenetic deposit; he has invested everything in it, including amorous memories. By assigning love to the concrete determinism of tertiary retentions, he is concurrently making it fixed, deterministic, and therefore paradoxically, he is doing the same to death.<sup>80</sup> The mechanical reproducibility of the tape recorder is a *pharmakon*: on one hand it offers the young man a creative means for expressing and organising embodied experience, while on the other, it produces perpetual, mechanically persistent memories that, when replayed for the older man, bring about an onset of (self-)destructive melancholy: ill-being.

#### ***2.1.11 – Charting a Domain for Contemporary Systems of Intersubjectivity.***

The idiosyncratic nature of *Krapp's Last Tape*, its technologically specific and particular stage directions delineate a particular genre of theatre that is difficult to think about outside of its historical context. Under the auspices of Stiegler's concept of a general organology, it is the performing object – Krapp's mnemo-tape-recorder and its ghostly vocalisations – that provides the core aesthetic message in Beckett's play, thereby asserting both the ontological and performative aspects of its internal efficacy. By gathering together the specificities of the tape recording technology – the humming and static, the clicking cogs and the youthful, solipsistic but tinny reproductions of an arrogant voice recorded thirty years previously – and their affective capabilities, Beckett wove them into an artistic deconstruction of, on one hand, how processes of psychic and collective self-understanding are affected by technology, and on the other, how the composition of information – manifested in the temporal objects, which are tertiary retentions – is also fluid and constantly reprocessed and reshaped at the

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<sup>80</sup> It is known that Krapp intends to commit suicide. In a retrospective self-criticism Beckett said he felt that Krapp's intention to kill himself was actually too obvious and that he should have omitted the song, *Now the Day is Over*.

confluence of the human and technology. In this way Beckett is charting a domain that is very much the experiential terrain of contemporary life, in which tertiary retentions constitute a substantial portion of information that is processed and passed to and from between nodes, which are comprised by the individual psyches, collective organisations and technological organs that make up a general organology.

The work, as a re-purposing of a cutting-edge 1950s mnemotechnology, should be received by and through the questions that it raises in regard to how technology and techniques impact on systems of subjectivity and identity. Beckett's play presents a quintessential aesthetic-critical commentary of the technological subjectivity that was most at stake during the epoch of mechanical reproducibility: the preservation of knowledge via its temporalisation and allocation to technical devices. Beckett does more than "transform a playback into a play" (Walker cited in Hayles and Knowlson, 1997, p. 81); his pairing-back of the technology to its fundamental functioning, and foregrounding of the gestures that it impinges on the human subject is a *grammaturgy*, in the sense that it presents grammatisation as drama. Indeed, despite the analogue medium, there is a sort of digital operation at work in *Krapp*, not just through its binaries of past and present, or recorded versus live, but also in Krapp's numerical discretisation and archival formalisation of his own life – Krapp 29, Krapp 39, Krapp 69. These digital operations are a conceptual charting of an existential terrain that, not only do we now have the theoretical tools to engage and decode, but so too do they provide an uncanny precursor of the quotidian milieu of contemporary life – one that encompasses the sphere of work, through its standardisation of information processing and reorganisation, as well as permeates personal, interiorised milieus in how we seek out, gather, and reassemble mediatised fragments of our own identities, as a way of showing ourselves to the exteriorised realms of the collective.<sup>81</sup> A large portion of the inhabitants of Western technocracies are preoccupied with processes of self-documentation and validation, not dissimilar to the methodology employed by Krapp in Beckett's play, albeit using more modernised, digital processes for the creation and

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<sup>81</sup> In 'Postscript on Societies of Control,' Deleuze notes that the walls of the institutions are breaking down in such a way that their disciplinary logics do not become ineffective but are instead generalised in fluid forms across the social field. 'Striated spaces' of institutions, in disciplinary societies, give way to the smooth, modulating spaces of control societies.



archiving of tertiary retentions.<sup>82</sup> The numerical formalisation of the discrete parts of Krapp's life, foregrounded by the archival formatting and their re-presentation as quantitative rather than qualitative elements, characterises modern database culture in which 'individuals have become "*dividuals*"' (Deleuze, 1992, p. 6) whose identities are mobilised towards completion at the confluence of their embodied selves and the temporal fragments dispersed across databases and memory banks. However, it is an identity that can never attain total completion because of, on one hand, its fluid nature, and on the other hand, the totalised fragmentation of the system, which now also asserts itself as a distinguished, evolving, inorganic entity – technical individuation. Stiegler's conceptual model of hypomnesia allows for a re-reading of *Krapp's Last Tape* that opens an understanding that technically assisted exteriorisations of the human spirit engender a paradigm of a general organology, in which the technical milieu is itself individuating. This paradigm lays the foundation for a consumerist model based on the acquisition of the time of consciousness (attention), via *industrial temporal objects*,<sup>83</sup> in which each individual and collective is not just shaped by, but is also contributing to, the formation of the technical milieu. When this model becomes global, it triggers a general homogenisation of lived experience and an analogous decline in consumer intelligence and responsibility, ultimately leading to a 'general proletarianisation'<sup>84</sup> and this straightforwardly implies that the aesthetic paradigm is firstly always political. Stiegler writes: 'In the consumerist model it is not only the know-how (*savoir-faire*) of workers that becomes obsolete, but also the knowledge of how to live (*savoir-vivre*) of citizens, who thus become as such mere consumers' (Stiegler, 2010, p. 11). Krapp's endemic malaise, brought about by the organisational powers of tertiary retentions (withheld in the magnetic tapes), the constant revisiting of these biographic memories and the short-circuiting of processes of individuation coerced by this scenario, is representative of the situation of 'symbolic misery,' which

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<sup>82</sup> For example, one need only do an Internet search for 'the number of active monthly Facebook users'. According to <http://www.statista.com>, as of the first quarter of 2015, the figure stands at about 1.44 billion.

<sup>83</sup> This is a term that Stiegler uses widely in his writing in order to convey the mutation that Husserl's concept undergoes under the aegis of industrial mass reproduction, and the resultant broadcasting/transmission of temporal objects in the mass media of a globalized, hyperindustrial economy.

<sup>84</sup> Stiegler uses the term "proletarianisation" to refer to a loss of knowledge [*savoir*].

constitutes the foundation of Stiegler's broader sociological concerns in relation to contemporary society.

The anticipatory praxis of Beckett's play provides a justification for postmodernist theoretical assertions – advanced by the likes of Lyotard – concerning the types of knowledge that are legitimated within modernised technocratic systems, and henceforth the tendency towards rationalised assemblages of life experience, canalised by those systems. Moreover, it raises a concern regarding who is individuating against whom and what? The importance that people allocate to, and the huge amount of time that they invest in, assembling or prosthesising their identities within technical systems rises in inverse proportion to dialogical, embodied human contact. The disastrous effect that solitary confinement and the resultant short-circuiting of processes of individuation have on Krapp's well-being has been a central tenet of this chapter. In this regard, Beckett's play furthermore furnishes us with an admonition for the type of solipsistic behaviour canalised by an over dependence on technicised individuation, at the expense of interaction between the psychic individual and the collective organisations. In an epoch where masses commit a substantial amount of their time to engaging in processes of individuation through technical systems, what are the positive avenues that can be explored, in order to make these processes beneficial, while avoiding the pitfalls of which Beckett's protagonist falls so tragically foul? A pharmacological reading demands that there must be a cure inherent within the poison of technical individuation, but what are the strategies for drawing it out and who is responsible for doing so? Stiegler places responsibility on the shoulders of artists; that is, in consideration of the political nature of a general organology, he appeals to the artistic avant-garde to stand up and to accept their political duty, which he maintains they have abandoned for the short-term financial gain of manufacturing stupefying, industrial temporal objects in the service of the culture industry. He maintains that this can be achieved by engaging with, re-harnessing and allocating innovative cultural integrity to cutting-edge technologies that would otherwise be deployed for the ends of over-rationalised governance, administration and mass culture. Such avant-gardist engagements could give rise to reflections on the totality of the socioeconomic situation, the erosion of individuation and the increasingly marginalised position of the individual within that system.

A corollary consideration of *Krapp's Last Tape*, after having expanded the argument to the broader sociopolitical level, permits an understanding that Beckett executes an avant-gardist gesture par excellence by: firstly, assigning cultural significance to a cutting-edge technology, by creating a cultural artefact based on new technological specificities, which opens audience's imaginations on to an as-of-yet uncharted territory; secondly, presenting a praxis that is a veritable deconstruction – in the sense that it is a grammatisation – which exposes and lays bare the particular properties of the technology and how they impinge on the formation of the subject; and thirdly, opening up new epistemic possibilities for engaging with automatic processes in the context of artistic production (*poiēsis*), thereby destabilizing tradition and creating a new genre in theatre, in which the machine (embodied as the prop or the scenography) is elevated to the esteemed position of performer. Under the aegis of this third facet, *Krapp's Last Tape* is not just an avant-garde gesture but is truly an aesthetic *Event* – in the Badiouian sense that it was *fundamentally* new and therefore ground-breaking – the repercussions of which are still being slowly reconciled more than half a century after its initial staging. Under the concept of *technicity* – that is, technology considered in its efficacy – the tape recorder asserts its ability to produce a desired outcome. It brings to the stage (and to the text) its own specificities and peculiarities that in turn bring forth the idea that the machine, as an 'inorganic organised being,' (Stiegler, 1998, p. 17) *is performing*. As such, Beckett's play is considered to foreground and support 'an ontology of emergence that gives ontological priority to "technicity"' (Hoel and van der Tuin, 2013); that is, the play, substantiates and validates – both within (metaphorically) and outside (historically) the fiction – Stiegler's insistence on the existence of a technological milieu, which is, on one hand, inseparable from our Being-in-the-world, and on the other hand, co-emerging as a sort of contiguous, parallel entity. The play is a quintessential example of an avant-gardist engagement with the specificities of the technologies that constitute what Stiegler calls the '*first mechanical turn of sensibility*' (Stiegler, 2011, p. 4). These are the mechanical technologies of representation that facilitate the reordering of reality through processes of grammatisation, the pharmacological repercussions of which have been teased out in detail over the first part of this chapter. But Beckett's play stood on the brink of an epochal rupture, which witnessed the beginning of the shift from analogue to digital

technologies<sup>85</sup> – what Stiegler refers to as the ‘*second mechanical turn of sensibility*’ (Ibid.). The following section is dedicated to explaining: firstly, the technicalities of the shift from the first mechanical turn of sensibility to that of the second; and secondly, the ontological and epistemological repercussions of this shift that have amounted to the manifestation of *the programme industry*. The reason for this explication is to prepare the reader for the objects of analysis in the next chapter, which are scenographic engagements in the performing arts that are considered analogous – from a point of view of their intellectual import and their technohistorical significance – to Beckett’s deployment of the tape-recorder. In this regard, a *scenographic turn* can be identified as opening-out from the first instance of *Krapp’s Last Tape*, which establishes it as an important Event in relation to the central genealogy of this thesis, which is tracing the evolution of the performativity of machines. Extending from the year of its inception (1958) to the turn of the twenty-first century delineates the timespan within which the Evental shockwave finds resonance within the digitally enabled scenographic turn that is teased out in Chapter Three.

## **2.2 – Mechanical Turns of Sensibility and the Programme Industry**

### ***2.2.1 – From the First to the Second ‘Mechanical Turn of Sensibility’***

Stiegler regards Western sociopolitical regimes of the twentieth century as having wholly engaged in a top-down model of cultural production and dissemination, which was facilitated by technologies of representation and broadcasting. The cultural paradigm was unidirectional and therefore tragically exemplary of a profound short-circuiting of individuation. He holds it up as an outright dismissal of audiences as important, contributory voices in cultural production, and an admonitory instance of the follies engaged during the period that he identifies as the ‘first mechanical turn of

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<sup>85</sup> In the decade preceding Beckett’s play *Norbert Weiner* (1948) and Vannevar Bush (1945) both published influential texts on information technology. William Ross Ashby published his book, *An Introduction to Cybernetics* (1957), at approximately the same period as when Beckett first staged his play. The dawn of computational systems was a major subjective concern of the period, affecting not only the experimental sciences but also the social and human sciences.

sensibility' (Stiegler, 2011, p. 4). To speak of a mechanical turn of sensibility is to imply a perceptual reorientation, a reorganisation of 'sensibility' towards how working processes are constituted. Stiegler identifies it as a historical Event that took place, at the beginning of the twentieth century, by virtue of what Benjamin calls the technologies of 'mechanical reproducibility,' and was characterised by processes of automation. Benjamin's famous critique theorises how mechanical cultural artefacts reorganise human perception, thereby coercing a shift in the role of masses from producers to consumers of cultural content, precipitating a situation whereby both artists and art are generally proletarianised. This is precisely the condition that Duchamp was lampooning by exhibiting his 'readymade' works, in which the artist's hand had no tangible bearing other than a signature. Herein the dynamic processes of human perception and cogitation are fundamentally altered by a technological subjectivity, in which techniques of object production have become automated and industrialised, the result of which is the circumvention and henceforth elimination of the mystery paramount to aesthetic experience.<sup>86</sup> Stiegler writes: 'It is only within such a turn that an event as extra-ordinary as *Fountain* can come about' (Stiegler, 2011, p. 14). For Stiegler, an event, in terms of Badiou's understanding, that marks an alteration in, and henceforth a new condition of, perception only occurs very rarely and can only be brought about by a *fundamentally new* discovery. According to Stiegler, human consciousness is constituted through a technicised perceptual, or 'spiritual,' prosthesis that is *always* pharmacological, and which operates towards the industrialisation of both techniques and time – techniques in the sense that processes of exteriorisation are replaced by automata, and time in the sense of the human faculty of *attention*, which is a question of giving up one's time. The attentional faculties of the masses are co-opted, held and re-programmed by a sort of anaesthetic, or stupeficient, spectacle. This modification of human relations to the world is, and has been, the case since the advent of cinematic technologies at the turn of the last century, and it coerces a loss of knowledge – of 'savoir-faire' [our know-how] and 'savoir-vivre' [our know-how to live well] – and straightforwardly a loss of individuation. This is not to purport that

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<sup>86</sup> Aesthetic experience is understood here, as stressed in Chapter One, not just as an occurrence in which the spectator undergoes a sort of *magical* encounter, but also as a transformative process of communication between the artist and the spectator, via the work; that is, an (organological) individuation.

cinema technologies are in some way malignant or pernicious in and of themselves; quite the opposite. Stiegler is simply saying that cinematic technologies ‘were, until now, industrial functions that were hegemonically controlled by what [... he has] called the *psychopower* of marketing and the culture industries’ (Stiegler, 2011, p. 4). That is to say, for the greater part of the twentieth century, only highly capitalised production houses and government controlled institutions had access to cinematic technologies, which they deployed with a view to manipulating and exploiting human emotions, thereby establishing a libidinal economy based on the organisation of drive and desire.<sup>87</sup> In addition, the modes of presenting cultural symbols, created during this period, have been primarily mediated using analogue technology and were therefore unidirectional; that is, to mobilise the Frankfurt School analogy, canalised by the central institutions toward a passive and unarmed population, where an individual amounts to little more than a submissive, pliable and vulnerable receptacle. This is precisely what Stiegler means when he speaks of a ‘proletarianisation of sensibility’ governed by a hegemonic, stupefying, top-down industrial model.

### ***2.2.2 – From the Culture Industry to the Programme Industry***

During the nascent period of digital network development many theoreticians advocated their democratising potential,<sup>88</sup> insisting that digitally enhanced systems of mass-intersubjectivity could have a levelling effect on class structures because, on one hand, all participants in the system would be able to offer a contribution to sociopolitical dialogue, and on the other, automated processes would spell the end of ‘an epoch of laborious, consumptive masses’ (Stiegler and Rossouw, 2011, p. 54). However, this utopian vision of a technologically emancipated world has not materialised. The Internet is increasingly controlled by multinational media conglomerates and is an instrument of intense and intrusive surveillance.<sup>89</sup> The digital

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<sup>87</sup> Here we can observe a definite accordance with Adorno and Horkheimer’s thesis on the culture industry, in the capacity of the Frankfurt School’s tradition of cultural critique. This shared position will be explored in detail in the following chapter.

<sup>88</sup> For example Vannevar Bush, Norbert Wiener and William Ross Ashby.

<sup>89</sup> For example the *Wikileaks* controversy, which broke in 2010/11, brought with it a renewed debate not just in relation to online security and the transparency of what people previously perceived as private/secure channels, but also in relation to the repercussions that

platform that proffered a glimpse of intersubjective equality is being incessantly eroded by economically incumbent liberal capitalist preferences for ownership, consumerism and marketing. In fact, according to Stiegler, humans have less ‘free’ time, less freedom, and control mechanisms have become, at once, more discrete and more discreet:

Not only does the proletariat remain very significant... it has in fact grown as employees have been largely proletarianised... As for the middle classes, they have been pauperised... The growth of leisure... isn’t at all evident, since current forms of leisure do not at all function to free individual time, but indeed to control it in order to hypermassify it: they are the instruments of a new voluntary servitude. Produced and organised by the cultural and program industries, they form what Gilles Deleuze called societies of control. (Ibid., p. 54)

Stiegler identifies the ‘program industry’ as an influential entity that constantly solicits our attention and modifies our behaviour, ‘especially... our patterns of consumption,’ by usurping our free time with consumable, ‘industrial temporal objects,’<sup>90</sup> which ‘constitute the technologies of control that alter symbolic exchange fundamentally’ (Ibid., p. 57). By harnessing leisure-time as a means of control, attention operates as the *new* ‘fuel’ of ‘hyper-industrial capitalism’ (Ibid., p. 54). The increasing tendency for masses to work and play on computational systems, by consuming homogeneous, electronic broadcasts, means that the greatest part of life is lived-out online, or at least through consumable digital objects. This not only has the deleterious effect of homogenising separate cultures, but so too for Stiegler, does it homogenise history – individual pasts – because the formation of consumers’ psyches and identities are all governed, by the same set of character-constituting experiences; that is, pasts and futures all become similar. Processes of individuation, in other words, are incessantly coalesced. The disintegration of borders and erosion of ‘socio-ethnic programs’ (Ibid., p. 57) is a geo-spatial facet of globalisation that leads to herd-like behaviour, but for Stiegler, a significantly more deleterious facet is historical homogenisation. This he

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such a security breach has for the personal safety of government officials operating in regions of political tumult.

<sup>90</sup> *Industrial temporal objects*, in the digital epoch, refer to any audio-visual object generated for the global market, from multi-user online games, to spectacular films, to mobile apps, to absorbing television series, to sensationalised sports events.

terms *hyper-synchronisation*, a strategy that operates on a temporal level by bringing the individual pasts of previously separate cultures and communities into a general coalescence:

The program industries tend on the contrary to oppose synchrony and diachrony in order to bring about a hypersynchronisation constituted by the programs, which makes the singular appropriation of the pre-individual fund impossible. The program schedule... is conceived so that my lived past tends to become the same as that of my neighbours, and that our behaviour becomes herd-like.

(Ibid., p. 57)

Global broadcasts subject audiences to a paradigm of spatial and temporal coalescence, in an overall programme of historical-cultural banalisation. This unprecedentedly clandestine control mechanism short-circuits processes of individuation, trivialising individual histories and stripping masses of the familiar reference points from which to critique sociopolitical totality. Homogenisation of cultures, through the electronic circumvention of borders, is a widely known pernicious condition of globalisation, but the erosion of history via processes of disindividuation is a discreet aftershock, whose disastrous effects are hitherto widely unappreciated. Analogously, the type of knowledge that *is* passed down, as well as the means of transferral, also become homogenised; that is, knowledge is digitised and re-mediated through mnemotechnical channels and, as Lyotard points out, any knowledge that does not translate into the new pragmatics of scientific governance becomes *delegitimated* and henceforth lost (Lyotard, 1984). Tangible applications of knowledge/skills become a rarity because everything is re-mediated through digitised audiovisual symbols. The possibility of individuals individuating themselves against the group is undermined because the symbols, which constitute the general make-up of reality, are themselves increasingly homogenised, thereby creating a paradigm where the idea of individual adoption is replaced by a mass gavage of governmentally legitimated symbols passed off as knowledge.<sup>91</sup> For Stiegler, this loss of individuation leads to ‘symbolic misery’:

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<sup>91</sup> One need only look at the tendency of Hollywood to continually rework older movie productions and narratives, instead of creating new stories from scratch. Reworking something is not a bad thing, in itself, but if nothing is added, or expanded upon, epistemically and ontologically, it merely becomes part of a process of mindless repetition.



One does not have to be poor to be miserable... material wealth can be accompanied by a symbolic misery... because symbolic poverty is that which transforms a poor person to a *miserable* one [un misérable]. From poverty to misery, there is a step that concerns not only the level of wealth. (Stiegler, 2005)

This concept of ‘symbolic misery’ stems from what he claims is the ongoing tendency, throughout the twentieth century, for the masses to be increasingly excluded from participating in the processes of creating cultural symbols; that is, there is a persistent propensity for creative skills and labour of individuals and groups to be replaced by processes of machinic automation, which precipitates a loss of knowledge and therefore a loss of individuation. Aesthetics, ‘as a dimension of the symbolic,’ (Stiegler and Rossouw, 2011, p. 58) has become the primary means by which the lives of the majority are manipulated and controlled by a powerful minority who, as per Marx, own the means of (symbolic) production. The creation of temporal objects targeted at affecting sensibility and feeling – in an economy where the private details of individuals are always already known – allows for the synchronisation of experience, ‘and therefore desire, and therefore behaviour, to the point of... threatening the destruction of desire itself, and therefore politics, if not indeed economics’ (Ross, 2009). Furthermore, due to the spectacular nature of temporal objects, quotidian embodied interaction becomes more and more unimpressive, resulting in a heavier reliance on audio-visual objects for the satisfying fulfilment of experience. In the hyperindustrial epoch, the societies of control aim to ‘condition the time of consciousness and the unconscious’ by replacing ‘the sensory experience of social or psychic individuals’ with technologically enhanced systems of intersubjectivity, in an overall programme of ‘hypermassification’ (Stiegler and Rossouw, 2011, p. 58). That is, there is increasing pressure on individuals and groups to conduct more and more aspects of both work and leisure related activities through and over electronic networks under the illusion that it is better that way. That illusion is always perpetrated through the lies of the marketing and public relations industries, which, as Freud posited, are founded on the exploitation of desire.

### 2.2.3 – *Desire*

Desire is central to the libidinal economy. The Frankfurt School's apprehension of the political, libidinal, technological and economic question in relation to the culture industry provides the crucial foundation for Stiegler's examination of the continuing exploitation of these subjectivities in the digital age. Many early Frankfurt School theses tend to congregate around attempts to think this question through its relations to the human instincts of drive and desire, and this was certainly innovative, important and useful. But Stiegler is careful to point out that in each case their examinations consist of either a misconception, a conflation or a falling short of the nature of these instincts; that is, until Freud engages the topic, and even post-Freud there are still 'surprisingly naïve' (Stiegler et al., 2012, p. 168) misinterpretations of drive and desire.<sup>92</sup> The criticism stems from Stiegler's more general (post-Derridian) criticism of philosophy, which is an over-willingness to set up binary opposites. This results in enormous confusion on the difference between drive and desire, and their relationship to one another. Stiegler says: 'In Freud's second period... the drive only becomes libido because it has been bound [to desire], which Derrida calls 'stricture', the 'bind', and that is libidinal economy' (Stiegler et al., 2012, p. 177). What is interesting about Stiegler's thesis is that he uses Simondon's theory on the relations between technics and individuation to re-read Freud's instantiation of the problem of desire, which allows him to assert that the problem is always rooted in technics; that is, in exteriorisation. Stiegler maintains that the libidinal economy emerged during the first mechanical turn of sensibility because the emergence of new techniques, that could order the real, enabled it to pose 'as the libido's means of production' (Stiegler et al., 2012, p. 177), by penetrating deep into the temporal fabric of consciousness. This is obviously in line with his post-Heideggerian criticism of the ontologically reductive (Marxist) means–ends view of technology. However, it is also to say that the complex structure that organises the production of the libido is itself a set of relations produced by the *transformation* of drives into libidinal energy, which Freud describes as the idealisation of the ego. Invoking Freud, however, is not without its problems given, for

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<sup>92</sup> Stiegler calls up Marcuse on the folly of opposing the Reality Principle to the Pleasure Principle, something which Freud did not do: 'What Freud says, on the contrary, is that in order for there to be a Pleasure Principle, there must be a Reality Principle. Because the Pleasure Principle is the product of a desire, not simply a drive' (Stiegler et al. 2012, 168).

example, Deleuze and Guattari's denouncement of familialism, but Stiegler's rereading in the context of technicised exteriorisation is an important reworking that opens up new ways for thinking through the exploitation of libido, in the context of object production and consumption in the digital age.

Thinking retrospectively on the libidinal economy, in the context of Freud and Lacan, Deleuze, Derrida, Lyotard, and above all Winnicott – whose practice-led clinical research provides indispensable empirical evidence – Stiegler seeks to interrogate the technical object in consideration of the notion of desire. As a paediatrician and psychoanalyst, Winnicott posits that the originary construction of desire is located in what he calls the 'transitional object,' of which a teddy bear constitutes an ideal example.<sup>93</sup> Stiegler observes that the teddy bear is always firstly a *technical* object, which, read through Gilbert Simondon's relational philosophy, provides the basis for a *transductive relation*; or 'a transduction as Simondon defines it, namely as that which opens up possibilities of internal resonances in a process of psychic and collective individuation, and that thus (re)constitutes its terms' (Stiegler, 2009, p. 47). The transduction, in this case, is that which is established by a constellation between the child's imagination and the outside (real) world, embodied first and foremost by the mother. It constitutes the formation of identity that is underpinned by a profoundly mindful care. In the beginning, the object is perceptible as a sign, but then, to mobilise Derrida's concept of the 'supplement,' it becomes transformed into a substitute for desire.<sup>94</sup> For Stiegler, this is *the* key aspect of the economy of desire. It is the main question that needs to be addressed and, tragically, the only sector doing it is that of marketing, and they are making an excellent job of it. Stiegler says: 'Marketing is the science of transitional objects' (Stiegler et al., 2012, p. 179). The anticipation of the

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<sup>93</sup> Winnicott says that, for the child, the teddy bear withholds the quality of being simultaneously real and false and as such it occupies a 'transitional' milieu between the child's imagination and the real (outside) world. He identifies the process of playing with the transitional object as an important early bridge between self and other, which can either help the child with genuine projections to exteriority or, in cases of character disorder, facilitate the construction of a false, untruthful personality. For more on this see, Winnicott, D.,W. (1992) *The Child, the Family, and the Outside World*. Perseus Books Group.

<sup>94</sup> Derrida did not theorise the supplement as occupying a status of desire within the economy, that is Stiegler's extension of the concept.

purchase, the ritualistic pairing away of carefully assembled layers of packaging and the ensuing careful maintenance of sleek, streamlined, electronic objects constitutes a ceremonial narcissism that attains its epitome in the event of the ‘unboxing’,<sup>95</sup> and which is only conceivable in a consumer capitalist economy that places desire at the centre of each and every individual’s universe. The only objects that really count in such an economy are objects of desire, which are always now technical objects, because everyone is consistently told, by marketing campaigns, that this is so. But, as per Freud, the ironic fact is that objects of desire *do not actually exist*; they are ‘only idealised as a support for idealised projections’ (Stiegler et al., 2012, p. 182). For example, in a state of love one can attribute characteristics and qualities that do not exist, to the ones they love, through idealistic projections, which are ultimately hallucinations, or phantasms. One can believe that one’s spouse or child is an angel, a redeemer, and analogously places unreasonable demands that everyone else view them in that light, but this is not necessarily a bad thing; in fact, idealised projections are necessary because their fallacious nature withholds an over-riding truth about concern that is functional to well-being and central to human existence. In summary, it must be stressed that, for Stiegler, it is neither the transitional object of desire nor the phantasms that they withhold that are problematic; conversely, there is an urgent need for a redressal of the *abuse* of these phenomena by the marketing and public relations industry, which has been affectively dominant in Western cultures since it was founded in the 1930s by Edward Bernays.<sup>96</sup>

#### ***2.2.4 – Desire and the Programme Industry***

In terms of the programme industry, the transitional objects that are now produced and consumed are often mediatised and therefore intangible, but are technical consumables all the same. The system that produces these digitally mediatised objects offers an illusion of choice because it functions on a paradigm of ‘on-demand,’ user-centred

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<sup>95</sup> Unboxing is a popular neologism that describes the ‘ceremonial’ activity of unpackaging a newly purchased device – usually an electronic consumable. Many consumers video record themselves doing it and then post the video document on social networks.

<sup>96</sup> Edward Bernays was the nephew of Sigmund Freud. In the 1930s he took Freud’s theories on drive and desire and used them as the basis for founding the economy that, today, we call public relations and marketing (Curtis, 2005).

programme selection and, to a certain degree, the level of choice is an advancement on its predecessor: analogue television. But, the choice is specious for two reasons: firstly, the objects are still part of a hegemonic, top-down model of production and diffusion, which means that the set from which they are selected still remains consistent, albeit more accessible; secondly, the system is still an exponent of a deterministic paradigm, which commands that mass audiences all adopt and engage with identical objects. As already explained, in the analogy of Beckett's work, these two factors inhibit processes of individuation because, on one hand, the diversity of the 'pre-individual fund' becomes increasingly diluted, while on the other, subjects' consciousnesses are coerced into interacting with exteriorised, fragmented and fictitious personalities of the 'technical individual [l'individu technique]' (Simondon, 2012, p. 15) over and above real, embodied personas. As also previously noted, this tendency results in the erosion of the cogitative and discerning capacities of individual and collective consciousness, invariably leading to a proletarianisation of the mind and ultimately to a general homogenisation, and therefore a 'pauperisation' of culture. However, an aspect not yet addressed is the relationship of this tendency to desire: it destroys the mind's 'capacity for *projection* – for *desire* – which can only be *singular* (objective)' (Stiegler, 2011b, p. 4). The idealised projections that were originally located in tangible objects of desire become dissipated and re-located in the temporal, mediated and ephemeral flux of the programming industries, and furthermore, the subject of those idealised projections – whether that be the mother, father, child, friend or foe – become analogously fragmented and distributed; that is to say, the phantasm becomes the subject of the projection, in a sort of paradigm of diminishing returns and this is what Krapp demonstrated so effectively. Individual consciousnesses, now cut off from the world, are thrown into a dichotomy of either immersing themselves in, what Stiegler calls, the 'archi-flux'<sup>97</sup> of the programme industry or becoming entangled in the labyrinthine digital networks that make user profiling their prerogative and 'whose goal is to subdivide and tribalise them into subcommunities through devices that can observe the behaviour of the programmed consumers' (Stiegler, 2011b, p. 4). Either choice is equally unfavourable; whereas the former leads to a passive, mindless

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<sup>97</sup> Stiegler defines archi-flux as 'a channel'. It best understood in terms of television, whereby global broadcasts subject masses to a synchronised time of consciousness that is founded on the economics of capturing attention. See *Technics and Time 3*, pp. 121–125.

lethargy, the latter leads to a paradigm of anticipation and control via the stripping-bare and industrialisation of personality and therefore behaviour. The current dystopian situation of cultural consumerism, depicted above, is for Stiegler, one arising out of the devastation of aesthetic experience caused by the fragmentation, dissipation and henceforth liquidation of desire, a human characteristic that has become *the* object of the culture industry.

### 2.2.5 – *The End of Scandal*

The culture industry's liquidation of desire has a further deleterious, knock-on effect: the cancellation of any possibility of attaining *scandal*. Stiegler writes:

If it is true that today the adjective “contemporary” means without scandal. There used to be a time of the scandal: a time when transgression produced a scandal. But this is no longer the case—it’s as if there no longer were any possibilities for transgression, as if one could no longer expect anything from transgression. Or from a mystery. As if there no longer was a mystery.  
(Stiegler, 2011a, p. 8)

This scenario has disastrous repercussions for contemporary art that attempts to proceed along the lines of avant-garde principles because it poses enormous problems for any manifestation of artistic activism conceived with a view to provoking institutions by scandalising them – a strategy that was, for example, so effectively deployed by Duchamp. Stiegler's understanding of scandal is largely conceptualised in terms of Kant's *Analytic of the Sublime* (1790)<sup>98</sup> because the two concepts are related

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<sup>98</sup> Kant's 'Analytic of the Sublime' is a chapter from *The Critique of Judgement* and is crucial to understanding the tradition of aesthetic theory in Western philosophy. The goal of Kant's critique of the judgement (of taste) is to exhibit how the human mind maintains the ability to amalgamate nature and understanding towards a definite reconciliation. In the chapter he declares that the sublime operates on the basis of outraging the sensible faculties of intuition, thereby contravening judgemental processes. Kant expands on Edmund Burke's hypothesis by suggesting there is a certain feeling of 'delight' that proceeds from a terrifying experience. He locates the unintuitive derivation in, what he calls, 'negative pleasure' as one arising from 'admiration and respect' (Kant and Pluhar 1987, 98), and in this regard surmises the delight as something akin to an ascendancy over nature. For Kant, aesthetic experience is 'always confined to the conditions that [art] must meet to be in harmony with nature' (Kant and Pluhar 1987, 98). Henceforth, there is a feeling of autonomy from nature, that ensues, giving rise to further satisfaction. It is furthermore important to note that for Burke, the sublime

on the basis that they both operate through processes of *outraging* audiences. The theory of the sublime provides an important conceptual tool for thinking about Stiegler's emphasis on the pertinence of scandal to avant-gardist strategies. It was established that Stiegler understands scandal as an important aesthetic strategy that gives rise to a 'sort of social levitation,' but one which is firstly 'preceded by a fall' (Stiegler, 2011a, p. 12); that is an aesthetic collapse. He conducts an etymology of the term, which he urges us to think about in respect of its Greek origin, *skhandalon*, which means *trap*. He does so in order to show that the initial psychological trajectory conditioned by the crisis is one of a downward momentum, which is diametrically opposite to the widely desired one of aesthetic ascendancy. Operating through a condition of shock, or surprise, this cognitive pitfall, as it were, creates an obstacle that blocks the imagination's ability to cogitate on the abnormality; that is, it places the psyche in a condition of subterranean stasis. Scandal operates by flying in the face of dominant norms, administered by an incumbent, top-down regime of taste, thereby stifling the subject's ability to overcome the quandary presented, which is so central to the attainment of 'delight' in Kant's intellectual ascendancy. The psychological collapse caused by a scandal is not easily overcome but it is inevitable all the same. However, thought of in terms of individuation, the trap is *not* escapable through the sort of solipsistic, individual, psychic ascendancy proposed by Kant; conversely, it can only be overcome by processes of individuation. This point elucidates the nuanced differences between Kant's and Stiegler's understanding of the intellectual ascendancy commanded by the sublime: for Kant the transcendental human can and does overcome the shock of a scandal by themselves, through and by a reflexive judgement; but for

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experience is one arising directly out of the unpleasant situation, where as for Kant, the experience is fundamentally unrelated to the event; that is, only the radical subjectivity of the mind could procure pleasure from a clearly disagreeable confrontation. Kant writes: 'For what is sublime, in the proper meaning of the term, cannot be contained in any sensible form' (Kant and Pluhar 1987, 99). This makes sense if we reconsider Kant's assertion at the beginning of the chapter, whereupon he says that the effect of 'unboundedness' is followed by the 'thought of its totality' (Ibid.). This is to say that the sublime is constituted by two phases, the second phase being a sort of spontaneous reaction to the first. The first phase operates by halting the imagination's ability to grasp the totality of the encounter and, straightforwardly, the inhibiting of the faculties of comprehension to supply a concept that would permit its understanding. The second phase, for Kant, is located in the faculties of reason. It is constituted by a reactive (or reflexive) intellectual movement that operates to counteract the impediment caused by the first phase. It consists in the ability of sensible intuition to reconcile aesthetic experiences that either 'overwhelm' or 'overbear' the imagination.

Stiegler, a ‘sur-prise’<sup>99</sup> or ‘over-taking’ (Ibid., p. 12) is only attainable through hard mental work, collective discussions and re-assessments that are so central to individuations and transindividuations, which are always organological. For Stiegler the ‘aftermath’ of a scandal, which constitutes an epochal limbo, provides the ‘suspension’ that is necessary to overcoming the collapse initiated by the scandalous event; therefore, the satisfaction derived from the sublime is only possible as a ‘collective levitation’ through re-workings and reconsiderations of the offending article.

It is important to note that Kant identifies a split in the taxonomy of sublime experience, which results from the imagination’s referral of the ‘agitation either to the *cognitive power* or to the *power of desire*’ (Kant and Pluhar, 1987, p. 101). Thus, he is moved to make a distinction between two different types of agitation, the first being of a ‘mathematical’ nature and the second of what he calls a ‘dynamical’ one (Ibid.). In the case of the mathematically sublime, the imagination is overwhelmed by a feeling of absolute magnitude, which is always subject to the *a priori* conditions of time and space. Herein the subject is thrust back into itself because of a disparity between the object and any conceptual relation, which implies largeness ‘beyond all comparison’; that is, a presentation too great for the imagination to instantaneously absorb in its entirety – infinity. This type of cognitive agitation holds more interest for Kant, and it shall be demonstrated that it is fundamentally related to art that engages newness and technology.<sup>100</sup> However, it is more appropriate here to focus on the ‘dynamical’ sublime because this type of agitation holds a special interest in relation to the avant-garde, whose longevity is linked to Stiegler’s aforementioned statements on the death of scandal in contemporary culture, that is, a culture where the most obscene, pornographic and violent content – like child pornography and terrorist beheadings – is but a mouse click away.

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<sup>99</sup> Stiegler purposefully conducts a grammatisation of the word surprise in order to get to the heart of its meaning. Considering the French (Latin) origin of the words reveals that a direct translation of its discrete parts literally translates as over-take [sur-prise].

<sup>100</sup> This question shall be pursued in detail in the next chapter.



### 2.2.6 – *The Dynamical Sublime*

The dynamical sublime relates to an overbearing power that obstructs the will and as a result, the subject is rendered incapable. It operates on the basis to that it ‘blocks the ability of the imagination to act in accordance with the understanding’ (Shaw, 2006, p. 81); however, it appears that in regard to this symptom Kant is apprehending an experience that affects the emotions over and above a rationale arrived at through quantitative reasoning. Henceforth, in this case he is associating the agitative condition with an anxiety arising from an encounter with unpleasantly overpowering forces, which he likens to the terrifying forces of nature. This is one of the few situations in Kant’s entire philosophical system that he offers an example:<sup>101</sup>

consider bold, overhanging and, as it were, threatening rocks, thunderclouds piling up in the sky and moving about accompanied by lightning and thunderclaps, volcanoes with all their destructive power, hurricanes with all the devastation they leave behind, the boundless ocean heaved up, the high waterfall of a mighty river, and so on. Compared to the might of any of these, our ability to resist becomes an insignificant trifle. (Kant and Pluhar, 1987, p. 120)

Kant is resistant to locating the sublime in the object proper, thereby strengthening his case for identifying the sublime as a subjective condition of the imagination that is experienced as an agitation of the emotional faculties. Further on in the same paragraph, he goes asserts that the dynamically sublime object of reflection ‘becomes all the more attractive the more fearful it is, provided we are in a safe place’ (Kant and Pluhar, 1987, p. 120). As such, the source of delight obtained from the dynamical sublime is connected with the safety provided by distance, which allows for processes of contemplation to activate, ultimately conditioning a satisfaction. Said differently, the satisfaction derived from the contemplation relates to an appreciation for human fragility when confronted by violent forces (of nature) and analogously, via the second (reflexive) phase, our ability to comprehend this fragility, which transmits the

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<sup>101</sup> Consistent with his philosophical programme of transcendental idealism, Kant is notorious for not offering examples, which can make his work quite difficult to read and often constitutes the source of criticism directed against him.

characteristic of *mightiness*,<sup>102</sup> initially associated with the object under regard, away from it and towards something in the mind of the beholder. Thus understood, nature is perceived as having ‘no dominion over us’ (Kant and Pluhar, 1987, 5: 261) and the experience, as such, indicates the existence of a higher (transcendental) faculty, thereby bringing about a condition of solace and intellectual ascendancy. In this regard, one can surmise that the death of scandal to which Stiegler is referring, and the straightforward emergency that the art world is experiencing, is inherently connected to the difficulty in occasioning a dynamically sublime experience in the wake of a pervasive *aesthetics of anything* propounded by the Internet; that is, the inherent difficulty in occasioning intellectual ascendancy through art.

### ***2.2.7 – The Aftermath of the Death of Scandal***

The current digitally empowered economy of symbolic exchange and circulation has opened up the floodgates to create a situation where, in the turbulent seas of symbolic noise, an encounter with any type of image – from the most mediocre to the most scandalous – is possible. Publics now inhabit a global economy where politicians expose themselves on phone photographs, militants video-document and publish horrific videos of beheadings in the pursuit of an extremist image-politics, and anonymous mass-publics engage in narcissistic processes of photographing and posting the most trivial and boring material based on the supposition that everyone else is interested. Matthew Causey describes these image violations as a ‘neediness for recognition and its representation of an existential despair’ (Causey et al., 2015, p. 74).<sup>103</sup> Through a ubiquity of digital audio-visualisations, a situation is created whereby everything is permissible and symbolic categories are crushed and cast into a flattened space without horizon, meaning or ethics. This situation shares conceptual similarities to those explored by Baudrillard in *Transaesthetics* wherein high, political or critical works of art share the same speculative domain as those ‘which perform for the market and “the embellishment of the chamber”’ (Desmond et. al, 2015, p. 87), as well as

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<sup>102</sup> Kant discusses the ‘mighty’ characteristic of nature in relation to the dynamically sublime. See pp. 119 – 123.

<sup>103</sup> Matthew Causey gives a comprehensive account of the scandalous and altered states of subjectivity in a climate where anything is possible in regards to the ubiquitous digital image.

those images which are simply mediocre, vulgar or devoid of meaning or technical dexterity. The outcome is a hodgepodge situation that further produces uncertain conditions where previously normative functions of taste, judgement, and value collapse into a quagmire, and ‘we are condemned to indifference’ (Baudrillard, 1993, p. 19). By this logic, we end up in a circumstance where everything is permissible because nobody cares; scandal – the life-blood of the historical avant-garde – becomes redundant. As there are ‘no more criteria of judgement or of pleasure,’ (Ibid.) beauty and ugliness are liberated from the constraints of aesthetic judgement, and the production of signification plunges into a sort of symbolic orgy whereby images are circulated, ad infinitum, simply for the sake of circulation. Baudrillard goes on: ‘Just as the abandonment of all aesthetic ground rules provokes a kind of brush fire of aesthetic values, so the loss of all reference to the laws of exchange means that the market hurtles into unrestrained speculation’ (Ibid., p. 20). Analogous to the neglect of aesthetic judgement is the desertion of value judgement, whereby artistic output is at once vilified and canonised, at once priceless and worthless. In the contemporary machine-propelled spaces of aesthetic production and consumption objects of protestation function as aesthetic and commercial objects every bit as much as the commercial ones are (mis)interpreted and accepted as the most advanced stage of critical and aesthetic praxis. The levelled playing field reorganises aesthetic, reflexive and henceforth moral judgement. In the aftermath of the collapse of scandal masses now fulfil their *desire* to be shocked either by engaging in the normalising ‘archi-flux’ that broadcasts increasingly elaborate, violent and/or sexually explicit television series or by seeking out and accessing *real* increasingly depraved, uncurated user-generated content in social networks, peer-to-peer communities, the darkweb and beyond.<sup>104</sup> As such, Stiegler declares that contemporary art must proceed in the face of a collapse of scandal, that is, in the wake of a prevailing apathy towards transgressive audio-visual culture in general.

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<sup>104</sup> In his paper, Causey also points out that the mode of distancing and anonymity set up by electronic networks leads to a sort of apathy or indifference to violent imagery and henceforth a relinquishment of responsibility brings about a pretext for further engagement, ultimately provoking situations that have led to the suicide of, and/or a perpetual trauma suffered by, the victims.

In consideration of the preceding sections describing maleficent aspects of the programme industry, contemporary technocratic society seems a rather bleak and Orwellian place of electronic inquisition, inhabited by shallow, apathetic, perceptually exhausted consumer masses, historically disenfranchised and impoverished of independent thought. Surely there is a way out of this digitally generated, technocratic milieu of ‘symbolic misery’? How can individuals and collectives rejuvenate processes of individuation that would lead to a situation where there is a collective participation in the creation of reality, and thereby reverse the current paradigm of mass dis-individuation taking place through the technologies of the spirit? Stiegler writes: ‘the libidinal economy must be reconstructed’ (Stiegler et al., 2012, p. 182), and for him this is the key objective of political struggle today. As such, his is a pharmacological approach because only the dose will provide the antivenom to the poison that it also is – *Sola dosis facit venenum [the dose alone makes the poison]*. Desire is a fact of human existence that cannot be evaded or suppressed, to do so would be equally catastrophic, therefore we need ‘to rearm desire, to re-initiate a *process* of desire (and not of drives)’ (Ibid., p. 182); it needs to be engaged in a positive and caring manner that could reveal new procedures of putting it to work in ways that can bring about *selfless individuation* as opposed to *selfish dis-individuation* – the former being the original mode of the transitional object that Winnicott identifies. Furthermore, he maintains that in a socioeconomic situation where aesthetics are the primary means of manipulating the human instinct of desire, towards the ends of placing masses under control procedures, only an artistic avant-garde can provide a remedy to the toxicity of that cultural predicament.

### ***2.2.8 – Second Mechanical Turn of Sensibility – An Epoch of New Possibility***

On the basis of his pharmacological analysis, Stiegler locates hope in the emergence of the digital epoch, which defines the ‘second mechanical turn of sensibility’ (Stiegler, 2011a, p. 4) and which he suggests is almost the inverse of its mechanical precursor. This perceptual turn relates to the emergence of computer-assisted calculation that has permitted the *hyper-acceleration* of processes of automation, which are now carried

out, by virtue of digital electronics, at the speed of light.<sup>105</sup> For something to be automated it must go through a cycle. In the time of Benjamin this was still visible and perceptible, occurring at ‘the dynamite of the tenth of a second’<sup>106</sup> (Benjamin, 2011, p. 236). But, in the age of digital computation, cyclical automation now occurs at an astonishing speed, approximately a hundred million times faster than that of mechanical technology; indeed, even time itself is now measured in an equally incomprehensible unit of measurement: nanoseconds.<sup>107</sup> The main difference between the two epochs is a question of speed, which inevitably leads to an amassing of automata. This amassing of automata, which is carried out at the level of electrical pulses in electronic circuitry, is precisely what enables cybernetics. The advent of cybernetics is what I referred to earlier as a Grand technological artefact; it is fundamentally new and its invention occasions a new epoch, harbouring new possibilities. It was established that Stiegler maintains that every technological development is pharmacological. This is true of the digital because whereas the resultant amassing of automata leads to the replacement of human labour by automated processes, it also leads to a reduction in production costs. This fact has resulted in the ability of masses to access and engage with, not just the previously inaccessible cinematic hardware and software that facilitates captivation and postproduction, but also the fundamentally new *software* technologies unique to the digital age; for example, those of ‘indexation, diffusion and promotion’ (Stiegler, 2011a, p. 4). The pervasive ubiquity of these new technologies redefines the relationship between production and reproducibility and henceforth engenders the emergence of a second mechanical turn, whereby mass publics are re-allocated an active, critical and productive voice that can influence processes of cultural production. Under the auspices of a general organology, this new technological condition initiates the possibility of re-establishing processes of individuation at the heart of aesthetic experience by *re-empowering the amateur* and reaffirming an emphasis on

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<sup>105</sup> The ability, via electronic calculation, to place processes of automation within processes of automation is what ultimately allows physicists to conceive cybernetics.

<sup>106</sup> For example when film technology cycles through twenty-five frames per second to reproduce life-like movement.

<sup>107</sup> A nanosecond is a unit of time equal to one billionth of a second ( $10^{-9}$  or  $1/1,000,000,000$  s). This is the standard unit of measurement for clocking hardware such as processors and graphics cards.

participatory voices through distributed systems towards the ends of an *economy of contribution*. This approach, Stiegler holds, can vectorise a condition of *de-proletarianisation*.

### **2.2.9 – Activism, the Amateur and the Economy of Contribution**

#### ***Activism***

In *Symbolic Misery Volume 2: The Catastrophe of the Sensible* Stiegler's holds up Joseph Beuys as an exemplar of his aesthetics. His appreciation is firstly and most obviously motivated by Beuys' political activism and the ideological impetus that he directed at society. There are many examples of statements by Beuys in relation to a will to produce an activist art that would maintain the power to challenge society into self-reflexive mediations on its socioeconomic processes, but one of the most famous is: 'Art that cannot shape society and therefore also cannot penetrate the heart questions of society, [and] in the end influence the question of capital, is no art' (Stanley Picker Gallery, 2010). This statement by Beuys reveals a definite accord with, and finds solace in, the likes of Walter Benjamin's assertion that ever since the outset of the technologies of mechanical reproduction, art has been emancipated 'from its parasitic dependence on ritual' (Benjamin, 2011, pp. 223–24); that is, it has undergone a secularisation, the implications of which are a loss of its traditional criteria such as aura, cult value and authenticity, as well as a liberation from what Lyotard identified as a slavish obedience to realism. This tendency precipitates 'a transformation of the entire social function of art. Instead of being based on ritual, art begins to be based on another practice: politics' (Benjamin, 2011, p. 224). This statement is as relevant today as it was when Benjamin first inscribed the words and Beuys acted them out. For Stiegler, it is now the key characteristic and function of art. Now firmly embedded in the domain of politics, art needs to embrace its role as a harbinger of ideological and political critique, a role which Stiegler believes the creative arts sector has currently forsaken for the lucrative production of shallow and stupefying cultural content, which follows a top-down model of production and dissemination and is therefore non-inclusive of the alienated, non-artistic masses. This is what he means by espousing the need for a rediscovery of 'the question of the avant-garde' (Stiegler, 2010, p. 13). Throughout the twentieth century, the paradigm of cultural production under the aegis

of the culture industry (or programme industry as he calls it) has championed a hegemonic model that ‘leads to a *generalised regression of the psychomotive knowledges* that were characteristic of art (Stiegler, 2011a, p. 4). By this Stiegler means that due to its unidirectional mode of communication, canalised by the technologies of mechanical reproducibility, the culture industry coerces the amateurish spectator into the position of lethargic and impotent consumer; that is, through repetitive instances of disindividuation it has the adverse effect of stifling creative impetus that art amateurs used to possess and deploy liberally in previous generations. In the last section, this condition was shown to be symptomatic of the demise of apprenticeship.

### *The Amateur*

Stiegler delves deep into the notion of the amateur by conducting an etymological analysis of its linguistic origin: ‘The amateur “loves” (“amat,” from the Latin verb “amare,” “to love”): that’s what makes an amateur an amateur’ (Stiegler, 2011a, p. 4). By showing this, Stiegler wishes to make the point that the art amateur is someone who loves works of art. The amateur is the type of person who will not just stand and admire, but also, learn from it and refine their own skills by imitating the representation, thereby advancing themselves to a truer understanding of the form and matter; that is, through a mutual play between the observer and the art object, that the amateur is ‘trans-formed by,’ and is therefore ‘*individuated by,*’ the work of art (Stiegler, 2011a, p. 4). This is precisely the central point of his Kantian reading of the transcendental nature of the work of art: ‘A work only works to the extent that one believes in it... and gets us hooked, to the extent that it directs us towards a mystery’ (Stiegler, 2011a, p. 4). He conjures up a notion of the amateur as a subject who is transformed, or individuated, by an aesthetic experience; that is to say, aesthetic experience is fundamental to processes of individuation, and analogously those of *dis*-individuation. It has already been explained that individuation is a process that can never occur in isolation; ‘one never individuates by oneself’ (Stiegler, 2010, p. 15). It is immanently tied to a dialogical process with the *We* (the collective) that permits its reinterpretation as *co*-individuation. As a consequence, this axiom means that processes of individuation encompass political engagement, and furthermore ‘that meaningful political engagement is essential to positive aesthetic experience’ (Desmond et al., 2015, p. 84). Considered pharmacologically, aesthetic experience can

bring about either an individuation, by challenging the spectator to a critical judgement relating to the sociohistorical totality, or a disindividuation, which is constituted by an uncritical engagement with politically and ethically bereft art works – largely (but not exclusively) produced under the banner of the culture (or programme) industry.

### *Economy of Contribution*

It has been established that, for Stiegler, the ‘new mechanical turn of sensibility’ (Stiegler, 2011a, p. 4) maintains ‘the possibility of a rebirth of the figure of the amateur’ (Desmond et al., 2015, p. 84) and furthermore that this can be achieved by the re-inclusion of non-professionals in the production of cultural symbols. This straightforwardly stresses the need for an economy of contribution in which the amateur is positioned as a key ‘economic actor,’ (Stiegler, 2010, p. 14) but on a deeper level it is also to congruently advocate a new politics of aesthetic experience in which contribution by the dilettante is a crucial factor. Stiegler writes:

The constitution of creative territories depends upon the capacity to create relevant partnerships between artists, cultural institutions, their publics, and social, political, economic and academic actors – all of which requires a networking and acculturation policy not just for creators and researchers or for economic actors, but for inhabitants and associations as well. (Stiegler, 2010, p. 14)

We can understand from this statement that Stiegler places great emphasis on the *relations* rather than any one specific element. These are the relations not just between the different institutions, whether they be political or cultural, academic or social, but also between their publics, comprised of professionals and amateurs alike. In doing so, and without mentioning it explicitly, he is accentuating and prioritising the need for enriching processes of individuation, which he maintains are the foundation and support of all positive human activity.

Stiegler’s apprehension of an inclusive, creative territory is therefore central to his critique of socioeconomics and politics. As such, a new creative economy only makes sense from the point of view that it be rolled-out in an avant-garde territory that



fundamentally places contribution at the heart of its ethos. Stiegler proposes that a genealogy of the sensible enables us to trace the origination of this socioeconomic model to Joseph Beuys, because it is co-dependent on, and to a certain degree interchangeable with, his celebration of the amateur. He points out a statement in which Beuys said ‘that the nurse and the baker are, like all of us, also artists’ (Stiegler, 2010, p. 16). That is to say, *everyone* has an important and rich body of knowledge and skills that they continually contribute and refine, thus strengthening a shared, transgenerational knowledge fund. Thus, on one level he demonstrates an appreciation for Beuys’ endeavours to engender a contributive economy, while on another, he points out that it represents a positive pharmacological approach, which re-imagines a celebration of skills that may often be perceived as belonging to repressed or proletarianised forms of employment. This positive attitude constitutes the necessary remedy for counteracting the psychosocial condition of symbolic misery. The encouragement of participation in the production of cultural symbols is not limited to the production of art, for example, artisan bread is every bit as much a cultural symbol as any audio-visual representation. The artisan baker experiences a very different condition of employment to one who works in a large, industrialised bakery, wherein many of the traditional processes and skills have been transferred over to machinery for the sake of efficiency and profit. The artisan retains a contact with the material that is unachievable for the industrial baker. In addition, from the consumer’s point of view, the experience of selecting, purchasing and consuming the product is much closer to a ritual than the alienated affair furnished by a supermarket. However, art inhabits a territory where the produce is, on one hand, loaded with political subjectivity, and on the other, artificial, in the sense that it is pure artifice; that is, cunning trickery. In this regard, art’s playfulness, intrigue and chicanery makes it inherently welcoming and accessible to the masses, thereby offering a way in to the participatory economy.

For Stielger, *interactive digital media art* represents an excellent paradigm for nurturing an economy of contribution not just because of its innate ability to draw art audiences – understood as being constituted by amateurs – into the creative process, but also because without any input from the audience it cannot fulfil its aesthetic potential. Through the deployment of iterative technologies, participatory art establishes a paradigm of symbiosis whereby there is a co-dependency between the

artwork and the audience; without active audience engagement the work cannot come into being and, analogously, the audience cannot attain its desired aesthetic ('mystagogical') experience. This aesthetic position shows affinity with that of *relational aesthetics* and *postproduction*, as set out by Nicholas Bourriaud at the turn of the century.<sup>108</sup> Bourriaud conceives of relational aesthetics as a conceptual term for describing a tendency in contemporary art – vectorised by the advent of digital networks in the 1990s and early 2000s – to approach artistic practices by adopting a theoretical and practical methodology that considers 'the whole of human relations and their social context, rather than an independent and private space' (Bourriaud, 2002, p. 51). In this context, the artist, as in the case of Duchamp, is perceived in terms of being one element amongst many subjectivities that bring the work into being, as opposed to the traditional understanding of the artist as an ingenious creator. Understood in this way, it is clear to see how Stiegler's concept of transindividuation is a suitable theoretical lens through which to observe the power of participatory art because it advocates creative contributions by the amateur audience, who are catalysed into action by the artwork. As such, Stiegler shares much of the thinking promoted by Bourriaud because individuation prioritises the constellation of historical-material and sociopolitical-cultural systems over any claim towards artistic autonomy.

The vision of an inclusive, participatory economy of artistic practise does not however come devoid of criticisms. Following its upsurge in popularity, the aesthetic concept has triggered much philosophical debate in recent years creating something of a discursive micro-economy. Acclaimed art critic Hal Foster has warned that there is 'the danger of participants simply functioning as "extras"' (Foster cited in Desmond et al., 2015, p. 88).<sup>109</sup> The fullness of the debate can be best appreciated in the animated discursive exchanges between Claire Bishop and Grant Kester, whose opposing opinions on the quality and validity of such practices nevertheless bear witness to the ascending trend towards emphasising creative processes over the production of

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<sup>108</sup> See Bourriaud, N. *Postproduction* trans. Herman, J by (New York: Lukas and Sternberg, 2001) and Bourriaud, N. *Relational Aesthetics* trans. Copeland, M. (Paris: Les Presses du réel, 2002).

<sup>109</sup> See Foster, H. "Arty Party" London Review of Books (Vol. 25 No. 23 · 4 December 2003) pp 21-22.

terminal objects.<sup>110</sup> Bishop, for her part, can be understood as being sympathetic to the concerns of Foster because, considering the discrepancies between active and passive engagement, the input from the audience may only be specious and she is thus sceptical as to whether there is much validity to the cause of equalising relations between producer and consumer. Furthermore, this aesthetic modality could engender a sort of superficiality, in relation to motives for creating these types of works, wherein artists are simply catering to popular trends and the inevitable criteria surrounding funding calls (Bishop, 2006, pp. 7–8). Kester on the other hand is supportive of dialogical production on the basis that materiality is borne by relationships and intersubjectivity. While recognising Bishop’s position and acknowledging that ‘the move toward collaborative practice demonstrates a “paradigm shift *within* the field of art, even as the nature of this shift involves an increasing permeability *between* ‘art’ and other zones of symbolic production”’ (Kester cited in Desmond et al., 2015, p. 88),<sup>111</sup> Kester’s is a positive position that calls for affirmative archetypes of communication in dialogical art. However, he does insist on a qualitative mode of interaction and dialogue over and above the straightforward rhetoric of social usefulness. By exemplifying Joseph Beuys, it would appear that Stiegler would approve of the positive attitude propounded by Kester; that is, by encouraging dialogical, collective projects he aims to champion experiential aesthetic processes that could produce unique and indeterminate forms of knowledge.<sup>112</sup>

The resurrection of the amateur and the economy of contribution henceforth constitute the locus of Stiegler’s activist aesthetics and a positive pharmacological approach to cultural production in the new world economy. Considering Stiegler’s previously highlighted affirmation that ‘the question of politics is a question of aesthetics and,

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<sup>110</sup> See especially Claire Bishop’s widely cited *Artforum* piece “The Social Turn: Collaboration and Its Discontents” and *The One and the Many: Contemporary Collaborative Art in a Global Context* where Kester responds in kind.

<sup>111</sup> See also Kester, G. *The One and the Many: Contemporary Collaborative Art in a Global Context*. (Duke University Press, 2011). p.7.

<sup>112</sup> The research in this section of the thesis was conducted in collaboration with the *Aesthetics Resrarch Seminar*, at (Dublin Institute of Technology) DIT, hence the numerous references to Desmond et al. This was a collaborative paper written by the group and published in *InPrint Journal*, in 2015.

vice versa' (Ibid.), we can elicit his overarching concern in relation to the question of the avant-garde in the computational epoch: instead of creating meaningful critical praxis, contemporary art colludes with the culture industry. Having abandoned their role as political and socioeconomic critics, artists have plunged headlong into the service of the spectacle and the programme industry's acquisition and exploitation of the attentional faculties of the masses – brain-time – thereby exacerbating the short-circuiting of processes of individuation, and henceforth negating any possibility of positive social change. Stiegler suggests that a pharmacological approach will precipitate the remedy inherent within the malignant aspects of digitally mediated intersubjectivity: 'Only the digital itself, insofar as it can be a remedy, enables an effective struggle against the poison which it also is, and this is without doubt a key to the 21st century' (Stiegler, 2010, p. 19). He holds that the widening rift, which has opened up between the producers of audiovisual content and the disenfranchised consumers, needs to be filled by a rejuvenated artistic avant-garde; that is, by re-inventors of instruments who will re-harness and redeploy digital technology, thus forging new 'circuits of thought'<sup>113</sup> for a consumer public that has reached audio-visual and symbolic saturation. The Deleuzian concept of artist as inventor is crucial to Stiegler's call upon the art world to accept its political duty.

### ***2.2.10 – Aesthetics & Politics: Stiegler contra Rancière***

It has been established that Stiegler's position on *art* – that is, aesthetic endeavours that qualify for the taxonomy of *true* art and do not just operate either in the service of the global marketplace or under the task of preserving traditional skills, crafts and historical techniques – is one that shares accordance with the aesthetic theories of Adorno and Lyotard, but it also shares nuances with Derrida and Heidegger. Stiegler's understanding of art as some *thing* that operates by disinterring *truth* procedures,

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<sup>113</sup> In a 1985 interview for *Cinéma* magazine, Deleuze divulged his thoughts on cinema and the brain, explaining, 'the whole of cinema can be assessed in terms of the cerebral circuits it establishes... Creating new circuits in art means creating them in the brain too' (Deleuze 1997, 60). He went on to conclude the interview by stating that the brain is 'a spatio-temporal volume: it's up to art to trace through it the new paths open to us today' (Deleuze 1997, 61). Thus conceived, cinema (and, by default, contemporary digital audio-visual arts) can be understood as technologies of perceptual and neuropsychological re-moulding/re-shaping.

thereby opening up a mysterious world next to that rationalised one that we like to call reality, is particularly evocative of the latter two philosophers. In this respect, when he gathers the term ‘art’ he is speaking of a mode of exteriorisation that is not just linked with technical experimentalism and epistemic discovery, but that also opens up deep reflections relating to being and existence. The technically astute work of art therefore ‘effects a passage from a concealed state to a nonconcealed state [... that] constitutes a mode of truth’ (Stiegler, 1998, p. 9), a truth relating to the sociopolitical and techno-historical juncture whence it was produced. As such, he maintains that it is the domain of art to continue producing truths by configuring *new circuits of thought*, via organological processes between its being-in-repose and the audience’s being-in-reflexivity – the audience always being comprised of dynamic relations between the individual and the collective of individuals. As per his exemplar, Joseph Beuys, art that does not attempt to engage this task – which was *originally* the task of the historical avant-garde – is not *true* art; it does still belong to the parent taxonomy of culture, but not to that of art. As such, the question of the avant-garde should necessarily underpin any contemporary aesthetic endeavour that insists it be perceived as ‘fine’ or ‘pure’ art.

His decision to invoke the avant-garde as a redemptive milieu is not just an affirmation that the trajectory of contemporary art is at stake in new articulations of the concept; for Stiegler, *there is no other way* for contemporary art to proceed. As such, recuperating the question of the avant-garde is not a question of taking on a century’s worth of political-cultural encumbrances, because they are always already there. The problem conversely resides in task of convincing artists to face up to the political aspect of their vocation, which he declares, that the majority have abandoned for short-term financial gain in the service of the programme industry. Stiegler’s aesthetics is therefore, not just a call for a rejuvenation of the question of the avant-garde, but it is more urgently so, an appeal for a response to the crisis of our ‘epoch in which “art” has become separate from politics’ (Ross, 2009). Daniel Ross notes that Stiegler designates an area of agreement with Jacques Rancière, who contends that the political question has fundamentally always been ‘aesthetic in principle’ (Rancière, 2004, p. 58). In his literature, Rancière occupies himself with analysing how the aim of politics – which is

always a matter of persuasion by means of expression – is to find new ways of partitioning the sensible<sup>114</sup> (or perceptible). This allows for its reorganisation and redistribution by, what he calls the ‘police order’,<sup>115</sup> through an establishment of possible modes of perception. Furthermore, ‘the distribution of the sensible’ is a prerogative that *the police* [*la police*] have engaged differently in different historical contexts and an entitlement they have always defended with bullish violence.<sup>116</sup> This is not only an affirmation that aesthetics resides at the locus of political discourse, but so too is it an assertion that aesthetics is the primary means by which higher ideals of freedom and equality can be pursued and possibly attained. Rancière espouses the need for an expanded rethinking of aesthetics that, on one hand, moves beyond Benjamin’s influential, but essentially overly reductive, theory of a modern ‘aestheticisation’ of politics, and on the other, avoids simplified characterisations of the art object. In relation to the avant-garde – and other historical politico-aesthetic categories for that matter – however, Rancière adopts something of a more despondent view of its history than Stiegler does. Rancière maintains that the repeated attempts, carried out under the banner of different movements throughout the twentieth century, to empower and emancipate the spectator, have only served to bolster existing divisive and hierarchical stratifications of population – those with the means of production continuing to exist comfortably at the top, with capacity for creativity or critical reflection, scaling steadily downwards towards increasingly marginalised, stupefied masses, inhabiting the lower strata.<sup>117</sup> In light of this, Rancière calls for the total liquidation of the historical artistic categories – autonomous art, modernism, postmodernism and the avant-garde – with a view to a fundamental reworking of the concept of aesthetics. This aesthetic view is

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<sup>114</sup> The ‘sensible’ is taken in its broadest understanding as anything that is apprehended by the senses, and in this sense is analogous to Stiegler’s umbrella-like usage of aesthetics as sensation in general.

<sup>115</sup> Rancière’s term ‘the police order [*la police*]’ is not to be confused with the normal understanding of police as a security-based occupation. It is conversely a term that encapsulates the activities of courts, bureaucracies and parliaments, including the formulation and enforcement of rules, conventions, roles and straightforwardly forms of exclusion; it is that which we would normally conceive of as politics.

<sup>116</sup> See Rancière, Jacques. 2006. *The Politics of Aesthetics: The Distribution of the Sensible*. Translated by Gabriel Rockhill. Pbk. Ed edition. London ; New York: Bloomsbury 3PL.

<sup>117</sup> See Rancière, Jacques. 2011. *The Emancipated Spectator*. Verso Books.

very similar to that of Stiegler's, but Stiegler exhibits ambivalence towards Rancière's position. While Stiegler agrees that aesthetics must begin anew due to the upsurge of symbolic misery arising out of the neglect of aesthetic and political value, he is nevertheless comfortable with holding on to the notion of recuperating the avant-garde. Stiegler declares that a disinterment of its political praxis can and will bring about positive socioeconomic amelioration. He writes:

I understand the potential of creative territories: as the possibility of an *avant-garde* territory, that is, an area capable of inventing a new cultural, social, economic and political model, of offering prefigurations of alternative "lines of flight"<sup>118</sup> to those of a consumerist society that has now reached exhaustion. (Stiegler, 2010, pp. 13–14)

In mobilizing the avant-garde, he is aligning himself with the critical left that echoes and henceforth rejuvenates Adorno's call for politically engaged art that would challenge and emphasise the capitalist tendency to promote mindless, narcissistic consumerism and suppresses independent, critical thought. The objective of the avant-garde is, and always will be, a practical exploration of epistemic territory with a view to disrupting the prevalent socioeconomic and political structure of capitalism, which, in Stiegler's estimation, is exhausting human and natural resources. For Stiegler, it is necessary that the programme – creation as critical reflection – be continually reworked from epoch to epoch; otherwise, we face a general abandonment of critical thought.

Daniel Ross<sup>119</sup> indicates a further point of departure between Stiegler and Rancière: Stiegler feels Rancière overlooks the adversely far-reaching facet explored by Deleuze following Foucault's theory on power, which is the tendency of the culture (programme) industry to exploit aesthetic experience in order to leverage 'control' over the masses. Ross writes:

What Rancière fails to think is that aesthetics, that is, sensibility and feeling, has become the very means by which every aspect of life is calculated and

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<sup>118</sup> Stiegler's citation of Deleuze is an expansion of the idea of 'control societies'.

<sup>119</sup> Daniel Ross, who is currently a *Prometeo* researcher at Yachay Tech, in Ecuador, works very closely with Stiegler and translates many of his texts.

controlled, through the invention of aesthetic and affective technologies configured toward synchronising experience. (Ross, 2009)

As already noted earlier in this section, the synchronisation of experience also entails the destruction of desire and henceforth a homogenisation of behaviour, to the point where any notion of individuality is threatened by total erasure; that is, total conformity to homogeneity. For Stiegler, this takes place through the dissolution of the essence of ego independence. Stiegler writes: ‘...symbolic misery leads to the *ruin of narcissism* and to political and economic disarray’ (Stiegler and Rossouw, 2011, p. 58). Read through the conceptual model of a general organology the culture industry, as an entity that commandeers, mediatises and homogenises processes of individuation, creates a situation of symbolic misery, which is a *collective sociopathological* condition arising from the dissipation of individual identities into the profusion of the mass. Symbolic misery is the *sociopathological will* to look into the liquid crystal display and be contented with seeing the reflection staring back that exhibits nothing of independence, autonomy or freedom – only an overbearing and crushing similitude of unexceptional consistency. Thought about in terms of Krapp’s scenario, this situation is in fact the complete, diametric opposite: a *hyper-heteronomy*, a world flooded with faces and voices that are all so similar to each other. Both scenarios are extremes, the poison and the cure immanent to both, both immanent to each other. Individuation becomes impossible because there are no more individuals only a homogenous mass of anonymity. Narcissism is a human condition that is often interpreted as a negative thing, but can, itself, be read pharmacologically: it is firstly central to the formation of the psyche, the ego and desire. The ruination of narcissism inevitably precipitates the liquidation of desire. As such, this pathology of the hyperheteronomy is a scenario with an equally disastrous outcome to that of Krapp’s because it is analogous to his malaise on a massive scale; that is, mass indifference towards concern and therefore life itself. At its most extreme, it inflicts the loss of desire, the loss of self-interest, the loss of independence and the loss of a will to do anything about it, on a pandemic scale.<sup>120</sup> This straightforwardly implies that even politics and economics fall foul of the

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<sup>120</sup> This point is crucial to Stiegler’s latest writings which cogitate on scientific and ecological evidence that supports the suggestion that current socioeconomics and politics has entered into a massive condition of uncaring, on a global scale, and it will be returned to in depth in the final chapter.



catastrophic scenario of uncaring; politics, because there is no opposite camp, and economics, because the idea of an expanding or diversifying set of choices, upon which capitalism itself relies, becomes inverted and revealed as a contracting and stagnant pool bereft of diverse life,<sup>121</sup> drying out, losing resources, eating itself from the inside. This is exactly the concern that is so pertinent to Stiegler's latest writings, in which he analyses the Anthropocene as proof of a social, economic, political and therefore aesthetic emergency. Paradoxically, capitalism's obsession with the pursuit of total control maintains the potential to precipitate a situation that is the complete and utter loss of control, on a grand and global scale that heralds ecological and sociopolitical disaster. However, it is important to note that Stiegler's insistence on a pharmacological reading of everything stipulates that consumer capitalism's ability to harness desire also incubates the cure to the socioeconomic pathology.

Considering that the destruction of desire is the essence of the problem, it is for this reason that Stiegler targets the beneficent aspects of desire, in his roadmap for a reconstruction of the new economy, because the re-arming of desire can engender an impulsion to act, on a massive scale. Stiegler places the responsibility for this re-arming of desire on the shoulders of artists because, in agreement with Rancière, it is artists, as aesthetic practitioners, who are experts in exteriorising in that mode fundamental to politics: persuasion. Given Stiegler's statement that art must proceed in the wake of an obsolescence of scandal, which has been so central to the political activism of the avant-garde for most of the twentieth century, what strategies are left that could, maybe not *scandalise* in the modernised sense, but more so, *shock* or a *surprise* an engaged audience? A final look at *Krapp's Last Tape* will help with approaching this problem. That Beckett scandalises there is no doubt, yet it is a surprise that emerges, not through any particular disgraceful or embarrassing representations, but indeed through innovative employments of fundamentally new technologies and techniques; that is, by rerouting knowledge circuits and changing the

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<sup>121</sup> The term, life, is here invoked in Stiegler's organological sense; that is, a relational milieu traversing the psychic, the social and the technical.

rules Beckett ‘presents the unrepresentable’.<sup>122</sup> This is, of course, precisely what Duchamp also did with his *Readymades*, and it must be recalled that Stiegler calls on artists to consistently revisit the problems engaged by Duchamp, through and by processes of transindividuation. Given the importance that Stiegler locates in the experiential mechanism of the sublime, as a process of *over-taking* that is fundamental to transindividuation, it can be affirmed that its preservation is essential to the longevity, not just of art but also of humanity in general. There needs to be a strategy that can project the spectator into a state of unboundedness and, given the consistent and ongoing evolution of technology – or more specifically, the evolution of the human through technology – this establishes the technological milieu as the space that is largely responsible for the furnishing of experiential possibility, by pushing the limits of the sensible.

### **2.2.11 – Prelude to Chapter 3**

On the basis that the techno-philosophical theory underpinning this genealogy of the sensible has been described up to a point that is reflective of the contemporary digital epoch, the next chapter is concerned with engaging this question of the sublime by analysing some digitally-enabled performances, entitled *Apparition* and *Mortal Engine*. These works have been chosen primarily because they employ the specificities of cutting-edge technology in ways that are fundamentally new, and therefore provide a useful analytical counterpoint to Beckett’s play, which was discussed here as exemplary of the first mechanical turn. It will be shown that an interrogation of the sublime in the context of the digital epoch coincides neatly with the genealogy that constitutes the central axis of cogitation in this thesis; that is, a mapping of the emergence of performative machines that testifies to the evolution of the ontological efficacy of technology.

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<sup>122</sup> It is Lyotard’s assertion, in *The Postmodern Condition* (1984), that the arts of modernity and postmodernity rely on a strategy of presenting the ‘unrepresentable’ which he describes as the essence of an experience of the sublime in the contemporary world. As noted in the discussion of Duchamp, he maintains this is possible by *changing the rules*.

### **Chapter 3: Reflecting on the Computational Performances of Klaus Obermaier and *Chunky Moves*.**

*This chapter brings the genealogy of the sensible – which is tracing the evolution of art-producing systems and their parallel progression from agency towards autonomy – up to recent activities at the turn of the twenty-first century. This section identifies the digital, interactive dance performances, *Apparition* (2004), by media artist Klaus Obermaier, and *Mortal Engine* (2007), a collaboration between *Chunky Moves* and Frieder Weiss, as key epochal developments in the genealogical trajectory. It is held that these two examples represent a pioneering and innovative step in harnessing digital technologies towards the avant-garde strategy of producing art at the confluence of chance operations and the new. The section provides a useful counterpoint to the object of discussion in the last chapter because it also concerns a discussion of the technohistoric specificities of the works in relation to the concept of the machine performer. In opposition to Beckett's play, which has a concretised text and choreographic directions, the computational performances engage the problem of technological determinacy in an improvisational way that is exemplary of the new possibilities presented by digital technologies. As such, they mobilise the new hyper-automatic specificities of the second mechanical turn to generate chance procedures and affect the artistic outcome of the work in a way that was impossible during the first mechanical turn. In doing so they expose a development of technical processes that facilitate an increase in the responsibility and intention of machines both in the arts and in society generally. This logically also demands a discussion of how technology impacts on the formulation of choreography and dramaturgy, and what this means for working processes going forward. Crucially we shall see how, understood within Stiegler's mobilisation of the concept of the avant-garde, *Apparition* and *Mortal Engine*, which use bespoke, cutting-edge technology, offer provocative audio-visual metaphors that give rise to sociohistoric, ontological and cultural questions relating to tool-use. Viewed through a Stieglerian philosophical lens, the discussion of the works, not only inevitably opens out into a radical critique of intersubjectivity in the digital epoch, but so too is it argued that manifest in the works are appeals for a reconsideration of digital technologies as interdependent, artificial organs in an*

*overall evolutionary process in which the increasing autonomy of machines fundamentally challenges means–ends rationale.*

### **3.1 – Klaus Obermaier and the Question of the Sublime in Digital Culture**

#### **3.1.1 – Introduction**

In the digital epoch, every sector of culture is experiencing a shift in how its working processes are constituted, and the performing arts are no exception. The increased use of digital technologies in processes of art production has created opportunities for transdisciplinary exchange between the arts and sciences – especially computer science – and has engendered innovative strategies that impact on notions of practice and reception. Theatre has long been acknowledged as a space that facilitates collaboration, not only between different fields of art, but also between the arts and sciences. Scenography, through its rationalisation of the performance space, is the territory where these collaborations are played out, and is therefore the leading field to employ digital technologies. Increased computing power has introduced new opportunities for digital simulation – already widely exploited in the film and gaming industries – on the live stage. This section focuses on the shift taking place in the performing arts, brought about by the migration from mechanical to digital technologies and the import of software into scenographic working processes. In acknowledgement of Stiegler’s assertion that we are experiencing the ‘second mechanical turn of sensibility’ (Stiegler, 2011a, p. 4), this shift is referred to as the *Scenographic Turn*,<sup>123</sup> and it should therefore be considered in its genealogical relation to the earlier section on *Krapp’s Last Tape*. The acceleration of cyclical automation to astonishing speeds, approximately a hundred million times faster than that of mechanical technology is a techno-evolutionary phenomenon that artists and the art-going public have had neither the time nor space to digest and reconcile, and still technology and production continues to accelerate. Nanotechnologies and biomechanical engineering are leading

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<sup>123</sup> I used this term in an article entitled, ‘The Scenographic Turn: The Pharmacology of the Digitisation of Scenography,’ for the *Theatre Design Journal* (2015), Taylor Francis, London.

research fields, and technocultural innovations continue to be produced at an increasing rate. Just as mechanical technological innovations found their way into the domain of art, so too now do those technologies of the cybernetic epoch along with their processes of light-speed calculation.

### ***3.1.2 – The Digital Avant-Garde: Technical Sublime and Sociopolitical Metaphors***

Klaus Obermaier is acclaimed for his innovative investigations into digitally projecting on to moving bodies and scenography in live performance. Supported by the *Ars Electronica FutureLab*, he has paved the way for radical amalgamations of audio-visuals and choreography, and is known to be one of the major pioneers of *responsive stage environments*.<sup>124</sup> Since the early 1990s, his work has challenged prevailing projection and screen conventions, thus raising questions about the nature of projected light and possibilities for its uses in live situations. *Apparition* is Obermaier's most critically acclaimed computationally enhanced performance. The stage set, which simply consists of one large projection screen at the back of the stage, is responsive; that is, the audio-visuals are dependent on the dancers' movement. In avant-gardist fashion, his work not only fragments categories, antagonises status quo paradigms, and destabilises established institutes of film, cinema and theatre, but so too does it foreground the possibility that 'video projection, physical presence and acoustic environment [... can] blend into a symbiosis and create their own new reality' (Obermaier, 1999). Thus, to construe his art as a digitised merger of light, shadow and sound effects with corporeal movement is to miss the crux of the philosophical questioning underpinning his work.

*Apparition* not only exhibited new possibilities available to motion-tracking a live performer, but so too did it explore the innovative idea of elevating the computer to the status of symbiotic performance partner. By interrogating choreographic possibilities at the intersection of human and software, Obermaier provided a historical milestone in

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<sup>124</sup> Responsive environments (interactive installations) are digitally enabled 'spaces that interact with the people who use them, pass through them or by them' (Bullivant, 2006, p. 1). I have here extended the term to refer to interactive digital scenography that responds to the movement of performers on the live stage.

the deployment of technology in the performing arts, as well as an evolutionary breakthrough in explorations of performative objects. Hence, the work was more than mere techno-exhibitionism, which is inevitably devalued and overtaken by newer technological gimmicks; on the contrary, it should be understood as cultural innovation. Although motion-tracking technology has been used in military applications for decades, Obermaier's deployment of it in the theatre represented an experimental, epistemically searching and creative use of rationalised thought in the arts. His questioning that emerged from the practical synthesis of cybernetic theory and the performing arts offered a fresh and innovative praxis. In short, it is not enough to place cutting-edge technology on stage; treatment of the subject is key. The art idea was not disclosed by the presentation of motion-tracking, projection-mapping or choreography; rather, it was revealed by an original and carefully considered narrative that emerged from a new consideration of computer software as a choreographic partner.

Obermaier advances the aesthetics of artists like Alwin Nikolais, who sought to challenge established choreographic paradigms of form and structure by introducing multimedia elements and random phenomena as determinants of the composition – such as strong light as a mechanism for revealing and secreting the performers on a stage otherwise bathed in complete darkness. Obermaier continues this investigation by eliciting the specificities of digital projection, thereby avoiding simple thematic repetition. Building upon body-projection aesthetics developed in earlier works, like *D.A.V.E.* (1999), he creates a performance piece that uses digital media hardware and software to generate real-time, responsive audio-visuals. The intention is to release the performers from the constraints of predetermined choreography and offer a historically unique and computationally contingent choreography. What makes the digital performance system symbiotic is that it operates on a responsive paradigm: the dancers' movement is tracked using a video camera and computer-vision software, then the information is quantised and finally audiovisual content is generated in response to that movement. Obermaier's use of the responsive environment for mediating physical poetry signals a new storytelling paradigm, a genre of art specific to digital technologies, and suggests a desire to re-invent, experiment with and undermine the structure of an established cultural process that would have ensured continuity. It

would be presumptuous to claim that Obermaier's intention is to rupture history, but what cannot be denied is that his innovative treatment of content using cutting-edge technology, as Stiegler puts it, constitutes a sort of surprise 'in the sense that, suddenly, it jumps out at us... affects us, and gets us hooked, to the extent that it directs us towards a mystery' (Stiegler, 2011a, p. 6). It creates a *shock*, an *Event* in the sense of Alan Badiou's theory, caused by the deployment of new technology on stage and the resulting *original* audio-visual composition that unfolds. It presents a cultural rupture analogous to that which *Krapp's Last Tape* presented in the epoch of the first mechanical turn and it is for this reason that Obermaier's work was chosen as a dialogical counterpoint. By using the metaphors of shock and surprise, as an expression of aesthetic experience, Stiegler is calling for a rereading of Kant, and indeed, at the beginning of the paper, he explicitly states that we must 'first of all turn to Kant' (Stiegler, 2011, p. 4). The surprise that is followed by a mystery is essentially an experience of the sublime and, for Stiegler, it is immanently related to the experience of art through *new* technologies. But, what exactly is it about new technologies that conduces the subject into an experience of the sublime? This question can be engaged by approaching it through that other, already mentioned but parked, child taxonomy of Kant's sublime analytic, which he calls *the mathematical sublime*.

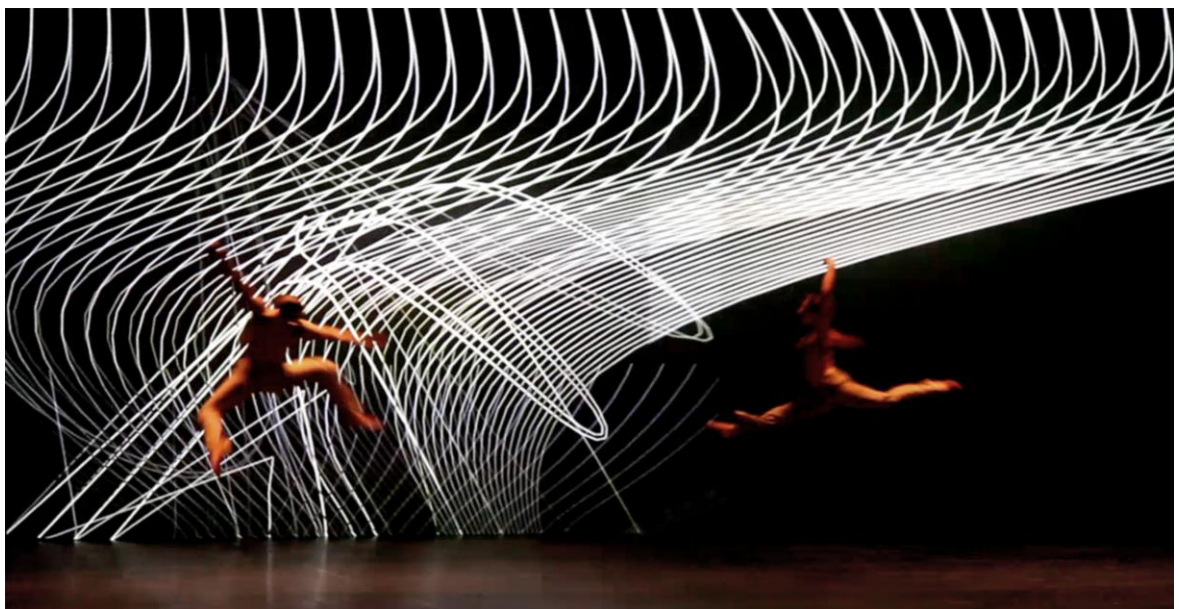


Fig. 3.1 Apparition Jump, courtesy of the artist.

### 3.1.3 – *The Mathematical Sublime*

For Kant, the mathematical sublime is related to the inability of the imagination to present an analogous idea that would facilitate comprehension of something denoting enormity ‘beyond all comparison’ (Kant and Pluhar, 1987, p. 103). Said differently, in opposition to something ‘great’ that can still be related back to a universally understood unit of measurement (or ‘quantum’), the mathematical sublime is the result of a judgement arising from an aesthetic encounter wherein quantitative estimation is involved and fails, which ‘brings with it the Idea of the sublime and produces that emotion which no mathematical estimation of its magnitude by means of numbers can bring about’ (Kant, 1914, p. 111). As such, it is an experience of being overwhelmed by a seemingly unfathomable ‘sequence of sensible intuitions’ (Shaw, 2006, p. 81) extending towards infinity, because the imagination must instead cope with the rationality of never being able to account for the totality of the experiential progression. Although Kant does relate the mathematical sublime to problems surrounding the idea of scale, he does not restrict it to that which is infinitely great. It has already been noted that, for Kant, all attempts to understand and reconcile experiences engendered by art are related back to nature, but in the case of the mathematical sublime referents in the natural world invariably fall short because when ‘considered in another relation’ they can be ‘reduced to the infinitely small’ (Kant, 1914, p. 109). Conversely, ideas that present an experience of the tiny or the miniscule, by extension of the imagination, equally disclose the ‘greatness of the world, if compared with still smaller standards’ (Ibid.). So to reiterate: an experience of the mathematical is *not* located in the objective scale of the thing under consideration, but instead in the great ‘effort of the Imagination’ to present a ‘unit for the estimation of magnitude,’ which in turn implies ‘a reference to something absolutely great’ (Kant, 1914, p. 120). The *unknown* surrounding the idea of absolute magnitude and the subsequent laying bare of the ‘inadequateness’ of the imagination refers the imagination to the law of Reason which in turn ‘excites in us the feeling of a supersensible faculty’ (Kant, 1914, p. 109).<sup>125</sup> It will be demonstrated over the next couple of sections why this relationship

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<sup>125</sup> In this deployment of the term ‘supersensible’, one can observe a resemblance to the language employed by Stiegler, in his discussion of the mystagogy of the work of art, which helps reinforce my suggestion that it is the mathematical strand of the sublime that Stiegler is pursuing in relation to technological works.



between magnitude and the imagination becomes incredibly important to aesthetic experience in digital media art. It will also be shown that the mathematical sublime is a very useful theoretical tool for unpacking the essence of the artistic metaphors impelled by Obermaier's inventive amalgamation of cutting-edge motion-tracking technology with the embodied expression of dance.

Firmly rooted in the terrain of retinal theorisation, Kant was writing in an epoch when telescopes and microscopes were the cutting-edge of optical instrumentation; indeed, he does refer to these instruments to help elucidate his theoretical rationale. Furthermore, it begs the question as to whether Kant actually located the mathematical derivative of sublime experience in technologically empowered works of art. Kant's hesitation to provide examples and the need to keep this discussion focused on the question of a computational avant-garde places this question beyond the bounds of this thesis. However, micrographic illustrations similar to those first produced by Robert Hooke, in *Micrographia*,<sup>126</sup> would have held an interest for Kant, and his philosophical contemporaries, by testifying to the existence of unknown and unexplored, yet nevertheless tangible and contiguous, realms situated just beyond the standard levels of human perception. (See fig. 3.2 below)

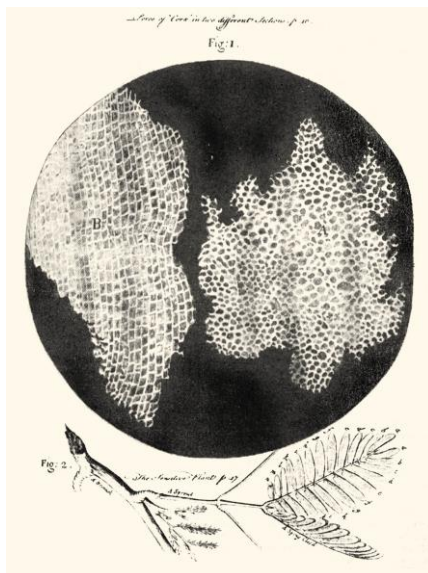


Fig. 3.2a, a drawing of the cellular structure of cork and a sprig of sensitive plant, from Hooke's book, *Micrographia* (1665). Fig. 3.2b, the microscope that he used for magnifying his minute subjects.

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<sup>126</sup> Hooke, Robert. 1667. *Micrographia: Or Some Physiological Descriptions Of Minute Bodies Made By Magnifying Glasses. With Observations and Inquiries Thereupon*. John Martyn.

Kant's observation on the fluid and reversible relations between the very large and the very small, when perceived through and by the subjectivity of the human imagination, is an important observation, especially in relation to modern experiences of the sublime. It is on foot of this relationship between aesthetics and scale that Stiegler's aesthetics (which is also to say his politics) becomes pertinent to this discussion because, as Stiegler says himself: 'calculation... will come to determine the essence of modernity' (Stiegler, 1998, p. 3). By this he means that modernity is characterised by an increasing industrialisation of every *thing* through processes of mathematical and statistical rationalisation, from the natural world and organic bodies to cultural activities, governments and administrations; that is, modernity consists of the general organisation, sanitisation and henceforth demystification of the world. Having considered Stiegler's assertion on the collapse of desire that arises from this scenario and the resultant difficulty in producing dynamically sublime aesthetic experiences, it can be surmised that sublime experience, in the epoch of computation, is one primarily located in the domain of the mathematical. This argument can be brought into clearer view by considering it in terms of the technological, instrumental and mathematical processes employed by Obermaier in the making of *Apparition*. Doing so will also elucidate the central narrative of this thesis, which is an *organological genealogy of the sensible* in relation to avant-garde applications of instruments of sensible prosthesis and their corresponding contemporaneous ontological implications, in relation to the development of agency through automatisations.

### ***3.1.4 – The Technological Sublime***

Thinking about the development of devices of sensible enhancement in terms of Stiegler's first and second mechanical turns – that is in consideration of their marriage with processes of automation – shows that not only do they provide an interesting historical-material map of human cognitive prosthetics, but so too do they advance a necessary reflection upon the construction of reality through signs as well as the politics that this entails. Following the first mechanical turn, there is a synthesis of sensible instruments with those of automatic processes that fundamentally shifts the organological relationship between: firstly, the produced art object, which is a product

of a techno-historical intersection between the artist and the material; secondly, the individual, as embodied by the artist; and thirdly, the audience, which is the collective that must perceptually engage with, and appraise, the techno-artistic product, which is now – by virtue of automation – a motion picture or audio recording. Benjamin is, of course, the go-to philosopher for the epoch of the first mechanical turn and the aspect of his thesis that is pertinent to this discussion of the sublime is his emphasis on the relations between optics (and sensibility generally) and *distance* – a concept that is analogous to the weighting that Kant gives to scale. What follows below is a rereading of Benjamin's theory through Stiegler's contemporary synthesis, including an explanation of the bridging work established by Paul Virilio.

For Benjamin, mechanical reproducibility represents a fundamentally new cultural process, which intervenes in our human nature by disrupting familiar patterns of perception and essentially transforming the way humans engage with, and perceive, the world. He proposes the word 'aura' to describe the thing immanent to art and nature that fosters aesthetic experience, and he asserts that it arises out of the 'unique phenomenon of a distance,' (Benjamin, 2011, p. 216) which – probably in salutation to Kant – he compares to gazing upon 'a mountain range on the horizon' (Ibid.). For Benjamin, the conditions of aura are significantly challenged at the outset of the new technologies of mechanical reproducibility. One might instinctively think that Benjamin is a proponent of maintaining 'natural distance,' which he sets up as the diametric opposite of the 'new' type of mediated distance brought about by reproducible technologies. On the contrary, he is neither for nor against either strain of distance, more specifically he is concerned with the mutation of the relationship between the artist and the object, under the aegis of mechanical technologies. He writes: 'The painter maintains in his work a natural distance from reality, the cameraman penetrates deeply into its web' (Benjamin, 2011, p. 227). That is to say that the painting – whether abstract or realistic – is totalising in its composition whereas the *temporal object*,<sup>127</sup> through the mobility of the artist, the versatility of the technology and the postproductive processes of montage, engenders a new type of artistic

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<sup>127</sup> To reintroduce the terminology of Stiegler.

assemblage that precipitates a ‘new law’<sup>128</sup> in its representation of reality. This argument is clarified by comparing Duchamp’s totalising, readymade sculptures to Beckett’s temporal object. Duchamp was bound by a contract that stipulated a faithfulness to reality encouraged by his natural proximity to the object and the demand of having to communicate the information within one totalising frame (in this case a single sculpture); whereas, the efficacy of the automated mnemotechnology, through and by its processes of extraction and re-assembly of ‘multiple fragments’ (Ibid.) liberated Beckett from the constraints of faithful representation and empowered new processes of fabricating reality. These are foregrounded through Krapp’s incessant re-ordering of the tertiary retentions and the resultant fabrication of a distorted reality. This is the fundamental difference that Benjamin wants to communicate in his thesis and it forms the basis of his *justified* fears in relation to its deployment for the ends of propaganda;<sup>129</sup> that is, its misuse by way of its ability to re-configure circuits of thought in interiorised spaces of the mind, and on a grand scale if broadcast.

The respect for distance, observed by traditional totalising modes of representation, is inverted by the new technologies of mechanical mass reproduction, because the mnemotechnology and the object of its attention can be anywhere at any time. Via processes of re-assemblage, and their linear, time-based language of symbolic juxtaposition, objects can be fallaciously supplanted to different spatial–temporal contexts, fundamentally facilitating a misleading construction of reality. Thus, the notion of natural distance as well as the unique spatial–temporal location of the object must be discarded. It is furthermore relevant that – in the case of optical technologies – through processes of technical individuation the movie camera inherently adopts the zoom technology that was so awe inspiring for theoreticians in Kant’s epoch; in Benjamin’s era it is a given, and in that sense, the ability for technology to negate scale, has already

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<sup>128</sup> We came up against a similar idea in the analysis of Duchamp’s readymades, where it was affirmed that Duchamp work communicated on the basis of ‘changing the rules’. In this case the invention of the mnemotechnology changes the rules on a Grand scale – that is globally.

<sup>129</sup> In *Triumph of the Will*, Leni Riefensthal was able to exaggerate the popularity of the Nazi party by creating distorted perspectives through the use of long focus lenses, ultimately accelerating the growth of their popularity. Being of Jewish origin, Benjamin was of course directly affected the rise of the Nazis, which led to his exile and ultimately his premature death.

assimilated to what is natural and indeed expected. More significant for Benjamin is the ‘desire of contemporary masses to bring things “closer” spatially and humanly, which is just as ardent as their bent toward overcoming the uniqueness of every reality by accepting its reproduction’ (Benjamin, 2011, p. 217). Benjamin is not so disturbed by the inclination of humans to ‘bring things closer’ (Ibid.). It is a natural instinct that is constituted by a fundamental curiosity, which is a good characteristic that engenders epistemic progress, and mechanical technology effectively satisfies this need. What he *is* profoundly disturbed by is the willingness of people to believe everything that they see, or hear, relayed over a medium that is fundamentally truth altering. Mechanically reproducible processes of symbolic production ultimately coerce masses into forgoing the ‘uniqueness’ of real, embodied encounters and the truth that can arise out of genuine dialogue, for the canalised narratives and tainted representations of reality that are always the result of a top-down, unidirectional system of communication, from wealthy institutions, with vested or political interests, towards vulnerable and isolated individuals.

Paul Virilio, who provided Stiegler with a helpful conversational forum for developing the first book of his thesis (*Technics and Time 1*), is acclaimed for his advancements of Benjamin’s famous essay by considering the new organisation of human sense perception under the auspices of digital technologies. He uses Benjamin’s identification of the *withering* of ‘the unique phenomenon of a distance’ (Ibid.) as the starting point for developing his own discussion of the new mutations suffered by distance in the digital epoch. In agreement with Benjamin, Virilio maintains that in the age of cybernetics there is an analogous displacement of familiar patterns of human perception, which henceforth leads to a further destabilisation of politics and culture; however, in opposition to the symptoms of mechanical reproducibility, he maintains that in the digital epoch that displacement is a result of the *total* collapse of physical distance. He employs the terms ‘large-scale optics’ and ‘small-scale optics’ (Virilio, 1997, pp. 35–48) to delineate the magnitude of this change. Small-scale optics is a term for describing all that is distinguishable to the human eye in a ‘geometric’ space,

‘which in the end only covers man’s immediate proximity’ (Virilio, 1997, p. 35);<sup>130</sup> whereas, large-scale optics are presented as being ‘active-optics,’ which is the real-time transmission of information over global electronic networks, a process that occurs at the speed of light, and thus ‘disregards the traditional notion of a horizon’ (Ibid.). We can glean from these definitions that Virilio understands the phenomenon of distance as being totally negated under the aegis of *speed*; that is, the facility for the live transmission of audio-visual symbols coerces an even more precarious political and cultural situation than that envisaged by Benjamin. For Virilio, as large-scale optics replace those of the small taxonomy, the distinctive times and locations that constitute individual and collective identities – characteristic of the epoch of small-scale optics – are erased. He writes:

The aesthetics of the appearance of objects or people standing out against the apparent horizon of classical perspective’s unity of time and place is then taken over by the aesthetics of disappearance of far-off characters looming up against the lack of horizon of a cathode screen where unity of time wins out over the unity of the place of encounter. (Virilio, 1997, p. 36).

In principle, digital technologies facilitate the transmission of information from any given location on earth to any other one, without any noticeable latency in relation to the speed of its transfer or the quality of its reception. As such, this new technological reality undermines human understanding of concepts such as *close by* and *far away*, as well as the time needed to close the gap; indeed, the digitalised world collapses separate locations into the singular space of a message-in-circuit, thereby negating perspectival notions of distance and its accompanying referents such as a horizon, which would normally prevent episodes of disorientation.

It is henceforth the case that whereas, for Benjamin, the technologies of the first mechanical turn maintain the power to displace objects from their original location, for Virilio, the technologies of the second mechanical turn completely eliminate any perception of distance and space, thereby giving rise to a new mediated world bereft of depth or coordinates, and advancing the sensation of a global claustrophobia. Virilio

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<sup>130</sup> This concept would include the film object.

laments digital technology's ability to completely dissolve distance and bypass vast natural spaces, which he believes are necessary conditions for critical reflection and correct decision-making. Despite his useful advancement of Benjamin's theory and some remarkably insightful theories on politics and speed, Virilio's texts do not come unencumbered by criticism; his writing is shot through by what may be described as an endemic pessimism and nostalgia that compels an overriding polemical attack against technology and politics. Virilio henceforth falls foul of Stiegler's call for a pharmacological response to technology. Benjamin, on the contrary and despite having been forced into exile by the Nazis, is not totally despairing about the technological advancements in the regime of sensibility; rather, he is wary of *how* they are deployed, especially for the ends of aestheticising politics, an endeavour that he attributes to Fascism.

Considering their inclination to focus on the phenomenon of distance, it is obvious how Benjamin and Virilio's theses nestle in accordance with Kant's suggestion that the mathematical sublime is an experience advanced by an inability of the imagination to supply any quantification that would facilitate a reconciled understanding. Recalling Kant's assertion that there is a paradoxical pleasure arising from the sublime, which is related to the safety borne by the distance from the object under apprehension, it can be surmised, in the case of Benjamin's paradigm of reproducibility, that pleasure is diminished in proportion to the will to bring things closer, and then, in the case of Virilio's paradigm of real-time data transmissions, it is completely eliminated. How then, is a pleasurable aesthetic experience arising from the sublime possible anymore? There must be a derived pleasure; otherwise, we face a situation of total catastrophe because the sublime experience is essential to art's intellectual and political potential. The answer resides in an aforementioned determinant that, for Stiegler, completes the equation that is fundamental to all life, which 'is the conquest of mobility' (Stiegler, 1998, p. 17): *speed*. Under the aegis of Stiegler's positive *pharmakon*, Virilio's melancholic attitude, arising from the disintegration of time and space and the ensuing disorientation that transpires from the absence of any quantifiable referent, must submit to the ecstatic ascension of speed.

As already noted, it is speed that formulates the basis of the disparity between Stiegler's first and second mechanical turns of sensibility; that is, the acceleration in processes of automation from tenths of seconds in the mechanical epoch, to billionths of seconds in the digital epoch – processes that are always underpinned by calculation. Digital technologies precipitate a situation that shifts the emphasis away from Kant's a priori categories of space and time towards the organisational pressure unearthed by a quest for 'a speed "older" than time and space...', which are the derivative decompositions of speed' (Ibid.). For Stiegler the question of speed is *the* essential consideration when engaging the techno-aesthetic-political question, because 'time, like space, is only thinkable in terms of speed (which remains unthought)' (Stiegler, 1998, p. 15). Stiegler is not attempting to undo or undermine the spatio-temporal work on aesthetic experience that has been formulated throughout the centuries, following Burke and Kant's preliminary interrogations; conversely, he is attempting to approach the question of aesthetics and politics through an originary understanding of technics and time that is vectorised by the previously unexplored relational normal of speed. For Stiegler the question of speed does not just relate to efficiency (in the Heideggerian sense) or to the speed of data transfers, the explosion of real-time technologies and the inevitable 'processes of deterritorialisation accompanying' (Stiegler, 1998, p. 17) them, as per Virilio; more significant, for him, are the implications of '*the speed of technical evolution*' (Ibid., emphasis added). The unexpectedly fast development of the technical milieu brings about epochal 'ruptures in temporalization (event-ization)' (Ibid.), which themselves comprise the basis of sublime experiences.<sup>131</sup> The relations between speed and technics are not just the essence of sublime aesthetic experience but so too, for Stiegler, are they fundamental to *all* experience – from the most banal musings to the most meticulously laboured effort – in the sociopolitical landscape of contemporary Western intersubjectivity.<sup>132</sup> Speed therefore suffuses both ontology *and* epistemology

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<sup>131</sup> The sublime has, since Kant, been characterised by a psychological and temporal *event* that presents itself through a rupturing of the temporality of consciousness. This understanding of it as a temporal occurrence gained currency through Heidegger's coining of the term *ein Ereignis [an Event]*, which he defines as a state of infinite simplicity that can only be apprehended through a condition of privation. The concept of the event has been expanded and developed in the work of several prominent philosophers throughout the latter half of the twentieth century, especially in the work of J.F. Lyotard and Alain Badiou.

<sup>132</sup> This point brings the argument back to a consideration of 'the society of the spectacle,' which has endured a rich history of interrogation from the Situationists through to Ranciere.



because, for Stiegler, they are always underpinned by technical processes of exteriorisation, and in this respect speed itself, as an originator of time, needs to be engaged pharmacologically. Stiegler's line of inquisition into the human–technical problem, through the transductive<sup>133</sup> relational normal of speed, engenders a highly original first volume of his thesis, whose goal is to elucidate 'the speed of technics as a quasi-transcendental condition of our originary default<sup>134</sup> and the (infinite) finitude of memory' (Ekman, 2007, p. 47). That is, the original condition of the human as an organic, natural entity is being erased, at an ever-increasing rate, by the progressive expansion of the technological milieu, but which also holds the promise of infinite prosthesis that always reducible to the biological domain of exteriorised speech and gesture: the technologised spirit. It is this understanding of speed that pushes it towards a position of quasi-transcendental authority.

Thinking about Obermaier's performance in terms of Stiegler's transductive speed, shows that the new idea at the heart of the project, which impels an experience of the sublime, is fundamentally related to the aporetic condition of light speed electronics conceived as both infinitely prosthetic and dehumanising. The newness, that for Alain Badiou firstly constitutes the sublime experience as an Event, can therefore be reduced yet again to the essential quality of speed. That Obermaier's idea is new there is no doubt, but that characteristic must firstly submit to the essential authority of Stiegler's speed that is older than time. For *Apparition*, the revelation, brought to the stage by the technologies of real-time surveillance and projection-mapping, is inextricably linked with a laying bare of the incomprehensible speed of technological evolution, and this shockingly fast evolutionary process is transmissive of the horrific idea of technology over-taking the human, replacing the human, proletarianising and decommissioning the

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<sup>133</sup> Remember that transduction, in the Simondonian understanding, is a relational concept that 'opens up possibilities of internal resonances in a process of psychic and collective individuation, and that thus (re)constitutes its terms' (Stiegler, 2009, p. 47). Although Stiegler did not integrate the thought of Simondon in the first volume of his thesis the congruencies of their thinking are already apparent.

<sup>134</sup> It must be recalled that, as set out in a previous section, the 'originary default' to which Stiegler consistently returns is characterised by humans' lack of a balancing quality that would place them in harmony with nature. We are therefore doomed to supplement our condition through instrumental prostheses.

human. The sublime experience hence compels reflections on broader societal subjectivities connected to the pervasiveness of digital hard and software, which inevitably engenders a set of sociohistorical and ontological questions. However, as Kant explains, the reasonable faculties must also re-activate and impel a rational reflection on the positive aspects that can give rise to aesthetic ascendancy. The positive aspects can always be traced back to the artist's ability to change the rules. By demonstrating his ability to introduce a new techno-cultural configuration, a reinvention, Obermaier shows how art ideas offer a means to travel faster than the message in circuit; that is, faster than light-speed and to think with greater power than any computer executed calculation. This is a very important concept for this thesis because it is a characteristic that can be traced through all the examples analysed in this work, and it is fundamentally linked to the understanding of what constitutes avant-gardist works of art. However, what are the rules and technical specificities of digital technologies and how did Obermaier change their relationship with culture?

### ***3.1.5 – New Technical Specificities***

Responsive environments have the unique quality of requiring the presence of an interlocutor (in this case the dancers) so that they can fulfil their aesthetic potential. Without any interaction they are rather static and unimpressive; with the arrival of a dialogist they spring into life. Their demand for presence and reactive nature command spontaneity and improvisation; they are a celebration of those aesthetic elements that are so central to the avant-garde: dynamism and flux. Furthermore, and crucially, their co-dependent characteristic is so strong that it influences the choreography because the dancers receive audio-visual feedback on their gestures, turning the performance into a sort of corporeal dialogue with the space. Thus, the here and now of the performance is suffused with the act of human reacting to computer, and vice versa. This is achieved with motion-tracking software that harvests data, such as size, direction and acceleration, through video cameras that monitor the dancers' movement. This qualitative information is used to generate semi-autonomous particle-system and elastic visualisations, which are based on physics algorithms. In the project description on Obermaier's website, Scott deLahunta writes:

The independent behaviour of the physical models... is not 'controllable' by the performer, but can be influenced by his or her movement. This interplay between dancer and system and how one begins to understand the properties of the other has been crucial to the conceptual and aesthetic development of the work; helping give shape to the choreography and underpinning its dramaturgy. (deLahunta, 2005a)

The discretisation of visuals into individual particles engenders a diverse choreography, which, when enacted against the huge screen, sometimes gives the impression that the dancers are moving through fluids, and at others moments, provides a spectacular sensation of being projected through hyperspace. The overall effect is a stage set suffused with an air of abstract and organic indeterminacy. Dancer and stage-set are synchronised using the macro-precision of machine-vision and computational speed unique to digital technologies. The real-world, physics-based algorithms, upon which the graphics are modelled, generate a fluid space, alive with organic responsiveness, which augments the kinaesthetic dynamics of the human body. The spontaneity commanded by the introduction of machine-as-performance-partner is evident in the dancers' expressive, energetic movement, who, by virtue of the graphical augmentation, sometimes seem to defy gravity. The lofty interactive wall projection has the effect of enhancing the aerial element of the dancers' movement, drawing them inwards and upwards through the screen's vertical expanse (see fig. 3.1 below).



Fig. 3.3 *Apparition*, Still from live performance, courtesy of the artist.

In addition to scenographic embellishment, the bespoke technology, developed with *Ars Electronica FutureLab*, allows for the perfectly accurate placement of projected graphics onto the performers' moving bodies. This is achieved by extracting the performers' two-dimensional body shape (known as the 'contour' in the computer-vision community) using real-time video analysis software. Thus, the stage set and the performers' kinetic bodies become mobile and malleable canvases for the dynamic representation of scenography and costume, using sculpted light. In the darkened theatre space, the representation of minimalist, abstract and geometric shapes, such as horizontal and vertical lines, on the bodies and background has the effect of fragmenting the performers' bodies and distorting perspective, thus providing an engaging visual trope that challenges cognitive systems of visibility (see fig. 3.4 below). deLahunta describes the overall visual and kinaesthetic effect this has on the stage and dancers:

The precise synchronisation of projections on the background and the bodies result in the materialization of an overall immersive kinetic space / a virtual architecture that can be simultaneously fluid and rigid, that can expand and

contract, ripple, bend and distort in response to or [exert] an influence upon the movement of the performers. (deLahunta, 2005b)

All these spectacular, breath-taking real-time special effects are only possible by virtue of the new exceptional speed of computer-assisted calculation. The ability for the computer to track the performers' gestures, process the information and respond to it by means of audio-visualisation – all in the same heartbeat – demonstrates the essence of a sublime experience wholly founded on the inability to comprehend the mind-blowing speed with which the stack of tasks are executed. This new experience of speed gives the impression that the performer is dancing with a natural entity; that is, the speed of the responsivity gives a natural quality to the dialogue causing the audience to *forget* that there is technology involved at all, thereby surrendering the aesthetics of appearance for those of 'apparition'. This transductive speed, that vectorises a new level of agency in machines, is crucial to the genealogy of this thesis, which is tracing the increasing agency and efficacy of machines in the production of art.

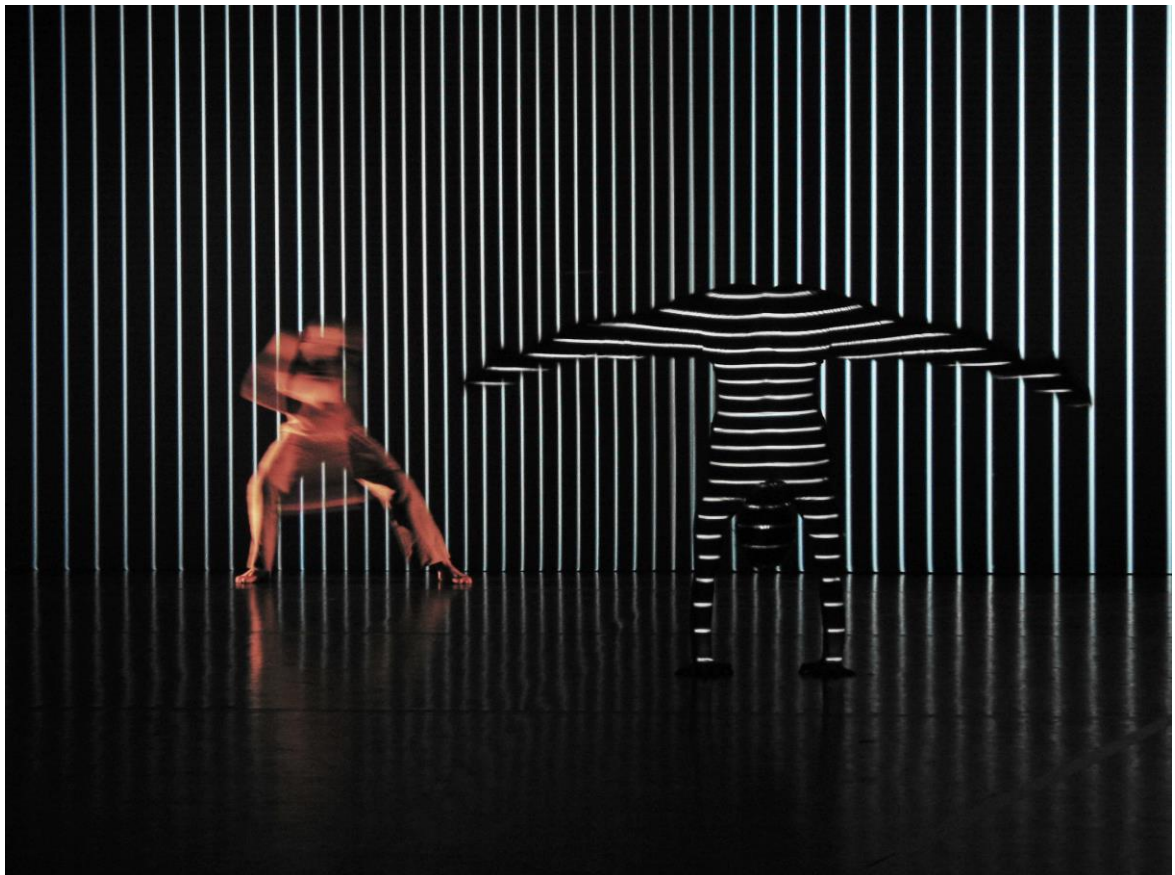


Fig. 3.4 *Apparition*, Still from live performance, courtesy of the artist.

Yet the choreography has another side to it, one of a slower, darker, more ominous tone. As dancers perform interconnected, acrobatic movement, tumbling and stretching across the stage, the choreography and visual composition focus on the limits of anthropomorphic form and human perception therein. Contorted bodies, knotted limbs, and intertwined duets morph in and out of human form, all the while their other-worldly silhouette is punched in and out of perceptive visibility using computer-vision exactitude, coupled with the, hitherto unthinkable accurate, moulding of light. Aleatory light-particles bounce around the cumulative shapes, fragmenting their composition and undermining our stock of anthropomorphic categories. Grotesque materialisations of the unconscious, that lie on the periphery of sentient awareness, reveal and conceal themselves, hinting obliquely at some other existential plane. But, the people and machines of *Apparition* belong to the phenomenal world; the action unfolds on a live stage, not set-off against some Hollywood green-screen for the ends of science fiction. Henceforth, the metaphor of machine-vision-enabled performances: in contemporary, technicised society, all-seeing technology now penetrates so deeply into recesses of the mind and body that every aspect of our physical and mental selves is vulnerable to discretisation, quantisation, examination and calculation.

### ***3.1.6 – Sociopolitical concerns raised by Apparition***

This theme is reinforced by the superimposition of white text on darkened bodies, creating a visual trope that suggests the *replacement* of bodies by text (see fig. 3.5 below). Obermaier's lexical camouflage signals the precedence of informational narratives over physical ontology, and the transition from embodied human to disembodied nodes – the fragmented self, dispersed across global networks. The composition is evocative of N. Katherine Hayles' vision of *How We Became Posthuman* (1999) which perceives the body as a container for information and data, thus extending the established liberal humanist acknowledgement of the erosion of embodiment from subjectivity. All citizens in Western technocracies have a digital footprint that is both immaterial and indelible due to the stipulation that quotidian transactions of citizens, whether menial or momentous, take place, in some shape or form, over electronic networks – where every last bit is recorded and duplicated. Our

bodies are, for better or worse, open and vulnerable transmitters caught up in an incomprehensibly vast web of information exchange of statistics, figures, facts and fictions. Furthermore, in market-driven, liberal capitalist economies, information is inevitably linked with power and wealth.<sup>135</sup> Information harvesting becomes as important as the transaction itself because it provides producers with invaluable knowledge relating to consumers' subjectivities: tastes, interests, spending patterns, social circles and so on.

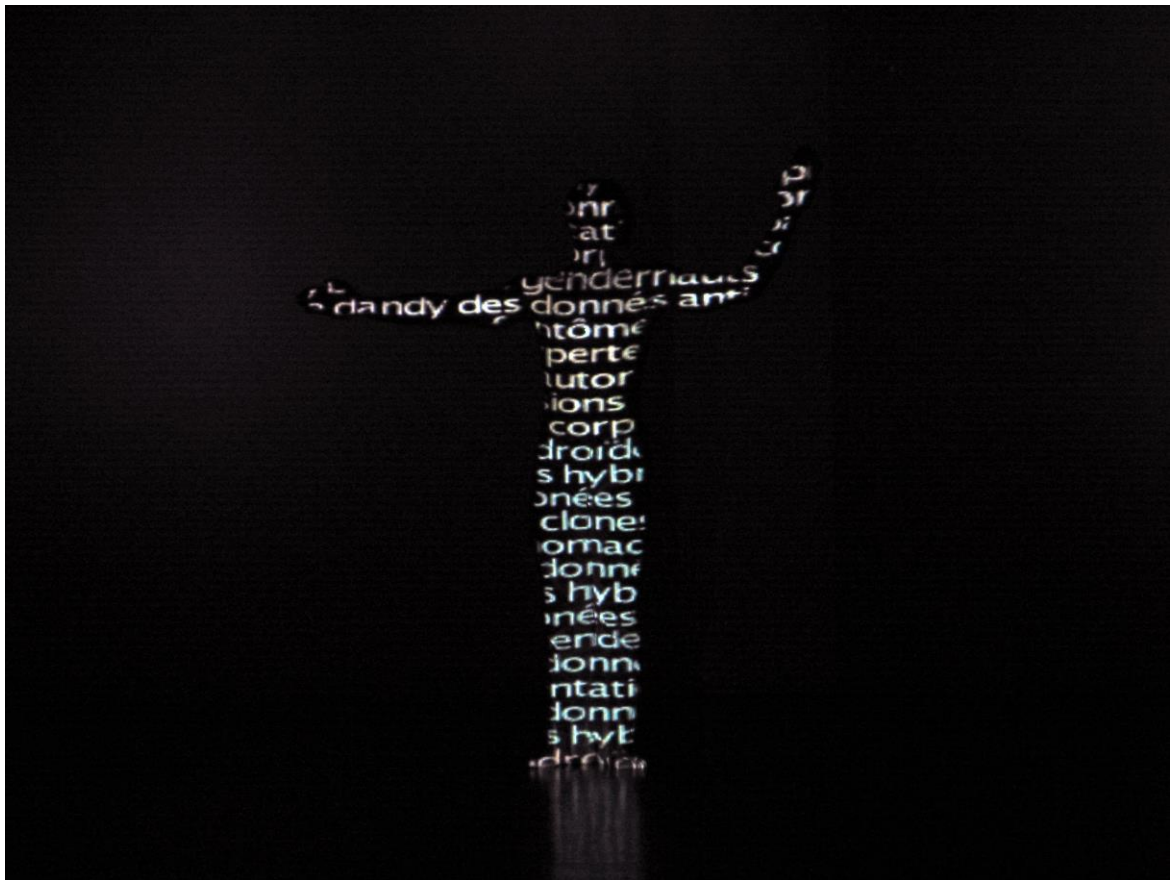


Fig. 3.5 *Apparition Text*, Still from live performance, courtesy of the artist.

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<sup>135</sup> It should also be acknowledged that while the reselling of consumer's biometric data, spending patterns and so on, is a major asset of the new, hyperindustrial economy there is an important argument in favour of data harvesting: that it is a necessary measure for national security reasons, with a view to curtailing terrorism and prologing sociopolitical and economic stability. For all of the misgivings raised by the deployment of surveillance technologies in late capitalist culture – from Foucault, through Deleuze and Guatarri, to Stielger – it must be acknowledged that the interests of hypercapitalism and the unitary global dynamics that it advocates may well represent the best manifestation of global consensus and therefore the most effective guarantee of sociopolitical stability and safety, at the moment.

Obermaier's original synthesis of choreography and machine-vision should be understood as a technological performance *Event*, which opens a new 'plane of existence' that gives rise to broader techno-historical and sociopolitical reflections. The live biometric mapping of the performers' bodies connotes an important and topical societal issue concerning the extent to which the Internet has enabled marketing and public relations entities to extract and map-out citizens' personal, vital, marketing-sensitive information thereby laying bare individuals' desires and ultimately exacerbating a libido-driven economy, of which Stiegler is so critical. Corporations can now tailor advertising campaigns to each and every individual within the system, down to the minutest detail, and update them in real-time. With every key-press, mouse-click or stroke of the touch-screen, advertising campaigns are modified and updated to prey on current thoughts kinaesthetically expressed. Consumers volunteer their personal thoughts and vital information in exchange for 'free' services. What, on the surface, appears to be intersubjective dialogue, freedom of speech and abounding choice reveals itself as a vast and complex system of information harvesting. The rhetoric of the *free* is used liberally, while meaningful *freedom* recedes further into the depths of symbolic noise, obfuscated by extraneous services, luxurious images and the razor-sharp clarity of a liquid crystal display. Free email and social-networking services use sophisticated search algorithms (robots) to sift through intimate and confidential dialogues so that they may re-communicate trite but personalised adverts. Electromagnetic waves ensure perpetual access to consumers by penetrating the walls of homes, and indeed peoples' bodies, in order to extract and re-administer data from and to 'smart phones,' which are always kept ready-to-hand. This deep-reaching accessibility has a two-tiered, pernicious nature: on the one hand, it renders the ideas of privacy and freedom redundant, while on the other, it allows media conglomerates to isolate consumers, and thus identify, reshape and homogenise individuals' drives and desires with increasing ease. Stiegler describes this as 'the disappearance of the "interior,"' a process which operates congruently with a global programme of catalysing the 'development of various media' (Stiegler, 2008, p. 77). That is, with the continuing *evolution* of corporate-driven media there is an inversely proportional *devolution* of privacy and individuation.



In technicised society, the ubiquitous invasion of the interior, harvesting of personal data and the facility for perpetual storage, ultimately leads to a political problem. This information is ultimately discretised recordings (traces) of actions and language that constitute the make-up of cognitive psyches and communities. These traces can be manipulated, moulded, reassembled or even destroyed, hence Stiegler's assertion that 'there is therefore a pressing need for a politics of memory' (Stiegler, 1998, p. 276). Norbert Wiener (co-originator of cybernetics) produced writings that deeply considered the sociopolitical impact of his scientific practices on the body, psyche and community. He signalled the discovery of cybernetics as a cultural artefact which could, on one hand, unlock 'seemingly limitless amounts of instrumental power and complex control... that could be made subject to human direction,' while on the other, increase 'human beings' abilities to kill and enslave one another' (Biro, 2009, p. 3). This pharmacological aspect of technology is key to understanding the polemics that underpin Stiegler's philosophical approach to culture in the digital age: the positive and negative influences of technology on intersubjectivity are always already present. Thus, while embracing evolving cultural specificities we also need to continually examine them. The next section uses a Stieglerian lens to examine the curative aspects of the motion-tracking hard and software technology, deployed by Obermaier, in order to explicate and contextualise how his oeuvre is exemplary of a positive engagement with the technology that shows a way towards responsible engagement and a reformation of attitudes towards the dominant but overly simplistic means–ends rationale. The intention is to show how genuinely innovative artistic output initiates a sublime culture shock that provokes meditations on prevalent constellations of subjectivity and identity. Such works are crucial to the continuing examination of culture and facilitate the creation of alternative pathways in meaning.

### ***3.1.7 – The Organological Praxis of Obermaier***

We already noted that Stiegler advances the Heideggerian position of critiquing the Aristotelian binary that opposes living beings to man-made objects, thereby showing how, in an age of *light-speed* automation, technical objects develop an essential, distinct dynamics and temporality of their own, which allows them to be conceived as 'inorganic organised beings' (Stiegler, 1998, p. 17). This understanding of technology as an entity that can individuate – which leads to his insistence on the existence of a

general organology – is crucial to comprehending Stiegler’s techno-philosophical position. He illustrates this by suggesting that just as ‘the coral reef is individuated as a dead structure through the work of the living beings that constitute the coral colony, it could be said that... the Macintosh, the iPod, the Sony camera are individuated as something other than us’ (Stiegler et al., 2012, p. 166). A general organology describes relational processes between individuation and technics that elucidates the ontological efficacy of technology. It is obvious how Obermaier’s exploration of choreographies that are symbiotic with computational systems sits comfortably within Stiegler’s philosophy because it marks an important milestone in the praxis of rethinking the relationship between human and technology; that is, his artistic re-conception of software as dance partner provokes a reflection on technology as an inorganic organised being to be commensally engaged. This statement should not be simplistically interpreted by concluding that Obermaier has somehow invented a new life form or that Stiegler is a transhumanist; on the contrary, it should be understood within the context of a genealogy of the sensible in which Obermaier is – just as Beckett is – responsible for contributing to the evolution of the genotype of an artificial performance organ that has always been evolving in parallel to the human performer. Stiegler’s anthropological-ontological-phenomenological synthesis, which is an ‘attempt [at] the theorization of technical evolution’ (Stiegler, 1998, p. 21), represents an originary reformation of attitudes towards technical knowledge (techniques) that finds analogous objective expression in Obermaier’s oeuvre. Obermaier’s avant-gardist alchemy of choreography, computer-vision and projection-mapping represents the invention of a semi-autonomous, semi-intelligent, artificial performance entity, thus proposing new ‘lines of flight’ (Stiegler, 2010, p. 14) for performance art, *and* interactive systems generally.

*Apparition* helps demonstrate how technical and human organs can interoperate in broader, layered processes of individuation, because the central question of Obermaier’s re-purposing of computer-vision technology is an exploration of relational processes between performer and machine. His proposal of a symbiosis represents a reformation of attitudes towards technology that shifts our understanding of the relationship between human and machine. By conceiving digital technology as an organism to be commensally engaged, Obermaier essentially challenges the ontology

of tool-use, and hence means–ends rationale, thereby demanding a reconsideration of tekhnē in general. Thus understood, humans suffer a certain dethronement because our role as ‘[...pollinators of] an independent species of machine-flowers’ (Vaccari and Barnet, 2009, p. 3) becomes salient via the machine-determined imposition of choreographic articulations on the performers’ bodies. This mentality resonates with Stiegler’s understanding that humans and machines are interdependent organs of a bigger evolutionary process, whose general shift has resulted in the separation of human evolution from the *biological* tendency and an attachment to that of the *technical*, and further, that technics itself is undergoing a process of evolution: ‘Various contributions to a theory of technical evolution permit the hypothesis that... there does indeed exist a third genre of “being”: “inorganic organised beings,” or technical objects’ (Stiegler, 1998, p. 17). In its appeal for a change of attitudes, *Apparition* concurs with Stiegler’s philosophy of technology because it advocates the need for a renewed appreciation of technical objects, which have a new beauty, dynamics and speed all of their own. Machines are, just as humans are, interdependent organs of a general organological process. The cooperation of technology is central to contemporary processes of psychic and collective individuation. As Obermaier demonstrates, beautiful and complex things can emerge from simple interactions between human and (non-living) entities.

### **3.1.8 – *Transindividuation: How the work works***

It is Stiegler’s prerogative to recuperate, prolong and sustain the territory of an artistic avant-garde because their practice-led re-inventions and repurposing of technologies occasion a critical rethinking that could lead to a ‘new critique of the political economy’ (Stiegler, 2013). It has been established that *Apparition* qualifies as an avant-garde creation by innovatively engaging with new digital tools and re-purposing technologies, thereby assigning them new meaning and revealing new circuits of thought. In Stiegler’s aesthetics, it is important to recall his suggestion of a certain type of individuation, that finds its optimum mode of operation in art, which he calls transindividuation; that is, the ability of art to show itself anywhere and thereby inspire and engender creative work in its interlocutor, and to continue doing so across generations and epochs; which is also to say that, art contributes to processes of individuation in a such a way that it collapses spatial and temporal divides.

*Apparition* emerged from the *Ars Electronica FutureLab*, a facility that researches ‘at the nexus of art, technology and society’ (Hörtner, 2014). The establishment grew out of the acclaimed *Ars Electronica* digital arts festival and therefore exemplifies Stiegler’s appeal for an assimilation of the avant-garde to cultural, political, economic and academic institutions, through the provision of transdisciplinary, collaborative, ‘creative territories’, which crucially include publics, ‘inhabitants and associations’ (Stiegler, 2010, p. 14) in the creative process. An organological framework encourages us to think about the long-term implications of the interplay between the different organs (human, social and technical); the exclusion of one is to the detriment of the others. Thus, *Ars Electronica*’s inclusion of publics and technologies in the creative process provides a reification of Stiegler’s concept of transindividuation. *Apparition* is exemplary of Stiegler’s aesthetics because – as a sublime avant-garde event that ‘showed’ an idea at the beginning of a new millennium – it exhibited new processes of corporeal expression and considered new ways of thinking about, and interacting with, machinic entities. A positive pharmacology enables the interpretation of Obermaier’s proposition of symbiosis as a trajectory towards enriched psychic and epistemic growth in the spaces of digital technology. Furthermore, it demonstrates the ability for artworks to transindividuate across organological processes of psychic, collective and technical individuation because, via the new technologies of online video distribution, the work can reach, and work-on, diverse audiences and cultures in non-contiguous geospatial locations, and it continues to do so, on demand, indefinitely. As such, the work initiates a circuit of transindividuation that continually propagates through the uptake of open-source, community-driven, computer-vision and projection-mapping software by amateurs, professionals and researchers alike. The continual regeneration of such long-circuits, via creativity, is an important therapeutic for the pestilence of symbolic misery, which technocratic masses find themselves struggling against, and is key to the retention and inheritance of knowledge so that it may be expanded from one generation to the next.

One such example of this transindividuation can be seen in the performance collaboration, entitled *Mortal Engine*, between *Chunky Moves* and Frieder Weiss. There are only three years separating the finalisation of this work from Obermaier’s

and, as such, the gap does not constitute an epochal individuation, but a comparison does nevertheless provide some rich observations on how the art idea can be re-harnessed, reinterpreted and therefore evolve, in a very short space of time, in to something quite different and equally nuanced. This study does not place specific importance in the fact that one came before the other because, although I suggest that the sublime is immanently related to the new, I also point out that the new is itself underpinned by a transductive speed and when considered epochally they are from the same period.<sup>136</sup> In addition, the sublime experience, in terms of the new, is relative to the apprehending audience and these performances first debuted on opposite sides of the planet – one in Austria and the other in Australia – so each event was fundamentally new in its own geospatial context. The decision to discuss *Mortal Engine* is, in fact, motivated by a need to give a more technical (as opposed to political) analysis, the intention of which is to reroute the thesis back towards Stiegler's theory of grammatisation in the context of the digital scenographic turn. This will help clarify the genealogical significance of the two digital performance projects in the wake of the enquiry initiated by Beckett in *Krapp's Last Tape*.

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<sup>136</sup> Although Obermaier's performance was exhibited first, in 2004, and he has been researching the area of digital projections since the early 1990s, Weiss was himself also engaged in artistic applications of motion-tracking technology since the 1990s. Thought of in terms of transindividuation they are both drawing on knowledge and research that predates and constitutes the exceptional performance works under analysis here. Sonic artists based in IRCAM were also simultaneously exploring motion-tracking technologies for musical applications and in the US, collaborations between artists such as Todd Winkler and Cindy Cummings produced some of the first amalgamations of interactive video and dance. All the artists of this movement are therefore considered to be avant-gardes in the sense that they give new, inventive and artistic expression to techno-scientific materials. The significance that I specifically attribute to *Apparition* and *Mortal Engine* is that they break out of the research facility and begin long circuits of transindividuation by subjecting art-going publics to these new artistic ideas.

## 3.2 – Mortal Engine: *Chunky Moves* and the Grammaticisation of Gesture

### 3.2.1 – Introduction

*Chunky Moves*' *Mortal Engine*<sup>137</sup> (2007) is a performance that similarly employs advanced computer-vision and electronic-sensing techniques to augment embodiment and stage environment via digital media systems. As in the case of *Apparition*, the theme of relationships, individuation and interchange is of paramount importance to the choreographic and scenographic compositions that constitute this piece.

Choreographer Gideon Obarzanek explains: '*Mortal Engine* looks at relationships, connection and disconnection, isolation and togetherness, in a state of continual flux' (Obarzanek, 2008). The interactive digital systems provide a useful means for expressing an appreciation for the kinetic and kinaesthetic properties of bodies in space, and the slippage that they undergo in digitally networked societies. Obarzanek continues: 'The idea was that the body is really not separated from the space around it, that there is a constant exchange and influence going on' (Collins and Nisbet, 2010, p. 304). Pertinent to this discussion, is the idea that these themes also re-emerge ontologically, outside the frame of the fiction, via its *technicity*; that is, via technology's ability to impact on the artistic outcome, which is pertinent to the central narrative of this thesis. Considered in terms of the efficacy that mechanical technology had on Beckett's play, the evolutionary trajectory of *technicity* itself begins to come into clearer view under the auspices of digital automation; that is, there is a shift in emphasis from language towards gesture.

*Mortal Engine* is the result of a collaboration between artistic director/choreographer, Gideon Obarzanek, and a collective of computer-savvy professionals – Frieder Weiss, Ben Frost and Robin Fox – all of whom should be described as *post-Turn scenographers*.<sup>138</sup> Weiss designed and built the sophisticated motion-tracking system

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<sup>137</sup> See Youtube video: <https://www.youtube.com/watch?v=sbjOMualLVs>

<sup>138</sup> I used this term at the 2014 IFTR conference to convey the increasing need for scenographers, who are now frequently working with digital media, to be equipped with

which, via custom software, gathers quantitative data from video cameras that continuously monitor the dancers' movement (See Fig. 3.6, below). Obarzanek states: 'Frieder's interactive systems make it possible for instruments and bodies that generate light, video, sound and movement to all share a common language and respond to each other in real time' (Obarzanek, 2008). The scenographers, via real-time audio and video processing software, use data projectors and digital sound effects to create an audio-visual landscape in response to the dancers' movement. In computer scientific language one would say that the scenography is *procedural*, or *generative*.<sup>139</sup> Obarzanek gives a succinct description of the project: 'Mortal Engine is a dance-video-music-laser performance using movement and sound responsive projections to portray an ever-shifting, shimmering world in which the limits of the human body are an illusion' (Ibid.).

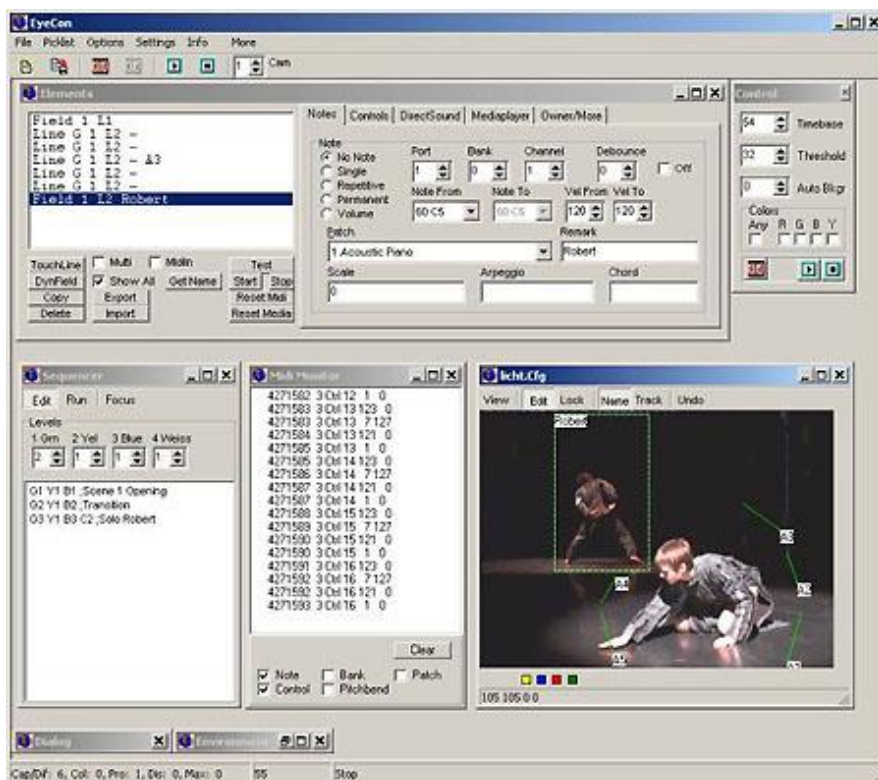


Fig. 3.6: Screenshot of Eyecon software, image courtesy of Frieder Weiss.

computer programming language skills. Frieder Weiss, is the software engineer that worked with *Chunky Moves* on the *Mortal Engine* project, and has written his own software, *EyeCon*, for motion-tracking bodies in live performance; available at: <http://eyecon.frieder-weiss.de/index.html>

<sup>139</sup> These are terms in computer programming that describe objects that are created on the fly, or in response to a given variable.

Most of the choreography in *Mortal Engine* takes place in the form of floor movement; as an alternative deployment of the technology to that of Obermaier, Obarzanek conceives of placing the projector above the dancer's heads and projecting downwards, on and/or around the performers' bodies.<sup>140</sup> The resultant compositions are accumulations and clusters of abstract and expressionistic imagery combined with, and modified by, the dynamic, sculpturesque, three-dimensional relief of the dancers' bodies in motion. This arrangement is only achievable using the new, digitally empowered phenomenon of instantly malleable light, tone and hue. Through a play of mysterious shadows and blindingly bright spaces, Obarzanek harkens to similar choreographic devices explored by Obermaier, and Nikolais before him. As the dancers perform combined and singular movements across the stage, the techno-choreography focuses on the limits of anthropomorphic form. Obarzanek states: 'Crackling light and staining shadows represent the most perfect or sinister of souls. Kinetic energy fluidly metamorphoses from the human figure into light image, into sound and back again' (Ibid.). Without any referent in the space of cogitated, symbolic retentions, human perception is here, once again, challenged into questioning the limits of subjectivity, and therefore knowledge systems generally (See Fig. 3.7, below).

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<sup>140</sup> The stage is, in fact, mechanically operated so that the incline can be controlled. During most of the performance it is kept at a shallow incline to help the audience's view of the overhead projection. At some points it is also raised to a vertical state and the dancers perform movement against it in standing poses.





Fig. 3.7: Photo: Andrew Curtis, Performer: Harriet Ritchie, image courtesy of Chunky Moves.

The performance system, designed and built by Weiss, operates on an archetype of *total* recording (surveillance) and, as in the case of Obermaier's one, this is achieved through the continuous analysis and processing of live video data. It is exemplary of the shift that has taken place during the second mechanical turn of sensibility; that is, the ubiquitous, totalising data brought about by the uninterrupted, unblinking gaze of computer-vision paradoxically becomes devalued, ephemeral. What becomes important is the transaction; process prevails over product.<sup>141</sup> Furthermore, by mechanically formalising the dancers' gestures, the motion-tracking software exemplifies the process of *grammatisation* – which is, 'analysis as discretisation of the continuous' (Stiegler, 2014a, p. 49). In the analysis of *Krapp's Last Tape* it was shown how the automated technologies of the spirit subject bodies and consciousnesses to processes of

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<sup>141</sup> This is precisely the problem that Lyotard worries through in his book *The Inhuman — Reflections On Time*: 'Work becomes a control and manipulation of information... The availability of information is becoming the only criterion of social importance. Now information is by definition a short-lived element. As soon as it is transmitted and shared, it ceases to be information, it becomes an environmental given, and 'all is said', we 'know'. It is put into the machine memory. The length of time it occupies is, so to speak, instantaneous.' (Lyotard 1992, 105).

grammatisation through the temporal sequencing of sound and image and now, by virtue of electronic automation, these processes are accelerated, beyond comprehension. Furthermore, these grammē are now stored in databases and analysed, algorithmically and statistically. For the computer to make sense of corporeal movement it must be quantised; a computational entity expects numerical data. Only in this way can it make sense to a machine. The field of research that enables computers to *see* is called computer-vision. It is a very clever piece of video analysis, which operates by comparing its current video frame to a previous one, thereby allowing it to cognise and identify if something has changed in its field of vision – which is, of course, demarcated by the aperture of the video camera’s lens. The image of the object of the computer’s gaze is usually thresholded,<sup>142</sup> turning it into a silhouette – or a ‘blob’, to use the computer-vision community jargon. Based on the blob’s size and location, when weighted against time (usually measured in frames per second), a whole plethora of (numerical) data can be extracted from the interlocutor’s image. This is what Stiegler means when he refers to the grammatisation of gesture. But, to grammatise is ultimately to rationalise by carefully reducing something into its discrete parts, to the point where the metaphorical poetry is fragmented and obliterated through and by discrete analysis. In this process qualitative information – that is, the idiomatic language of choreographic expression, which is knowledge passed between dance instructors, students and peers through rigorous training processes – is translated into quantitative information, such as location, speed, acceleration, direction, intensity and volume, via motion detection and video processing algorithms. All this lays bare the goal of the *hyperindustrial* epoch, which is, according to Stiegler, the total ‘industrialization of all things,’ (Stiegler, 2014a, p. 47) via processes of grammatisation; that is, a programme of *total* demystification. Herein we encounter one of Stiegler’s overarching philosophical questions: the challenge to artists, and humanity generally, in the twenty-first century is, how to retain the idioms that make art and poetry possible, not just linguistically but also in the space of gestural expression, in this digital epoch of *hyperindustrialisation*? This question necessitates a brief recourse to the specificities of the digital in opposition to those of the mechanical,

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<sup>142</sup> Thresholding is the simplest method of image segmentation; that is, the process of partitioning a digital image into segments, in order to simplify and/or change its representation into something that is more meaningful to computers and therefore easier to analyse.

which helps elucidate the positive and negative aspects of the escalation of gestural grammatisation.

### ***3.2.2 – Specificities of Digital Grammaticisation***

It was established that mechanically reproduced temporal objects can modify the temporality of a listener's consciousness; however, they are not themselves modifiable by the listener. They *are* modifiable by a producer, but *not* a listener. This creates a unidirectional channel of information, which is not a dialogue but a monologue, and according to Plato and the canon of Western philosophy, truth [aletheia] cannot emerge from a mediated monologue. Since its inception, analogue technology has facilitated and sustained a top-down dissemination of information for the greater part of the twentieth century. Top-down in the sense that the production of information has 'been guaranteed by central institutions controlled by academic, linguistic, artistic, scientific, philosophical and political powers and authorities, and has operated according to a descending model' (Stiegler, 2010, p. 18). Hence the tragedy of the twentieth century: the implementation of technology for the mass canalisation of lies towards the ends of political power play and profit. So, given the argument that digital technologies are just a more advanced stage of that same late capitalist project, what are the specificities of digital temporal objects that set them apart from analogue ones? And, how can they be put to *good* use? The obvious answer is that digital technology facilitates interactive dialogue, either between humans (that is, between producers and consumers of content), or between humans and computers. Consumers of content can now participate in creative production by means of attaching metadata to that which they consume 'by indexing and annotating it' (Ibid.), thereby extending the social web. Furthermore, humans can now dialogue with interactive temporal objects, which are fully automated, without any need for third party human intervention (gaming is the obvious example here). The same holds true for performing with digital technologies; they can be, and are, affected by human interlocutors. The visuals used in *Mortal Engine* are not pre-rendered video, but graphical computer programmes that read and respond to the dancers' gestures. The responsive audio-visuals depend on the input of movement data in order to spring into life, without it they cannot fulfil their aesthetic potential.

Obarzanek explains that one of the primary intentions of the piece is to create a ‘synergy’ (*Gideon Obarzanek’s Digital Moves*, n.d.) between the human performers and the digital light and sound elements. To create a ‘sense that something was emanating from within the human body... of being able to see into someone’s imagination... or the effect that they were having on the space around them and the way space and environment was affecting them’ (*Gideon Obarzanek’s Digital Moves*, n.d.). He sees this as a metaphor for reconciling the conflict between ‘the real, tangible world of recognisable objects and situations,’ and an *other*, interiorised, shadowy yet ‘more imaginative, eternal world that is co-existing’ (Obarzanek, 2012), and that we all also inhabit. This idea – creating a synergy to produce a unified, reconciled machinic assemblage between the heterogeneous mechanical and human agents – is evocative of Obermaier’s ‘symbiosis’ and similarly promotes a ‘live’ totality greater than the sum of its parts. Here again the notion that each element is contingently deterministic of the other is central to the aesthetic underpinning the work. It is an exploration of what choreography and dramaturgy can emerge when software and human are coupled as performance partners – an algorithmically determined dramaturgy: a *Grammaturgy*, to mobilise the neologism already proffered in the analysis of *Krapp’s Last Tape*. Scenographic programmer Frieder Weiss explains:

I was always trying to work with the body and the movement. Initially it was just like this tracking of the body, and now it’s more like an encounter with something you influence. It’s like another body. It’s like another dancer. Like another performer that is closely related. Like the particles, that’s a good example... These particles are sort of independent but they are relating to the performer. That’s the tricky issue: What kind of projections and algorithms can you come up with that have a behaviour, on their own, but still relate to the performer? (Weiss, 2015)

Depending on the dramatic intention, different rule-based systems are set up so that the software can respond in different ways; that is, certain movement phrases trigger certain audio-visual events. In this way, the performance system simulates real physical systems, like an organic ecosystem. It senses and responds to the dancers’ gesticulations by generating live audiovisual traces. The dancers analogously re-act in certain ways to the audiovisuals in a sort of human–computer feedback loop. The choreographic outcome therefore is indeterminate, emergent and generative. Obarzanek

states: ‘There are no fixed time-lines and the production flexes according to the rhythm of the performers. While the scenes are always in the same order, the work is truly live every night, not completely predictable and ever changing’ (Obarzanek, 2008). This is something of a new phenomenon because performing with a mechanically automated device, such as analogue video playback, has historically meant that performers and control room must operate on a tightly synchronised cuing system – no margin for error, or space for spontaneity. Whereas the multiple layers of automation that comprise digital audio and visuals permit the fabrication of a simulated responsivity that gives rise to a fundamentally indeterminate choreography and dramaturgy. The unforeseen nature of the experiment between *Chunky Moves* and Weiss is furthermore indicative of the new confluence of those classic strategies that historically constitute the provocative tendency at the heart of the avant-garde’s praxis: chance and the new. This is crucial to the genealogical trajectory of this thesis because, on one hand, it elucidates an innovative site for the deployment of chance operations in the digital epoch, and on the other hand, it shows how the merger of chance operations with new technologies is giving rise to evolutionary advancements in the technical milieu that are catalysing the emergence of more organic artificial systems.

Not only did *Chunky Moves* set out to counter the rigidity imposed on performance art by technology, but so too did they actively seek out specificities that are unique to computational systems; what Obarzanek calls noise in the system.

We began to, look at noise, and to release it more into the system. To control it broadly but not in the details... and use that information. What ends up happening... is that you create this sense of environment that’s almost organic, or foreboding, almost living, like a ghost in the machine. (Obarzanek, 2012)

By offering specificities unique to digital technologies, the system asserts itself as a contributor to the creative assemblage of the work. This noise encouraged them to investigate more indeterminate visualisations based on generative algorithms adopted

from natural phenomena, such as fractals, mitosis<sup>143</sup> and particle systems. Obarzanek states:

We started looking into much more complex algorithms that were producing what we called semi-autonomous particles; and by that I mean, light that has a direct relationship to the body, and that uses the information from the body. But, that also has various other computations that give it behavioural forms, that give it its own independent sense of the movement, its coming to life, its own death. (*Gideon Obarzanek's Digital Moves*, n.d.)

The introduction of these naturally derived algorithms injects a sort of artificial life into the system because they give the visuals their own sense of autonomous and organic movement, like an ecosystem to be commensally engaged. This, in itself, is exemplary of an evolutionary development taking place in art production that is vectorised by the technical milieu. It shows a shift in art's mimetic aesthetic tradition from artefacts that *look* like natural organisms to those that *work* like them. The more that produced artefacts reproduce a task or movement of an organism the more blurred the distinction becomes between what is natural and what is synthetic. In this way, the dancers' interactions serve to fragment the distinction between scenographic simulation and organic environment thereby transcending deceptive imitation and facilitating new understandings of the functioning of living things as well as embodied and instinctive (human) reactions. Furthermore, it shows that in the digital epoch the means of producing chance operations has been migrated to the expert area of software engineering; that is, the construction of generative art systems through meticulous mathematical calculation. The paradigm employed by Weiss and *Chunky Moves* shows that digital systems establish a new territory for the confluence of chance and the new that acts as a sort of automated recuperation of the system first employed by Duchamp in *3 Standard Stoppages*. Digital technologies provide a means of blending chance with the new that was fundamentally impossible for Beckett in *Krapp's Last Tape*, using the technologies of the first mechanical turn. Despite the centrality of technological indeterminacy in the theme of the play, it is not engaged in a technical way, for

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<sup>143</sup> Mitosis: Also known as 'Reaction Diffusion,' is a mathematical logic derived from the field of linear algebra. It is a phenomenon that takes place in countless natural, and synthetic, situations. The logic is used to simulate phenomena such as cell division—in microbiology—and chemical reactions—in engineering.

example, Krapp logs and retrieves his recording manually. Digital technologies enable an acceleration of processes of selecting, retrieving and repeating temporal objects. The difference in the systematic efficiency between the two epochs – besides demonstrating an evolutionary speed that is the essence of contemporary sublime experiences – represents the fundamental factor that enables the strategies of chance and the new to come together in a powerful new way, thereby demonstrating previously untapped possibilities for implementing built-in degrees of freedom in the performing machine. This move towards developing visuals with degrees of built-in freedom – semi-autonomous entities to be engaged with – supports the notion that this project was primarily an investigation into what choreography can emerge when humans are partnered with computers. Crucially for this thesis, this conception acknowledges the computer as a contributing agent that can and does bring its own specificities to the artistic development of the work. That is to say that, rather than employing digital technologies to simply relay or support an aesthetic message, the software actually influences gesticulations, which in turn influences choreographic decisions relating to the assemblages of the performance. This process not only proposes a new way of working, but so too, as in the case of *Apparition*, does it represent a change in attitude towards technology.

### ***3.2.3 – Performing Digitalised Individuations***

Stiegler's concept of a *general organology* once again provides a useful analytical tool for decoding how and why the change in attitude to technology – from means–ends to organic immanence – is so significant. Technology understood in its organological sense, although frequently perceived as the diametric opposite of nature, is organic in its development every bit as much as biological organs and social organisations. Just as synapses connect nerve and brain cells allowing for processes of retention, recollection and self-awareness within our own biochemically charged bodies, the linkages of individuation operate via technological modes of expression to form knowledge circuits encompassing senders' and receivers' consciousnesses, and therefore cognitions, and therefore behaviours.

Weiss' scenographic designs reinforce this organological rapport – between the dancers and computer system. The generative algorithms, upon which the designs are based, pull in and are modified by the performers' biometric data. Depending on numerous variables, such as the position, velocity, volume or number of dancers on the stage, the graphics are altered, sometimes minutely and at other times significantly and irreversibly. To this effect, the scenography is also in flux, evolving and changing in parallel to the characters, modifying and being modified by the similarly modulating and conflicting groupings of humans on the stage. This evolutionary metaphor is compounded by Weiss' employment of algorithms derived from the mathematical study of mitosis (cell division) and fractals. As noted in the case of Jackson Pollock's paintings, although his methodology is one of an arbitrary nature, the emergent visuals are in fact organised assemblages evocative of fractals and therefore chaotic in their essence; that is, they capture the highly organisational logic of pure nature, which is a collection of contiguous systems affecting one another. Similarly, the decision to perform the choreography, in *Mortal Engine*, in the form of floor movement sets up an analogous archetype to the chaotic technical process employed by Pollock. The dancers, always answerable to gravity and subjected to a predefined set of possible body movements, can approach from all sides. In contrast to Pollock's paintings, the canvas has its own internally pre-programmed dynamics, that simulate natural, fractal systems, and the dancers act as a sort of interventional, embryonic agent, or virus. It is a sort of reverse engineering of the problem, but the visual outcome is nevertheless analogous because it provides an abstract metaphor of pure nature at an elemental cellular level that invites reflections on process of evolution, or devolution. The aesthetic specificity of *Mortal Engine* is of course located in the fact that it happens in real time and the apprehension of the composition is shot through with the live dynamics of bodies in motion; the traces are ephemeral and transitory when compared with the plastic permanence left behind by Pollock's interventions. In the case of *Mortal Engine*, one could say that the very architecture of the stage itself is evolving; that is, individuating. It would be erroneous to suggest that the computer is an autonomous and intelligent entity that is affecting, and being affected by, the human performers. The computer, or more specifically the software, is a rule-based system that can and does react to *certain types* of input. It needs to be programmed (taught the language of dance, which is always idiomatic) by a human. It would be more appropriate to describe it as quasi-organic, in the sense that a set of rules have been put



in place that allow it to respond, in a certain way, to cognitive embodied decisions made by the dancers. If it sees a gesture that it recognises, if the input data makes sense to it, then it can do something about it; it can *re-act*. This reactive action can engender new, often completely original and unique, movement phrases in the body of the interacting dancer.

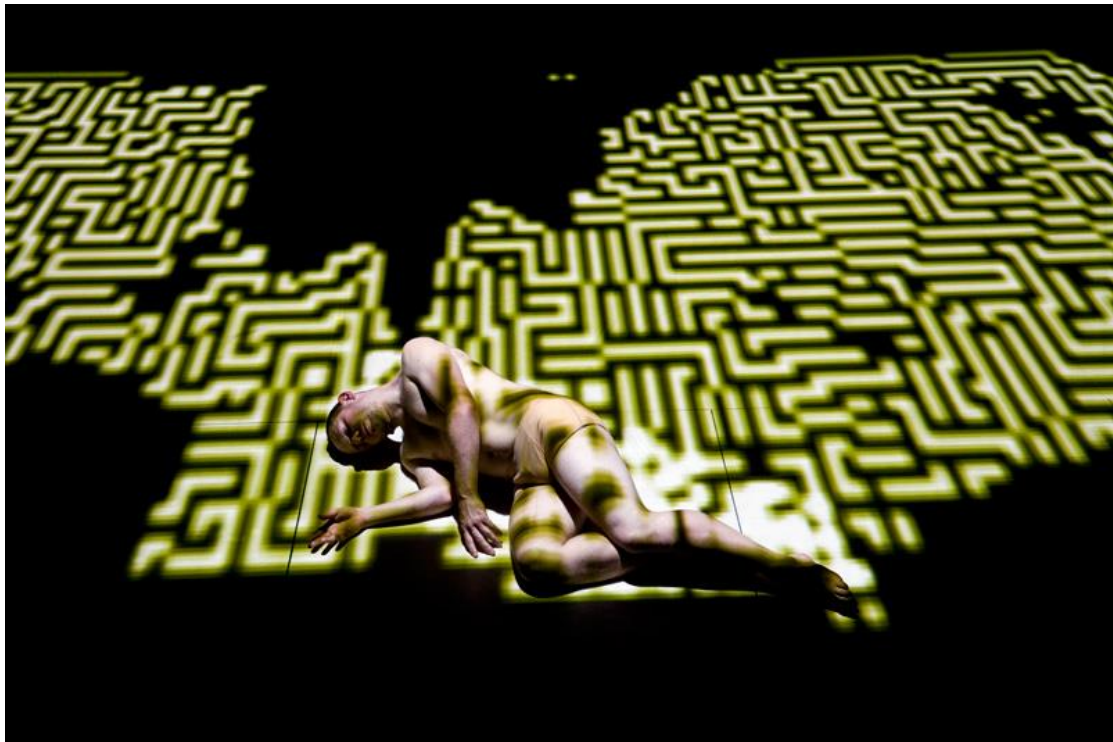


Fig. 3.8, photograph of live interaction with the visual based on the mitosis algorithm, courtesy of *Chunky Moves*. Photograph: Anthony Curtis. Performer: Anthony Hamilton.

By allocating creative privileges to the computer *Chunky Moves* are proposing new ways of working, new processes of conceiving performance and stage design, that fundamentally challenge established knowledge paradigms, thereby opening up new milieus for reflection and critique. This new working process is a derivative decomposition of what I already described as a Grand technological innovation – in this case, cybernetics. Genuinely Grand innovations occur only very infrequently but they are monumentally important in their ability to shift the balance of power, culturally, economically and politically. Grand innovations create what Stiegler calls epochal ruptures because they impact globally and irreversibly on populations and their

systems of knowledge, and therefore perception generally. This constitutes the essence of the second mechanical turn of sensibility: a shift in perception that represents an opportunity to ameliorate sociopolitical and cultural shortcomings, to start afresh. However, this historical-material concept makes most sense in the context of an examination of concrete artefactual assemblages – a genealogy of the sensible. A brief recourse to the comparison between mechanical and cybernetic temporal objects, and their deployment in the history of performance, can help bring this point into view.

### ***3.2.4 – A Genealogy of Performing Machinery: From Mechanics to Cybernetics***

The basic fact of automating tasks elevates a machine's status to the level of corporeal prosthesis. With the onset of recording technologies – which operate on a process of automation – there emerge prostheses of memory and, henceforth, of the mind. In mechanical-technological performances, such as *Krapp's Last Tape*, the machinery retains its prosthetic values as an extension of consciousness. It does not react but rather repeats an action – a vocalisation – thus gradually imparting fragments of Krapp's identity. In comparison to digital technology, the process of retrieving objectified articulations is slow and cumbersome. The main difference between mechanical temporal objects and digital ones is that, by virtue of semiconductors and random-access memory, digital temporal objects are stored in a database where everything is immediately and equally accessible. Furthermore, by employing mathematical logic, software can be written that allows for the automation of tasks, such as the real-time retrieval and modification of the temporal object. Operating mechanical processes of recording and playback merely consists in hitting a play/record button. The automation is only one level deep, because the linkage between the human gesture and the automation is directly mediated by a relatively simplistic control panel, whereas on computers, it is just one of the many synchronous, automated processes running at any one time. When the tape recorder is stopped there is nothing else happening; it is, to a certain extent, lifeless (or at least dormant). But, despite the lifeless compartment, Beckett's deployment of playback on stage connotes the momentous metaphor that is central to this thesis: machines could be more than just props; they could operate as performance partners.

For a machine to be perceived as a performance partner, and not simply a prosthesis, it needs to have certain characteristics or attributes that allow the performer to relate to it, to create a dramatic tension as they would with a human partner; it must have *naturalistic qualities*, not just in its visual appearance but also in its movement. There should be something happening even when not being interacted with; it should be watching, waiting and ready to intervene; twitching and fidgeting with impatience. In cybernetics this is known as degrees of freedom.<sup>144</sup> Cyberneticist Hiroshi Ishiguro<sup>145</sup> notes:

A human never stops breathing or eye blinking, because these easily observable kinds of behaviour are driven unconsciously by the autonomic nervous system... Thus to increase a geminoid's<sup>146</sup> naturalness, the... system emulates a human's autonomic nervous system by automatically generating these micro-movements, depending on the state of interaction. (Stocker and Schöpf, 2010, p. 218)

This is only achievable by layering processes of automation, a phenomenon made possible by virtue of computation, software and the microelectronic chip. This is why the organic graphical algorithms work so effectively: once started they continue to propagate by themselves, and then when fed the biometric data they can blossom into weird, unusual and often indeterminate patterns. It is a question of levels of automation, or, to put it another way, levels of opacity.<sup>147</sup> Automation placed within automation, within automation, and so on – ad infinitum – is the current status and on-going trajectory of technocratic society: the will to assign more and more tasks to

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<sup>144</sup> Degrees of freedom and their constraint thereof is an important concept to William Ross Ashby in his setting out of the fundamentals of cybernetics (Ashby, 1957, pp. 61, 129–131).

<sup>145</sup> Professor at Osaka University and group leader of ATR Intelligent Robotics and Communication Laboratories. His work is concerned with human nature and feeling, how “presence [can] be captured, revived, and transmitted.” (Stocker and Schöpf 2010, 218).

<sup>146</sup> Geminoids are a type of robot, ‘originally planned to be test-beds for studying the individual nature of human beings.’ (Stocker and Schöpf 2010, 218).

<sup>147</sup> Stiegler uses the term ‘opacity’ to describe the degree to which consumer masses have become mystified by, and ultimately removed from, the production of cultural symbols, due to the pervasiveness of automation in mass culture.

processes of automation. For better or worse this fact is carried through to all walks of life, including art making.

As previously stated, analogue temporal objects are not responsive whereas digital ones, through layers of automation, are. Therefore, the introduction of one or other to the stage brings about a different intention and meaning. It is always possible to employ new technologies in old ways; that is, to do the jobs that were previously managed by analogue technology (for example, simple audio-visual playback). Digital technologies are far more efficient and user-friendly for this task and so it makes sense that they are employed for this purpose.<sup>148</sup> However, there is a large and toxic pitfall here, known as *remediation*.<sup>149</sup> This is the tendency for new media to ape old ones, not only in function but also in form, and it implies a predisposition to ignore the *fundamentally new* specificities of digital technology: calculation and simulation. This is what makes *Chunky Moves*' collaboration with Weiss so interesting and important. As a transdisciplinary collaborative effort, they push the limits of digital audio-visual technology, thus avoiding the pitfall of simply going over old ground.

### ***3.2.5 – The Pharmacology of the Scenographic Turn***

This presents something of a dichotomy in relation to how technology is harnessed; that is, the technological advancement has both positive and negative effects. In describing his experience of working with the tracking system Obarzanek states: 'This was far more exciting and without the tedium of the dancer having to respond accurately to pre-rendered video' (Collins and Nisbet, 2010, p. 303). In this sense, it releases the performers from rigorous timing thereby opening new opportunities for improvised creativity. However, automation can also engender a sort of repression by allocating technical know-how to mechanised devices, thus replacing human

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<sup>148</sup> Software such as *CueLab* has made this process very easy for the performance operator.

<sup>149</sup> In their book Bolter and Grusin argue that new visual media achieve their cultural significance by aping, rivalling, refashioning and alluding to earlier media such as film, photography, painting and so on. Bolter, Jay David, and Richard Grusin. *Remediation: Understanding New Media*. 1st edition. Cambridge, Mass.: The MIT Press, 2000.

participation in creative processes. This scenario implies a loss of knowledge on the part of the human practitioners, demanding a recourse to that earlier citation of Adorno in which he notes that with the advancements of ‘modern science, the major discoveries are paid for with an increasing decline of theoretical education’ (Horkheimer and Adorno, 2002, p. xiv). In the case of choreography and dance there is a risk that, as more and more practitioners engage with technological ‘partners’, the knowledge of classical or traditional embodied techniques and articulations becomes eroded and, in a worst-case scenario, lost. This quandary is especially relevant to dance, which is a mode of artistic expression that does not have a widely accepted standard of written notation. As cognitive technologies become more widespread, not just in the performing arts, but also in culture generally, it must be considered how they will affect processes of individuation and the survival of knowledge, skills and techniques that, for example, Lyotard stresses cannot be straightforwardly legitimated by the statistical pragmatics of computation. It is for this reason that technology, as prosthesis of body and spirit, should be treated as a *pharmakon*; that is, it is both toxic and therapeutic.

Every technological advancement can be examined pharmacologically. Given the already established inherence of technology in processes of psychic and collective individuation, each organological development creates an opportunity for an intensification of individuation, or, a *short-circuiting* of it. On the one hand, tracking technologies allow us to document, examine and process corporeal and physiological information with increasing efficiency, ultimately contributing to an expanding understanding of embodied, gestural expression, while on the other hand, they coerce a situation wherein knowledge is forgotten because we either confide expertise to software, or we deprecate certain tasks altogether in favour of a new technique. This inclination can be expanded into quotidian technological usage such as personal organiser and geo-spatial apps on mobile phones; for example, intuitive knowledge of the organisation of a city is renounced in favour of technologically assisted location detection. As already stated, for Stiegler there is an immanent link between technological advances and what he calls a proletarianisation of knowledge, which leads to a decline in individual and collective intelligence. Negative employments of organological developments provoke a shift in masses from the position of participants

in cultural production, to that of consumers – a *dis-individuation*. In this situation it is not only the competence and aptitude of citizens and workers that becomes obsolete, but also the joy, exuberance and enthusiasm for life in general; that is, a situation of symbolic misery arises out of the proletarianisation of knowledge and the loss of individuation; there is a psychosocial malaise immanent in the realisation that one has nothing of worth to offer. The huge impact that the – relatively recent – deployment of computational technologies has had on Western lifestyles exemplifies how a *pharmakon* reconfigures the circuits of knowledge, power and indeed the very substance of life itself. Thus, the question pertinent to the digital epoch is how can we harness the new cognitive specificities of digital technologies, and deploy them to beneficial effect, without compromising knowledge systems that constitute *quality* of life? Where questions of *well-being* are concerned, art is always an important player.

Contemporary performance research centres are spaces that are dripping with technology, and are therefore more akin to experimental laboratories in which the phenomenology of movement is being formalised via processes of grammatisation. Reflecting on the choreographic development Obarzanek states:

In some ways *Mortal Engine* didn't progress in an interesting way, choreographically; it was often hijacked (the rehearsal periods) by technical problems. But on the other hand it brought in a certain simplicity that made the work *work* in a different way. So I don't regret it. (Obarzanek, 2012)

This is a really important reflection because for artists, who are used to pushing the limits of the physical poetry of engaging with objects, it is an unusual scenario to have to simplify their language as a compromise to the technological side of the production. Henceforth, the already posed question of grammatisation resurfaces in the context of *Mortal Engine's* choreographic and dramaturgical development: given the increasing discretisation of live corporeal movement, how can we retain the idioms that make artistic metaphors and poetry meaningful?

*Mortal Engine* is, just as *Apparition* is, a work that, in mobilizing the new tools and specificities of digital technologies, contributes to the establishment of a new epoch of the grammatisation of gesture, which is taking place now at the beginning of the 21<sup>st</sup>

century.<sup>150</sup> Importantly, artistic innovations such as this, operating through and by the re-harnessing and re-application of motion-tracking technologies,<sup>151</sup> have opened up new epistemic territory by providing an evolutionary milestone to the aesthetic idea advanced by Beckett fifty years earlier: the machine is not a prop; the machine, as an inorganic organised being, *is performing*. Henceforth, it is the efficacy of the technology that constitutes the lion's share of the internal tensions of the work, brought to the stage by the confluence of the performers and the machine. Just as in *Krapp's Last Tape*, the performing object – Weiss' motion-tracking system and its unblinking gaze – positions itself as the core aesthetic force in *Mortal Engine*. The synergy with the machine offers an artistic metaphor of, on one hand, how processes of psychic and collective self-understanding are mediated through and affected by technology, and on the other, how the technology is itself affected by the human. The work should be received via the organological questions that it raises in relation to how subjectivity and identity are formulated, affected and mutated by a relational interplay of the psychic individual, the collective organisation and the technical milieu.

### 3.2.6 – *Scenographic Transindividuations*

Inevitably, and according to Adorno's law of the culture industry,<sup>152</sup> this art form is already being rolled out into mass culture for the ends of advertising, as can be witnessed in grand building-mapping projects and luxurious product launches.<sup>153</sup> In its all-consumption of styles and techniques the culture industry asserts itself as the goal

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<sup>150</sup> There were several similar research projects in progress at the turn of the 21<sup>st</sup> century. Some of particular note are: Scott deLahunta and the Forsyth Company's *Synchronous Objects* (2009) project in collaboration with Ohio State University—this important work was amongst the primary movers in establishing fundamentally new processes in devising and annotating choreography; the *Motion Bank Project* (2010) initiated by the Forsyth Company, in Frankfurt am Main, is still in progress.

<sup>151</sup> Motion-tracking technology has been used in military applications for decades, so in this sense *Chunky Moves* are engaged in reinvention, which according to Stiegler is the job of the contemporary cohort of avant-garde artists.

<sup>152</sup> 'The irreconcilable elements of culture, art and distraction, are subordinated to one end and subsumed under one false formula: the totality of the culture industry.' (Adorno and Horkheimer 1997, 144)

<sup>153</sup> See for example BMW's projection mapping presentation (2012), for the launch of the new F30 series, at the Moscow Garage, <http://vimeo.com/groups/touchdesigner/videos/39586237>

of liberalism, and in the context of Obermaier and *Chunky Moves*' work we are faced with a paradigm that threatens to transform our cities: every surface potentially becomes a projection surface; every wall, building and inhabitant become potential vehicles for mobile signs.<sup>154</sup> However, this is to think about the organological development (of digital responsive environments) in a negative sense. As Stiegler points out we have to take a positive pharmacological approach; that is, to elicit the best out of the new situation. As such, only the digital can provide a new 'therapy' that can counteract its toxic effects on knowledge, culture and well-being. But, by no means will it happen miraculously; there must be a critical voice that continues to combat endemic collective stupefaction. As already noted, Stiegler places this responsibility on the shoulders of artists; that is, the avant-garde. *As re-inventors, they should gather the new tools and forge new relational circuits between technology and humans – change the rules –* in a similar manner to the way Obermaier, Weiss and *Chunky Moves* reconfigure, repurpose and change the rules of the technologies used in *Apparition* and *Mortal Engine*. Their original repurposing of the technology, through the uptake of the specificities of digital technology, constitutes the basis of a techno-mathematical sublime event that marks the transition to a new epoch and a new way of experiencing culture – a mechanical turn of sensibility. It is in this way art can re-configure the

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<sup>154</sup> For all its faults, first pointed out in the sober and essentially Gnostic writings of Adorno, the competitive nature of the culture industry, under the auspices of economic liberalism, has provided a ripe landscape for ingenuity, innovation, invention. Stiegler consistently points out that while Adorno did lay the foundations for important work in relation to the libidinal economy and the techno-political question, his attacks were too polemical and failed to consider the beneficent aspects of cultural activities in the neoliberal marketplace. The most notable oversight is the free flow of ideas that is the life blood of an innovation economy. There is a history of argumentation against the state's interference in, and presidency over, mass communications, under the reign of socialism, which stifled possibilities for the dissemination of cultural ideas and therefore possibilities for transindividuation generally. It is widely held that the success of Western popular culture, when compared with the relatively traditional cultural artefacts and frugal pool of work generated in the USSR during the same period, is largely attributable to the laissez-faire attitude of the Western states in relation to freedom of speech, telecommunications, and marketing and advertising. It is furthermore notable, as per the previous footnote, that the use of projection mapping techniques in advertising has exploded in Moscow, the seat of the former USSR, following the initial avant-garde innovations by the artists analysed in this chapter.

Finally, for Stiegler, the ability for an amateur to become aware of, take-up, employ and re-deploy techniques is key to his project that aims to re-energise a new economy. Such an empowerment of the amateur would only be possible in a liberal marketplace that encourages invention, wide dissemination of innovative ideas, and their straightforward repurposing in the private sector.



circuits of *individuation*, thereby opening up those essential long circuits of *transindividuation*. To speak of transindividuation is to think on a grand temporal scale, that is, epochally. The works of Obermaier and *Chunky Moves* exemplify how collaborations between performing artists and digital scenographers – who are essentially radicalised computer scientists – and scenographies – the technical systems – can configure new, long circuits of transindividuation. Collaboration is the keyword here because transindividuation is always organological; that is, the relational processes between the psychic, the technical and the social can and do bring about new, unforeseen and unexpected modes of engagement. Operating through a *sur-prise* the artists bring about a sublime experience that moves the audience to an *other* plane of existence. As a site for transdisciplinary technical and cultural experimentation, and a space for interlocutory negotiations, the performing arts finds itself placed firmly within the leading milieu where these experimental, existential individuations are played out. Scenography occupies an important position in arbitrating this process because, not only is it located at a fertile intersection between different spheres of art practice, but so too does it present *a way in* for the involvement of experimental sciences in art production. It is this pivotal position in the techno-epistemological domain that constitutes digital scenographers' occupational identity, in the computational epoch, as one which is essentially avant-gardist. Given their important position, the challenge to scenographers is to: firstly, find ways to facilitate the responsible deployment of rationalised methodologies in the arts sector; secondly, exploit available possibilities that will bring about intellectual, self-reflexive, sociopolitically provocative art works; and thirdly, advocate fundamentally new reconfigurations of instrumental engagement, thus opening up new circuits of transindividuation that continue to propagate and augment the enthusiastic practice and reception of digital art.

### 3.2.7 – *The Pharmacology of Software as an Art Material*

The new digital tool that is central to the two projects under scrutiny in this chapter is computer-vision software.<sup>155</sup> It constitutes one of the two main elements of Obermaier and *Chunky Moves*' original and innovative fusion, the other being the cultural praxis of physical theatre. The introduction of the cybernetic field of biometrics to the area of dance was a fundamentally new art idea that has now begun to take hold as a niche art form, which is becoming increasingly popular. This software technology is fundamentally new in the sense that it has only become available to humans since the outset of digital technologies; in the pre-computational epoch of analogue technologies, there was no means of automatically analysing video/film frames. What is furthermore specific and peculiar about the computer-vision tool is that it is classified under that instrument taxonomy that is quintessential to the digital epoch: software. Software, that tool, that language that is used to send electrical pulses through various configurations of circuits, components, and microchips that store memory, binary memory, on–off switches, billions and billions of them, so that speech and gesture may be recorded, repeated, analysed and stored, or discarded. Furthermore, it is software that automatizes these processes and it is software that proletarianises through systematic automatization. In the digital epoch, it is not just the gestural, physical skills of workers and masses that are put to redundancy, so too are the mental activities of speaking, listening, thinking and imagining threatened by obsolescence because tertiary retentions increasingly constitute not just the trace, but also the projections of individual and collective consciousnesses. The pharmacology of automation, that promises both total proletarianisation and infinite prosthesis, is precisely the discussion that constitutes the bulk of the theoretical problematics in the next chapter. Bearing in mind that Stiegler places so much responsibility on the shoulders of artists, as the contingent that must repurpose the new tools and techniques towards combatting the pestilence of symbolic misery, how can they be expected to carry this burden when the majority of artists are not at all fluent in computer programming languages? Indeed many people in the arts sector have fundamental difficulties with mathematics, which is the essence of computers languages. How can artists engage with software tools, that

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<sup>155</sup> Both of these software technologies fall under the broader taxonomy of computer vision.

is, *really* engage with them, in the sense of *getting under the hood*, thereby reconfiguring them and reinventing them, in unforeseen ways?

### 3.2.8 – *Computer Vision: A Digital Resource*

The *Open Computer-Vision (OpenCV)*<sup>156</sup> software library is an open source resource that is used to build computer-vision software and it is a great resource if you know how to programme using the computer scientific language of C++, but if a user is not trained in programming logic or reading the syntax then they might as well be trying to decipher an alien script. The OpenCV library has been assimilated into many real-time data-processing software packages, and many of the tools are now available to professionals and amateurs alike. Many of these packages are free to download and deploy to whatever ends the user wishes<sup>157</sup> and some of the software packages are more refined, user friendly and technically supported, and therefore require a proprietary license.<sup>158</sup> From a beneficial point of view, these types of software packages make these new computer-vision tools – that are specific to the digital epoch – available to people untrained in software development techniques, like many artists and designers;<sup>159</sup> but, on the downside, these tools still only offer a predefined set of options and menus, from which the artists can select. In fact, many software packages only use a small fraction of the total number of available optimised vision and learning algorithms in the library and this ultimately may serve to homogenise the types of work produced, especially in the case of cultural audiovisual projects. For the digital media

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<sup>156</sup> OpenCV ‘is an open source computer vision and machine learning software library’ comprising more than 2500 optimised algorithms and is written natively in C++. It is distributed freely under the BSD-License (Berkley Software Distribution License), which allows unlimited redistribution for any purpose as long as its copyright notices and the license’s disclaimers are maintained. This makes it easy for its utilization in all types of projects, from cultural, academic and research to commercial ones. “ABOUT | OpenCV.” 2015. Accessed July 21. <http://opencv.org/about.html>.

<sup>157</sup> For example Processing, Pure Data (PD) are free digital media software tools commonly used by students and amateurs for art exhibitions. There are also numerous tools for academic and scientific analysis that use the library.

<sup>158</sup> Some proprietary software packages include MAX/MASP, TouchDesigner, MadMapper and Adobe After Effects.

<sup>159</sup> It should be noted that, although these software packages overcome the problem of end users having to understand computer code, they still require a high level of mathematical competency and logical reasoning.

avant-garde to *really* explore the possibilities available they either need a formal education in computer programming, or else they need to collaborate with computer scientists, which makes techno-scientific art experiments very expensive because artists ultimately have to pay computer programmers a wage. This makes digital media art experiments highly dependent on external, third party funding – like arts councils or private corporate sponsorship – which are inevitably highly competed for and usually underfunded. Furthermore, why would computer programmers work on art projects, which are inevitably underfunded, when they can easily get well-paid work, for example doing systems administration for financial institutions? This precipitates a situation in which there is currently a very high dependence on acts of magnanimity, or altruism, by computer scientists for any qualitative avant-garde praxis in the field of computation. This begs the question as to whether Stiegler should not redirect his appeal to the computer programmers and scientists, who plunge headlong into the service of manipulating information and fabricating the infrastructure of the programme industry?

Computer scientific professionals are not doing themselves any favours by placing short-term financial gain at the forefront of their work ethos. Considered in the context of the late capitalist penchant towards automating *everything*, in order to maximize profits by reducing labour costs, computer scientists are now frequently working on projects that spell their own redundancy. This ultimately exacerbates the increasing demographic of unemployment in Western technocracies; that is, a general exclusion of humans from participating in both industrial and cultural production, in the new industrial world. This is the key problem that will be explored in the next chapter by examining the collaborative work of Erwin Driessens and Maria Verstappen, a Dutch art duo from the Netherlands.<sup>160</sup> The intention is to show how innovative art projects that employ avant-garde methodologies continue to open up new pathways in both *tekhñē* and *epistēmē*, thereby offering new possibilities for a world economy that is constricting its repertoire of diverse ideas because of an agenda that places profit and efficiency at the forefront of its ethos.

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<sup>160</sup> Driessens is a trained computer programmer and Verstappen is the main artistic force in the duo.

## Chapter 4: Driessens and Verstappen: Avant-Garde in the Age of Computation

### *Overview*

*This chapter represents the final stage in the genealogy of the sensible that constitutes the foundation of this thesis. By analysing of the work of Erwin Driessens and Maria Verstappen, an art duo from the Netherlands who work in the genre of artificial-life, this chapter shows what has become of the quintessential avant-garde strategy of deploying chance operations in the context of new technological innovations in the digital epoch. It is proposed that the means of introducing indeterminacy into digital artworks has migrated to a specialised area of software development that incorporates and demands mathematical knowledge for algorithmic development; specifically, knowledge of biochemical algorithms obtained through the study of organic phenomena that occur in the natural world, such as cell division (scientifically known as ‘mitosis’ or reaction diffusion). Software allows for the multiple layering of processes of automation and, by virtue of microelectronic circuitry, conducts them at the speed of light, which is ultimately what makes cybernetics possible. As such, this thesis maintains that by deploying knowledge of organic algorithms through cybernetic simulation – for generating unpredictable artworks – a new wave of digital artists redefine the avant-garde’s abstract protest in relation to: firstly, natural life, by introducing the idea of autonomy to processes of *poiēsis* at a genetic level, and secondly, politics and economics, by removing the artist from the creative process, thereby foregrounding a provocative metaphor that suggests the complete removal of the artist from processes of creativity – the proletarianisation of the artist – which lampoons society’s continuing tendency towards general proletarianisation. The chapter employs much of the Stieglerian terminology and concepts that were explicated in the previous chapters and it will introduce and apply Stiegler’s latest aesthetic-political concept: *negentropy* and *neganthropology*. *Negentropy* can be understood as a more up-to-date, quasi-scientific term for avant-garde artworks and has the added benefit of being unencumbered by the historical baggage that any invocation of the term must normally endure. In charting this final stage of the genealogy of the sensible, this chapter also includes an explanation of Friedrich Nietzsche’s philosophical*

*musings on the relationship between art, morality and human evolution. Nietzsche's assertions will be used to support Stiegler's emphasis on the importance of (negentropic) avant-garde art in the context of a general organology – that is, individual, collective and technical individuation – and the new world economy.*

## **4.1 – 'E-volver'**

### **4.1.1 – E-volver: Artificial Life, Metacreation and Chance Individuations**

*E-volver* (2006) is a site specific, generative<sup>161</sup> artwork, by Dutch collaborative art practitioners Erwin Driessens and Maria Verstappen, which was commissioned for the newly established research labs of the LUMC in Leiden. The title refers to the entire collection of works that consists of five large prints and four 'breeding units' that are spread throughout the building. The large prints are the visual printouts (see fig. 4.1 below) of a bespoke, generative computer programme that runs on custom-built terminals, which the artists call breeding units. The breeding units are essentially LCD monitors that act as the interface for a quasi-organic microculture (see fig. 4.2 below). They simulate the idea of containing or housing a quasi-organic, semi-autonomous mathematical entity that creates visualisations, in a similar manner to the way a bacteria or fungus might leave a visual pattern or trace in a petri dish.

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<sup>161</sup> The definition of *generative art* cited most frequently in recent years is that of Philip Galanter's (Artist and Professor at Texas A&M University), which he set out in a paper that he wrote whilst attending the *Interactive Telecommunications Program* at New York University (NYU). He writes: 'Generative art refers to any art practice where the artist uses a system, such as a set of natural language rules, a computer program, a machine, or other procedural invention, which is set into motion with some degree of autonomy contributing to or resulting in a completed work of art'. Adrian Ward, author of *Generative.net*, offers a further elucidation when he writes: 'Generative art is a term given to work which stems from concentrating on the processes involved in producing an artwork, usually (although not strictly) automated by the use of a machine or computer, or by using mathematic or pragmatic instructions to define the rules by which such artworks are executed'. Mitchell Whitelaw gathers the term to help explicate the newly established artistic genre of *artificial life* (a-life).



Fig. 4.1 – E-volver: large print on canvas at the research labs of the LUMC in Leiden, 6m x 3m, photo Gert Jan van Rooij, Amsterdam.

The software at the breeding units generates a group of ‘artificial pixel-sized agents’ (“E-volver, breeding machines, Driessens & Verstappen, 2006,” n.d.), that can move from one pixel to other adjacent pixels within the programme, which uses the entire area of the LCD screen. Each agent is constituted by mathematical rules drawn from the study of evolutionary behaviour in genotypes, phenotypes and organic cells; for example, each agent is made up of thirteen genes that together determine how the agent will behave on the screen. The gene examines the properties of the eight contiguously adjacent pixels and after sensing its environment, based on a combination of the values, it makes a decision on: firstly, how to modify the colour of the pixel – upon which it rests – in terms of the tone, hue, saturation, tint and so on; and secondly, where, or what pixel, it should move to next. In this regard, each agent leaves a unique and nuanced coloured trail that is determined by its genetic rules and the environment within which it operates. The accumulation of the actions and interactions of all the agents results in a fundamentally indeterminate colourful image that keeps on changing over time.



Fig. 4.2 – Evolver: Breeding Unit at the research labs of the LUMC, Leiden / SKOR, Amsterdam. Photo Gert Jan van Rooij.

The colourful, abstract and dynamic animations that arise from the process compel the viewer into reflecting upon subjects as diverse as microscopic observations, cell tissues and blood vessels, geological processes, topological configurations, cloud formations, fungus cultures, organ tissues or satellite photos, but ultimately they still avoid any definitive identification (See fig 4.3 below).<sup>162</sup> In a review of the work, Mitchell Whitelaw notes: ‘The word “organic” is overused in describing generative art, but it’s unavoidable here; the forms that emerge have a fine-grained integrity and richness about them that inevitably recalls physical and biological processes’ (Whitelaw, 2006).<sup>163</sup> As the agents evolve and develop their mobility and powers of visual

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<sup>162</sup> For a time lapse video document showing the evolution of the imagery in *E-Volver* go to: [http://www.youtube.com/watch?v=a3LaxDAI-BI&feature=player\\_embedded#!](http://www.youtube.com/watch?v=a3LaxDAI-BI&feature=player_embedded#!)

<sup>163</sup> Whitelaw is actually reviewing a screensaver, which operates on the same computational logic as the art installation at LUMC. It was released by Driessens and Verstappen following the unveiling of the installation and can be downloaded from their website: <http://notnot.home.xs4all.nl/E-volverLUMC/screensaver.html>. The interesting thing about the screensaver is that it allows viewers to experience the generative processes of the artwork unfolding live on their own screen, in their own home, as opposed to simply viewing a predefined video rerun on Youtube. In addition, it still has the same global reach on audiences as online video documents, yet added to that the spontaneity and uniqueness of indeterminate



efficacy, they move hither and thither, from pixel to pixel, sometimes jumping several spaces and sometimes in constricted, adjacent progression, leaving a visual trace that is itself continually evolving. At first glance their movements may appear haphazard and arbitrary, but on protracted reflection the viewer starts to decode an abstract, fractal and systematic regularity that is echoed and evinced in the progressive formation of organic architectures, from rivulets and capillaries, which slowly evolve into cavernous ravines and pulsating arteries, to eroded coastlines and fronds under siege by invasive fungal species. The visuals that emerge from the generative processes are sometimes also surprisingly geometric and linear, reminiscent of city grids, electronic circuitry and alien architectural plans, thus compounding the aleatoric nature of the quasi-organic computational procedures.

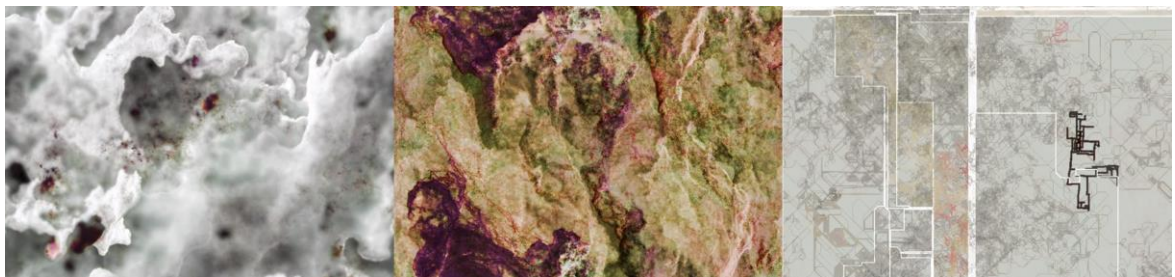


Fig. 4.3 – Evolver: Three different screen grabs that testify to the nuanced, varying and diverse range of possible images that the software can output.

What all of the designs have in common is that they are all engaged in a continuous, evolutionary process, correcting themselves, eating themselves, restructuring and reorganising themselves at a genetic level, from the inside out. The artists state: ‘An important source of inspiration... are the self-organising processes in our natural surroundings: the complex dynamics of all kinds of physical and chemical processes and the genetic-evolutionary system of organic life that continuously creates new and original forms’ (Ibid.). They make it their prerogative to not only observe and record these processes, but also to simulate them, learn from them and integrate them, as heterogeneous agents, into their computationally engaged works of art. Their praxis is motivated by an understanding that the natural systems can and will bring their own

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emergence. The main notable difference with the screensaver is that there is no process of selection on the part of the interlocutor; the picture is wholly determined by the software agents and it only evolves for the timespan that the computer is left uninterrupted.

beauty and dynamics to the artistic outcome of the work, in unexpected ways that the subjective power of the artist, as author-supreme, could never conceive of. Furthermore, and crucially for this thesis, the visual outcome is completely unpredictable and subject to chance, but a chance that is very carefully engineered through the implementation of algorithmic operators that interact with various heterogeneous systems (including the human) and quasi-organisms. Driessens and Verstappen's inclination to grow chance operations from an embryonic, genotypic phase using the material of pure calculation represents the most current and up-to-date stage in this genealogy of the sensible, which traces the evolving avant-garde strategy of introducing chance operations into art production. Furthermore, their strategy of genetically programming quasi-organic art-systems can be understood as a practical validation of Stiegler's hypothesis on evolutionary progressions in the technical milieu and the emergence of organised inorganic entities. This merger of chance operations with new technology testifies to the experimental nature of their work. In addition, an inspection of the artistic statements, on their practice and intention, reveal inherently an activist, provocative and thoroughly avant-gardist mentality that supports this experimental identity.

#### ***4.1.2 – Driessens & Verstappen: Statement of Theoretical Position, Chaos Theory & Automating Art Production***

Erwin Driessens and Maria Verstappen<sup>164</sup> studied together at the State Academy of Fine Arts in Amsterdam during the late 80s and early 90s. In an introduction to their work and philosophy on their website they state: 'At the time we were under the impression that a work of art seemed to be primarily a strategic instrument guaranteeing the continuity of the institutionalised art establishments' (Driessens and Verstappen, n.d.). This statement indicates a dystopian view that shares many of the concerns articulated by contemporaneous postmodern theorists (for example Baudrillard and Lyotard) who cogitate on the circularity of cultural symbols in late postmodernism. Driessens and Verstappen lament, on one hand, the perpetual demand for new exhibitions, asserting that the art world is itself caught up in the late capitalist

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<sup>164</sup> Official Website: <http://notnot.home.xs4all.nl/>

demand for consistent production, often at the expense of quality and originality, and on the other hand, the political economy of art, which insists promotional journals give the best reviews to the ‘galleries and art institutions buying big expensive pages of advertisements in their magazine’ (Driessens and Verstappen, n.d.). They conclude that ‘the so-called new and interesting seemed to be strongly intertwined with mutual commercial interest’ (Ibid.). These views testify to avant-gardist tendencies underpinning their aesthetics and are evocative of, for example, Poggioli’s assertion that the avant-garde is characterised by an *expression of alienation* from established sociopolitical and cultural institutions, or more specifically again, Peter Bürger’s even more focused validation of avant-garde as *aesthetic activism* whose authenticity resides in its opposition directed against the institution of art. Although motivated by an animosity for the economic model that has taken over, Driessens and Verstappen take the rather pragmatic and pharmacological view that the art world is itself ‘a generative system maintaining itself’ (Ibid.); that is, a system evolving to ensure its own survival in late capitalist culture. This opinion displays an affinity with contemporaneous postmodern cultural theory, whose pessimism purports that nothing is possible any more beyond the perpetual recirculation and recombination of historical sociocultural imagery, and is affirmed by their references to Baudrillard in the artists’ statement on their website.<sup>165</sup>

It was this prevailing aesthetic pessimism that instigated them into looking elsewhere for theoretical inspiration and as a result they became ‘interested in theories of chaos and complexity’ (Ibid.), which were undergoing something of a renaissance due to the mathematical advancements occasioned by cybernetics and the amplification of calculation. It was demonstrated in the analysis of Pollock’s paintings that chaos and complexity theories assert that ‘through complex matter-energy flows, order can arise spontaneously from chaos’ (Ibid.). This aphorism marks the site of Driessens and Verstappen’s exploration of chance operations in the computational epoch. Under the aegis of chaos theory, original and organised wholes can come about, which are more meaningful than the sum of their discrete parts and as such small adjustments to the

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<sup>165</sup> See <http://notnot.home.xs4all.nl/text/introduction.html>

system may have dramatic and unpredictable consequences to the totalising form. The artists state that they are interested in the idea that although ‘chaos research attempts to explain the origin of what is new, it remains uncertain [as to] what is going to occur in the future’ (Ibid.). A negative dialectical (pharmacological) approach to this notion will elucidate that the subjectivities brought to the table by the ‘associative tendency’ of the human mind may in fact inhibit the ‘spontaneous development of new possibilities’ (Ibid.); that is, by acting on our intuition, which is always culturally and historically bound, we might be closing down paths that could lead to truly new, innovative and interesting results. This philosophy exhibits profound reminiscence with the theory and methodological praxis explored especially by Duchamp, Pollock and Cage. Just as they designed systems that drew in some indeterminate or random input as a key factor in constituting the artistic assemblage, so too do Driessens and Verstappen channel aleatoric systematic input thereby removing the culturally predetermined subjectivity of the artist from the creative process so that something original, new and unexpected can come into being. By combining chance procedures with automatic productive processes, Driessens and Verstappen are tapping into the rich historical avant-garde strategy of placing the human subject outside of the creative process, in exchange for a system of rules delineating a principle of construction; that is to say, the art emerges through a combination of heterogeneous processes as opposed to being determined by the authoritative, subjective choices of a human author. However, as in the case of Obermaier and *Chunky Moves*, the generative source of that indeterminacy has been migrated to a specialised area of software development, which involves meticulous calculation. Not only do their experiments mark the current stage of fusing chance operations with new technology but so too do they represent the latest developments in the evolution of machinic agency in cultural production. For the last two decades, Driessens and Verstappen have been exploring ways of combining automated computational processes with naturally derived heterogeneous elements, which has resulted in the establishment of a highly original oeuvre, sometimes simplistically parodical and at other times incredibly sophisticated and challenging. Their intention is to, on one hand, ‘expose the underlying generative mechanism of the art world,’ while on the other, ‘circumvent the cultural and the biological limitations of human art’ (Ibid.). This somewhat antagonistic and nihilistic sentiment was a reaction against the prevailing feelings of pessimism and powerlessness, rife in postmodernity. However, it quickly transformed into an activist adventure in tackling the difficulties and

challenges of creating spontaneous and indeterminate art via systematic processes that are inherently rational and calculated.

#### ***4.1.3 – E-volving Concrete Art***

Although the visual outputs of their generative systems are indeterminate, abstract and anti-traditionalist in their mode of representation, they do arise from a logical and formal mobilisation of the computational medium. Driessens and Verstappen henceforth declare that they find a certain solace in the aesthetic dogma of the niche avant-garde movement known as *Concrete Art [l'Art Concret]* (founded in 1930 by Theo van Doesburg), which is a type of minimalist, abstract art practice originating in the Netherlands. This is an aesthetic doctrine that adheres to the idea that the work should not have any direct referents in the perceptual, visible world; instead, it should emanate directly from the interior spaces of the mind and, as a result, maintain a cerebral essence; that is, 'the artwork itself is the reality' (Driessens and Verstappen, n.d.) and therefore resides and exists in its own autonomous, extra-linguistic, self-receding state of ambiguity. They reinforce this aesthetic self-positioning by identifying with a statement by Jean Arp, taken from her book entitled *Abstract Art, Concrete Art* (1942), wherein she writes:

We do not wish to copy Nature; we do not wish to reproduce, but to produce. We want to produce as a plant produces its fruit. We wish to produce directly, and no longer via interpretation. (...) Artists should not sign their works of concrete art. Those paintings, statues and objects ought to remain anonymous; they form a part of Nature's great workshop as do trees and clouds, animals and people... (Arp cited in Driessens and Verstappen, n.d.)

We can elicit from this citation Driessens and Verstappen's tendency towards an endorsement of the idea of creating original works, completely independent of historically and sensibly determined encumbrances. They aim to create works that negate the prevalent artistic paradigm of sensory examination and explanation and short-circuit the loaded subjectivity of author as elucidator; that is, to break away from the historical tradition of mimesis; to present, as opposed to *represent*. The aesthetic doctrine of concrete art is not at all one that dismisses the increasing importance of technology and industrialisation; on the contrary, it seeks to furnish sociopolitical and

cultural totality with a materially bound and technically astute (visual) language appropriate to the new modernised world. In the epoch of modernity, wherein the movement was established, the concrete art methodology was one that sought to mobilise rationalised processes of reductive ordering thereby championing artworks that were minimalist in an attempt to convey an ideal of a universal and harmonious reality. Now in the epoch of computation, Driessens and Verstappen seek to deploy the aesthetic strategy in the opposite direction by aspiring to evoke complexity, diversity, heterogeneity and divergence – an approach more fitting to the hyper-heteronomy that is the age of information overload. They write: ‘The harmony model has been replaced in our case by the conviction that chance, self-organisation and evolution order and transform reality’ (Driessens and Verstappen, n.d.). This statement displays a theoretical accordance with the philosophy of Bernard Stiegler because his organological model opens up an understanding that *E-Volver* provides a microscopic and interrogative metaphor of how the technical milieu – constituted by organised quasi-organisms – is undergoing a process of inorganic evolution that is not only affected by humans, but also affects us, shapes us, contributing to our phylogenetic design and, straightforwardly, the reality we inhabit. New digital technologies and more highly developed scientific insights bestow a rejuvenated, adjusted and updated creative direction for the older expressionistic principles of concrete art, thereby giving avant-gardist mentality a recuperation. Under the remit of Driessens and Verstappen’s oeuvre the formal approach of concrete art enters into a new material confluence with the computational specificities and procedural characteristics of digital media, thereby forging recuperated and fresh, yet historically discerning, applications of avant-garde methodologies.

The artists declare their commitment to the logical and direct use of the computational medium as a formal visual means ‘for the development of artificial worlds with self-organising properties’ (Driessens and Verstappen, n.d.); that is, to set in motion computationally-catalysed processes of environmental growth without any predicted outcome. Their objective is not to simulate the natural and physical laws that are already known to be valid, but instead to define new artificial laws that constitute a fictional world, complete and sovereign in its own right. They continue: ‘By developing generative programs we unlock worlds that show their own spontaneous

expressions' (Driessens and Verstappen, n.d.). Although the generative software algorithms that they programme draw on the scientifically validated logic of natural and physical systems, it is mobilised in a direction that is contra-natural and contra-scientific in its logic; that is, they re-appropriate scientific knowledge and reroute it in a direction that brings into being *artificially organic inventions*, thereby elucidating and foregrounding the internal organisational properties in all their quasi-organic and intricate beauty. The self-organising spontaneity manifests into something entirely extra-ordinary and unknowable, thereby challenging the known limits of the real world as demarcated by *epistēmē* and *tekhnē*.

#### ***4.1.4 – The Organologic of Human-Computer Interaction***

Although the artists do stress that the aesthetics underpinning the works are an investigation into the autonomous emergence of visual objects, they also emphasise the centrality of human-machine collaboration in the process. *E-volver* therefore evokes a certain accordance with the 'symbiotic' methodological praxis employed by Obermaier and the 'synergetic' one employed by *Chunky Moves*, but it is a different interpretation of, and engagement with, these ideas. The people in the building, who are scientists and researchers, can also influence the behaviour of the agents via processes of selection on a touch screen (as seen in fig. 4.2 above). Based on personal taste, spectators can 'vote out' what they perceive as the least interesting design-agent and hence promote the creative efficacy of the other surviving agents. As such, the programme parodies domestication processes, wherein natural selection is replaced by artificial selection and the interlocutor is assigned a somewhat godlike, intervening role. On the principle of personal preference and collective consensus, the selection process gradually evolves a group of agents that embody properties that generate intriguing images. When a certain number of votes have been cast, the computer resets the programme and the evolutionary process recommences anew. In this regard, the agents each leave individual traces on the screen that are ultimately determined by: firstly, the collection of other pixels on the screen; secondly, the other agents, also operating within the environment; and finally, the interacting art audience. In this regard, Driessens and Verstappen have created an abstract simulation of a general organology, wherein the individual, the collective and the technical milieu all individuate over and against each other to create an assemblage of knowledge that is

relational, in flux and evolving constantly. However, the conceptual model of individuation, just as in the performances of Obermaier and *Chunky Moves*, is also applicable outside the frame of the fiction, as a *hors d'oeuvre* that exists above and beyond the work. Through processes of consensus and dissensus, between the individuals and groups working in and around the building, the picture, which has already been set upon its own path of evolution, is gradually altered and affected by the humans in the environment. The picture is representative of the human–technical evolutionary process within which organic, noetic human beings and ‘inorganic organised beings’ (Stiegler, 1998, p. 17) are always already entangled. Analogously, the picture also affects the humans because, on a dialogical level, they are challenged into making decisions relating to their personal (and possibly consensual) tastes, and on an occupational level, the visuals are reminiscent of the natural, organic scientific phenomena that subjectively impact on the formation of their research, and ultimately constitute their identities as scientific researchers.

In comparison to *Apparition* and *Mortal Engine* the interplay of the human (organism) and technical organs, in *E-volver*, is conceived more so as a quasi-rational interference, in an overall chaotic system with an entirely indeterminate outcome, that encompasses both the human and technical milieus. In this sense, their oeuvre is *also* an attempt to rethink the relationship between the human and the technical in a renouncement of that classical means–ends binarism, of which Stiegler, in the spirit of Heidegger, is so cautious. Compared with Obermaier’s and *Chunky Moves*’ works, Driessens and Verstappen’s praxis is even more interrogative of the fundamental problematics of human evolution and is therefore supportive of the notion that human and tekhnē are essentially entangled at a morphogenetic level; that is to say, we are not growing *with* machines, but *through* them, in a machinic ecology. In this respect, their oeuvre is a particularly relevant case study that exemplifies the two central axes that constitute the over-arching argument of this thesis because: firstly, they concur with the techno-philosophy of Bernard Stiegler by affirming that since the migration of human evolutionary processes from the biological to the technical,<sup>166</sup> technology has been *the*

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<sup>166</sup> Remember Stiegler calls this the *originary de-fault*.



fundamental, exterior, phylogenetic<sup>167</sup> determinant of our physiological and neurological development, while yet added to this is the fact that technology is itself evolving or individuating in relation to humans; and secondly, they directly derive their aesthetic impetus from the historical avant-garde and extend the praxis by fusing chance operations with the new technical specificities of the digital epoch. They henceforth demonstrate both the effectiveness of processes of transindividuation, and the importance of artists in extending the possibilities of reality, by re-inventing technologies and a re-administrating knowledge circuits.

#### ***4.1.5 – E-volver as Artificial Life***

The artists' decision to engage the theme of evolution by employing biochemical knowledge of cell division and mitosis helps position the artwork as belonging to, and particularly suitable for analysis under, the newly established aesthetic theoretical genre of artificial life (a-life), championed by Mitchell Whitelaw. Whitelaw has, in turn, drawn deeply on the scientific research of Christopher Langton, who founded the research field at a workshop in the Los Alamos National Laboratory, New Mexico (1987), where set out the fundamental principles of artificial life systems and the conditions necessary for their creation. In his synonymously named book – *Artificial Life* (1997) – Langton defines artificial life organisms as 'aggregates of simple, rule-governed objects which interact with one another nonlinearly in the support of life-like, global dynamics,' and furthermore he goes on to declare that life itself is none other than 'a property of the organization of matter' (Langton, 1989, p. 2). With the above definition in mind, the artificial life research community, now a global entity, devotes itself 'to the simulation and synthesis of living things' (Whitelaw, 2004, p. 6). Harnessing 'the most flexible, dynamic, and tightly controllable artificial medium at its disposal' – computation – the movement attempts to cultivate 'artificial systems that mimic or manifest the properties of living organisms' (Whitelaw, 2004, p. 6). Their

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<sup>167</sup> *Phylogenesis* refers to the evolutionary development and diversification of a species or group of organisms, or of a particular feature of an organism. This term was already encountered in Stiegler's reading of Leroi-Gourhan and Stiegler extended the biological-anthropological term by coining the phrase 'epiphylogenesis' to express the idea that, since the dawn of hominization, evolutionary memory has been gradually transferring from the biological milieu to the technical.

mantra is to approach the problem using a ‘bottom-up’ strategy because, just as in nature, extremely complex and beautiful living things can emerge from simple, yet unpredictable, interactions between ‘nonliving molecules’ (Whitelaw, 2004, p. 6). In reviewing the oeuvre of Driessens and Verstappen, Whitelaw commends their harnessing of computer scientific, ‘artificial life techniques [to] help drive a creative inquiry into generative novelty and the emergence of form’ (Whitelaw, 2015, p. 307). He asserts that their oeuvre ‘demonstrates the generative (and conceptual) value of adapting and modifying familiar ALife techniques’ (Ibid.), and therefore represents a pioneering and quintessential example of creative expression at the crossroads of art and the experimental sciences. Driessens and Verstappen’s oeuvre provides a wealth of projects and resources that engage these themes through such methodological praxis, so it is useful to analyse a second, more recent, project, entitled *Accretor* (2012). It is held that the analysis of *Accretor* provides, on one hand, a useful example of how a similar theme and mathematical process can be engaged towards a significantly different output, and on the other hand, a clear map of how their work exhibits a progression in sophistication, which is paralleled and vectorised by the speedy evolution of digital technology in the new industrial world.



Figure 4.4 – Driessens and Verstappen, *Accretor* #2777-4 (2012).

#### ***4.1.6 – Accretor: Introduction and Description***

*Accretor* is a collection of works by Driessens and Verstappen that should be understood as a technical, practical and procedural continuation of the themes they were investigating in *E-volver*, because they advance the possibilities of ways to mobilise cell division algorithms as a technique for the automated production of artworks. However, in this case the generative technique is advanced into applications for artefactual realisation using a 3D printer (see fig. 4.4 above). Henceforth the work represents an example of an experimental and inventive praxis that is developing in harmony with synchronous advancements in the industrial world, and its ongoing

trajectory towards automated production. The sculptural forms comprising the *Accretor* collection represent the most complex and intricately detailed of the artists' entire oeuvre. In a similar manner to *E-volver*, the fabrication process is determined by a cellular agent-automaton which embodies a set of pre-programmed rules that determine its behaviour based on information gathered from the neighbourhood of cells wherein it rests; each time a cell is modified the topology of the local neighbourhood is affected thereby creating a behavioural feedback loop that phylogenetically affects the ontogenetic<sup>168</sup> efficacy of the agent. However, in the case of *Accretor*, the generative process takes place on a three dimensional grid and, given the constraints of the 3D printing process, cells can only be created if 'at least one face is in contact with an existing particle, resulting in a continuous form that can be fabricated in a single piece' (Whitelaw, 2015, p. 308). Furthermore, the creative activity of the agent is limited to the productive binary of either filling the cell or not, and then moving on. In a further departure from *E-volver*, the *Accretor* agent cannot remove cells once they have been added, which means the total form can only grow over time. Whitelaw notes: 'In this respect it resembles growth-based systems such as Eden growth models or diffusion-limited aggregation, more than traditional cellular automata' (Ibid.). It is conversely in the agent's mobility where the huge complexity takes place; in the three-dimensional grid-world, despite the predicates placed upon it by operational constraints of the printing system, the agent's every move is still subjected to an immense total number of  $2^{576}$  'possible rules (and thus growth processes)... in which the six face, twelve edge, and eight corner neighbours are counted separately, and a single rule set accounts for all 576 permutations of these totals' (Ibid.). In this regard, the emergent forms are wholly indeterminate, sometimes highly regular and unvaried, sometimes incredibly chaotic and disordered; indeed, many forms fail to grow at all and are deprecated automatically, leaving a set from which the artists choose their preferences for fabrication, based on their authorial predilection for a combination of richness and intriguing asymmetry.

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<sup>168</sup> Ontogenesis is a biological concept that is diametrically opposite to that of phylogenesis. It refers to the growth of an individual organism, as opposed to that of a species.

In his analysis of Driessens and Verstappen's work, Whitelaw primarily focuses on the relevance of their work to the artificial life genre and their tendency to mobilise generative art techniques towards the production of novel and emergent forms – most recently in his analyses of *Accretor*<sup>169</sup> (2015) but also in his book entitled *Metacreation* (2004). Whitelaw's artificial life aesthetics offer a very useful analytical framework for decoding these types of art objects; he provides some insightful descriptions, comparisons and elucidations relating to the biologically derived technical and mathematical complexity underpinning the artists' use of naturalistic algorithms, and the consequential forms that they generate. In describing the variety of generated sculptural objects, he writes:

There is an enigmatic quality to these objects... they don't seem made at all; they seem more like something found, a strange mineral formation or an odd-shaped sea sponge... they are reticent, quiet things; at a cursory glance they could easily be passed over as blank, odd-shaped gray lumps. But like sea sponges or mineral formations, they reward close attention, opening up into intricate riots of structure and variation... a jumble of angular, toothy blades and rough fungal masses... a nodular lump with jutting conical growths at multiple scales and angles... pointed fins grow porous and coral-like from a dense central mass. (Whitelaw, 2015, pp. 308–309)

Although offering effortless descriptive passages, knowledgeable technical details and astute biological comparisons relating to mimetic, interpretative reflexivity, Whitelaw's analyses tend to remain predominantly affirmed by the morphological and experimental science perspectives; they are lacking historical contextualisation and critical reflection, in terms of the works' significance within the techno-economic totality, and therefore fail to consider genealogical perspectives of sensibility beyond the context of the computational genre.<sup>170</sup> Stiegler's techno-epistemological

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<sup>169</sup> Whitelaw, Mitchell. 2015. 'Accretor : Generative Materiality in the Work of Driessens and Verstappen'. *Artificial Life* 21 (3): 307–12. doi:10.1162/ARTL\_a\_00171.

<sup>170</sup> This is not in any way an attempt to disparage the analytical writing of Whitelaw; he is highly respected for the advancements he had made in helping to establish new theoretical frameworks for the reception and analysis of generative art; my objective is simply to point out the gaps in critical analysis, and henceforth fill them in through my own analysis of Driessens and Verstappen's work.

methodology of *Digital Studies* demands the need for a balanced approach from both perspectives. In Whitelaw's defence, in the *Accretor* article, it does seem that his analysis was restricted by a very limited word count and he does offer a cursory reference to the 'computational sublime', under the aegis of a paper by McCormack and Dorin, in order to help unpack the aesthetic characteristics of *Accretor's* artworks. However, McCormack and Dorin's paper – in spite of its title – does itself offer a rather cursory glance at the theory of the sublime, consisting only of a very brief outline of Kant's analytic and a fleeting nod to Lyotard's postmodernist view. It does offer a focused and original account of competing definitions of art, 'the role of subversion, mental models of understanding for the artist and audience' (McCormack and Dorin, 2001, p. 79), and the slippage art has experienced under the weight of a newly established confluence with computing and (biological) science; but, they do acknowledge that these are not 'the only issues for consideration' (Ibid). Nevertheless, their hypothesis of the sublime remains locked within a sort of scientific-idealistic framework that primarily considers (emergent) art from its formal, autonomous, epistemic and mimetic points of view. In this regard, the 'computational sublime' is conceived in terms of a fear and pleasure, that corresponds to the power and vastness of nature, arising from a state of incomprehension impelled by the lack of a natural or real-world frame of reference. Their article considers generative art in terms of Kant's emphasis on form, in addition to Hegel's delineation of intellectual import; but tends to ignore, for example, the advancement made by Adorno – in relation to modern art and, crucially, the avant-garde – that combines those former aspects with Marx's (materialist) insistence on art's profound relations with sociohistorical, economic and material totality.<sup>171</sup> In this respect and following on their train of thought, Whitelaw's ensuing analysis also skirts around the socioeconomic and historical-materialist issues brought to the fore through the art duo's aesthetic endeavours. It should be recalled that Driessens and Verstappen explicitly affirm their discontent with the self-sustaining and systematic tendencies of the art world and its insatiable appetite for more exhibitions, due to its submission to the late capitalist economy. Whitelaw does point out – in both

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<sup>171</sup> This confluence, of course, constitutes the basis for my own advancements on the technological sublime, in the relation to the theories of Virilio and Stiegler, as discussed in Chapter Three.

his book and in an article that preceded it<sup>172</sup> – that ‘Verstappen positions the artists’ practice as post-Duchamp’ (Whitelaw, 2003, p. 50), and furthermore, he continues on to note Verstappen’s disappointment with the majority of post-Duchampian artist-practitioners, over the course of the twentieth century. He writes: ‘Duchamp’s work opened the way for “an aesthetic interpretation of everything”, subsequent creative practice has dealt only with limited segments of this unimaginable ‘everything’ — “somehow they all end up defining rules [for] how to interpret reality”’ (Verstappen cited in Whitelaw, 2003, p.50). However, he goes on to analyse these statements in terms of an artistic interpretation of reality and the ‘unknown’, which is fine within the remit of his artificial life aesthetics that is both an elucidating and enriching read. However, it does leave incommensurable gaps in relation to aspects that are so central to this thesis: the artists’ penchant towards, on one hand, a Duchampian provocation or activism directed at the art system, and on the other hand, a transindividuation against the long-circuits opened up by Duchamp’s aesthetic tidal waves that continue to bash and erode the precipitous bluffs that demarcate the liminal territories of the art world – that is the disintegration of the artist and emergence of the generative art system.

#### ***4.1.7 – Accretor & the Technological Sublime***

In *Symbolic Misery* Stiegler shows how the key to comprehending the subversive and sublime nature implicit in Duchamp’s work – particularly the *Readymades* – resides in understanding his ability to artistically and critically reflect on his own time.

Duchamp’s *Readymades* do not *only* permit the aestheticisation of every *thing*; they simultaneously foreground a world of machine production that far surpasses – in terms of both speed and accuracy – artisanal hand rendering; they communicate redundancy and the proletarianisation of the artist; they show that, in the face of technological advancements, artists must adapt to the new, modern world by developing a new gestural language of exteriorisation that harnesses the speed, power and reticulational efficacy of automatic machinery, by becoming managers of art systems. Analogously,

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<sup>172</sup> ‘Morphogenetics: Generative Processes in the Work of Driessens and Verstappen’ (2003) was an article published in *Digital Creativity* 14 (1): pp. 43–53, and is comprised of some of the key ideas that Whitelaw expands into his book on artificial life aesthetics, *Metacreation: Art and Artificial Life* (2004).

the key to understanding the sublime and subversive aesthetics at work in the oeuvre of Driessens and Verstappen – as post-Duchampians – resides in their innate, shrewd ability to decipher and foreground the material essence of the hypermodern, digital world; that is, to concisely parody the electronic hyper-automatisation and hyper-reticulation that society, as a whole, is subjected to. McCormick and Dorin rightly argue that Driessens and Verstappen<sup>173</sup> thrust an experience of the computational sublime upon the viewer by foregrounding an inability to comprehend ‘the speed and scale of its [the computer programme’s] internal mechanism, and because its operations occur at a rate and in a space vastly different to the realm of our direct perceptual experience’ (McCormack and Dorin, 2001, p. 78). And this is definitely correct, but this thesis contends that what must be added to their hypothesis is the problem of machinic evolution (or technical individuation) itself; that is, there is a groundlessness introduced by *E-volver* and *Accretor* that raises the problem of a primordial ‘transductive speed’<sup>174</sup> wherein the deceleration of human ontogenesis gives way to an acceleration in epiphylogenesis that begins to map unthought possibilities and unknown dimensions within the ontogenetic reality of automatised technical poiēsis. The works recall Stiegler’s *originary de-fault of being* wherein the human is subjected to a forgetting of the eternal and truthful nature of being-there, which always bears the brunt of a transcendental pressure. This dehumanisation is weighed against an accelerating progressive destiny of technical supplementation and the possibility for self-actualisation and observational multiplicity, through technicised evolution that is empirical in its reach but cannot be simply reduced to biology, anthropology or mechanics. In this sense, the experience of the technological sublime that is disclosed in the work of Driessens and Verstappen is activated by an ‘aporetic oscillation of speed between the (quasi-)transcendental and the (quasi-)empirical’ (Ekman, 2007, p. 60); that is, their automated, emergent systems employ the speed-dynamics of

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<sup>173</sup> McCormick and Dorin’s analyse an earlier work by Driessens and Verstappen, entitled *IMA Traveller* (1996), which represents an exemplar of their theory on the computational sublime. The work consists of an interactive software projection in which the interlocutor can explore an infinite fractal universe.

<sup>174</sup> The idea of *Transductive speed* is useful again here because it helps gather the nature of the sublimity of speed. Aside from Simondon’s understanding of the term transduction also implies, on one hand, the action of converting energy or a message into another form, such as symbolic matter, and on the other hand, the biological understanding of transferring genetic material from one organism to another.



hyperindustrial calculative systems that give rise to reflections on a more original and irresolvable problem concerning speed: our biological, ontogenetic and sentient selves become increasingly dissipated against the horizon of advances in the technical, epiphylogenetic milieu. As demonstrated in the analysis of *Krapp's Last Tape*, this expedites, on one hand, a compression of the retentive faculty's capacity and therefore a stifling of consciousness, and on the other hand, the promise of unlimited mental and physical prosthetic augmentation.

In a similar respect to the computational performances discussed in Chapter Three, the emergent paradigm employed by Driessens and Verstappen demands that a reflexive judgement take place both inside and outside the frame of the fictional universe: inside, in the sense that the cell division (mitosis) algorithms ape and parody the organic ontogenetic processes that are experienced by every living body in our world; outside, in the sense that the organological reality bleeds out of the fictional frame because the viewer is forced to acknowledge that, in simulating natural evolutionary processes, the software is undergoing processes of ontogenetic change that are determined by fundamentally indeterminate, external, phylogenetic factors. In the case of *E-volver*, the phylogenetic milieu is constituted by the other software agents and the traces they leave behind, as well as the human researchers working in the research facility, through their subjective actions of selection and elimination. In the case of *Accretor* the ontogenesis of the art work is determined by, firstly, the subjective taste of the artistic authors, and secondly, the limitations of what is possible for the system to build – that is, to exteriorise – within the constraints of 3D printing processes. In both cases, the subjective tastes of interacting humans contribute to deciding which pseudo-organic forms are allowed to emerge and which ones are deprecated. But, crucially for this thesis, it is important to note that the increase in decision-making powers – which is also to say *ontogenetic efficacy* – given over to the machine during the exteriorisation process, apparent in the temporal lapse between the conceptions of *E-volver* (2006) and *Accretor* (2013), bears witness to the analogous, parallel evolutionary expansion of machinic autonomy in the reticulated systems that decide, manage and organise the warp and woof of contemporary digitalised intersubjectivity, from aspects as superficial as pay-per-click advertising to more grave elements, such as generalised economic processes like automated derivative trading. In the quiet receding of its

abstract and meticulously assembled sculptural outputs *Accretor* implicitly foregrounds the imminent problems that come packaged with the proliferation of automatised production and the growth of a generalised laissez-faire attitude. The eventuality of disaster as a result of unshepherded automation is inferred in *Accretor's* design failures, the deprecations and the ungrowable pseudo-organisms that are the offshoot of a hyperrationalised system that can only operate on the logic of what is mathematically reducible to binaries. *Accretor's* design failures, impossible structures and aesthetic corruption arising from hyperrationalised technical poiēsis connotes the inevitability of analogous failures that occur in the broader socioeconomic sphere, when hyperindustrial capitalism's economic governance is set to autopilot. This situation of totalised automatisisation is exactly what perplexes Stiegler and formulates the basis for his analysis of Greenspan's defence in his new volume, entitled *La Société Automatique [Automatic Society]* (2015), wherein he writes:

Mis en cause pour n'avoir pas su anticiper ni prévenir la crise systématique, il se défendit en affirmant que la cause en était le mésusage des mathématiques financières et les systèmes de calcul automatisé supportant l'évaluation des risques, et instaurés par le digital trading sous ses diverses formes (des *subprimes* au *high frequency trading*)...

... s'il devait y avoir une maise en cause, elle ne pouvait limiter au seul président de la Réserve fédérale des États-Unis d'Amérique : elle concernait tout l'appareil de formalisation computationnelle et de décisions automatiques afférentes prises par les robots financiers, ainsi que la << théorie >> économique occulte qui en avait soutenu la légitimité. (Stiegler, 2015b, p. 1)

*[Blamed for failing to anticipate or prevent the systematic crisis, [Greenspan] defended himself by saying that the cause was the misuse of financial mathematics and automated computing systems supporting risk assessment, and implemented by digital trading in its various forms (from subprime mortgages to high frequency trading)...*

*... should there be an indictment, it could not be limited only to the chairman of the Federal Reserve of the United States of America: it concerns the entire apparatus of computational formalisation and related automated decisions*

*taken by financial robots, as well as the occult of economic “theorists” who had supported the legitimacy.]*

The disastrous future of a society wherein more and more decisions are deferred to automated robots is affirmed by the catastrophic economic collapse of 2008, while yet added to this is a generalised short-sightedness that calls for *one* scapegoat instead of examining the totality of the problem. However, it is not just the automation of decision-making processes that constitutes the foundation of his concern; in addition, it is the consequential proletarianisation of the mind – of not just the worker but also the administrator, the governor – that is the derivative decomposition of a pervasive *denial*, beginning with Nietzsche and attaining its dystopian climax in the disillusioned and nihilistic writings of Lévi-Strauss. This denial – in the case of Lévi-Strauss – is a nihilistic repudiation of what Stiegler calls ‘the neganthropological fecundity of noēsis and of its organo-logical condition’ (Stiegler, 2015c). For Stiegler, Nietzsche and Lévi-Strauss were bound to a world-weary refutation of the ability for noētic work, which is produced in the technical domain, to produce surprises and ruptures (bifurcations) that could help prise humanity from the catastrophic grip of the Anthropocene and redirect us towards a neganthropology.<sup>175</sup> This rebuttal of any redemptive potential in the techno-noetic milieu is not just characteristic of Lévi-Strauss’ outspoken position; so too is it implicitly manifest in the attitudes of the masses who suffer a nihilism on a grand scale but ‘cannot conceive the *nihilism enacted* by absolutely computational capitalism, that is, by a capitalism that has lost its mind and spirit’ (Stiegler, 2015c). In this regard, Stiegler maintains that under the socioeconomic aegis of capitalistic nihilism there is a proliferation of self-destructive carelessness foisted upon humanity by virtue of a general relinquishment of moral values in favour of a quasi-spiritual trust in a fiduciary system, wherein we are ‘all watched over by machines of loving grace’ (Brautigan, 1989, p. 1). However, such an agonistic indulgence in the *Aufklärung* [*Enlightenment*] is always shot through with Adorno’s apocalyptic dialectic that he so

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<sup>175</sup> Nietzsche did not wholly reject the idea that an intermittent production of noetic fruit was possible; he believed it was possible on an individual basis, but he did not believe that (ontogenetic) artistic and noetic forays had any significant impact on the ‘herd’, as a collective intelligence. He is therefore not considered to be wholly nihilistic. Lévi-Strauss, on the other hand, straightforwardly ‘denies’ the possibility of any technicised noesis and is therefore inherently pessimistic about any future for mankind under the new auspices of a technologically governed society. He is therefore considered to be nihilistic by Stiegler.

carefully teased out in the wake of the Holocaust, and forms the basis of Stiegler's call for a pharmacological approach to computational capitalism and its tendency towards hyperindustrialisation – total discretisation, grammatisation or rationalisation. Humans must watch over machines with all the care, love and grace that they can muster; not the other way around, as was hoped by Brautigan in his quintessential *techtopian* poem.

Although Stiegler's reflections, via the citations of Greenspan, are relating to much larger socioeconomic issues, the core of the problem is still analogous to the sublime experience at the heart of *Accretor* and *E-volver*, because it is immanently related to automation and the resultant deferral of tasks, and hence responsibility, to machinery. By automating the emergence of artefacts the generative art projects of Driessens and Verstappen push processes of automatisisation to the limit and by doing so raise some important considerations not just about the production of art, but also regarding general processes of making and production in the broader socioeconomic sphere. The artists implement a system of rules and processes that facilitate an automatic but indeterminate self-production of art works. In doing so, they are alluding to historical avant-garde methodologies that endeavour to celebrate the system of production over the subjective and authorial creativity of the artist. Whereas historically this implied the relegation of the artist to a peripheral mechanism, because he or she still had a degree of activity in the process, in the new paradigm of artificial life they have completely eliminated any trace of human intervention. The automatised system of art production is completely bereft of any physical activity on the part of the human, who now occupies a position of pure control, pure intellectual input. And this is what is so subversive and disturbing about the works: there is no human involvement in the physical making process except in conceiving the idea and writing the software. This is especially problematic in *Accretor* because of the fact that the system outputs physical artefacts built from scratch; it is not so obvious in *E-volver*, because audiences are more willing to accept a purely computational fabrication when it is kept within the bounds of the screen. The assumed contribution of the human hand and the uniqueness that it bestows on the work has represented the cornerstone of art since the beginning of hominization and the aestheticisation of the exteriorised trace. This is what Duchamp was implying with his *Readymades* but his gathering of prefabricated

products had the effect of diffusing the subversion amidst an ironic but serious sense of humour. In *Accretor* there is no such relief for the technological shock, it remains locked within and foregrounded by the magnificent detail and the mind-boggling accuracy of the technical system that is energised, not by the embodied intentions of the human hand, but by industrial, inorganic electrical impulses. The technological sublime shock demands a reflection on the broader sociopolitical totality to which both the work and the spectator belong. The work henceforth foregrounds the worrying predictions that set the tone of *La Société Automatique*, wherein Stiegler writes:

Le 13 mars 2014, Bill Gates déclarait à Washington qu'avec la software substitution, c'est-à-dire avec la généralisation des robots logiques et algorithmiques pilotant physiques – des smart cities à Amazon en passant par les usines Mercedes, le métro et les camions livrant des supermarchés d'où les caissières auront disparu tout comme les manutentionnaires, sinon les clients – , l'emploi allait drastiquement diminuer au cours des vingt prochaines années, au point de devenir une situation exceptionnelle. (Stiegler, 2015b, pp. 2–3)

*[On March 13, 2014, Bill Gates declared in Washington that with the substitution of software, that is to say, with the generalization of logical robots and physical control algorithms – from smart cities to Amazon via the Mercedes factories, the subway and delivery trucks, from supermarkets where the cashiers will have disappeared just like the handlers, if not even the customers –, employment would drastically decline over the next twenty years, to the point of becoming an exceptional situation.]*

Driessens and Verstappen's decision to push the notion of automatised art production to the limit, in *Accretor*, not only eliminates the subjective contributions of the artist but so too does it actually imply an elimination, or proletarianisation, of the art audience. Their engendering of a scenario in which the aesthetic creation is grown, in the way that 'a plant produces its fruit' (Arp cited in Driessens and Verstappen, n.d.) sets up an existential paradigm wherein the work continues to evolve – in some cases through process and in other cases the product – as would a natural organism. In this respect, there is a certain dethronement of the spectator because the museological rules have also been altered. The object or process under examination comes into being in a purely technological way, untouched by human hands and therefore exists in its own right as the fruit of the technological milieu. The process and product therefore erect

their own world regardless of human intervention or perception; that is, the audience are alienated by their humanity, their empathy for the *lack* of the artist creator. In opposition to the classical art paradigm, wherein the reception of the work is a key consideration and the presence of a spectator is crucial to the fulfilment of this demand, emergent artworks place very little emphasis on the presence of a spectator and reception is not at all the focus of the aesthetic; conversely, focus is on a hands-off approach that celebrates the idea of development and allowing the works to continue evolving, unconstrained by human subjectivity, in fresh and surprising ways. This has of course been a strategy of the avant-garde since the beginning of the twentieth century but, in the case of emergent art, both the spectator and artist are replaced by the omnipotence of automatised processes. There is henceforth a proletarianisation of spectator and artist, which precipitates a loss of knowledge because reception, reflection and cogitation are deprecated in the face of automated technological processes that are both lightning quick and infinite – perpetual. Under the aegis of Artificial Life, the computational processes continue to produce and evolve incessantly and inexhaustibly, within the confines of their computational world.

#### ***4.1.8 – From Avant-Gardism to Negentropy [Néguentropie]***

Whitelaw identifies Driessens and Verstappen's oeuvre as one that offers quintessential examples of how to, on one hand, *reinvent* (or 're-engineer') techniques from scientific fields, and on the other hand, *show* 'how their application of a-life techniques destabilises, and enriches, some of the problematic aspects of those techniques' (Whitelaw, 2003, p. 43). Driessens and Verstappen's artistic mobilisation of the scientific knowledge does not place any specific goal or target as the outcome of the praxis – other than to create beautiful or intriguing objects – and therefore undermines the focused and utilitarian endeavours of scientists, who aim to control the same processes and produce *meaningful, useful* and *legitimate* results. Furthermore, their tendency to ignore the exactitude and scientific complexity of 'morphogenetic processes' in favour of an overarching indeterminacy has the effect of 'dematerialising them into a formal and instantaneous moment of genetic expression' (Whitelaw, 2003, p. 43); that is, by offering materialised yet indeterminate concrete expression to the artificial life processes, the artists' new, innovative, rich and complex exteriorisations provocatively demonstrate the possibility of moving beyond institutionally validated

knowledge sets and conceptions of qualitative results – which are now mostly evaluated on their rational, quantitative merit. Whitelaw’s observations are an affirmation of the art duo’s adherence to the theory and praxis of the avant-garde, although he does not explicitly use the term itself in his writing. Perhaps he is wary of the movement’s historical encumbrances that constituted some of the discussion in an earlier chapter of this thesis. Stiegler, however, is not afraid to gather the term and his most recent advancements in (digital) aesthetic theory have occasioned him to propose an updated furtherance that gives another recuperation to the avant-garde and gathers the specificities of modern scientific terminology. This allocates a renewed relevance to the techno-epistemological prerogative of the avant-garde in the digital epoch. The term he gathers is *Negentropy* [*Néguentropie*]<sup>176</sup> and he suggests that the creative endeavours of the new world economy need to be *negentropic* [*néguentropique*] in character.

The forthcoming sections of this chapter are focused on: firstly, explaining the theory behind Stiegler’s employment of the term; and secondly, showing how the aesthetic praxis deployed by Driessens and Verstappen is exemplary both of Stiegler’s theory of negentropy and his appeal to the art world. He calls for artists to, on one hand, rediscover the question of the avant-garde and take back their political responsibility and, on the other hand, exteriorise creative assemblages that are negentropic (avant-gardist) in their nature, thereby assisting in the uncovering of new techno-epistemological possibilities that could help steer a misdirected global technocracy that

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<sup>176</sup> *Entropy* is a term that originates from the scientific field of thermodynamics. It refers to the quantity of energy in a system that is unavailable for conversion into mechanical work; that is, it may be understood as the amount of randomness, disorder or unpredictability in a system. It is a phenomenon that is present in all systems and was therefore later mobilized in terms of, for example, economics in order to explain the tendency of marketplaces to descend into chaos. *Negentropy* (or negative entropy) is the opposite of entropy and therefore describes the idea of chaos moving towards order. Erwin Schrödinger introduced the concept and term in his popular-science book, entitled *What is Life?* (1944). Living systems and organisms are considered to be negentropic because they take in exterior matter, such as food, water, oxygen and so on, and organize them towards the ends of generating energy, for mobility and functionality and cells, for growth.

is currently on the way to inevitable ruin – illustrated by scientific hypotheses such as the *Anthropocene*<sup>177</sup> – back towards a more fair, responsible and caring society.

## 4.2 Negentropy [Néguentropie] and the Neganthropocene [Néguanthropocène]

### 4.2.1 – Background to the theory of Negentropy and the Neganthropocene

In a lecture that he recently delivered, entitled “The Anthropocene and Neganthropology”,<sup>178</sup> Stiegler says: “The warnings of the IPCC<sup>179</sup> and a thousand other current realities bring about expectations and protentions<sup>180</sup> of the worst, that is, of

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<sup>177</sup> The *Anthropocene* is a new term that refers to the outset of a new epoch beginning at the point when human activities started to cause a substantial impact on the earth’s ecosystems. It was coined in the 1980s, by American biologist Eugene F. Stoermer, in relation to human impact on the species of fresh waterways in North America. The term has more recently been popularized by Paul Crutzen, an atmospheric chemist, who maintains that the gaseous emissions released into the atmosphere, by way of human activity at the lithospheric level, is so significant that we must now acknowledge a new geological epoch. Despite a motion, demanding the term’s formal adoption to the recognized categories of official terminology, having been put to the *Stratigraphy Commission of the Geological Society of London* in 2008, the term has not yet been granted full professional, societal endorsement. Although widely supported by the commission panel, the scientific nature of the field demands hard quantitative evidence to support the motion. As such there are currently numerous research projects underway that endeavour to get the proposal pushed through and professionally acknowledged.

<sup>178</sup> First delivered in Canterbury (2014) and transcribed by Daniel Ross. Stiegler also gave a version of this paper at the *Digital Studies Seminar*, at Dublin Institute of Technology (DIT) in May 2015, entitled “From the Anthropocene to the Neganthropocene [Néguanthropocène]”.

<sup>179</sup> IPCC – Intergovernmental Panel on Climate Change <[www.ipcc.ch](http://www.ipcc.ch)>

<sup>180</sup> *Protention* is a Husserlian term that is central to Stiegler’s philosophy. Husserl sets up *protention* as a binary opposite of *retention* in order to explain human experience of the world as a fundamentally temporal one, constituted by a series of connected moments. The concept of retention was already analysed in terms of the primary, secondary and tertiary modes – in Chapter Two. In opposition to retention, protention can be thought of in terms of predicting the future: anticipation. In terms of embodied knowledge one might say that it constitutes our innate ability to predict the trajectory of a moving object, like a ball; in terms of mindful knowledge, one can conceive of it the ability predict the forthcoming notes in a musical composition or dialogical responses in a play. Human protention is composed by the constant interplay of primary and secondary retentions; that is, our experience in the world; but, we also noted that, since the mechanical turn of sensibility, these are increasingly organised by tertiary retentions – which is not a term employed by Husserl, but by Stiegler in his synthesis of the theory.



collapse – not of this or that lost civilization of the kind discussed by Jared Diamond, but of humanity itself and in totality’ (Stiegler, 2014b). The propositions in the paper are founded on the conclusions of his recently published book, entitled *La Société Automatique [Automatic Society]*, which is a work that meditates on the repercussions of society’s trajectory towards generalised and total automatisations in the digital epoch. At the heart of Stiegler’s arguments, in both the book and the paper, is a reworking of that recursive theme that constitutes the foundation of his entire techno-philosophical oeuvre: the pharmacology of general organological developments in which tertiary retentions both inhibit and permit psychic and collective individuation. He mobilises the geophysical scientific hypotheses of the Anthropocene in order to evince his own (humanities-based) thesis on the ‘the systemic and massively toxic character of contemporary organology... especially since the advent of organological industrialization, that is, since the industrial revolution, which we must understand as an organological revolution’ (Stiegler, 2014b, p. 2). The questions that arise from this situation are: Why is industrialised society continuing in an unsustainable way that is destructive to global ecology on a scale that could bring about a collapse of humanity? Why can political and economic governance not see its misgivings? And, further to this point, how can we change the course of socioeconomics when we all live ‘under the weight of a common protention that is massively negative on a worldwide scale’ (Ibid.)? Stiegler holds that there is a prevailing global despondency that gives rise to a generally held *belief* ‘that is it not possible to change human behaviour’ (Ibid.). This despairing attitude exacerbates the capitalist scramble for wealth through increased industrial production – which places increased pressure on the geophysical ecosystem – in the hope that one might be able to buy some protection for themselves, their families and their legacy. In response to these problems, and in keeping with his positive pharmacological strategy, Stiegler’s critique attempts to unpack what positive aspects and approaches can be elicited from a prevailing negative protention; that is, what values, attributes and knowledge paradigms does humanity have that we can mobilise

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It is this theory that is also critiqued by Heidegger in the formulation of his concepts of historicity and facticity and which ultimately leads him to conclude that the essence of technology is fundamentally constituted by concern. The centrality of these concepts to Stiegler’s techno-philosophy has also already been explained in Chapter Three.

in the opposite direction to the nihilistic global despondency, without denying the serious legitimacy of the situation?

Stiegler maintains that it is the issue of protention, above all, that needs to be addressed because advancements in the automation of cognitive technologies – which is to say retentional technologies because it is always firstly retentions that constitute cognition and therefore protention – precipitates the immanent threat of forgetting; that is, a forgetting of who we are, and the possibility of questioning our ‘being-there’ and the *horizon of all to come: Dasein*.<sup>181</sup> The organological developments since the outset of the Anthropocene have complicated our Dasein, our existence, in the sense that its primal, instinctive and spontaneous aspects – that firstly constitute essential facets of Dasein such as care and concern for *both* ourselves *and* for the group – have been fundamentally ruptured and fragmented, by a deferral of aspects of subjectivity, identity and knowledge over to machinery; that is to say, care and concern become increasingly buried beneath strata of ever more complex, rationalised, heterogeneous and dis-located processes far removed from our organic and primordial essence. The result of a dis-integration, of that which was primordially inherent to our existence, is a tendency towards an inability to act responsibly or to ‘respond to the challenge of... questioning and being put into question’ (Stiegler, 2014b, p. 3). In the current epoch of digitalised automation, the industrial production of tertiary retentions also amounts to a fabrication of protentions. This is to say that protentions, as the essence of anticipation of a future that comes in to view and the will to act in accordance with that prediction, become automatised in equal measure to the expanding pervasiveness of industrial temporal objects which formulate identity; that is, protentions become homogenised and therefore cancelled, annulled. On this point Stiegler writes: ‘The combination of the network effect, the self-production of traces, user profiling and real-time supercomputing indeed generates an industrial short-circuit and a systemic elimination of those protentions that are incalculable, subjecting all will to a form of levelling’ (Stiegler, 2014b, p. 4). The proliferation of digitally mediated intersubjectivity and the

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<sup>181</sup> As explained via the analysis of *Krapp’s Last Tape*, Heidegger asserts that Dasein is constituted by a concern for the future that is always fundamentally undergirded by our being-towards-death.

increasingly homogenised and statisticalised paradigms within which masses operate, define their identities and (re)present themselves to the world precipitates a global levelling effect in which there is a suppression of ego independence in favour of herd-like identification. Such a suffocation of the ego, and therefore self-esteem, inevitably occasions a sort of anaesthesia of care and concern and, straightforwardly, the will to act. This is obviously a recapitulation of Stiegler's techno-philosophy that has already been discussed in earlier chapters, in the context of psychopower and societies of control, but it necessitates repetition because in view of the emergency that is the Anthropocene, elucidated by scientific committees and research clusters, the truth of the situation comes in to clear view: *both masses and governments alike* – for really there is no difference between them because they are co-constitutive of each other – undergo an inclinational slippage towards uncaring and defer responsibility. As Heidegger put it, there is no *They*; *They* are only part of the great false social consciousness in as much as *We* are and to say that *They* are doing nothing is to say that *We* are doing nothing, which is to say that *I* am doing nothing. In this respect *They*, *I* and *We* no longer have the will to act. We have *all* fallen foul of our own liberal capitalist rhetoric; we *all* firmly believe 'there is no alternative' (Thatcher cited in Stiegler, 2015a, p. 69) and therefore tunnel on blindly, exploiting all available human and natural resources in a generalised liberal capitalist panic.<sup>182</sup>

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<sup>182</sup> This position sympathises with late postmodern cultural theorists like Frederic Jameson and Mark Fisher, who advocate a moderation of polemical attacks against neoliberal socioeconomics. They maintain that any project aspiring to imagine an alternative socioeconomic paradigm to the time-space of capitalism must firstly acknowledge its epistemological position in a fluid cultural flux that consistently impacts on and transforms human conceptions of what is thought to be possible. Fisher, for example, posits a reworking of the theory of *Capitalist Realism*, which is a mode of cultural analysis relating to neoliberalism. Under this theory, he holds that the current advanced stage of the hypercapitalist framework permits neither time nor space for reflection and, henceforth, negates any possibility to conceive alternative types of social structures. In his book, *Capitalist Realism: Is there no alternative?* (2009), Fisher holds up the financial crisis of 2008 as an example of curtailed imagination because, instead of trying to conceive of alternatives to the existing model, government administrations endeavour to make modifications to the existing system.

Stiegler is sympathetic to this position and henceforth calls for a pharmacological reading of hypercapitalism. The alternative is either a polemical attack or silence, neither of which are constructive, because they act out as a denial of the socioeconomic paradigm that has developed organically and is, in many respects, quite successful. A pharmacological reading of capitalism attempts to identify both the positive and negative characteristic of the socioeconomic paradigm and reinvigorate the economy with a *therapeutic* and *careful* agenda that can elicit the best out of even those toxic characteristics. As already pointed out, Stielger

Stiegler's analysis of the current stage of the Anthropocene delineates that capitalism has generated a general negative protention that collectively railroads the economies of the world towards a scenario of self-harm; that is, it promotes a totalising 'protention of nihil, of nothing' (Stiegler, 2014b, p. 4) and as such, capitalism can be understood as the fulfilment of nihilism par excellence. However, Stiegler also reminds us that the Anthropocene is also geophysical proof that the artefact – the physical manifestation of noetic thought – is the source and focus of human evolution; that is, tekhnē is the essence of human nature as well as the determinant of the future of humanity. This is something that philosophy had been misguidedly denying for centuries, a structural fiction that Derrida – as noted in Chapter One – makes important advances in debunking. Philosophy and the arts, in their polemical castigation of the technical sciences, inadvertently absconded themselves from modern political discourse and are therefore, in their silence, complicit in the unrestrained and irresponsible behaviour with which technocratic, statistically obsessed government administrations plunder every available resource in pursuit of a 'profitable' economy. Stiegler writes: 'It is therefore imperative to completely rethink the noetic fact, in every field of knowledge, whether of living, doing or conceptualizing' (Ibid.). That is to say, the central importance of tekhnē to, and the repercussions of its progressive development on, every aspect of how we live, think and exist in the contemporary, hyper-modernised world must be reconsidered in the face of the global ecological crisis. This urgent fact is presented through and by the catastrophe of the Anthropocene, in which political and economic prerogatives must be rethought in the context of a responsible organology that places ecologically and anthropologically beneficent, inventive solutions at the heart of its programme. For Stiegler, this problem ultimately comes down to the question of *value* and he henceforth – in the spirit of Nietzsche – calls for a 'transvaluation'<sup>183</sup> of the 'economic values and moral devalorisations' (Stiegler, 2014b,

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identifies *desire* as one of the key areas where the economy can be restructured with a positive programme.

<sup>183</sup> The *transvaluation*, or *revaluation*, of *value* is a concept that Stiegler borrows from the *moral philosophy* of Friedrich Nietzsche, which presents a scathing critique of the predominant and normative moral system of the Western world. Nietzsche's aim is to free ("higher") human beings from their entrapment within a prevailing and fundamentally deleterious false consciousness that is undergirded by a flawed moral value system and therefore inhibitive to

p. 5) that are the derivative decompositions of that epitome of nihilism – unrestrained capitalism. He ventures that this new valuation of values can be approached through a paradigm modelled on the scientific phenomenon of negentropy, whose logic can be reharnessed in the context of techno-noetic, socioeconomic endeavours. He writes:

The theory of entropy... redefines the question of value, given that the relation entropy/negentropy is really the question of life par excellence. It is with respect to such perspectives that we must think, organologically and pharmacologically, what we should in fact call the Entropocene and neganthropology. (Ibid., p. 5)

Schrödinger's identification of the development of living systems as negentropic is the basis upon which Stielger is impelled to introduce his deconstructionist word game that implies that human evolution – since shifting from the biological milieu to that of the technical, at the outset of the Anthropocene – is fundamentally entropic; that is, far from being a holistic, biological process the organological development of the human race is wreaking havoc on the environment within which we are evolving. As such, he is suggesting that the Anthropocene should be renamed the Entropocene and, analogously, anthropology needs to find a way to progress neganthropologically.

The discovery of the ability to channel energy gave rise to the epochal rupture of the industrial revolution. The aftermath of this historical rupture that permits reconsiderations, reworkings and refinements of the thermodynamic machine revealed the asynchronous problem of energy's unpredictable dissipation. This conflict between

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the flourishing of high and good characteristics; that is, he philosophises towards a conception of human perfection, unencumbered by institutionally imposed moral values. Although Nietzsche is best known for targeting monotheism – exemplified by his attacks on Christianity – as a primary source of moral oppression, he does not confine his pejorative criticisms to this one example; philosophical, social and historical examples are also specifically identified. Henceforth, Nietzsche calls for a revaluation/transvaluation of existing values prescribed by these institutes, but curiously, his is not a philosophy founded on human equality. He draws a crucial distinction between the *master morality*, which he conceives so that 'higher,' superior humans can elevate themselves and society through intellectual creativity, and the *slave morality* of the irredeemable masses. Despite this class disparity, there are no grounds for assigning a politics to his philosophy because he does not express systematic views about the nature of society and state. Stiegler on the other hand is expressly political in his views and repeatedly calls for a new politics and a politically engaged art, as such his mobilization of the concept of transvaluation is one directed at the political economy.

attempts to organise energy and its tendency towards disorganisation represents the dialogical essence of the repeated embryonic attempts to bring into being<sup>184</sup> the essential disruption of automation as well as the undeniable truth concerning the ‘irreversibility of becoming’ (Ibid., p. 6); that is, the impossibility of evolving independently of machinery. This locates the problem of (neg)entropy, which is essentially a combustive problem and therefore an energy problem, at the heart of both physics and anthropology, thereby reminding us that the discovery of fire is inextricably linked with a renewed thought of tekhnē as that which fundamentally resides at the foundation of cosmology.<sup>185</sup> Stiegler writes:

The Anthropocene epoch can appear as such only starting from the moment when the question of the cosmos is itself grasped as that of combustion, in both astrophysics and thermodynamics – but, therefore, also in relation to this exceptional pharmakon that is domesticated fire, fire as that artifice par excellence brought to mortals by Prometheus.<sup>186</sup> (Stiegler, 2014b, pp. 6–7)

Harkening back to the platonic *pharmakon*, which underpins his entire philosophical oeuvre, Stiegler endeavours to draw the question of tekhnē back to the locus of philosophical thinking by presenting fire as the fundamental technique that circumscribes the fields of both science and the history of being. The harnessing of fire, and the synchronous empowerment and danger that it embodies, epitomises the essence of the pharmacological aporia that is always undergirded by the need to take care. The pharmacology of fire straightforwardly opens on to the pharmacology of energy: as a derivative of combustion, it is ecologically detrimental to produce but without it there is no electricity, no tertiary retentions, no electronic circuit and no world wide web; indeed, the question of energy constitutes the essence of the cultural,

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<sup>184</sup> That is, the being-there of human existence.

<sup>185</sup> The Cosmos is an ancient Greek (Pythagorean) term for the universe conceived as a complex but fundamentally ordered system. Cosmology is the study of the cosmos (or universe) and the concept occupies an important position in most religious and philosophical doctrines. In metaphysics cosmology refers to that branch which studies the nature of the universe and is therefore concerned with questions of origin. In physical cosmology, the term cosmos is gathered in a technical manner in order to conceptualise the possibility of a multiverse, of which our visible cosmos is but one specific spacetime continuum.

<sup>186</sup> Remember that, for Stiegler, Prometheus’ gift of fire to mortal humans constitutes the ‘originary de-fault of being’ as set out in *Technics and Time 1*.

social and political environment within which modernised, digitalised life operates and develops. In this regard, the progression of knowledge, the development of technology and the evolution of humans and their habitats play out under the auspices of a profound modulation between entropy and negentropy.

Considered in terms of the speed of technological development, the establishment of the concept of entropy/negentropy as the paramount and vital concern of life in the hyperindustrial epoch is an appeal for, what Stiegler describes as, ‘new conditions of fidelity in order to overcome the shocks of infidelity caused by *doubly epokhal redoubling*’<sup>187</sup> (Ibid., p. 7). The periodic affirmation and belonging of artefactual exteriorisations and noetic individuals to the programmatic stability of a given epochal knowledge fund, and then their inevitable toppling, redundancy and reconstitution in the context of a new technological epoch, exposes a history comprised of ‘epokhal technological shocks’,<sup>188</sup> which demand the need for a rewriting of the ethical conditions concerning the organological milieu. At the outset of an epochal-technological rupture the separate elements of the organological milieu, which constitute *knowledge as the form of life that is the future of life*, are released – or exploded – into free play with one each other. This process is fundamentally chaotic and disorderly and is characteristic of ‘*processes of individuation in which entropic and negentropic tendencies play out differently in each case*’ (Ibid., p. 7). How, or in what configuration, they re-congeal is always shot through with a fundamental indeterminacy. This is why the question of chance is still every bit as relevant and provocative in the work of Driessens and Verstappen as it was for the historical avant-garde. What artefacts, technologies, people, skills, professions, organisations and socio-ethic groups are lost, or simply deprecated to museological status, and what ones are given admittance to, and reconstituted within, the new organological programme essentially boils down to entropic and negentropic configurations; while yet added to

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<sup>187</sup> Stiegler writes: ‘If tekhnē suspends the programs in force, then knowledge also returns to suspend all stable effects, tekhnē’s “repercussions,” by redoubling them’. For more on *epokhal redoubling* see *Technics and Time 2*: pp. 60-61.

<sup>188</sup> Gilbert Simondon describes these technological shocks, and the resulting divorce endured by humans, artefacts and the knowledge fund, as ‘phase shifts’ and identifies them as typical of the dynamic, relational mode of individuation.

this is the fact that, the passage from organic to organological evolution, exemplified by the Anthropocene, is always now underpinned by an expanding paradigm that witnesses natural selection giving way to artificial selection. Here again, through its harnessing of selection and its demand for interaction, *E-volver* serves as a reification of the truth of this situation, because the evolution of the image-artefact is dependent on the artificial and subjective whimsy of the interacting audience.

Under the logic of global capitalism, technics is both an embodiment and accelerator of processes that are entropic because: firstly, it inhibits differentiation; secondly, it concerns processes of combustion and therefore promotes the dissipation of energy; thirdly, and most importantly, the ‘industrial standardisation’ that it advances is directing the contemporary Anthropocene towards a generalised destruction of life – that is the destruction of biodiversity, cultural diversity and the diversity of possible individuations experienced by individuals over-against an increasingly homogenised collective. Held within this third and final deleterious consequence of the entropic logic of late capitalism, and supported by the already established automatising of production, is the horrifying idea that diversity of thought, of thinking, itself runs the risk of annihilation. For Stiegler, in the context of increasing regimes of speed that manifest now – in digital automata – as one of light-speed, it is thinking that possesses the ‘infinite speed of the power to rupture, that is, to cause *bifurcations*<sup>189</sup> by disautomatizing repetitive regularities and by changing the rules’<sup>190</sup> (Ibid., p. 8).

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<sup>189</sup> Bifurcation literally means a split or division of something into two parts, but Stiegler is employing it in the context of systems theory. It is a concept that was first put forward by mathematician Henri Poincaré – in fluid dynamics – in order to describe the study of changes in the qualitative structure of a dynamical system. In a mathematical sense, a bifurcation occurs when a small, smooth change is applied to variable parameter values within the system, thereby triggering an instantaneous and rapid qualitative variation in the general topology of the system. The concept has more recently been applied to the field of biological study (which is negentropic systems theory), wherein bifurcation theory offers a framework for observing the dynamical, systematic behavior of biological networks. Based on the same mathematical logic – that is, a small input leading to a significant output – the ability for a dramatic change to occur in the output of a system is understood as a paramount to the development, functionality and survival of organisms. Such behaviour is exemplified by phenomena like cyclical transitions in cell division.

<sup>190</sup> This idea of changing the rules emerged in the first chapter, through the writings of Lyotard, in the examination of Duchamp’s *Readymades*. Lyotard attributes this activity as



Diversity of individuation sustains the singularity of psychic and collective thought that maintains the power to critique the mediocrity of automated retentions and protentions, by changing the circuits that have come to constitute the rules that formulate the basis of socioeconomic and political totality. It is the pharmacology of the short-circuit that here demands special attention, because to short-circuit a short-circuit *within a matrix* is to re-configure a circuit that will invariably have repercussions on other configurations and could result in a long circuit (a transindividuation); that is, to deploy the short-circuit against the capitalist logic, which operates to undermine processes of individuation by short-circuiting them, is to fight fire with fire. Stiegler writes: ‘Hence to change the rules is to go faster than light... it is to go infinitely fast – at the *speed of desire*, that is, of that *idealization via which neganthropy passes onto the plane of consistencies*’ (Ibid., p. 8).<sup>191</sup> By gathering the concept of light-speed and converging it with the idea of a transformative projection towards a revelation, Stiegler demonstrates a recourse to the Kantian sublime, the experience of which, in the digital epoch, is located in the domain of speed – as explained in Chapter Three. In this respect, we can elicit the importance that Stiegler places on the aesthetic milieu as a territory where these sociopolitical bifurcations can be carried out; that is, an aesthetics mobilised to provoke and effect change in a tragically entropic socioeconomic system – by means of playful, mischievous circuitual re-routing and artefactual reorganisation – can liberate possibilities for new forms of individuation. Although Stiegler does not explicitly use the term *avant-garde* in his latest writings, this strategy is clearly one founded on an aesthetics energised by the aesthetic mentality of the *avant-garde*.

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something that is fundamental to an experience of the sublime, which is a rupture in individual and collective consciousness.

<sup>191</sup> By gathering the word *neganthropo* Stiegler is providing a deconstructionist word game in the spirit of his mentor Derrida. By swapping out the syllable ‘ent’ for that of ‘anth’, he mischievously invokes the idea of the possibility of a negentropic anthropological shift; that is, a human evolutionary leap undergirded by the paradigm of disorder moving towards order. By proposing this term he is paving the way for his synthesis that demands an urgent collective effort to get out of the Anthropocene and into the *Neganthropocene*.

In response to a question posed in order to clarify the relations between his theories of *symbolic misery* and *(neg)entropy* and the position of the artistic avant-garde therein,<sup>192</sup> Stiegler states:

What I call symbolic misery is a process of *entropisation* produced by the culture industries; a process of de-symbolisation, in which the receiver of, let's say, a message or a programme is *only* a receiver, not at all himself or herself a producer. This was creating a situation that I describe as a proletarianisation of the consumer. I believe that this proletarianisation of the consumer is firstly producing an enormous suffering; spiritual suffering... but it is also producing an insolvency, because now it is attaining/reaching a stage where it is possible to purely and simply destroy the proletariat; that is, to replace the proletariat by machines... (Stiegler, 2015c)

Technics essentially involves the organisation of inanimate matter towards the end of articulating an idea. This contributes to the organological reorganisation of the animated human consciousness, and ultimately impacts on the formation of individuated identities. In the epoch of analogue media, the unidirectional modes of communication gave rise to an exclusion of the masses from processes of individuation, thus canalising symbolic misery. The positive pharmacology of the arrival of the digital presents new opportunities for the inclusion of the masses in processes of individuation on a grand scale. These opportunities are, historically and anthropologically speaking, fundamentally new and they therefore constitute an epochal rupture. However, the negative pharmacology of the digital elucidates the inception of a situation that gives rise to another mass exclusion by way of its nested and layered processes of automation; that is, automatically produced, homogenous consumable symbols – tertiary retentions – give rise to automatised individuations thereby, homogenising consciousnesses and, straightforwardly, the protentions that constitute the will to act. This is what Stiegler means by a replacement of the proletariat by machines. The ability for the already proletarianised consumer to select a consumable, to choose to take action, is short-circuited by the automated algorithm that

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<sup>192</sup> I posed this question to Stiegler at his reading of the paper at the *Digital Studies Seminar*, at DIT, Dublin, in May 2015. The quote below is articulated in dialogue and is henceforth less formal in nature. A complete video document of the seminar and Q&A session can be found at: <https://www.youtube.com/watch?v=K0687bEgebw>

selects and acts in place of the individual.<sup>193</sup> This precipitates a situation which is even more deleterious than that of analogue media, because consumers, led to believe that they have infinite choice, unbounded freedom and are acting on spontaneous impulses, are in fact only making choices within an automatically generated set – corralled and served up by automated robots – that offers all the illusions of freedom without any of the existential payoffs. This situation is reminiscent of the one that brought about Krapp’s malaise, in Beckett’s play, where the technical artefact, against which the user individuates, feeds into a paradigm of diminishing returns because the set of organological, retentional objects is itself diminishing in diversity. Beckett was a visionary who unlocked and laid bare the fundamentally profound influence that analogue mnemotechnologies could have on identity, and therefore represents a quintessential exemplar of the avant-garde. The key enquiry for the arts now is, what questions can be asked of the *current* technologies, which organise the cerebral impulses that constitute retentions and protentions, that could help reconstitute individual and collective identities in the digital epoch? Who is asking these questions? And, how are they asking them? Continuing on from the last quote, Stiegler says:

... And here I believe that we haven’t articulated really, really strongly the artistic questions, the aesthetic questions, that are always questions of singularity. And singularity is always the *bifurcation*, in the sense of systems theory, of negentropic systems theory.<sup>194</sup> A bifurcation is that which is producing a negentropic stage, a new negentropic stage of a system. The goal of arts, not only art, but particularly of arts, in society, is to produce such negentropy... that is the production of non-calculable value – this is what Nietzsche calls ‘the value of value,’ this is also the reason for which Nietzsche

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<sup>193</sup> Netflix is a good example of this paradigm. Based on information harvested through processes of *hyperprofiling*, where vital data is gathered, scraped, swapped and sold on electronic networks, the Netflix algorithm formulates a set of suggested movies for a user/viewer to watch.

<sup>194</sup> Stiegler is not simply referring to the telecommunications systems over which humans commonly interact and receive symbolic content; rather, he is referring to the general organological evolutionary system of individuals and collectives, within which technical organs – now at a stage of electronic automation – are increasingly asserting their efficacy in the neuro-physiological milieu.

says that the phylograms<sup>195</sup> become artists – because it is in the arts that the experience of ‘the value of value’ as non-calculable is obvious for everybody.

Stiegler is clear about his view that art, as a singular<sup>196</sup> process and outcome, represents how a small and smooth input into the techno-economic system maintains the power to cause a bifurcation that could dramatically change the topology of the socio-economic landscape; that is, art can rupture and change, if not even reverse, the pernicious entropy of the culture industry, which is itself, in its current stage of automatic proletarianisation, the epitome of that nihilism par excellence: capitalism. For Stiegler, capitalism will always tend towards entropy, towards dissipation, and artistic practice embodies the bifurcation necessary to drive the global economy towards a negentropic model. As such, these bifurcations need to be inputted regularly and frequently. The singularity of art stands in opposition to the hyperautomatised production of symbols by the programme industries because: firstly, the care and attention, that are the predeterminants of the manual efforts that constitute artistic endeavours, give rise to irreplicability that flies in the face of automated symbolic production; and secondly, the milieu within which it is engaged and viewed falls outside of the culture industry’s circumscription, thereby eluding the algorithms that prescribe profile-based viewership, ultimately providing *a way around* that disindividuating short-circuit that always leads to the proletarianisation of the consumer.

The citation above, taken from the seminar, is a complex one; there are many nuances at work in Stiegler’s statement. Such is the *pharmakon* of citing spoken dialogue,

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<sup>195</sup> A phylogram is a phylogenetic tree that has branch spans *proportional* to the amount of character change. Stielger is unclear as to what he means by this and I have been unable to find an explicit example of it in Nietzsche’s primary texts – perhaps this is a translation issue. What I can discern is that in visual culture the word proportion indicates the ideas balance, symmetry, harmony; that is, the correct, attractive or ideal relationship between one thing and another or between the parts of a whole; perfection. Perfectionism, that is a conception of human perfection, constitutes the foundation of Nietzsche’s questioning and he attributes perfection to the artist.

<sup>196</sup> It must be stressed that Stiegler is not here referring to singulartarianism or technological singularity; in fact, he is quite outspoken in his opposition to such concepts. By invoking the term singularity he is merely highlighting art’s conformity to the condition of being singular and unique, which is a special attribute in an age of hyperautomation. Straightforwardly, its reflexivity promotes that second understanding of singular as something exceptionally great or remarkable.

wherein ideas flow uninhibited by the laborious encumbrances of writing's recursive reworkings. As a result of citing Nietzsche in spoken dialogue, Stiegler does not supply the quotation in its entirety nor does he fully explicate the concept. When Nietzsche speaks of value, he is referring to morality. In *On the Genealogy of Morality* (1887), he writes: 'The question: what is the *value* of this or that value table or "morality"?' demands to be raised from the most diverse perspectives; for this "value relative to *what end?*" cannot be analysed too finely' (Nietzsche et al., 1998, p. 33, emphasis in original). In this regard, implicit in Stiegler's reference to Nietzsche is the desire to reposition the question of morality back at the locus of socioeconomic discussion; that is, a discussion currently dominated by discretisation, statisticalisation and calculation, which serve only to short-circuit morality, and therefore ethics, and therefore *care*. However, Stiegler's citation of Nietzsche is an ambivalent one. Examining that same passage, in *On the Genealogy of Morality*, Nietzsche goes on to say:

Something, for example, that clearly had value with regard to the greatest possible longevity of a race... would by no means have the same value if it were an issue of developing a stronger type. The welfare of the majority and the welfare of the few are opposing value viewpoints: to hold the former one to be of higher value already *in itself*, this we shall leave to the naïveté of English biologists. (Ibid., p. 33)

That last remark is a mischievous stab at Darwin, whose theory of evolutionism Nietzsche does not wholly endorse. The crux of Nietzsche's evolutionary thinking is focused on the development of the solitary organism, whereas Darwin's is primarily concerned with the origin, emergence and conservation of species, generally. For Nietzsche, the collective does not advance; it is the differential processes occurring within individuals that he perceives as evolution.<sup>197</sup> More precisely again Nietzsche's overarching beliefs about the possibility of human evolution are located in the evolution of *exceptional, individual* humans; he is not interested in the development of mankind as a whole. A brief examination of this contrasting position with that of Stiegler's gives rise to some important aspects of a general organology, which help to

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<sup>197</sup> Further to this point, it must be stressed that when Nietzsche discusses evolution he is primarily concerned with human evolution, whereas as Darwin is more preoccupied with universal biological rules.

clarify Stiegler's hopes for art – as an evolutionary support – and its ability to reverse the massively toxic character of the Anthropocene, and the havoc that it is wreaking on our fragile living environment.

#### **4.2.2 – Stiegler Contra Nietzsche: Ontogenesis Versus (Epi)phylogenesis.**

*Phylogeny* refers to the growth of a species and, as a biological concept, it stands in diametric opposition to *ontogeny*, which refers to that of an individual organism. Nietzsche's concept of evolution is one that is principally attentive to the development of strong organisms; that is, *exceptional* human beings; he is not concerned with the idea of improving the human race generally because he believes there are overriding, 'undesirable' characteristics of the collective that are regressive. He maintains that animals, including humans, have attained high levels of stability within given environments, and generally speaking – given assurance of safety and sustenance – will resign themselves to an existential stasis. Such collective inactivity is the source of Nietzsche's suggestion that the human 'type' has ceased to evolve – that is, human evolution has phenotypically plateaued – and constitutes the basis of his disillusionment in regard to any chance of advancement of the species as a whole. This disgust is apparent in his metaphoric references to the herd: 'the herd seeks to maintain a type... The herd tends towards standstill and survival; there is nothing creative in it' (Moore, 2002, p. 34).<sup>198</sup> As such, for Nietzsche, the only possibility of evolutionary *advancement* resides in the creative domain, where the limitless development and augmentation of life's energies can be engaged by complex, strong and solitary individuals. The other evolutionary possibility is the diametric opposite, that of regression and stasis, as embodied by the herd, which is a dominant mass comprised of individually weak parts. The herd embodies a slow, systematic morphological calming towards stable, 'yet more fecund and durable organisms' (Ibid., p. 35). In this regard, the Nietzschean concept of evolution consists in *individual*, intellectual and creative surges beyond the bounds of the largely impotent and equalised human genotype; that is, he locates potential for evolution in ontogenetic leaps that, depressingly, have no

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<sup>198</sup> I have shown how this concept of the 'human herd' is also dominant in the writings of Stiegler, particularly in relation to the culture industry and disindividuation.

real impact on phylogeny – the history of the species as a whole. Nietzsche's notes testify to his view that the creative genius embodies a transitory, ephemeral moment of exceptional, individual, ontogenetic *physis* and, as such, he dismisses the possibility of phylogenetic development as a lost cause. Nietzsche's disparaging standpoint, on the condition of human evolution, represents a case of substantial controversy and it is with relative caution that subsequent philosophers reference his work.<sup>199</sup> In relating these theories of evolution back to the Stieglerian terms introduced at the beginning of this section, one can say that, for Nietzsche, phylogeny is a fundamentally entropic system whereas ontogeny is essentially negentropic.

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<sup>199</sup> It must be noted, in Nietzsche's defence, that he never completed his book on *The Will to Power* because it is widely held that his extremely dystopian view of humanity impelled his descent into a catastrophic state of mental illness. The work was instead compiled and published posthumously, in 1901, by his sister Elisabeth Förster-Nietzsche in collaboration with Nietzsche's friend Heinrich Köselitz, or 'Peter Gast'. Carol Diethe, has written extensively on the extraordinarily wilful, untruthful and disturbingly manipulative personality of Förster-Nietzsche, evinced by: her dogged acquisition of Nietzsche's estate; her fickleness in denying her anti-Semitism and then professing her proto-Fascism when financial payoffs were at stake, ultimately resulting in her consorting with the Nazi party; her spurious statements about her brother, for example, in his biography that she wrote posthumously; and, most importantly, her falsifying of correspondence with, and requests by, her brother in relation to claims about his vision for the completion of *The Will to Power*. Diethe writes: 'Elisabeth thus gave the impression that *Der Wille zur Macht* [The Will to Power] was a work that Nietzsche had all but completed, a myth that has gained strength over the years' (Diethe 2003, 95–96). Diethe goes on to remark that Nietzsche's disparate, 'random' hand-written scribbles and notes, drawn from the numerous notebooks that comprise the collection of manuscripts known as the *Nachlass*, were essentially artistic musings more akin to a stream of consciousness. Many notes were even 'expressly crossed out' indicating Nietzsche's dissatisfaction with the content and explicit decision to deprecate them. It was, therefore, a grossly unethical and 'grave disservice' to the author to publish them as finished perspectives independently of his knowledge or consent. Diethe writes: 'This systematic double-crossing of both the author and the reader of *Der Wille zur Macht* is what constitutes the scandal of this publication' (Diethe 2003, 96). It is furthermore, regrettable that this injustice should be foisted upon Nietzsche, who was fastidious in his working-up of a highly polished and unique style, of which *The Will to Power* is comparatively bereft. Nevertheless, it is certainly laudable that Förster-Nietzsche, through her drive for success and recognition off the back of her brother's creativity, preserved Nietzsche's texts and notebooks by creating an indispensable archive to house the collections thereby placing the work in the public domain, which has allowed for transindividuation reconsiderations and reworkings of his oeuvre. It was not until the 1960s that an objective, accurate and complete edition of Nietzsche's works was published under the research endeavours of Mazzini Montinari. This constitutes, for example, Gregory Moore's motivation for directly consulting Nietzsche's unadulterated notes, rather than the tainted text of *The Will to Power*, in his pursuit of biological metaphors in the later work of Nietzsche.

Nietzsche's tendency to place the locus of evolution in the ontogenetic and ephemeral domain of individual creative excellence is a conceptual standpoint that marks the site of Stiegler's ambivalence towards the theoretical project. Stiegler holds on to Nietzsche's idea that the creative will is key to evolution and does, to a certain degree, even concur with the assertion that phylogenesis, in the biological sense, has reached a state of little or no change. In discordance with Nietzsche however, he is compelled to posit, as an extension of Leroi-Gourhan's work, the term *epiphylogenesis*,<sup>200</sup> which describes the phenomenological-anthropological transition of human evolutionary processes from the biological to the technical milieu. The *memory* originally and organically programmed into the genotype – which was a determinant of development, diversification and the inherent ability to adapt to given environments – has, since the beginning of hominisation (anthropogenesis), been gradually transferred to the exteriorised realm of technical artefacts and processes, which now *hold that memory* instead. The condition of human evolutionary development becomes manifested in the technical milieu; said differently, the calming of genotypic advancement gives way to an exaltation of the phenotype. This is an important notion for this thesis as a whole because it helps provide an explanation for the emergence of a technological efficacy, which has been traced, throughout this genealogy of the sensible, by charting some key historical confluences of chance operations with new technology.

Stiegler's positing of the notion of epiphylogenesis testifies to his view that human phylogenesis is still possible and, furthermore, that concern for the human race as a whole – 'the herd' – is of paramount importance to his philosophical programme. His theory suggests that processes of human evolution are increasingly constituted by *artificial selection* over and above *natural selection*, which henceforth foregrounds the need for addressing the questions of life at an organological level rather than at the level of organic phylogeny. He writes: 'The organological approach is constitutively situated in time in the sense that *its object is becoming*, and its question is the *transformation of becoming into future*, which means that what is at issue is the transformation of entropy into negentropy' (Stiegler, 2014b, p. 10). Understood within

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<sup>200</sup> This term was already introduced and discussed in the rereading of *Krapp's Last Tape*, in Chapter Two.



the context of Nietzsche through Schrödinger to Stiegler, ontogenetic development is a negentropic process whereas phylogenetic development is, historically speaking, entropic; that is, individual organisms draw in random phenomena and organise them in a progressive fashion, whereas the herd – a chaotic whole comprised of singularly organised parts – usurp resources and dissipate them towards stabilisation of the collective, through socioeconomic processes that are fundamentally regressive. *However, humans have the mental capacity to change this paradigm*, as demonstrated for example in the work of Driessens and Verstappen, because we maintain the noetic and creative ability to change the rules. Stiegler maintains, in opposition to Nietzsche, that the individualistic creative force of the artist – that is, an ontogenetic surge – maintains the ability to rupture – that is, *to bifurcate* – the entropic tendency of the (epi)phylogenetic programme, as constituted by the collective herd and the artefactualised world. Stiegler continues: ‘Becoming... requires inventiveness – it requires *‘inventivity’*’ (Ibid.). It is this ‘inventivity’ that constitutes the bifurcations that can, in fact, completely reverse the topology of a system of *non-becoming*, of no future. For Stiegler, artistic creativity can turn the entropic economy into a negentropic one and thereby catalyse the transition from the Anthropocene to the Neganthropocene – from the Entropocene to the Negentropocene.

#### ***4.2.3 – Incalculable Value Visible in Art.***

It has been established that technology – which, for Stiegler, is the supplementation of phylogenesis – is always pharmacological because, in the context of socioeconomics, it can either cause an ‘acceleration of entropy’ (Stiegler, 2014b, p. 8), through the dissipation of energy, the control of protentions and industrial standardisation of psychic and collective individuations, or, it can bring about an ‘accentuation of negentropy’ (Ibid., p. 8) through new, singular, artistic innovations, which are processes of ‘artefactual ontogenesis’ (Ibid., p. 10). This requires a return to the question of the valuation of value, the transvaluation of *moral* values – which is the cause of the theoretical detour into Nietzsche – because for Stiegler, the fundamental question of our ‘being-there-organologically’ (Ibid.) is one underpinned by an urgent need for a revaluation of morals. Given that the phylogenetic system of human intersubjectivity is one tending towards stasis and equilibrium, it is the artistic, ontogenetic leaps that hold the potential to create bifurcations necessary to interrupt

this topological tendency. Stiegler's mobilisation of systems theory gives affirmation to his insistence on the responsibility of artists to take up their political (*avant-garde*) duty and create the much-needed ruptures (*bifurcations*) within this system, under the auspices of a noetic praxis that is always modulated by an organological condition. The bifurcations of which Stiegler speaks are a pseudo-scientific metaphor for the socio-political provocations originally carried out by the artistic avant-garde and which are now the task and domain of contemporary artists. And it is in this domain that a transvaluation of value is possible '*because it is in the arts that the experience of 'the value of value' as non-calculable is obvious for everybody*' (Stiegler, 2015c). What Stiegler is referring to here is the emphasis that capitalism places on *calculable* value; that is, by placing the idea of *usefulness* at the heart of socioeconomics and by mobilising it as a barometer or unitary scale, capitalism places a numerical value on all things based on their *use value*. This is how capitalism warps 'the essential question touching on the life of human societies' (Stiegler, 2015c). By insisting that everything be shoehorned into a denotative, rationalised and numerical model, capitalism strips value of its original meaning; the very meaning of value itself becomes perverted. Nietzsche insists that value is synonymous with moral systems, but morals are non-calculable and therefore, in the words of Lyotard, cannot be 'legitimated' by the statistical and denotative pragmatics of late capitalism. Furthermore, under the theories of Nietzsche and Kant before him, art similarly operates through a system of morals; the reflexive judgement at the heart of aesthetic reflection is essentially a moral judgement. And it is in this way that art eludes the ambit of capitalism, because it debunks the emphasis that capitalism places on *use value* and therefore means–ends rationale generally; that is, artistic outputs 'are those so-called unproductive expenditures'<sup>201</sup> (Stiegler, 2015c) that create bifurcations within the entropic topology of the capitalist means–ends paradigm.

The essential question is, thus, how can we proceed with *care* and *responsibly* in relation to our condition of epiphylogenesis, which is fuelled by an artefactual ontogenesis that places a huge strain on the environment and ultimately threatens the

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<sup>201</sup> *Unproductive* in the sense that art cannot be rationalised and therefore reasoned in the statistical language of capitalism.

future of the species as a whole? This question is brought into unprecedented urgency by the outset of digital technologies that impel, not just a hyper-acceleration of socioeconomic and productive processes, but also a situation of total grammatisation, which is a *hypermodernity*, a hyperindustrialisation in which ‘we are experiencing the industrialisation of all things’ (Stiegler, 2014a, p. 47). Given the ecstasy experienced by calculation, in its coming to rule, not just productive processes, but indeed all aspects of life and knowledge, how can artists continue to communicate the idioms that give art its unique and mysterious power, while also engaging the latest epiphylogenetic (technological) developments in a way that is negentropic – that is, humane, holistic and progressively moral? The next section engages with this question by examining Stiegler’s call for *Digital Studies*, which is an attempt to reconcile epistemology (the philosophical arts) and tekhnē (the experimental sciences), and henceforth posit a revaluation of the knowledge systems that demarcate and divide noetic practice.

#### **4.2.4 – *Digital Studies: Techno-Noēsis***

For Stiegler, the numerical terrain of digital technology, which reorganises every facet of contemporary culture, industry and intersubjectivity, is the ineluctable path that *must* be pursued in order to, on one hand, truly engage the organological questions concerning the ‘digital becoming of the world’ (Stiegler, 2014b, p. 10), and on the other, champion possibilities of pharmacological and therapeutic practices. Stiegler stipulates the need for a new, interdisciplinary, techno-epistemic dialogue, which he calls *Digital Studies*, that attempts to encompass and consolidate both the arts and sciences. Both knowledge fields are badly in need of each other; art needs the technical expertise of scientists without which it is fundamentally impossible to *really* engage the current, and consistently advancing, ontogenetic phases of the technical milieu, and science needs the sociopolitical and critical ingenuity of artists because the global economy is saturated with, and exhausted by, an overproduction of homogenous, uninventive products bereft of transductive depth, meaning or aura. *Digital Studies* places the material view that ‘everything begins with exteriorisation’ (Ibid., p. 10), at the locus of its philosophy; that is, it celebrates the corporeality and materiality of

knowledge reified as physical artefacts.<sup>202</sup> Just as in the case of all instrumental advancements, the computer changes the relations between knowledge and methods of expression, and henceforth alters the entire modality of knowledge in general; but, in differentiation from its instrumental predecessors – such as the steam engine or the weaving loom – the computer does so in a monumental fashion by positioning calculation at the root of all exteriorisation and therefore individuation. It is henceforth at the level of automated calculation and the inconceivable speed of electronic networks that the contemporary organological status of being-in-the-world needs to be critiqued. The deployment of critical thinking at this level could help re-route attention and cogitation back towards the technical, epistemological, political and economic landscapes that the computer has colonised through its pervasive processes of, what Stiegler calls, ‘reticulation’ (Stiegler, 2014b, p. 11). This is precisely why Driessens and Verstappen, through their engagement with the specificities of the digital medium, are such exemplars of the Stiegler’s appeal.

In their works, Driessens and Verstappen employ algorithmic and mathematical techniques that are only possible now in the digital age and therefore establish themselves as quintessentially computational artists. However, their praxis is not simply a case of employing computers to assist expression; on the contrary, they tackle the essence of computer culture by engaging computation itself – the algorithm. As both material and process, numbers are the essence of digital culture. Driessens and Verstappen identify this dual characteristic of numbers and its new cultural importance. They display an unforeseen inventiveness by mobilising numbers in a direction that was previously unthought; that is, in a direction which is neither towards the territory of art nor toward the territory of science, but a neglected path between both domains. This is the domain of *Digital Studies*. By engaging digital technologies at their fundamental essence (number) Driessens and Verstappen are enabled to draw out the specificities of the computer medium, which are the multiple layered processes of automation that give rise to the impression of autonomy, in ways that are

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<sup>202</sup> By citing Frank Comerais and Jaques Gilbert, Stiegler draws emphasis to the fact that, in French, ‘digital studies’ is articulated as *études digitales*, rather than the proper translation which would be *études numériques*, because it is more evocative of bodily, gestural exteriorisation; that is, making and expressing through the hands, the fingers, the digits.

fundamentally new. Nevertheless, the impression of autonomy is a technique that has been inherited through their historically savvy tracing of the genealogy of the avant-garde, in which chance is combined with new technologies. Their amalgamation of the concept with digital media allows the technological milieu to be acknowledged, in its own right, as a semi-autonomous creative force, in a way that was fundamentally impossible in previous epochs. The artists henceforth intentionally direct an activism at both the institute of art as well as the broader topology of the sociopolitical economy because their work calls for a revaluation of both the artist and the artwork. This inventive provocativeness and employment of cutting-edge computational techniques and materials, that were simply not available to artists in earlier epochs, not only testifies to the persistence of avant-gardist mentalities in the digital age, but so too does it demonstrate *the value of value as non-calculable* because the technical knowledge is deployed towards an end that has no goal other than the concretisation of form. In this way, Driessens and Verstappen not only demonstrate the negentropic quality of their praxis, but they also show how inventive and unusual employments of technical know-how can open up new pathways in epistemology. Henceforth, they demonstrate how the avant-garde is the key to a new socio-economic paradigm of careful, responsible and moral technological production in the new automatised economy.

Just as the aesthetic question is a political question, to engage the noetic question is to engage the technical question because ‘the noetic soul is a technical form of life’ (Stiegler, 2014b, p. 7). Furthermore, given that the avant-garde is a techno-political domain it makes sense that aesthetic-noetic endeavours should be carried out in the domain of the avant-garde. It is understandable, then, that Stiegler should call upon the artistic avant-garde to stand up and be accountable for their responsibility in the task of bifurcating (even reversing) the entropic character of the hypercapitalist economy, thereby rerouting humanity towards a Negentropocene. Indeed, based on the line of enquiry taken in this thesis, one could say that avant-gardist methodological praxis is the most ‘useful’ way to engage the sociopolitical and economic turmoil of the Anthropocene, because the incalculable innovations completely subvert both technology and the dominant forms of thinking that constitute the entire noetic milieu. The salient point here is not to simply repeat what has already been established in earlier sections of the thesis; on the contrary, it is to institute the important linguistic

and conceptual evolution that has taken place in Stiegler's thought, which is the substitution of the term 'avant-garde' with that of 'negentropic bifurcations'. The concept of creating bifurcations stands in for the term avant-garde art, thereby giving renewed energy and techno-epistemological specificity to avant-gardist praxis. It gathers the historical accumulation of theoretical and political praxis, established over the history of the avant-garde, and adds to it a suitably contemporaneous scientific quality and validation. Stiegler has not done this because he feels that the term (avant-garde) is exhausted or redundant, but because his newly established field of enquiry, *Digital Studies*, calls for a new hybrid discourse that is at once technical, artistic, scientific, political and economic. In this way, *Digital Studies*' interdisciplinarity equips it to cope with the interrelational weight and uncertainty brought into play by the omnipotence and ubiquity of the digital. As such, *Digital Studies* calls for a new language to be established that, not only caters for the confluence of all these disparate fields of study, but also attempts to reconfigure and rearm the tragically disenfranchised areas of arts and humanities, by eliciting and mobilising the linguistic and conceptual specificities of the scientific milieu in the context of a genealogy of the sensible. All of this represents his call for a new philosophy, a new discussion and a new discursive language that places techno-noēsis at the locus of its thinking and is therefore appropriate to the new epoch of hyperindustrialisation, an epoch in which computation soars and moral value-systems plummet.

#### ***4.2.5 – Creating Bifurcations by repurposing new technologies***

The overarching question of Stiegler's main aesthetic volume, *Symbolic Misery*, is: How, in a situation of total grammatisation (reticulation) that leads to total rationalisation, is it possible to continue creating the idioms and metaphors that make art and poetry possible? Stiegler's question is, in a sense, a rhetorical one because, by posing it, he is suggesting that grammatisation is the core sociohistoric issue that needs to be addressed. Furthermore, it has been established that Stiegler maintains that the way for art to proceed in the hyperindustrial epoch is through the territory of the avant-garde, which is a territory occupied by technological and political contingents. In this sense, Stiegler is calling for artists to produce poetry which, on one hand, engages the dominant subjectivities of our time that, in the Western hemisphere, primarily concern the impact of technology and reticulated systems on the bodies and minds of

intellectually proletarianised masses, governments and administrations, and on the other hand, repurposes, re-invents and gives new meaning to the speedily evolving tools and technologies, by employing them in innovative and surprising ways. The work of Driessens and Verstappen exemplifies an oeuvre that champions this two-pronged approach to art production; that is, by engaging mathematics, which is the essence of both material and process as well as the fundamental language of governance and administration, they are automatically engaging themes that are socio-politically current and techniques that are cutting-edge.

Stiegler describes *negentropic bifurcations* as the type of technical poiēsis that is inherently constituted by a disruptive quality, and which operates ‘by disautomatizing repetitive regularities and by changing the rules’ (Stiegler, 2014b, p. 8). He declares that *to change the rules* is to go faster than the disorientating light-speed processes by which digital automata operate. Changing the rules is the means by which techno-noēsis can counteract a system wherein ‘total automatisaion’ is responsible for the simulation, seizure and co-option of retentions, and therefore perception, and therefore protentions, and therefore care. We witness in the oeuvre of Driessens and Verstappen, time and time again, this innate ability to reconfigure the regulatory matrix; that is, to travel faster than the speed that fibre-optics pulse symbols into the retentional reserve of the human cognitive faculty, by changing the rules; indeed, to think outside the box – *a box always already automatically prefabricated*. This quality is especially obvious in *Accretor* because when the 3D printer – a productive machine that is originally conceived for exact, automated and hyper-rationalised productive processes with very specific, industrial end-goals, for example, prototyping components in the automotive, aerospace, electronics and biomechanics industries – is fed essentially irrational designs produced by the largely autonomous agent, that places indeterminate emergence at the centre of its remit, the entire printing system is subverted. Its meaning is undermined because what is essentially a hyperrational productive machine is mobilised for the output of useless, indeterminate and abstract artefacts – that is, if their value is gauged using the hypercapitalist barometer.

In his paper on *Accretor*, Whitelaw notes: ‘*Accretor* is novel and ingenious... it demonstrates the creative potential of new variations on familiar systems’ (Whitelaw, 2015, p. 308). Whitelaw’s observations strike a definite accord with Stiegler’s criteria for the defining task of the computational avant-garde; that is, to re-harness and repurpose the new tools and technologies by reconceiving the manner in which they are mobilised and the ends which they serve, thereby offering new variations on automatised processes of reproducibility, ultimately revealing the curative aspects of automation. It is important to note that it is not just the physical printing machine that is repurposed and subverted in this artwork; it is firstly and more significantly the genetic code that experiences a destabilisation under the artists’ paradoxical, provocative application. Since the nineteenth century, the biological field of study has been examining, discretising and grammatising the building blocks of life itself, and since the outset of the digital epoch, it has been imitating and simulating the processes by inputting harvested data to computational models. However, the ends of scientific research are very different to those of artistic research. The sciences must always qualify their findings within the ambit of a specific field of study; the arts attempt to dissolve boundaries and blur distinctions. The sciences set very specific and attainable goals, with an envisaged output for a specific use; the arts does not set goals beyond the totality of the work itself, nor does it generally have a specific end in mind beyond the ambit of the sensible. The sciences work to prove a hypothesis, to erect ‘value tables’ and make them fact, to construct reality; the arts hypothesise work to question values, to disprove the facts which are perceived as an edifice for reality, a fiction whose rules change depending on the dominant sociopolitical ideology. The sciences are restricted by industrial parameters, monetisable goals and ethics committees, the arts and humanities are too, but they can move faster. Therein lies the power of the art: in its undermining of use values, or quantifiable worth, it is set free to conduct forays into unknown territory beyond the carefully mapped catchment areas of science, and to wander unrestricted in uncultivated domains; it is up to the sciences to catch up, to stabilise the terrain. This is exactly what Driessens and Verstappen are doing; by appropriating epistemic biological knowledge – such as mitosis algorithms – and assembling the information in ways that science simply could not conceive, because the results do not serve any purpose beyond their own formal autonomy, they are sojourning in the open space of pure and original creation. In addition, and more pertinent to Stiegler’s recent theoretical advancements, science is generally too



submissive to the entropic economy, because despite all its rhetoric about research and innovation, it is, for the most part, committed to developing solutions in response to historically and ideologically identified problems; it is *not* engaged in *pure discovery*, as it likes to declare. As such, the sciences are contributing means–ends solutions to the epiphylogenetic milieu and – as per Stiegler in the spirit of Nietzsche – this is encouraging a tendency towards stasis in the ontogenetic milieu; that is, scientific innovation is constituted by an entropic tendency – by usurping energy and resources – towards an appeasement of the herd. In this regard, by mobilising scientific processes in the opposite direction – towards original creation guided by a truth and fidelity to form and *pure artifice* – Driessens and Verstappen are injecting a bifurcation into the utilitarian topology of the techno-scientific economy. They achieve this by repurposing *both* the biomechanical scientific knowledge *and* the automatised efficacy of the digital printing machine and *hot-wiring them*; that is, reconfiguring their circuitry, and rerouting what are essentially rational and quantitative techno-processes, towards generating irrational and qualitative artifice. Stiegler says: ‘Artifices are always detours, detours that are always more or less ephemeral’ (Stiegler, 2015c). *Accretor* exhibits a way of detouring from biomechanical methodologies, but it is also an example of how the ontogenesis embodied by an artistic surge can become concretised in the epiphylogenetic milieu – as both process and product it is both space temporalised and time spatialised.

Stiegler continues on: ‘But these artifices... can infinitise themselves and infinitise their recipients beyond themselves, that is, beyond their own end, projecting them into an infinite protention of a promise always yet to come, which alone is able to pierce the horizon of undifferentiated becoming’ (Ibid.). It is through statements such as this – which hark back to Kant’s mathematical sublime and the inconceivable infinite – that the parallels between Stiegler’s philosophy and Driessens and Verstappen’s praxis become most salient. The semi-autonomous, quasi-intelligent agents initiated by Driessens and Verstappen, in the artworks of *E-volver* and *Accretor*, offer the glimpse of a possible paradigm of co-existential symbiosis between organic human life and creative, self-organising machinic processes, manifested by biotechnology and ubiquitous computing. Driessens and Verstappen’s preoccupation with engaging the accelerating growth and increasing autonomy of the technical milieu exhibits an

abrasive rubbing against the decelerating evolution of the human body and soul that is characteristic of Stiegler's *aporetic delimitation of speed*. There is no doubt that the emergent, artificial-life agents in Driessens and Verstappen's works denote the crucial centrality of the question of speed to thermodynamic physics, biology and now epistemology. However, more significantly, there is the ambivalent metaphor that connotes Stiegler's question of a *politics of speed*, in which there resides the opposing possibilities that constitute the dynamic of human evolution. The organological condition of our *being-there* is constituted by, either an entropic acceleration towards automatisisation, proletarianisation, stupefaction, forgetting and carelessness all vectorised by the incessant plundering of Earth's every available resource, *or*, a negentropic approach that aims to transform the speed and direction of current 'technological vectors' *by changing the rules, that is, by transvaluating the industrial economy*, thereby showing a predominant concern and commitment to disengaging the Anthropocene and entering into the Neganthropocene. The art duo therefore raise the important question of how to proceed under the auspices of a co-becoming, or parallel individuation, of tekhnē and Anthropos without giving ontological priority to being-everywhere (reticulation) over being-there (Dasein). More precisely, through their innovative mobilisations of biomechanical algorithms and the useless appearance of the generated forms, *E-volver* and *Accretor* provide a paradigm of thinking the unthought today, thereby pushing beyond the known, established paradigmatic delimitations of technical and epistemological systems of intersubjectivity. This characteristic challenges the art-going public to rethink the *beingness of tools* and to imagine new techno-epistemological paths in alliance with technology. This paradigmatic shift in the human-technology relationship – from means–ends to symbiosis – engenders the creation of vivid artificial worlds, designed in such a manner that they may awaken new possibilities of experiencing life.

## Conclusion

Over the four chapters that constitute this thesis, I have attempted to mobilise Bernard Stiegler's notion of a *genealogy of the sensible* in order to assemble a specific historical narrative, which traces periodic reworkings of avant-garde praxis at the nexus of chance operations and new technology. The case studies of Duchamp, Cage, Beckett, Obermaier, *Chunky Moves* and Driessens and Verstappen were selected because the genealogical trajectory through their work traces the evolutionary development of a specific *art idea* that testifies to the emergence of an ontological efficacy in the technical milieu. The art idea that is traced is the avant-garde concept of engineering or inventing a *system* to produce art, over and above the traditional methodology of creating solely by means of manual dexterity and intellectual subjectivity on the part of the artist. The motivations of the avant-garde and their reasons for gravitating towards this new methodology also hold particular interest for this thesis. The destabilising and provocative nature of systematic methodologies undermine values of handicraft, championed by traditional institutions and, by doing so, imply the notion of a proletarianisation of the artist, which in turn bleeds into the extraneous realms of sociopolitics and economics. The avant-garde advocated a profound irrationalism by engaging with the thematics of chance and by experimenting with new technologies. Their radical gestures were initially undertaken as a sociopolitical and economic activism mobilised against the injustices perpetuated by the fundamentally unequal capitalist system in the Western hemisphere. However, over the course of the century that constitutes this genealogy, the experimental and inventive milieu reconnoitred by the artistic avant-garde gradually reveals that aporetic relationship between the avant-garde and capitalism in which neither can exist without the other; they are pharmacologically linked. By pursuing the anticapitalist statement to its extremity the current contingent of computational avant-garde elucidate, on one hand, a situation that connotes the epitome of proletarianisation, wherein both artist and spectator are rendered obsolete – forgotten – and computational capitalism is permitted to nihilistically self-govern, and on the other hand, the existence of a redemptive human ingenuity emerging from the innate ability to reconfigure the

exterior realm, thereby promising the possibility of infinite physical and spiritual prosthesis.

In concluding my Stieglerian genealogy of the sensible, there is an important concept that I would like to return to, which is central to Stiegler's philosophy and to which he himself consistently returns in both his aesthetics and his broader cultural critique: *transindividuation*. Artist and lifelong (best) friend of Duchamp, Francis Picabia, states: 'The genius of the modern world is in machinery, and that through machinery art ought to find its most vivid expression... The machine has become more than a mere adjunct to life. It is really a part of human life—perhaps the very soul' (Tomkins 2014, 100). Although this is a statement by Picabia, his frame of thinking would have emerged through dialogue with Duchamp and can itself be understood as an individuation; that is, it is an aphorism arising from collective discussions and reflections within their sociocultural circles regarding the increased organological efficacy of the new machinic world in which they were all living. Therefore, the quote can be perceived as representative of Duchamp himself and succinctly captures the essence of his questioning, and its repeated disinterment through each stage of this genealogy of the sensible. For Stiegler, individuation is the key to positive and progressive ontogenetic evolution, but for progressive phylogenetic evolution to take place – to develop intellectually as a collective – these processes must become those of transindividuation, which is the transgenerational transmission of knowledge vectorised by exteriorised traces. However, given Stiegler's pharmacological analysis of a general organological condition – that three-way dynamical movement of individuation between the individual, the collective and the technological – the reticulated, automatised systems of intersubjectivity, on one hand, operate on electrical pulses that outpace those of the human nervous system, thereby offering the promise of infinite prosthesis, and on the other hand, *automatically* produce symbolic subjectivities that channel, reroute and short-circuit individual and collective retentions, and therefore protentions, which become ever more homogenised and therefore entropically proceed towards equilibrium. To short-circuit psychic and collective protentions is to cauterise the essence of the imagination that constitutes those sophisticated faculties – 'dreaming, wanting, reflecting and deciding' (Stiegler 2014b, 13) – that set the human apart from more basic species. As such, these short-

circuits impel humanity upon a trajectory towards increasingly herd-like behaviour; like the very animals that we farm, the short-circuits cultivate more stupid, docile, domesticated, accepting, technologically dependent and homogenised hybrid beings. Henceforth, they make the collective production of (long) circuits of transindividuation less likely because this would involve: firstly, a *personal*, historical reflection on the objectified aesthetic activities of previous generations; and secondly, a *personal*, interpreted, physical and creative response to that historical work of art. Both elements of transindividuation – the reflexive and the reactive – can easily be fundamentally blocked by technology’s ability to intercept the signal, distort it and deflect the message down a path determined by a statistically predominant subjectivity of the herd. In the digital epoch, everything passes through a technological awareness, which is a statistical and denotative awareness that threatens to distort the original intended values of created symbols (including language). The individual is henceforth increasingly overwhelmed by the herd; that is, the *one* is dissolved entropically into the expanse of the mass. On this point, Stiegler writes: ‘the automatised production and exploitation of traces, dispossesses us of the possibility of interpreting our retentions and protentions’ (Stiegler 2014b, 13). *Interpreting* is the keyword here because it constitutes the essence of a reflexive process that is representative of the psyche’s ability to behave individually. The possibility of transindividuating hinges on the ability of psychic individuals and collective organisations not just to transmit information, but also to interpret it, to learn from it and to teach by it.

Considering Driessens and Verstappen’s artistic statement in which they identify themselves as post-Duchampian artists, the pertinence of Stiegler’s reflections in the context of the genealogy of the sensible come into clear view. Duchamp’s decision to reflect critically and parodically on the predominant subjectivities of his time – chance on one hand and the machine on the other – forms the source of a long circuit of transindividuation that he started upon a way but could not complete himself, in his own epoch. It can only be completed following the lapse of an epoch and the transition to a new one, demarcated by the epochal rupture brought about by the emergence of analogue and then digital technologies, which both vectorise irreversible evolutionary shifts towards hyperautomation. The temporal distance provided by a new epoch facilitates analysis and reflection upon the techno-aesthetic events, the pieces of which

converge into a sensible whole by virtue of the perspective that only distance can provide. The epochal ruptures in this genealogy are manifest in: firstly, the invention of mnemotechnologies that demarcate the liminal period between Duchamp and Cage/Beckett; and secondly, the invention of digital electronics that delimit the transition from Beckett to Obermaier, *Chunky Moves* and Driessens and Verstappen. These temporal gaps, that are also epiphylogenetic leaps, provide the platform for periodic re-engagements with those techno-epistemological, long circuits of transindividuation, that were first vectorised in the early twentieth century. Therein lies the power of the exteriorised trace, because the transhistoricality and trans-geospatiality of concretised art ideas permit an art-duo from the Netherlands to take up, interpret and reflect upon those ideas – which were initiated a century before, in France – in respect to the specificities of digital culture.

The term ‘Post-Duchampian’ is used often and widely in the art-world; it is also, at times, misused. Time and time again artists and critics use this term to identify and categorise work. Identity and categorisation are good and well for genealogical purposes, but to simply purport to be engaged in post-Duchampian praxis because one is engaged with a preassembled, mass-produced object – or pastiche of objects – as the expressive material, is to miss the crux of Duchamp’s questioning. Duchamp’s work was, on one hand, concerned with reflecting critically on his own time, and on the other hand, underpinned by a highly sophisticated, mathematical and quasi-scientific methodology that challenged the dominant over-rationalised processes of science and administration. Many contemporary artists continue to exhibit in the *style* of Duchamp; *but*, without the careful, methodological and mathematical reasoning, *and*, without a specific *contemporaneously* contextualised consideration of the thoroughly mutated sociopolitical totality under the ages of the digital. As such a large demographic of art practitioners are stuck in a hundred year old modality that is perpetuating an exhaustion of ideas, contributing to widespread public dissatisfaction with art and a repetitive boredom that precipitates a negative protention; that is, the refusal to act, to do something about it. For Stiegler, that is a symptom of selling-out to capitalism – despite the fact that a century ago Duchamp’s *3 Standard Stoppages* blew the field of aesthetics wide open. This crisis is apparent in Verstappen’s disillusioned statement in which she criticises ‘post-Duchampian’ artists for their inability to break away from

recursive re-workings of his epochally-specific examples and, straightforwardly, exhaustively re-interpreting the rules of *Duchamp's* material reality, not their own contemporary one. *It is critical that the interpretation take place in the context of the present, not the past.* If Duchamp were alive and working now he would not be critiquing objects from the first mechanical turn; he would be reflecting on digitally hyperproduced ones; he would be engaging and foregrounding the specificities of contemporary consumable objects and mass culture. This is precisely the point of this genealogy, to trace a historical line of examples whereby the producers look at history, identify an art idea and disinter, recuperate and re-engage it in the context of their own current techno-historic juncture. By doing this, they are each in their own way transindividuating; that is, dialoguing with the artistic message, interpreting that message and replying to it by *showing what it makes them do*, thereby setting themselves up as transhistorical nodes to be re-engaged by forthcoming generations.

Artistic assemblages are trans-epochal retentional apparatuses, which are the essential matter of the protentions that can further produce transindividuations. These protentions undergo something of a dialectical fate. On the one hand, some protentions are transformed into rules and conventions that constitute the quotidian edification of ideology and reality; that is, they are 'metastabilised between the psychic individual and the collective individuals associated with these experiences' (Stiegler 2014b, 15). In the case of Duchamp and the stylistic *metastabilisation* that followed the critical acclaim of his aesthetic endeavours,<sup>203</sup> this circumstance can facilitate an understanding of how aesthetic ruptures are in themselves pharmacological. His artworks have resulted in 'post-Duchampian' aesthetics and conceptual art becoming *the* dominant language for contemporary art and art pedagogy, to the demise of other art forms. This also causes a collective complacency towards the important sociopolitical questions, at the heart of *Duchampian* aesthetics, and the ability to conduct a fundamentally serious and intellectual critique of our own time. From a positive perspective, some protentions lie dormant, 'awaiting transindividuation, that is, [... awaiting] expressions and inscriptions that pursue already established circuits of

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<sup>203</sup> It must be acknowledged that this was itself a transindividuation in the sense that Duchamp's work only became widely celebrated in the 1960s, in the late years of his life.

transindividuation further' (Ibid.). The latter type of protention is inconclusive, indeterminate and open-ended, and thus transfers its questions across generations. This is precisely what is being pursued in this genealogy of the sensible: the recursive, reworking of an inventive protention that is rejuvenated from epoch to epoch and is therefore fundamentally different in its exteriorised formality yet nevertheless analogously savvy and sociopolitically interrogative. Duchamp's questioning concerning the relationship between the machine and life, the systematic production of artefacts and the annulment of the embodied mind from the creative process are three questions that are repetitively disinterred through Cage, Beckett, Obermaier, *Chunky Moves* and Driessens and Verstappen. They each transindividuate over and against one another and in doing so reinterpret Duchamp's *questions... not his style*. The transformational power at the heart of Duchamp's work cannot be completely detached from a consideration of style at some level. However, it must be acknowledged that the power of his work is inherently linked to its historical context and, furthermore, that it is not the result of an attainment of aesthetic harmony between form and content: beauty. On the contrary, his oeuvre transcends reality in its discrepancy, its inconsistency, its negation of style and through its subsequent subversion of identity, this is an avant-garde characteristic and it is a quality that is shared by each and every artwork of the genealogy. Adorno offers a useful reflection on style when he writes: 'the style of the great work of art has always negated itself, the inferior work has relied on its similarity to others, the surrogate of identity' (Adorno and Horkheimer 1997, 103). An allusion to a bygone style or genre is the easier path for the artist practitioner who wants to command more respect, which is to say power. In addition, it offers a shorter cut to attain this goal than does an engagement with 'inventivity', because the *nod* always is more accessible for the art public. The dominant topological feature of the art world, which is crisis, and which is a microcosm of the broader socioeconomic crises that Stiegler describes as nihilistic capitalism, is immanently tied to this genuflexion to stylistic allusion at the expense of epistemological praxis. Stylistic allusion is pure surface, pure superficial repetition that feeds into aesthetic conditioning which is the consumption of the sensible. This is how the culture industry operates; it promotes homogeneity by consuming the sensible faculties, filling them with



fabricated experiences and synchronously devaluing the positive aspect of repetition, which is the type attained through praxis.<sup>204</sup> In their dismissal of a subservience to style, avant-gardist (negentropic) artworks bifurcate the predominant direction of aesthetic flow; that is to say, the artist that looks to the past in order to re-engage the unanswered questions, rather than to simply allude or reference a style, is one who places noetic and critical reflection at the foundation of their praxis. And this is exactly the methodological prerogative of each of the artists that have been analysed in this thesis. Their work creates bifurcations not because they are producing by means of new technologies, nor because they are each in their own way engaging the question of indeterminacy, but because of the *way* that their work harks back to the internal tensions engaged by their predecessors. By doing so, the works re-activate the incomplete circuits of transindividuation and impel art audiences to reflect and cogitate on the fundamental processes that constitute the very fabric of life in the context of each epoch. In regard to the more recent artists – Obermaier, *Chunky Moves* and Driessens and Verstappen – it would be erroneous to claim that they have created some kind of an aesthetic revolution; only the closure of an epoch and the redoubling of a new one will enable such judgements to be passed or dismissed. What can be inferred at this stage is, the current digitalised stage of merging chance operations with new technologies testifies to an increase in technological efficacy and agency, brought about by the introduction of advanced processes of automatisisation to the art system. In the context of the genealogy, each art system demonstrates the ability for technology to individuate through human re-engagements with positive protentions (art ideas). Henceforth, what emerges via the repetitive reactivation of the long-circuits are increasingly naturalistic, autonomous and quasi-organic productive art systems that continue to question the relations between humans and technology and testify to an increasing technological efficacy in the aesthetic-political domain.

The current (digital) re-activation of the avant-gardist transindividuation also raises a toxic sociopolitical problem. In the situations of *Apparition* and *Mortal Engine*, the performer's role is challenged by the performativity of the machines; in the situations

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<sup>204</sup> See Stiegler, *Symbolic Misery Vol. 2: The catastrophe of the sensible*, pp. 84 – 87.

of *E-volver* and *Accretor*, the roles of both the sculptor and audience are challenged by the artworks' ontogenetic efficacy. In both cases, there is a testimony to the emergence of a quasi-autonomy in the machinic milieu brought about by the sedimentation of automatised processes. In addition, this can be abused for persuasive purposes, which means political purposes, which are, in any epoch, related to power and control. The existence of an interpretative faculty is crucial for any possibility of transindividuation because the act of interpreting is founded on a relationship between a perceiving individual's present experience and their unique, or singular, fund of past experiences. It has been noted that mass-produced, automatised protentions strip individual experiential repositories of their singularity and replace them with the generic, the mediocre and the commonplace. But, more deleterious still is the resultant circumstance wherein the industrial short-circuiting of psychic and collective protentional projections cauterise circuits of transindividuation – by automatising interpretative processes – which are necessary for the linkage and transmission of the historical-material milieu of the exterior, to the present-experiential milieu of the interior. To bypass interpretative processes is to systematically impede the fundamentals of thinking, and this constitutes the prerogative and power/control strategy of 'algorithmic governmentality' that operates around the clock, all over the technocratic world: 'what Berns and Rouvroy call... 24/7 capitalism' (Stiegler 2014b, 13). Automated techniques are now so ubiquitous and penetrate so deeply into the fabric of cognitive processes that they dominate the formulation of thought itself, not by way of a subconscious hypnosis or brainwashing, but by way of *pure speed*, by outpacing and overtaking the human mind and its ability to conjure retentions from its own depths. The reticulated logic of algorithmic governmentality, of 24/7 capitalism, operates by isolating every individual in the herd, flooding the consciousness with prefabricated retentions thereby outstripping the mind's ability to produce protentions of its own. The protentions that are formulated then are not only always already prefabricated, but so too are they homogenised and therefore rendered ineffectual; singularity, which is the essence of *will*, becomes dissipated. It is this eventuality that undergirds Stiegler's inclination to draw in Nietzsche's call for a transvaluation of values, because in the scenario of diminishing returns, precipitated by the automated production of protentions, transindividuations are less likely, which means ontogenetic, creative (psychic) surges are less likely, which means that phylogenetic (collective) devolution is on the increase.

Stiegler therefore calls for ‘an *organology and a pharmacology of speed and will*. For it is *will in its most basic forms* that is *emptied of all content and overtaken by traceability*’ (Stiegler 2014b, 15). That is to say that the automated production of an individual and collective social consciousness, and the straightforward homogenisation that this implies, brings about a dominant attitude of *uncaring* because individuality, which is nascently constituted by the ego as independence, is obliterated in the herd. The lack of strong, singular egos precipitates a deficit of care that would, on one hand, constitute the establishment and upholding of a moral code, and on the other, reduce the chances of the propagation of singular *wills* that aim to project beyond the known, familiar and safe territory of the herd. It is for this reason that Stiegler calls for an elaboration of an ‘organology of will’, because given that all *noēsis* takes place in the organological milieu, through the production of technical traces, our very being is always already constituted by a technical efficacy. In this regard, humans must find a way to re-arm *will* in the context of a general organology, that is, in the context of contemporary processes of hyper-automation, where the speed of the evolution of the technical milieu is weighed against the speed by which the consciousness (and the will) are overtaken. For Stiegler, the challenges posed by the Anthropocene – which is an Entropocene – represent a suitable problem for the initiation and deployment of the *organology of will* because it is a problem that concerns everyone; not just this or that social class or racial territory, but *everybody*. Stiegler writes: ‘the hypermatter in which this organological matter consists enables control to be taken of the material processes that condition will and willpower’ (Stiegler 2014, 15). By saying this Stiegler means that the ephemeral, informational traces that constitute the immaterial, symbolic matter out of which automatic protentions are fashioned and then canalised into consciousness, fundamentally affecting the formation of the will, represents the locus of the cure to the problem. These problems must be addressed by re-arming the willpower through the very same means by which it is disarmed; that is, by taking up the dormant protentions and re-igniting circuits of transindividuation. It is a transindividuation that concerns the disinterment of the organology of will – that is, the recuperation of an avant-garde questioning that seeks to ameliorate, heal and offer a therapeutics of the will –, which each artist in this genealogy has in common. Every artist re-engages the art idea, of systematically diminishing the productive value of

their own mental and physical role in the making process, in order to canalise a question concerning care at the phylogenetic level. This is, firstly, what is so fundamentally avant-gardist about each instance of the transindividuation, and secondly, why creative and noetic endeavours in the new world economy need to be carried out in the domain of the avant-garde – as negentropic bifurcations. Only a critical voice maintains the power to reverse the entropic character of the consumer capitalist system; silence is nihilism. As Stiegler said himself, very straightforwardly, in a recent interview conducted by *The Aesthetics Group* (2013):

I believe that we can't abandon the concept of critique... it is not only a pure coincidence that makes Lyotard say that it is 'the end of the grand narratives' and Thatcher explaining that 'there is no alternative'. It is the same statement at the end and it is not at all a coincidence, it is a failure of thinking, of thought, of critical thought. (Desmond et al. 2015a)

For Stiegler, Lyotard is moved to make his dystopian statement in the face of a collapse of the epistemological narratives that provided the base for ethics and henceforth a critique of governance. The concurrently obverse upsurge in the rationalised, statistical and denotative pragmatics of governance and administration opens up a scenario where a neoliberalist politician can stand up and repeatedly purport such a polemical and fundamentally misleading statement.<sup>205</sup> Furthermore, according to Stiegler, this upsurge in statistics and de-legitimation of grand narratives exacerbates the more general crisis of the late twenty-first century where art and politics have become separated from each other. It was noted that Stiegler believes that creative

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<sup>205</sup> Here again, the moderated position of Stiegler, in the wake of contemporary cultural theory, is audible. By synthesising the said philosophical and political positions, Stiegler demonstrates his acknowledgment of the need to envision an alternative to the time-space of capitalism within the dominant cultural flux that continually reshapes notions of what can be imagined. The crucial point that needs to be stressed here is Stiegler's appeal for the recuperation of critical thinking, a critical voice that can continue to question a socioeconomic paradigm that, he maintains, has 'lost its mind and spirit' (Stiegler, 2015c). This position, of course, echoes that of Paul Mann's in the context of the avant-garde's theory-death – that the discursive economy be kept alive – and it is the central tenet of this genealogy of the sensible. The critical praxis of the avant-garde and the discursive economy surrounding the 'negentropic' exteriorisations constitutes the techno-political-epistemological and, ultimately, ethical terrain where the discursive economy can be rejuvenated, prologued and assert positive imaginings for an exhausted, globalised sociopolitics that, if allowed to continue unbridled, spells widespread discontent.

artists and philosophers have abandoned the question of aesthetics and, straightforwardly, that of politics. Therefore, transindividuations with historical avant-gardist artworks are the ways to engender positive pharmacological praxes that engage both the vectoral specificities of new automatised protentions and an organology of will. The uptake of negentropic praxis can occasion the replacement of *uncaring* with *caring*, by mobilising the hyper-automatised specificities of protentions in a positive way, thereby repetitiously engendering a desire to act on audiences of the digital world.

The art systems engineered by the digital media artists – from the latter half of this genealogy – mimic and parody the automated processes of cultural production taking place under the ambit of the digitalised programme industry. The performances do so through a process of constant surveillance and then generate symbolic responses through a series of algorithmic operators. The sculptural artefacts do so via a system of rules that allow cultural symbols to be produced automatically, by the machine, without human intervention. It is through these processes of parody and mimicry that the case studies exemplify how tertiary retentions and cultural symbols can constitute human protentions. However, in the case of these digital artworks, the produced artefacts are mobilised in the opposite direction to that of symbols produced for mass culture, because the automatised behaviour of the systems are unpredictable, thereby producing artefacts, and performances, that are abstract and indeterminate. As a result, each artwork is singular, in the sense that it is unique, because, based on small adjustments to environmental factors, the algorithms behave in significantly different ways during each iteration. Algorithmic industrial production does not compute unique, only the generic and the homogeneous. Thinking about this in terms of the sociopolitical, the singularity of these works fly in the face of algorithmic governmentality because its reliance on the database model demands that everything and everyone be identified, categorised, tabularised and placed in standing reserve for easy access and processing. Obermaier, *Chunky Moves* and Driessens and Verstappen all apply hyper-rational, techno-scientific knowledge in fundamentally irrational and singular ways because they produce products of *incalculable value*. That scientific knowledge is usually employed for conducting very fine-grained empirical experiments into the appraisal of how certain forces, molecules, elements and chemical compounds relate and react under very specific and controlled conditions. However, under the

remit of avant-garde artistic expression the knowledge is employed for producing objects of fascination – pure artifice. Their lack of a denotative message or utilitarianism subverts algorithmic capitalism because of its need to attribute a value to something based on its degree of utility.

Obermaier, *Chunky Moves* and Driessens and Verstappen, each in their own singular way, mobilise those quintessential avant-garde strategies – chance and the new – that have constituted the central axis of this genealogy of the sensible. In the first and second chapters I attempted to show that, under the aegis of Peter Bürger's theory of the avant-garde, both strategies operate on the similar paradigm of impelling a critique of capitalism's clandestine base by adapting to its hardened and alienated superstructure. The longevity of capitalism demands that goods be valued and sold based on their stake in the category of newness. In the digital epoch, on the hardware side, the new has become inherently intertwined with nanotechnologies and ubiquitous computing, to the point where there is no possibility for the human hand to be involved in the assembly of the product, because of the demand for extreme accuracy at a submolecular level. On the content side, the new has become entangled with ever more luxurious, discretised, interactive and reticulated audiovisual symbols that have, in a very short space of time, become widely accepted as the natural characteristics of cultural symbols. All the digital media artists in this genealogy combine cutting-edge technology – for the performances it is computer-vision hardware and for the artefacts it is 3D printing machines – with bespoke software that they have written themselves. In all cases, the artists are adopting a strategy of hacking technology with a view to subversion; that is, mimetically adapting to the capitalist consumer paradigm by mobilising the latest innovations and automatised processes in order to produce symbols that are indeterminate and useless. This leads to a parody and a subversion of hyper-rationalised, automatised processes because the artists are feeding the machines irrational and non-calculable data that can only result in a product that is at once singular, indeterminate and unrateable. By imitating the computational capitalist paradigm, the artworks expose the importance that current ideology attributes to innovation and automation. Henceforth, on one hand, they establish their eloquence by subscribing to the capitalist celebration of the new, and on the other hand, they exhibit an intolerance for works that are traditional, inoffensive and unintellectual. As such,

the strategies from the first and second mechanical turns are intellectually linked by their modes of operation and each instance of transindividuation is still consistently aporetically linked to the very socioeconomic system that it endeavours to critique.

In the first chapter, through an analysis of Duchamp, I attempted to show that when chance and production are engaged through the technical milieu they become closely linked with the aesthetics of possibility and invention. Under the aegis of capitalism's socioeconomic and political paradigm, chance is perceived as an undesirable factor because it can precipitate a destabilisation, which causes uncertainty and can induce markets to crash or descend into chaos – entropy. In the analysis of *Krapp's Last Tape*, via Stiegler and Heidegger, I attempted to elucidate the human effort to overcome uncertainty through the development of equipmental solutions in the technical milieu. Indeed, technology is almost entirely founded on a profound and unanimous characteristic of *concern*, wherein the field of invention is primarily occupied with eradicating the unpredictability and indeterminacy erected by contingent interactions between individuals and collectives, which now occur on a global scale. In capitalism, this concern is inextricably intertwined with endeavours to gain and secure wealth and power. But, a pharmacological conception of chance will reveal the curative aspects to which the historical avant-garde were so beholden, because a shrewd employment of it can cause bifurcations that can, not just shift the balance of power and wealth, but indeed reverse the oppressive force of a dominant, common protention, which is 'massively negative on a worldwide scale' (Stiegler 2014, 2). The indeterminate and purposeless digital artefacts, which are analysed in this thesis, are the result of alchemical introductions of chance operators into highly rationalised, computational systems of production. They henceforth mischievously undermine the technically supported promise of phylogenetic progress through rationalisation, because it gives primacy to the exception – to singularity – and blows the horizon of possibility wide open, thereby advancing the notion of infinite possibility and reminding the interlocutor that nothing is certain. Art audiences are henceforth impelled to question subject–object relations foisted upon them by a technocratic system that champions constraint through its processes and products. This characteristic in turn constrains the end users, whose increasingly suppressed impulse and restricted freedom precipitates a disenchanting public. The negentropic digital artefacts in the second half of this

genealogy take their impetus from the historical avant-garde's mechanical artefacts, which were discussed in the first half. As such, they seek to operate in the same agitative manner, that is, with a view to disempowering the technocratic ruling class. However, in the digital works, agitation is introduced via a sort of viral infection injected into the data fluxes (the algorithmic and mathematical language) of technological systems that facilitate control procedures by anaesthetising protentions, impelling proletarianisation and protecting those residing over wealth distributions, thereby reinforcing power structures that are already in place. Henceforth, the digitally automatised productive processes – that embody the power that algorithmic governance holds over proletarianised masses – paradoxically represent the operational locus where changes can be actioned, and this is the site where negentropic bifurcations can be introduced to a profoundly entropic topology.

Stiegler writes: 'algorithmic governmentality annihilates those traumatypical potentials<sup>206</sup> in which consist protentions that bear the possibility of neganthropological upheavals' (Stiegler 2014b, 16). A neganthropological upheaval implies a loss of power and wealth for those at the helm of governmentality and, as Rancière stresses, 'the police order' will not only protect that power with acute violence, but so too will it invest everything in engineering facets of intersubjectivity to ensure that the current power-balance – which is to say imbalance – stays as it is. As such, algorithmic governmentality champions that pandemic nihilism – that is a profound indifference – quintessential to the current stage of the Anthropocene. However, as I have endeavoured to show – through a genealogy of the sensible that traces progressive fusions of chance and the new through artistic inventivity – art's noetic singularity maintains the capacity to disrupt the topological dominance of computational nihilism in the socioeconomic totality. Stiegler writes:

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<sup>206</sup> By positing the term 'traumatype', Stiegler is referring to a specific type of secondary retention that, under the aegis of Freud's theoretical advancements, has been repressed. In the process of primary retentions becoming secondary ones there is a split in the way that it can assimilate to the retentional faculty. On one hand it can insert itself in the system thereby '*reinforceing*' the secondary retentions, or on the other hand, it can upset the system of existing secondary retentions by unleashing 'a potential of individuation... which has hitherto been repressed' (Stiegler 2015).



When noetic experience is fulfilled in actuality and ‘fully’ ... it constitutes a support for the expression of traumatypes that participate in the inscription of noetic singularity into circuits of transindividuation, circuits through which knowledge is woven as the accumulation of previous experience insofar as it is original and yet recognised and identified. As such, noetic experience is experience that is neganthropically bifurcating.

Based on a synthesis of this statement and the previous one cited at the seminar in Dublin,<sup>207</sup> it can be surmised that Stiegler is converging noetic experience with that of aesthetic experience; or at the very least, he is suggesting it is through artistic praxis that noetic experience can achieve its highest state. This is a quintessential avant-gardist position: the belief that practical reifications of intensive theoretical and political critique can bring about ruptures that fundamentally move art-going publics to question the fallaciousness at the centre of the artwork’s receding towards autonomous artifice and, analogously, the fictions and narratives that contrive dominant, sociopolitical ideologies, and henceforth reality in general. His positing of traumatypes as a fundamental factor in transindividuation is a recourse to, on one hand, Kant’s notion of aesthetic experience as something that produces a transformation by way of ‘sur-prising’ and confounding the imagination, and on the other hand, Freud’s notion of the uncanny as an interruptive experience brought about by the ‘unexpected’ re-emergence of a forgotten or suppressed memory (Stiegler 2015). As such, it is the domain of (critical and political) avant-garde art to produce the transformative, bifurcational ruptures that could facilitate noetic experience and henceforth open a circuit of transindividuation. It is henceforth in art’s ability to create circuits of transindividuation – which are always carried out in the technical milieu – that Stiegler identifies a possible site for, not only reversing the catastrophe of the Anthropocene, but also reinvigorating noetic, ontogenetic development through the epiphylogenetic milieu. According to Stiegler then, the major question of our time is concerned with how to re-invigorate, preserve and perpetuate true processes of transindividuation under the aegis of digitally networked tertiary retentions, which pharmacologically engage the aporia of transductive speed and thereby facilitate the digital becoming of psychic and collective individuation. Stiegler writes: ‘The challenge is to generate

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<sup>207</sup> See pages 256 – 257.

tertiary retentions with all the polysemic and plurivocal thickness of which the hypomnesic trace is capable, reflecting the hermeneutic play of the improbable and of singularity' (Stiegler 2014b, 16). All processes of exteriorisation – whether aesthetic, noetic, technical, political or otherwise – are constitutive of the hypomnesic trace, which is, in the digital epoch, a highly complex, fluid, loaded, fragmented, networked, modularised, discretised, automatised, participatory and multidisciplinary object. It is the task and test of the artist to exteriorise tertiary retentions that elicit those specificities and mobilise them in a direction that gathers into itself: a nuanced interplay of form and content; a poetic indeterminacy; a unique, singular identity; and an inspirational quality that all serve to call into question the hypermodern tendency to perceive value as a calculable, quantitative characteristic.

The artworks selected in this genealogy of the sensible are by no means the only examples that fulfil the avant-gardist, politically-liberating and redemptive potentialities that have been discussed throughout the thesis; there are, of course, other historical lineages that could support the thesis. The works have been selected primarily for their pioneering and influential qualities in order to elucidate a particular trajectory – demarcated by a series of aesthetic ruptures – in twentieth and early twenty-first century art that testifies to, first of all, the persistence of the avant-garde strategies of chance and the new, and following on from that, a continual increase in the autonomy and efficacy of the technical milieu that arises out of this potent combination. The artworks that are post second mechanical turn are, by no means, representative of all digital art; they have been selected because of their specific relevance to Stiegler's appeal for a recuperation of the artistic avant-garde, in the computational epoch. Obermaier, *Chunky Moves* and Driessens and Verstappen not only go a long way to elucidating Stiegler's political aesthetics, but so too do they exemplify that critical aspect of his techno-philosophy: transindividuation. Their ingenuity and inventivity inspires new artistic contingents by *showing the way to critically and interrogatively* take up the new tools and techniques that are idiosyncratically representative of the contemporary techno-historic, epochal juncture. The genealogy that begins with Duchamp and ends with Driessens and Verstappen shows that, despite the recursive sociopolitical and economic tendency towards entropic processes of automatisisation – that homogenise, proletarianise and stupefy –,

there is no limit to human ingenuity and the noetic thought that outstrips the speed at which those automatic processes operate. They show that by deploying infinite thought in singular and original ways artists can create bifurcations in the entropic and nihilistic economy that characterises the Anthropocene, thereby showing the way towards inaugurating the new epoch of the Neganthropocene. While each stage of the genealogy testifies to the emergence of an increasingly autonomous creative efficacy in the technical domain, they synchronously foreground the pharmacology of this situation: automatisations can make life easier, but there is also the simultaneous danger that it impels a physical and spiritual lethargy, a pandemic indifference. This demands the need for a foregrounding of the urgent need for a transvaluation of values, in which humans must rise to the task of responsibly reorganising knowledge by merging techno-epistemological paradigms. Thereby, inventing new ways for shared participation in the creation of new realities and futures; but futures that keep a keen eye on the past, in the manner that an apprentice would watch a master. This is the apprenticeship that Deleuze sought to elucidate as difference; that is, learning through repetition. Each artist in the genealogy identifies with the need for a recursive reworking of the techno-aesthetic-political question – that is, with the quintessential avant-garde question – and therefore *shows* the invaluable value of historical referencing. In their repetitive uptakes of the unresolved avant-garde questions, these artists show importance of taking up the difficult, incomplete and challenging long circuits of transindividuation that are numerous and lie scattered everywhere, waiting amongst the symbolic debris of the history of traces. One only has to pause, step off the information highway, look around, find and reflect upon the unanswered questions, the quandaries and the failures. Doing so helps bring into focus the truth: the great failures are always the result of a forgetting of *human values* in the face of an acceleration towards an increasingly rationalised ecology. Paradoxically, an over-rationalisation also precipitates a tendency towards reductive binarisms in which technology is mistakenly perceived as an *other*, exterior entity that obfuscates its phenotypical origin at the source of hominisation. The successive fusions of chance operations with new technologies, in this genealogy, testify to a specific line of development in which avant-gardist inventivity increasingly brings-forth more naturalistic, autonomous and quasi-organic productive art systems that continue to question the relations between humans and technology. As such, the pharmacology of the avant-garde's quasi-organic systems can be understood both: as amnesia inducing, because creation of artificial life

systems as nature in its purest form, promotes an arrogant understanding of human as deity; and an aide-memoire, that from epoch to epoch, acts as a safeguard against the eternal forgetting of the *originary de-fault of being*, by poking fun at the increasingly abstract and opaque technical milieu of the exterior. In this regard, the crucial message that is repetitively recuperated with each increasingly sophisticated repetition of the avant-gardist art idea – the removal of the artists hand through a fusion of technology and chance – is that the efficacy and operative functioning of technology is inseparably and indeterminately entangled with the unknown becoming of individual and collective identities. And this testifies to the ontological force of the technological milieu because it shows that we can engineer positive futures. The digital computer is ‘more than a mere adjunct to life. It is really a part of human life—perhaps the very soul’ (Tomkins, 2014, p. 100). As such, digital technology is neither the cure nor the exacerbator of the Neganthropocene; humans are, because *we are digital*.

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