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# ***Death and Ecstasy: Reflections on a Technological Sublime***

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ABSTRACT. Kant divides his aesthetic taxonomy of 'the sublime' into two categories: first, there is the 'mathematical' type, and secondly, the 'dynamical' genera, which is akin to scandal. The success that sublime experience sustained throughout twentieth century art can be primarily attributed to repeated attempts to scandalise. This paper is responding to Bernard Stiegler's proposal that, in contemporaneity, the phenomenon of scandal is rendered obsolete. Such a postulation indicates that the demise of the dynamical sublime must submit to the ecstatic ascension of the mathematical type, that is, to the relationship between magnitude and the imagination. This paper offers cogitations on *why* the mathematical sublime becomes incredibly important to aesthetic experience in the digital epoch. Jon McCormick and Alan Dorin (2001) argue that the 'computational sublime' operates on the basis of an inability to comprehend the speed of computers' internal operations, and because they occur at a scale and in a space vastly different to the realm of direct human perception. This paper contends that what must be added to their hypothesis is the problem of *machinic evolution* as elaborated by Bernard Stiegler. There is a groundlessness introduced by digitally engaged art that gathers a sublimity founded on *the speed of technical evolution*, wherein the deceleration of biological human evolution gives way to an acceleration in the technical milieu that begins to map unthought possibilities and unknown dimensions within the ontogenetic reality of technicised poiēsis. Digital-cultural works foreground the idea that the techno-human is subjected to a loss of nature and humanity, which bears the brunt of a transcendental pressure. This dehumanisation is modulated by an accelerating progressive destiny of technical prosthesis and the possibility for self-actualisation through technicised evolution, which is empirical in its reach but cannot be simply reduced to biology, anthropology or mechanics.

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## 1. Introduction

In the digital epoch, every sector of culture is experiencing a shift in how its working processes are constituted, and the 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. According to techno-philosopher Bernard Stiegler, we are experiencing ‘the second mechanical turn of sensibility’ (Stiegler 2011, 4). Through an examination of an artwork by Erwin Driessens and Maria Verstappen, entitled *E-Volver*, this paper focuses on the shift, taking place in the arts, brought about by the migration from mechanical to digital technology and the import of software into working processes. While this has engendered a deluge of innovative techniques and intriguing products on the practitioners’ side, it has also created incommensurable gaps in relation to how those objects are received and interpreted from the spectator’s point of view. Driessens and Verstappen explore, on one hand, possibilities for mathematics and algorithms, as both the form and matter that are pertinent to the new-world, digital economy, and on the other hand, the creative potential, or efficacy, of automatised, machine-led art-production systems, where the artist’s hand is completely removed from the creative process. The acceleration of cyclical automation to astonishing speeds, approximately one hundred million times faster than that of mechanical technology, is a techno-evolutionary phenomenon that artists and art-going publics have had neither the time nor space to digest and reconcile. And still technology and production continue to accelerate. This paper reflects upon the experiential shift taking place in *the encounter* with new digitalised art forms.

## 2. *E-volver* by Driessens and Verstappen

*E-volver* (2006) is a site specific, generative<sup>1</sup> artwork, by Dutch collaborative art practitioners Erwin Driessens and Maria Verstappen, which was

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<sup>1</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

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 [FIGURE 1] 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 [FIGURE 2]. 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.



FIGURE 1. Driessens & Verstappen, *E-volver*, Medical Centre of Leiden University (photo by Gert Jan van Rooij).

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' (Galanter 2003). 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' (Ward 2015). Mitchell Whitelaw gathers the term to help explicate the newly established artistic genre of *artificial life* (a-life).

The software at the breeding units generates a group of 'artificial pixel-sized agents' (Driessens and Verstappen 2006), 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 it 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.



FIGURE 2. Driessens & Verstappen, *E-volver: Breeding Unit*, Medical Centre of Leiden University (photo by 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 micro-

scopic 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 [FIGURE 3].<sup>2</sup>



FIGURE 3. Driessens & Verstappen, *E-volver*. Three different screen grabs that testify to the nuanced, varying and diverse range of possible images that the software can output.

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>3</sup> As the agents evolve and develop their mobility and powers of visual 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

<sup>2</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>3</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 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.

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.

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 efficacy, 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 paper, their strategy of genetically programming quasi-organic art-systems can be understood as a practical validation of Bernard Stiegler's hypothesis on evolutionary progressions in the technical milieu and the ongoing emergence of what he calls 'inorganic organised beings, or technical objects' (Stiegler 1998, 17), which have a new beauty, dynamics and speed all of their own.

### **3. Bernard Stiegler's Aesthetics**

In his philosophical programme concerning technology, aesthetics and politics, Stiegler goes to great lengths to show, via Freud and Winnicott, how the libidinal economy of late capitalism is one constructed primarily on the strategy of placing desire at the centre of each and every individual's

universe. This is achieved by shifting the focus of libidinal energy from human goals towards that of technically constructed objects; that is, from the collective toward the technical milieu. The marketing and public relations sectors' maintain the ability to create 'phantasms' – idealised projections and mythologies – that can then be mobilised towards the ends of constructing modes and fashion trends. These are always constituted by the human characteristic that has become *the* object of the culture industry: *desire*. Interestingly, Stiegler points out that in hyperindustrial capitalism, when the objects of desire become consumed on a global scale, what arises is a general homogenisation of individual global cultures, which can only lead to the stupefaction of individual and collective intelligences. As such, by converting desire into a calculable commodity, the hypercapitalist culture industry is contributing to the continuing fragmentation, dissipation and henceforth liquidation of desire. For Stiegler, it is precisely the liquidation of desire that precipitates a pandemic of uncaring and indifference that, in turn, diminishes the possibility for audiences to undergo profound aesthetic experiences, whether they be ecstatic or scandalous. 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 2011, 8)

This paper is responding to Stiegler's proposal that, in contemporary Western culture, the phenomenon of scandal is obsolete, because this scenario implies disastrous repercussions for contemporary art that attempts to proceed along the lines of avant-garde principles. 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 early avant-garde movements like the Dadaists, Futurist and Surrealists. In short, it renders aesthetic activism impotent. Stiegler's understanding of scandal is largely conceptualised in terms of Kant's *Analytic of the Sublime* (1790); both concepts are related on the basis that they 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 contemporary cultural production and the strategies available to art thereof.

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 2011, 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, *skbandalon*, 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 more popular and desirable 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, usually administered by an incumbent, top-down regime of taste, thereby stifling the subject's ability to overcome the quandary presented. The psychological collapse caused by a scandal is not easily overcome but it is possible; indeed, it is inevitable.

Stiegler asserts that for a work of art to be truly a work of art, and not simply a bi-product of the globalised culture industry, it must synchronously arouse a *belief* and a *doubt* 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 –, it is always 'intrinsically doubtful and improbable, un-provable' (Stiegler 2011, 10). As such, it is a condition of *mystery* that is constitutive of aesthetic experience. The *mysterious* is the extra-ordinary quality immanent in works of art that vectorises 'a mystagogical performativity of the work' (Stiegler 2011, 6). Stiegler's Kantian reading of aesthetic judgement 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<sup>4</sup> 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, 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 reconsider 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 the intellectual ascendancy triggered by a reflexive judgement: it *transforms*; not *transcends*. Individuation, as a philo-

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<sup>4</sup> The theory of individuation describes the manner in which a thing is identified as distinguished from other things in its taxonomy; that is, it expresses how a thing is identifiable as an individual thing that is not something else. This concept can be extended to include people, for example, individuation describes how an individual person is understood as distinct from other persons in a collective. The concept has enjoyed a rich history in theoretical writings, extending from Aristotle through Nietzsche, Bergson, Jung, Simondon, and Deleuze, and is now heavily employed in the philosophy of Stiegler. For Stiegler's part, he is much influenced by Simondon, who conceives of technology and materiality as withholding a profound efficacy over the relations between the individual and the group, and determines how processes of individuation play out along these lines. For Stiegler then, this argument is pertinent to aesthetics because of art's inseparable link to materiality and processes of fabrication.

sophical 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. Furthermore, thought of in terms of individuation, the trap is *not* escapable through the sort of solipsistic, individual, psychic ascendancy proposed by Kant; conversely, for Stiegler, it can only be overcome by processes of individuation. For Kant the transcendental human can and does overcome the shock of a scandal by themselves, through and by a reflexive judgement; but for Stiegler, a 'surprise'<sup>5</sup> or 'over-taking' (Ibid., 12) is only attainable through hard mental work, collective discussions and re-assessments that are so central to individuations and transindividuations, which are always mediated through the material world. For Stiegler the 'aftermath' of a scandal, which constitutes an epochal limbo, provides a 'suspension' that is necessary for 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. This re-reading of Kant, in the context of his own hybridised view of techniques 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. His quasi-transcendental position emphasises a 'suprasensible' quality of artworks that, in terms of an 'encounter with the sensible (*aesthesis*)' (Ibid.), gives rise to a uniquely subjective experience that 'directs us towards a mystery: it reveals next to existence—next to its own existence first and foremost, but also next to that of its author and of its spectator—something other than the plane of existence—if one believes in it' (Stiegler 2011, 6). But, to fully understand Stiegler's suggestion, as well as the role of scandal in terms of aesthetic judgement, we must return to Kant.

#### **4. Review of Kant's Beauty and the Sublime**

In opposition to the beautiful, which is characterised by the form of a clearly distinguishable object and its condition of being 'bounded' thereof,

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<sup>5</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].

Kant defines an experience of the sublime as one 'found in a formless object, insofar as we present unboundedness, either in the object or because the object prompts us to present it, while yet we add to this unboundedness the thought of its totality' (Kant and Pluhar 1987, 97). That is to say, the aesthetic experience that proceeds from an object whose form can be distinguished clearly and cogently is one akin to the beautiful, whereas the sublime proceeds from a confrontation with things which either appear formless or, because of our inability to reason the magnitude of their presence through the normalising – *a priori* – criteria of time and space, exceed our ability to perceive their form. As such, the art audience's ability to recognise spatio-temporal limitations is called into question under the irreconcilable experiential conditions of the sublime.

Kant's critique of the judgement of taste explicates 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. He is expanding on Edmund Burke's hypothesis, which suggests that there is a certain feeling of 'delight' that proceeds from a terrifying experience. However, Kant argues that there is an unintuitive derivation that initiates as a feeling of 'admiration and respect' (Kant and Pluhar 1987, 98) but then manifests into a 'negative pleasure', arising from the ability of sensible intuition to reconcile aesthetic experiences that either 'overwhelm' or 'overbear' the imagination (Ibid.). Henceforth, Kant surmises the delight as something akin to a feeling of ascendancy over, and autonomy from, nature,<sup>6</sup> which gives rise to further satisfaction.

It is furthermore important to note that for Burke, the sublime experience is one arising directly out of the unpleasant situation, whereas 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 as-

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<sup>6</sup> For Kant, aesthetic experience is 'always confined to the conditions that must meet to be in harmony with nature' (Kant and Pluhar 1987, 98).

sersion 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, 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. Importantly, this reflexive intellectual movement is the locus of Stiegler's oscillation between 'belief' and 'doubt'; but, in an age of computer-scientific rationalisation, and demystification of the world, why does Stiegler choose to employ these quasi-transcendentalist terms?

## **5. Kant's Bifurcation: the Dynamical Versus the Mathematical Sublime**

Of central concern to this paper is the fact that Kant identifies a bifurcation, in the taxonomy of the sublime experience, resulting from the imagination's referral of the 'agitation either to the *cognitive power* or to the *power of desire*' (Kant and Pluhar 1987, 101). Thus, he is moved to make a distinction between two different types of agitation, the former being of a 'mathematical' nature and the latter being of, what he calls, a 'dynamical' one (Ibid.). The dynamical sublime is, henceforth, akin to *scandal* because both phenomena are bound to the human capacity for *desire*. 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' (Ibid.); 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 which engages

newness and technology. However, first it is necessary to explicate both genera in order to prove the key point at the heart of this paper; that is, while the mathematical sublime is experiencing an ecstatic ascension, the dynamical genus is undergoing a certain demise.

### **5.1. *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 that it 'blocks the ability of the imagination to act in accordance with the understanding' (Shaw 2006, 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>7</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, 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 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, 120). As such, the source of delight obtained from the dynamical sublime

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<sup>7</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.

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 characteristic of *mightiness*,<sup>8</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 digital networks and their liquidation of desire. That is, the inherent difficulty in occasioning intellectual ascendancy through art – following visual culture's legitimation of even the most horrific, violent and offensive imagery – leads one to conclude that, in contemporaneity, any experience of the sublime is largely dependent on the mathematical genus.

### **5.2. *The Mathematical Sublime***

For Kant, the mathematical sublime is related to the inability of the spectator's imagination to present an analogous idea that would facilitate comprehension of something denoting enormity 'beyond all comparison' (Kant and Pluhar 1987, 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. In Kant's own words: this '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, III). As

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<sup>8</sup> Kant discusses the 'mighty' characteristic of nature in relation to the dynamically sublime. See pp. 119 – 123.

such, it is an experience of being overwhelmed by a seemingly unfathomable 'sequence of sensible intuitions' (Shaw 2006, 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, 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, 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, 109).<sup>9</sup> It will be demonstrated over the next couple of sections why this relationship between magnitude and the imagination becomes incredibly important to aesthetic experience in digital media art.

## 6. The Sublime and Technology

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. Micrographic illustrations similar to those

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<sup>9</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.

first produced by Robert Hooke, in *Micrographia* (1665),<sup>10</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 [FIGURES 4A AND 4B].

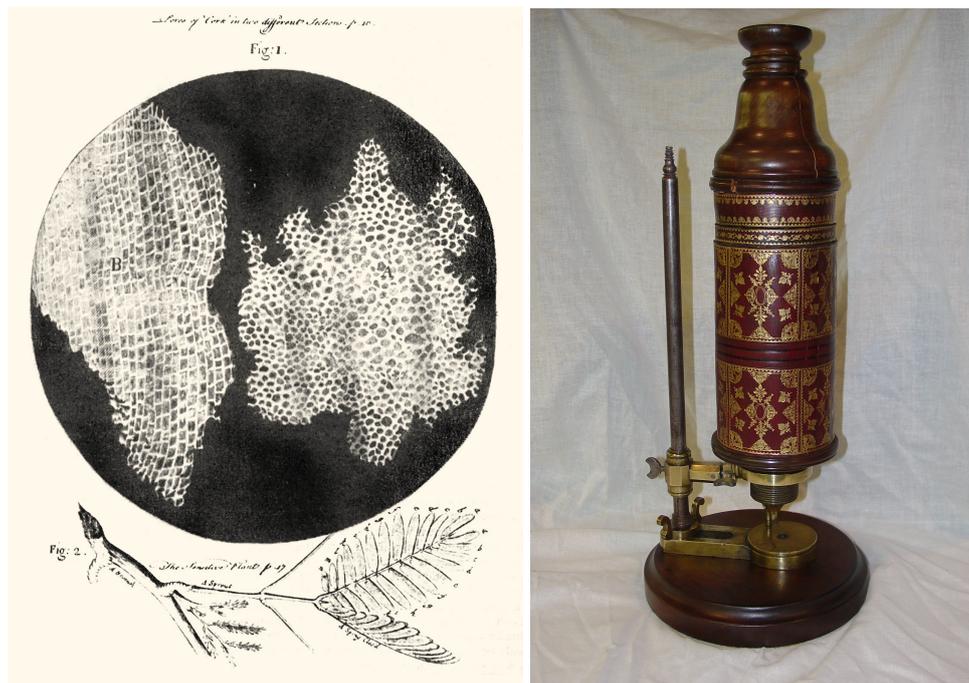


FIGURE 4A. Robert Hooke, *Micrographia* (extract), 1665. A drawing of the cellular structure of cork and a sprig of the sensitive plant.

FIGURE 4B. Anonymous, *Hooke's Microscope*. Used by Hooke for magnifying his minute subjects.

Kant's observation on the fluid and reversible relations between the enormous and the tiny, when perceived through and by the subjectivity of the human imagination, is an important observation concerning modern aesthetic experience because, thinking about it under the auspices of com-

<sup>10</sup> Hooke, Robert. 1667. *Micrographia: Or Some Physiological Descriptions of Minute Bodies Made By Magnifying Glasses. With Observations and Inquiries Thereupon*. John Martyn.

putational economies, all technologies and fabrications undergo continual processes of refinement; that is, miniaturisation and acceleration.

It is on foot of this relationship between aesthetics and scale, between the imagination and magnitude – particularly the miniscule – that Stiegler's techno-aesthetics (which is also to say his politics) become pertinent to this discussion because, as Stiegler says himself: 'calculation... will come to determine the essence of modernity' (Stiegler 1998, 3). By this, he means that modernity is characterised by an increasing industrialisation of every *thing*, through processes of mathematical and statistical rationalisation. From natural, organic entities to sociocultural activities, modernity consists of the general organisation, and demystification of the world. This is why I suggest that sublime experience, in the epoch of computation, is one primarily located in the domain of maths and calculation. But, it is a certain type of calculation that constitutes the foundation of the new genus of the sublime.

It is *speed* that formulates the basis of the disparity between what Stiegler calls the first and 'the second mechanical turn of sensibility' (Stiegler 2011, 6). This is constituted by 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, henceforth, 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' (Stiegler 1998, 17). 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, 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 Stielger, the question of speed does not just relate to efficiency (in the Heideggerian sense), nor to the speed of data transfers, the explosion of real-time technologies and the inevitable 'processes of deterritorialisation

accompanying' (Stiegler 1998, 17) them (as per Virilio). More significantly, for Stiegler, 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>11</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>12</sup> Therefore, speed suffuses both ontology *and* epistemology 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; that is, with the apprehension that there are both positive and negative aspects to it. Stiegler's line of inquisition into the human–technical problem, through the transductive<sup>13</sup> relational normal of speed, engenders an original thesis that elucidates how the progressive expansion of the technological milieu, on the one hand, increasingly contributes to the erasure of the original, organic human condition, and on the other hand, bears the promise of infinite prosthesis that is 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.

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<sup>11</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>12</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 Rancière.

<sup>13</sup> Transduction, is a term and concept that Stiegler inherits from Simondon. It 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, 47). In this regard, the technological milieu demonstrates its efficacy in relation to the formation of individual and collective subjectivities and identities.

Thinking about Driessens and Verstappen's *E-Volver* 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 Driessens and Verstappen'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 *E-Volver*, the revelation brought to the confrontation between artwork and spectator, by the technologies of real-time, automatic image construction, is inextricably linked with a laying-bare of the incomprehensible speed of technological evolution. This shockingly fast evolutionary process is transmissive of the horrific idea of technology over-taking the human, replacing the human, proletarianising and decommissioning the human. Sublime experience henceforth 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. But, according to Kant's thesis, the faculties of reason must also re-activate and impel a rational reflection on the positive aspects that can give rise to aesthetic ascendancy. Those positive aspects can always be traced back to the artist's ability to change the rules; that is, the unique human ability to innovate, which requires a deviation from automatism that no machine can execute by itself. By demonstrating their ability to introduce a new technocultural configuration, a reinvention, Driessens and Verstappen show 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.

## **7. From a Computational Sublime to a Technological Sublime**

In an enquiry into what they define as the 'computational sublime', via an analysis of Driessens and Verstappen's work, McCormick and Dorin (2001) argue that digital art thrusts a sublime experience upon the viewer by foregrounding an inability to comprehend 'the speed and scale of [the

computer'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, 78). This is certainly concurrent with Kant's definition of the mathematical sublime; however, their paper – in spite of its title – only offers a rather cursory glance at the theory of the sublime, consisting only in 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, 79), and the slippage art has experienced under the weight of a newly established confluence with computing and (biological) science. However, they do, themselves, acknowledge that these are not 'the only issues for consideration' (Ibid), yet fail to elaborate on this statement. Their hypothesis of the sublime remains locked within a sort of scientific-idealistic framework that primarily considers digital art from its formal, autonomous, epistemic and mimetic points of view. Their reflections remain largely Kantian because their 'computational sublime' is conceived in terms of incomprehension, fear and pleasure corresponding to the power and vastness of nature and the lack of a concrete referent. Their article considers generative art in terms of Kant's emphasis on form, but they ignore Hegelian considerations such as intellectual import and advancements made by Adorno – in relation to modern art and, crucially, the avant-garde – that combine those former aspects with Marx's (materialist) insistence on art's embeddedness within sociohistorical, economic and material totality. It is these aspects of aesthetic experience that have been most recently advanced by Stiegler, and which I feel need to be teased out in the context of computational culture. This paper contends that what must be added to McCormick and Dorin's hypothesis is the problem of machinic evolution (or technical individuation) under the apprehension of Stiegler's thesis; that is, there is a groundlessness introduced by digital art that gathers the primordial problem of the *sublimity of speed*.<sup>14</sup> Herein

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<sup>14</sup> Stiegler actually describes this as 'Transductive speed' a term that is, in fact an expansion on Simondon's theory of *Transduction*, as explained in an earlier footnote. 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

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.<sup>15</sup>

Digital cultural works foreground the *morbid* idea that, under the aegis of the speed of technical evolution, the techno-human is subjected to a loss of nature and humanity, which Stiegler describes as our originary 'de-fault' of being<sup>16</sup>. Herein 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 (prosthesis) and the possibility for *ecstatic* 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

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understanding of transferring genetic material from one organism to another.

<sup>15</sup> *Ontogenesis* refers to the development of an individual organism or anatomical or behavioural feature from the earliest stage to maturity. *Phylogenesis* is the evolutionary development and diversification of a species or group of organisms, or of a particular feature of an organism. Stiegler extends the term phylogenesis by adding 'epi' to the beginning, in order to describe the transition of evolutionary development from the biological to the technical milieu. As such, artworks are conceived as physical exteriorisations that are impelled by developments in the epiphylogenetic layer. The sublime 'shock' occasioned by the encounter with the work is inherently related to the speed of technical phylogenesis and the profound technological efficacy that it foregrounds.

<sup>16</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 'prostheses, 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.

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, 60); that is, their automated, emergent systems employ the speed-dynamics of 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.<sup>17</sup>

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<sup>17</sup> It is worth noting that, despite the nuanced technological and historical-material considerations that Stiegler brings into cogitations on the sublime in computational culture, qua Kant the technological sublime is still ultimately an aporetic discussion locked within 'the conditions that must meet to be in harmony with nature' (Kant and Pluhar, 1987, 98). However, in this case the emphasis has shifted from a classical understanding of nature towards internalised human nature and its erosion by technology.

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