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Introduction

This thesis explores the different times, temporalities and durations of contemporary art. 'Time' is a notoriously expansive subject: it is both a fixed and quantifiable measure and a fleeting or enduring impression. It is a physical dimension of the universe and a dynamic, fluctuating process of change. The time of the clock looms large in working lives: it organises daily schedules and compels immediate, fast-paced exchanges. But time also accumulates as dust on the mantelpiece and sedimentations in ancient geological strata. Time magnifies in periods of boredom and contracts with moments of excitement. Time is both transient and sturdy; ephemeral and eternal. Time flies, time marches, time is spent, and time heals. We kill time, we do time, we waste time, we give time. The times are changing, time is running out, times are hard. Time is on our hands, but also by our side. Time is fast, slow, delayed, suspended, swift, sluggish, frantic, deliberate, nostalgic and leisurely. Time is measured in quantities, it is lived in experience, and reaches beyond the confines of human existence.

Given this diversity of temporal registers and expressions, one might ask: what is the time of contemporary art? The answer is that it is all of these times. The central argument of this thesis is that contemporary art engages, instantiates and solicits multiple times and durations. Time in art is not a unitary subject or theme, but is implicated in the variable textures of contemporary lives: it is a multifaceted phenomenal dimension that is shaped by techno-scientific evaluations, socio-political structures, psychological perceptions, changing environments and biological systems.

As a gauge of time's complex and hugely variable significance within contemporary art we need not look further than three recent projects: Christian Marclay's *The Clock* (2010) is a twenty-four-hour montage of scenes of clocks gleaned from the breadth of classical cinematic history. The time displayed within each of Marclay's film 'clips' is synchronised to the global time-standard—the same time that ticks away on the wristwatches and digital devices of its viewers. Olafur Eliasson's *Your waste of time* (2006) entails the exhibition of chunks of ice harvested from the waters near the ancient Icelandic glacier, Vatnajökull. The fragile time of Eliasson's 'icebergs' is brought into proximity with the faster, warmer durations of the human body as viewers examine their glancing crystalline surfaces. Marina Abramović's *The Artist is Present* (2010) was a feat of prolonged performative endurance where the artist sat in the foyer of the Metropolitan Museum of Modern Art over the opening-hours of the three-month duration of her eponymous exhibition. Visitors were invited to sit in a chair facing the artist's own; soliciting an open-ended encounter of two human bodies in, with, through and over time.

This selection of works suggests that contemporary art puts into play markedly different aesthetic strategies that actually *instantiate* variable times, durations and rhythms. This thesis is concerned with the premise that the different media and modalities of contemporary art actually work to solicit and generate time, rather than addressing this phenomenal dimension as a neatly bundled symbolic representation or archetypal model. The time of Marclay's, Eliasson's and Abramović's respective works *is* the ticking of clocks, the melting of ice and the elongated durations of conscious awareness.

But more than simply acknowledging time's multiple adherences in contemporary lives, these works put pressure on the familiar authority of a singular

ticking timescale. The very diversity of temporal 'textures' described here, contests the foundational principle that 'The Time' is the only time. The particularly prominent idea that time exists as a single, universal standard of measurement is the legacy of both Enlightenment rationality and capitalist modernity. Modern time is standard time: a singular, even-handed timescale that regulates the messy gradients of work and life. Against this universal measure, contemporary art engages a dialogue of singularity and multiplicity; a temporal discourse of the 'one' and the 'many.' While works such as *The Clock* engage its most prominent and defining mechanism, they also draw the unitary regulations of modernity into the complex folds of contemporary aesthetics. The latter is crucial: Contemporary art solicits an *interested* encounter of different durations—time is not simply an abstract measure, it *is* a variable dance of cinematic images, the glassy coolness of an icy surface or the excruciating boredoms of sitting in a chair. In this way, art contests the most pernicious feature of temporal modernity: its capacity to assume a *disinterested* authority as a universal measure of all worldly properties. The broader argument of this thesis is that art actually contributes *to* time: the multiple durations of contemporary practices work to sustain time as a dynamic force of creativity and becoming, in the face of its persistent conscription by modern capitalist efficiencies.

Art and time

The Enlightenment thinker Gotthold Lessing's influential discrimination between the 'temporal' arts of poetry and the 'spatial' arts of sculpture has been a touchstone for

assessing the fortunes of time in the Western art historical tradition.[1] Lessing's *Laocoön* (1766) argued that poetry and literature 'belonged' to time because they consisted of a temporal sequence of sonic utterances.[2] Conversely, sculpture was seen to be inherently spatial because its voluminous attributes did not unfurl in succession, but were always simultaneously and materially present. Lessing's eighteenth-century categorisations have persisted in the work of the eminent modernist critic Clement Greenberg whose own essay 'Towards a Newer Laocoön' (1940) sought to underscore the 'timeless' autonomy of the painterly medium.[3] In this respect, the collusion of Lessing's Enlightenment distinctions and Greenberg's modernist dictum has put time outside the traditional 'scope' of art: the aesthetics of duration are confined to a transient succession of moments, while the aesthetics of material and 'medium' are founded in the fixed and solid certainties of space.

Although these classifications are easily undone in a great variety of modern and pre-modern works, the art historical narrative roughly holds that it is not until the post-war development of a significant diversity of media and aesthetic modalities that time is truly invited into the constitution of an artwork. The art historian Christine Ross has recently written that: 'contemporary aesthetics has generated pictorial, sculptural, installational, and photographic as well as time-based practices (performance, film, video, and new media) that inscribe the spectator in different experiences of time.'[4] In some respects, this narrative informs the framework of this study: 'contemporary art' is understood as the period loosely beginning with the wane of Abstract Expressionism in

[1] Lessing's distinction is recalled in each of the most significant art histories discussed in this thesis. See Rosalind E. Krauss, *Passages in Modern Sculpture* (Cambridge, Mass.: MIT Press, 1981), 3-5; Pamela M. Lee, *Chronophobia: On Time in the Art of the 1960s* (Cambridge, Mass.: MIT Press, 2004), 52; Christine Ross, *The Past is the Present; it's the Future Too: The Temporal Turn in Contemporary Art* (New York: Continuum, 2012) 3.

[2] See Gotthold Ephraim Lessing, *The Laocoön, and Other Prose Writings of Lessing* (London: Scott, 1926).

[3] Clement Greenberg, 'Towards a Newer Laocoön,' Parisian Review 7 (July-August 1940): 269-310.

[4] Ross, *The Past is the Present,* 3.

the late 1950s.[5] But the idea that the aesthetics of time flourished only within the purview of this period overlooks the temporal complexity of a number of traditional pictorial works, such as Masaccio's *The Tribute Money* (1425) or Edouard Manet's *A Bar at the Folies-Bergère* (1881-1882).[6] These works lie outside the scope of this study, but neglecting their complex engagement with time, also means neglecting the temporality of many contemporary artworks. The point here is that 'time' cannot simply be addressed as the complete *opposite* of material fixity and 'stillness,' but must be seen to adhere in a variety of complex systems, compositions, processes and experiences.

The art historian Rosalind Krauss's *Passages in Modern Sculpture* (1977) is significant in this respect for its description of sculpture as 'medium peculiarly located at the juncture between stillness and motion, time arrested and time passing.'[7] Krauss's discussion of a variety of twentieth century artworks is important because it suggests that time is not simply an 'immaterial' succession, but a 'passage' of encounter that is implicated in the viewer's perception of an artwork. No longer the passive spectator of painting or sculpture, the 'modern' twentieth-century viewer is a roving accomplice whose cerebral and sensorial experiences are petitioned by different media, modalities and situations.

[5] More recently the art historians Terry Smith and Peter Osborne have variously suggested that the 'contemporary' has acquired a unique paradigmatic status—that this field of art has surpassed the 'modern.' Terry Smith concept of 'contemporaneity' is one where globalisation and post-colonialism invite the co-existence of a multitude of different temporalities. The experience of these jostling times is said to broadly encompass our current 'condition.' This study is not concerned with identifying a particularly cohesive interest in contemporary time, as much as it seeks to describe the very different ways artists have instantiated temporality through different media and modalities. For Terry Smith's 'contemporaneity,' see Terry E. Smith, *What is Contemporary Art?* (Chicago: University of Chicago Press, 2009); and for Osborne's account of the philosophy of contemporary art, see Peter Osborne, *Anywhere Or Not at all: Philosophy of Contemporary Art* (London; Brooklyn, NY: Verso Books, 2013).

[6] One might also include Nicolas Poussin's *Et in Arcadia Ego* paintings (1628 and c.1638-40), Masaccio's predella containing the skeleton for the *Holy Trinity* (1426), and Donatello's *The Feast of Herod* (c.1427). Further, the art historian Keith Moxey proposes a 'heterochronic' art history that would step outside the linear, sequential model in addressing the temporality of a variety of historical works. See Keith P. Moxey, *Visual Time: The Image in History*, (Durham North Carolina: Duke University Press, 2013).

[7] Krauss, *Passages in Modern Sculpture*, 4.

The key here is that time is recognised as an integral dimension of all works that involve the engagement of a viewing subject—a subject whose conscious, perceptual and embodied experience necessitates the unfolding of time.[8] While Marclay's, Eliasson's and Abramović's works explicitly engage time as a 'theme'—as indicated by their respective titles—there is room to understand time more *implicitly*, as a dimensional feature of all works that instantiate duration in different ways. As the art historian Pamela M. Lee has observed, while Hans Haacke's celebrated work *Grass Cube* (1967) does not overtly address the subject of time, its biological components *do* invite the consideration of variable durations.[9] Time is instantiated here as a biological process, a form of environmental regulation and an experiential dimension. In this respect, Haacke's work presents an incentive to broaden the 'scope' of time in contemporary art beyond thematic or symbolic representation—beyond the simplistic distinctions of 'temporality' and 'spatiality,' stillness and movement.

This thesis surveys the work of a wide-variety of artists from the early 1960s and into the beginning of the twentieth century. Chapter Seven looks at works by On Kawara, Hanne Darboven, Roman Opalka, Tehching Hsieh, Julieta Aranda and Anton Vidokle, Toril Johannessen, Mierle Laderman Ukeles and Christian Marclay that variously explore time's role as a mechanism of capitalist modernity. Chapter Eight looks at the consequences of Albert Einstein's special relativity for aesthetics, surveying the work of William Kentridge, Matthew Ritchie, Melik Ohanian, Tomás Saraceno, Daniel Crooks and Lisa Reihana. Chapters Nine and Twelve discuss Henri Bergson's multiple rhythms of duration in the work of Wolfgang Laib, Vija Celmins, Song Dong and Daniel

[8] This discussion of time and contemporary art thereby relies on an expanded understanding of the term 'viewer,' not simply as a spectator whose engagement with a work is solely based on a visual apprehension, but one whose experience is multi-sensorial and embodied. A more appropriate term might be 'experiencer,' but the word 'viewer' is favoured here for its simplicity.

[9] This piece is a variation on the significant work *Condensation Cube* (1963-65). See Lee, *Chronophobia*, 77-81.

Malone. Chapters Ten and Eleven look at the cognitive and phenomenological perceptions of time in the work of David Claerbout, Faith Wilding, Tony Conrad, Anri Sala and Thomas Hirschhorn. Lastly, Chapters Thirteen and Fourteen explore durations that exist beyond human lifetimes in the work of Robert Smithson, Olafur Eliasson, Marcus Coates and Trevor Paglen.

Time and art

While the diversities of time in contemporary art are crucial to the arguments presented in this thesis, it is important to think *across* these works: to assess the variety of their unique engagements with time as a physical dimension, a dynamic system, a phenomenal feature of experience and a form of measurement. While Part One of this thesis includes a literature review of art historical studies that have contributed to these discourses, the remaining sections introduce a set of theoretical frameworks that continue to shape the interrelations of time and art. Parts Two, Three and Four bring together a social history of temporal modernity, a philosophical consideration of both the ontology and phenomenology of time, and a 'speculative' enquiry into time beyond the limitations of human perspective.

Time's variable 'status' as a feature of the physical world, an element of conscious experience, a spiritual dimension, or a cosmological system has been a significant subject within most histories of human thought—a full list of which would extend far beyond the pages of this introduction. A brief but diverse roll-call might include the cyclical time of the Indian Vedas, time and change in Aristotelian thought, eternalist theories of the Islamic Golden Age, the concept of *ta* as part of the scheme of *ta-va* relations in different Polynesian traditions, the Buddhist concern for the time of

conscious awareness, the multiple lunisolar calendars of the Incas, the illusion of time in the analytic philosophy of John McTaggart, the absolute time of Newtonian physics and the 'mind-dependent' time of Saint Augustine of Hippo. These concepts address a variety of concerns: Is time real or illusory? Does time have a direction? Does it always move forward? Is time continuous or momentary? Does time exists outside of human thought? What is the time of the cosmological universe? Is there one time or many times? Is time absolute and fixed, or fluid and relative?

Given this wealth of philosophical frameworks, this study of time and art has purposefully confined its scope to the continental philosophy and scientific developments of the twentieth century, taking into consideration their historical precedents in seventeenth-century Enlightenment thinking. This decision, carefully weighed, has been made as a means of addressing the particular prominence of the singular timescale in most contemporary capitalist economies. Because it readily assumes the universal status of 'The Time,' the rationalism of the modern time-standard does remain an important point of reference for contemporary artists working within the Western tradition.

Part Two of this thesis 'Time Measured' discusses the historical standardisation of time at the end of the nineteenth century—a period whose widespread industrial developments in railway transport and telegraphic communications led to Karl Marx's famous proclamation of the 'annihilation' of spatial geographies by the ever-faster speeds of modern time. This 'time-space compression' is a key narrative of modernity that persists at the beginning of the twenty-first century with the emergence of hyper-fast digital technologies that allow for a '24-7' world of instantaneous exchanges of information. The time of modernity thus assumes a number of temporal values that are significant within contemporary practices: Time is a model of regulation, discipline and

efficiency, but also a quality of speed, immediacy, futurity and progression. The temporal narratives of modernity have been addressed by a number of thinkers, and this thesis variously draws on the work of the theorists Anthony Giddens, E.P. Thompson, Reinhardt Koselleck, Paul Virilio, Jonathan Crary, and the sociologists Jon May, Nigel Thrift and Judy Wajcman.

While it oversaw a ruthless standardisation of time, the beginning of the twentieth century is particularly compelling here because this period also accommodated a number of theoretical temporal models that, somewhat paradoxically, put pressure on its singularity. Albert Einstein's 1905 special theory of relativity had momentous consequences for the scientific practice of temporal measurement because it denied time's fundamental universality. The relative, malleable and multiple times of the Einsteinian universe radically challenged the certainties of the Enlightenment; transforming science, but also confirming the new spatio-temporal possibilities that were being tentatively explored in aesthetics. Special relativity invites a dialogue between temporal multiplicity and standardisation that has been compelling for many contemporary art practices. While modernity underscores the homogeneous regulation of time, it also sees a proliferation of *asynchronous* temporalities: multiple, divergent and heterogeneous timelines.

At this point, one might ask: where does the artwork fit here? Is it an aesthetic form that measures time? Or does it have its 'own' time? My suggestion is that art 'instantiates' different times through multiple and divergent aesthetic compositions, but that these temporalities 'adhere' within the encounter between a viewer and an artwork. From Marclay's cinematic images to Eliasson's melting icebergs, the 'times' of art are the product of the triadic interrelations of the viewing subject, the variable modalities of an artwork and the rhythmic fluctuations of a contextual 'world' that

supports their encounter. In this respect, Part Three of this thesis 'Lived Time' looks more carefully at time as a phenomenal dimension of human perception. The phenomenological tradition in twentieth century continental philosophy is particularly important here because it addresses time as an immanent feature of human conscious experience. Part Three discusses the phenomenological complexities of Edmund Husserl's significant concept of 'internal time-consciousness' alongside more recent studies concerning the cognitive neuroscience of human 'time perception.' Nonetheless, it is Henri Bergson's philosophy of the time of *durée* that provides this study's greatest theoretical guidance, shaping its key lines of inquiry. Bergson's distinction between the quantitative time of measurement and the more qualitative rhythms of perceptual and material durations inform the abiding structure of this study, offering means of understanding how contemporary aesthetics contributes to time as dynamic and creative phenomenal dimension, rather than a regulatory mechanism.[10]

Turning away from the temporalities of human time perception, the final section of this thesis 'Part Four: Beyond Times' puts pressure on the phenomenological inscription of time. A number of contemporary artists have engaged timescales that exceed human lifetimes or perceptual boundaries by engaging different biological and geological processes, entropic structures and technological systems. These works may hold some affinity to recent 'speculative' movements in philosophy that seek to dismantle the privilege of human thought and experience. At its most radical, speculative thinkers such as Quentin Meillassoux suggest that the remnants of fossilised creatures insist on a 'world' beyond human necessity—beyond the *timescales* of an anthropocentric utility. This presents an inescapable challenge for a contemporary

[10] The words 'time' and 'duration' are often used interchangeably as a syntactic variable within this thesis, but most often they imply the Henri Bergson's important distinction between 'quantitative' and 'qualitative' times. In this respect, the reader will note that the word 'duration' is used more prevalently in Part Three of this thesis.

artwork that—as art historians such as Rosalind Krauss have proposed—is orientated toward a temporal 'passage' of encounter by a (human) viewing subject. It may be that art does not actually confirm the privileged transcendence of this viewing perspective—that the systems, materials and compositions of some contemporary works ensure that the viewer never achieves a universal access to the multiple proliferation of timescales described within these pages.

What will become clear in this thesis is that art asks more questions of time than it provides answers. Contemporary art establishes time not as a simple and transparent numerical figure, but as the more indiscernible temporal *qualities* of multiple media and modalities: a heterogeneous sequence of 'clock-time-images,' the phenomenal sensation of cold ice, or the immanent embodied durations of being, sitting and watching. These variable 'aesthetics of time' are drawn against the dominant temporal hegemony; disclosing, breaking and twisting the habitual divisions of the clock, insisting on a world of asynchronous durations, spiralling timelines, heterochronic sedimentations, multi-temporal systems and polychronous materialities.

PART ONE

Literature Review

Introduction

Part One of the thesis presents a survey of art historical literature that broadly attends to the subject of time in contemporary art. From the outset, it is important to acknowledge that this is not an extensive or cohesive field of scholarship—few prominent discussions or arguments have explicitly shaped its discourses. Further, many of the arguments and histories discussed here do not address 'time' or 'contemporary art' as primary subjects of concern. My research has identified a selection of different art histories, ideas and frameworks that offer some insight into 'time' as a key phenomenal dimension, theme and subject of contemporary art practices. This 'patchwork' of recent literature is roughly organised by its concern for how the different media and modalities of contemporary art have 'shaped' time as a dimension of aesthetic experience and a subject of consideration. These include: Michael Fried's infamous critique of the durations of minimalist sculptural practices; the relationship between time, art and technology; the aesthetic structure of the archive and its resistance to dominant models of historical representation; film and photography's unique capacity to engage and shape experiences of time; and the embodied durations of performance art. Parts Two, Three and Four of this thesis move beyond this individuated focus on different media, building a broader set of temporal frameworks

that address time in recent art practice that also draw on this important field of literature.

CHAPTER ONE

Minimalism and Duration

Michael Fried: being present

Michael Fried's well-known critique of minimalist sculpture 'Art and Objecthood' (1967)[1] remains an important point of reference in the study of time in contemporary art practices. As a fairly forthright criticism of the 'literalist' work of sculptors such as Donald Judd and Robert Morris, Fried's essay offers a useful insight into how minimalist art dismantled the rigid temporal values of modernism. Fried rather shrewdly discerned that minimalist sculptural arrangements obliged their prospective viewers or 'beholders' to navigate a sequence of objects, and that this ambulatory encounter invited a seemingly 'endless' period of duration into the artwork itself. He wrote:

> …the beholder is made aware that he himself is establishing relationships as he apprehends the object from various positions and under varying conditions of light and spatial context…[This] amounts to the claim that the beholder is aware of the endlessness and inexhaustibility if not of the object itself at any rate of his experience of it.[2]

In polemical fashion, Fried's essay positioned the seemingly endless aesthetic considerations of minimalist sculpture against the singular 'timelessness' of a modernist work whose experience was never 'incomplete' because, as he wrote, 'at every moment

[1] Michael Fried, *Art and Objecthood: Essays and Reviews* (Chicago: University of Chicago Press, 1998), 148-172.

[2] Ibid., 166.

the work itself is wholly manifest.'[3] Fried claimed that it was precisely by 'virtue of their instantaneousness that modernist painting' defeated the endless durations of minimalism—a temporal virtue he famously described as 'grace.'[4]

Outside of minimalist practices, a number of concomitant 1960s art movements were also interested in the seemingly 'graceless' aesthetic experiences of extended durations and rhythms. Performance, conceptual art, Fluxus, sound art, installation practices and land art movements embraced the variable, transient and enduring experience of a viewing subject—an experience that was not a crisp, instantaneous and momentary impression, but an aesthetic phenomenon extended along with more messy and divergent temporal fluctuations of time.[5] While it has been much debated and discussed, Fried's critique remains relevant to a broad range of these practices for its shrewd delineation of the temporal issues at stake: on the one hand, are the 'timeless' aesthetic values of modernism, and on the other, the extended sensorial durations that enter the 'frame' with their demise.

In her essay 'The Im/Pulse To See' (1988) the art historian Rosalind Krauss writes that Fried's interest in aesthetic instantaneity chimed with Clement Greenberg's influential understanding of modernist art. The Greenbergian argument is well-known. Inspired by seventeenth-century Enlightenment philosopher Immanuel Kant, Greenberg conceived of an aesthetic experience whose uniqueness in the world was grounded in the rational structures of its own medium. Painting was valued for its substantive flatness—a quality that was readily communicated as an instantaneous aesthetic impression, entirely transparent to the eyes of an erstwhile viewer.

[3] Ibid., 167.
[4] Ibid.
[5] Hal Foster, *The Return of the Real: The Avant-Garde at the End of the Century* (Cambridge, Mass.: MIT Press, 1996), 42.

The art historian Rosalind Krauss, whose scholarship will be discussed shortly, recalls how Fried found a perfect analogy for the *ideal* immediacy of this aesthetic experience in a story about the famous American baseball hitter Ted Williams. According to Krauss, Fried was humorously captivated by the abstract painter Frank Stella's claim that Williams was the 'greatest living American' who could see 'faster than any living human…His vision is so fast that he [could] see the stitching on the baseball as it [came] over the plate.'[6] What Krauss realises is the affinity between this concern for speed and the modernist ideal of instantaneous visual apprehension. She writes that the speeding ball

> …performed the condition of an abstracted and heightened visuality, one in which the eye and its object made contact with such amazing rapidity that neither one seemed any longer attached to its merely carnal support—neither the body of the hitter or the spherical substrate of the ball. Vision had, as it were, been pared away into a dazzle of pure instantaneity, into an abstract condition with no before and after.[7]

In this respect, the ideal modernist artwork is one that can be wholly comprehended in one glance; that communicates its aesthetic worth in the breadth of an instant. Crucially, the eye is seen to *omit* duration: it does not parse visual information, rather it receives this aesthetic 'meaning' in one 'timeless' moment of visual capture.

It was against the purely visual 'presentness' of this aesthetic experience that Fried found minimalism wanting. Minimalist sculptures were seen to solicit a more plodding and 'graceless' navigation of obdurately banal and repetitive objects: a line of bricks (Carl Andre), a series of equivalently scaled cubes (Donald Judd), a variable arrangement of L-shaped beams (Robert Morris). Part of the difficulty for Fried was the

[6] Rosalind E. Krauss, 'The Im/Pulse to See,' in *Vision and Visuality*, ed. Hal Foster (Seattle, Wash.: Bay Press, 1988), 51-52.
[7] Ibid., 52.

bald 'objecthood' of these sculptures: the fact they did not 'announce' their own aesthetic value, but became entirely contingent both on their spatial environs and on the lumbering embodied encounter of a prospective viewer. Given this seeming indiscernibility between viewer and art object, between art object and common 'thing,' Fried feared that minimalist works entailed a quality of endlessness that did not even conform to a chronological sequential 'before and after.'

Judd's quintessential description of the minimalist imperative—'one thing after another'[8]—becomes a journey without end or even focus; a systematically organised series of objects whose aesthetic logic simply ignores modernism's compositional hierarchy of form and shape. Fried famously described this endless durational encounter as 'theatrical'—a terminology used not in respect to dramatics, spectacle or narrative, but for the way the minimalist sculpture implored reaction as a 'special complicity that the work extorts from the beholder.'[9] Fried writes:

> …theatre confronts the beholder, and thereby isolates him, with the endlessness not just of objecthood but of time…[what] theatre addresses is a sense of temporality, of time both passing and to come, *simultaneously approaching and receding*, as if apprehended in an infinite perspective...[10]

Crucially, what Fried describes here is not simply the experience of time, but a specifically indeterminate timescale: an aesthetic experience that is not preconceived or directed. Ultimately, this endless time of '*simultaneously approaching and receding'* entails the abandonment of certainty, absolute visual transparency: what is known

[8] Judd's statement was made in admiration of Frank Stella's paintings whose geometric repetitions were said to follow an 'order' that was 'not rationalistic and underlying but is simply order, like that of continuity, one thing after another.' See Donald Judd, *Complete Writings 1959-1975: Gallery Reviews, Book Reviews, Articles, Letters to the Editor, Reports, Statements, Complaints* (Halifax, Nova Scotia; New York: Press of Nova Scotia College of Art and Design; New York University Press, 1975), 184.

[9] Fried, *Art and Objecthood*, 155.

[10] Ibid., 167.

'now' and what can be predicted for the future. Or, as Fried writes: 'one never feels that one has come to the end of it; it is inexhaustible.'[11]

Rosalind Krauss: time's passage

Rosalind Krauss's *Passages in Modern Sculpture* (1977) is important here because it recognises the rationalist understanding of time that lies at the heart of Fried's critique. While Gotthold Lessing's influential categorisations may have confined sculptural practices to static spatial features, Krauss's survey of a variety of twentieth-century sculpture considers time as an integral feature of the dynamic passage of aesthetic experiences. She writes:

> Into any spatial organization there will be folded an implicit statement about the nature of temporal experience. The history of modern sculpture is incomplete without a discussion of the temporal consequences of a particular arrangement of form…One of the striking aspects of modern sculpture is the way in which it manifests its makers' growing awareness that sculpture is a medium peculiarly located at the juncture between stillness and motion, time arrested and time passing.[12]

Time is not the sole subject of Krauss's study, but *Passages in Modern Sculpture* has broad-reaching implications for how duration is constituted *within, by and through* an aesthetic composition. Most importantly, Krauss identifies how different twentieth-century art practices have dismantled the rational linear conscription of time that persisted in classical sculptural works. Her complicated art historical proposal is that a number of modern sculptural practices, such as that of Auguste Rodin, have resisted the

[11] Ibid., 166.
[12] Krauss, *Passages in Modern Sculpture*, 4.

chronological imperatives of earlier traditions, inviting immanent and embodied passages of duration into the artwork itself. Krauss claims that these modern practices have progressively sought to site 'meaning'—broadly understood as the artistic quality of a given artwork—squarely within the passage of its encounter by a viewing subject.[13] Where classical works may have treated aesthetic meaning as a wholly transferrable narrative entity, Krauss insists that meaning emerges with the phenomenal experience of an artwork—an experience that, as Fried shrewdly recognised, necessarily unfolds over time.

Rodin's monumental sculptural project *The Gates of Hell* (1880-1917) is especially important to Krauss's arguments. His well-known set of unfinished bronze doors are said to refuse the rational narrative symbolism that characterised the contemporaneous neo-classical sculptures of artists such as François Rude and Antonio Canova. Krauss writes that Rude and Canova followed Lessing's categorisations in sustaining the premise that the dynamic qualities of historical events—for instance Rude's famous Arc de Triomphe friezes of historical scenes of the French Revolution—could only be communicated by the selection of a penultimate symbolic moment, carved into stone and thereby 'frozen in time.'[14] The choice of historical 'moment' was paramount because it needed to convey the broader symbolic significance of the history it sought to represent: a clear sequence of narrative events where what 'had happened' and what was 'to come' were readily deducible. Krauss's observation is that Rodin's relief ultimately denies this rationalist means of communication through an

[13] I must acknowledge that Krauss's use of the term 'meaning' has the potential to assume a singular artistic meaning that is not consistent with the contemporary pluralist understanding that an artwork can and does solicit variable interpretations. Krauss's concept of 'passage' does invite pluralist interpretations in that it refuses the fixity of aesthetic experience, nonetheless her terminology might still grate against contemporary ears, implying the existence of a cohesive and particular aesthetic significance.

[14] See Krauss's discussion of neo-classical sculptural techniques in *Passages in Modern Sculpture*, 10-18.

indeterminate composition of its figures. The writhing bodies of Rodin's *Gates* remain imprecise, pitched forward but emerging only from a shallow background that seems to offer insufficient containment: an indefinite arrangement of form that recalls Fried's description of minimalist work 'simultaneously approaching and receding.' What is important for Krauss is that chronology of symbolic communication remains unclear in Rodin's work precisely because its composition refuses a total and comprehensive *visual* account of its aesthetic components: the viewer cannot sustain an advantageous visual position from which to 'follow' a transparent narrative succession.

Broadly speaking, Rodin's work is seen to thwart the traditional premise that the viewer of neo-classical sculpture should be awarded a comprehensive and masterful perspective on what lies before them. Krauss writes that sculptors such as Rude and Canova achieved this masterful viewpoint in shallow relief sculptures by including several perspectives of the same figure within a single composition. The prospective viewer could not circumnavigate these shallow sculptural reliefs, but they could still make an all-encompassing observation of a female nude, for instance, where the artist incorporated a series of anterior, posterior and oblique views within the work. Here, three phases of time—past, present and future—are conveniently presented to the unitary and transcendent perspective of an immobile viewer. Refusing this wholly chronological compositional structure, Krauss proposes that Rodin explicitly parodies these multiple sequential perspectives in the sculpture 'The Three Shades' that sits atop the *Gates*. Rodin's souls of the damned are three bronze iterations of exactly the same figure arranged centrifugally around a medial point where their hands meet. Although these figures are exacting 'repeats,' they are not rotated in the shallow-relief tradition of including the anterior, posterior and oblique views of the same body. Rodin's work fails, or perhaps expressly *refuses*, to supplement the viewer's fixed spatial position with

additional visual information. Krauss writes that Rodin's sculpture is 'hostile to narrative impulse' because it refuses to signify anything more than the 'repetitive process of its own creation.'[15] This grouping of replicated figures denies a narrative of beginnings or endings: a clear sequence of cause and effect is lost to an obdurate sameness.

What is especially significant to the purposes of this study is the identification of a critical collusion between time and vision in the Western art historical tradition. Rodin puts pressure on the conventional premise that the experience of an artwork is 'timeless' because the eyes offer an entirely transparent and 'unmediated' means of receiving visual information—a instantaneous flash of optical recognition. The Renaissance pictorial development of one-point perspective contributes to this tradition by positioning the viewer in space, but also in *time*. The single viewing-subject corresponds to a single point of view that, in turn, corresponds to a single moment in time. A multitude of contemporary works purposefully contest this regulation of time by refusing to let aesthetic experience settle on a single, totalising perspective—a subject that is discussed in relation to Albert Einstein's special theory of relativity in Chapter Eight. What is important here is that Krauss recognises its demise in Rodin's *Inferno* whereby the inherent *partiality* of vision is never overcome by the ideological motivation to offer a transcendent, masterful perspective. Underlying Krauss's discussion of sculptural relief is a profound distrust of the neo-classical reliance on models of chronology,[16] specifically the Cartesian binary of a rational intelligible mind that is held aloft from the messy vagaries of the body.[17]

[15] Ibid., 20.
[16] Ibid., 10.
[17] Krauss's critique of Donald Kuspit's 'rationalist' interpretation of Sol LeWitt's work is particularly telling. She writes: 'There may be readers of this kind of criticism who balk at statements of this sort. They may find it strange that in the last quarter of the twentieth century there should have arisen an art dedicated to a

But what is most significant to this study of art and time is the parallel argument Krauss makes in her discussion of minimalist and land art practices in the final chapter of *Passages in Modern Sculpture*. She writes here that minimalism's repetitive sculptural arrangements similarly refuse the totality of a single visual perspective by insisting on locating 'meaning' with the embodied experience of the viewer. Works by Robert Morris are said to make meaning immanent to a particular perspective, rather than allowing a unanimous symbolism to transcend its particularities—to universalise the unique experience of an artwork. Krauss's primary claim is that aesthetic meaning is always contingent upon the specificity (partiality) of an embodied experience of art: that it arises *with* the passage of encounter and not *through* it. Meaning is not 'chronological' in as much as it is not fixed in the historical past and then immediately communicated by an aesthetic form in the present. Rather, meaning arises with the viewer's ambulatory navigation of sculptural forms—an encounter that, unlike the speedy instantaneity of Fried's baseball analogy, is very much anchored in the 'carnal' physicality of the viewer. The paradigmatic example is Morris's *L-beams* (1965) (Fig. 1.1): three identical L-shaped objects positioned horizontally, vertically and propped on either end. Krauss's complicated assertion is that the seemingly identical nature of Morris's beams is only ever something that the viewer has an *ideal* understanding of because their visual experience does not exist at a remove from their embodied navigation. Each beam looks fundamentally different within the passage of encounter, as each bend and angle is navigated, each bulky form viewed from an alternate spatial perspective. Krauss writes that Morris's beams overcome the rational assumption of their identicalness:

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triumphant Cartesianism, that when almost everything else in our cultural experience has instructed us about the necessity of abandoning the fantasy of the transcendental subject…But the power of human reason has captured the imagination of a number of contemporary writers on art, for whom abstraction is necessarily the outcome of the triumphant progress of rationality.' See Krauss, 'LeWitt in Progress,' *October* 6 (Autumn 1978), 42.

> ….at the moment of experience or *in* experience, the Ls defeat this logic and are 'different.' Their 'sameness' belongs to an ideal structure—an inner being that we cannot see. Their difference belongs to their exterior—to the point at which they surface into the public world of our experience.[18]

Krauss's concept of the 'externality' of sculptural meaning is indebted to the phenomenology of Edmund Husserl and Maurice Merleau-Ponty, and the linguistic turn in analytic philosophy—two early twentieth-century philosophical movements whose translated texts began circulating amongst American artists and critics during the 1960s. Bringing these two arms of continental and analytic thought into proximity might seem somewhat ungainly—a criticism made by Hal Foster.[19] But it is not difficult to see how these philosophical traditions may have appealed to Krauss in that they both sought, in varying degrees, to challenge the Enlightenment legacy of Kantian transcendentalism. Husserl's phenomenology is called upon to refute the existence of *a priori* meanings that might be symbolically communicated through sculptural works.[20] Similarly, Merleau-Ponty's important work *The Phenomenology of Perception* is cited in support of the premise that, despite its seemingly conventional sameness, an object cannot persist through space and time unchanged or uninflected by variations in its phenomenal environment.[21] By extension, Ludwig Wittgenstein's concept of the *public* production of linguistic meaning—that the meaning of a word, however privately conceived, is only ever established in an exchange of words; in the inter-subjective 'play' of communication—is analogously aligned with the minimalism's ambition to lodge aesthetic meaning in the continuous 'conversant' encounter between viewer and art

[18] Krauss, *Passages in Modern Sculpture*, 267.

[19] Foster acknowledges this somewhat anachronistic negotiation of both linguistic structuralism and phenomenology does not anticipate the opposition between these philosophies that was exploited in later critiques of the orthodox minimalist claim to a universal field of basic human perception. See Foster, *The Return of the Real*, 43.

[20] Krauss, *Passages in Modern Sculpture*, 28.

[21] Ibid., 239.

object.[22] While their combination might be unwieldy, Krauss pulls these philosophies together in order to underscore an important point: Spectatorship is never simply the passive reception of visual information, rather it is a wholly permeable aesthetic experience that is generated in the encounter of viewing subject and art object.

I end this discussion of Krauss's *Passages in Modern Sculpture* with two closing observations: one that emphasises the continuing relevance of her work to this study, and one that is mildly suspicious of a simplistic phenomenology that might be lurking beneath its arguments. Krauss's concept of passage puts pressure on the persistent valorisation of visual perspective, sight and opticality as primary vehicles for communicating aesthetic meaning. By lodging aesthetic 'meaning' firmly within the purview of a physical encounter between viewer and artwork, Krauss undoes the traditional Cartesian distinction between an obdurate body that simply exists as a vehicle for the superior cognitive functions of the mind. Crucially, Krauss's art historical analysis of both Rodin's and minimalist sculptural practices gives time a role in contesting the Cartesian dualism. For Krauss, aesthetic meaning is generated within a passage of encounter that is not structured by causal or chronological actions, but by the interplay of different embodied explorations. This is important for understanding contemporary 'immersive' installation practices that oblige a continuously roving navigation of their manifold material or sensorial components. Discussing the work of Marcel Duchamp and Constantin Brancusi, Krauss writes:

> Unlike the analytic time, in which the viewer grasps the *a priori* structure of the object, deciphering the relationship between its parts, and connecting the thing to a structural logic or first cause, the alternative posited separately by Brancusi and Duchamp is that of real time, or experienced time. It is the lived time through which one encounters the riddle, experiencing its twists and deviations, its

[22] Ibid., 262.

> resistance to the very idea of 'solution.' Or it is the experience of form as it is shown to be open to change through time and place—the contingency of shape as a function of experience.[23]

Nonetheless, Krauss's adoption of phenomenology does risk a valorisation of embodied experience as 'pure' and unalloyed; as capable of experiencing a 'real' time without qualifying what that 'reality' is. Feminist artists such as Mary Kelly, Judy Chicago and Mierle Laderman Ukeles offered a notable critique of the minimalist supposition that the embodied experience of an artwork was underscored by a universal, un-gendered and unmediated encounter with time and space.[24] My suspicion is that a form of 'unmediated' sensorimotor bias underpins Krauss's analyses whereby a certain phenomenological authenticity is awarded to the passage of experience. Insisting on the fundamental lived 'reality' of this experience risks a naïve neglect of how both the body, and the phenomenal dimension of time, is regulated differently for different subjects. Coinciding with many of the art practices discussed in Krauss's study, Laderman Ukeles's 'Maintenance Art' project famously involved the very public cleaning of museum exhibition spaces, thereby reminding its viewers that the 'passage' of embodied experience is often iniquitously regulated *by* time, specifically the capitalist timescale. Works such as this suggest that art cannot achieve a pure embodied experience, because the activity, labour and physicality of some people—of some *bodies*—is differently and often unfairly valued. The phenomenology of temporal experience can never be assumed as 'natural' or 'innate'—an important subject that is pursued in Chapter Ten in relation to Faith Wilding's significant performance work *Waiting* (1973).

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[23] Ibid., 107-8.

[24] See Helen Molesworth's important discussion of domestic labour and aesthetic practices in feminist artworks in 'House Work and Art Work,' *October* 92 (Spring 2000), 84.

Figure 1.1: Robert Morris, *Untitled (L-Beams)*, 1965.

CHAPTER TWO

Time and Technology

Introduction

This chapter discusses the work of a group of art historians for whom the relationship between art and time has been indelibly shaped by the technological developments of modernity. Pamela M. Lee, Charlie Gere and Timothy Barker have variously addressed the significant intersections between contemporary art practices and the communications and information processing systems of both the modern industrial period and the contemporary 'digital era.' Time is the key constituent of the relationship between art and technology—it is discussed as a figure of technological unease, an architect of human interactions, a symbol of political modernity, and a cipher for collective cultural sensibilities. By comparison, Krauss and Fried's discussion of minimalist sculptural practices approached 'time' as more defined phenomenon: the 'time' of their discussions was the 'embodied duration' experienced by the viewer as they circumnavigated an artwork. But the discourses parsed here approach time as a more 'slippery' phenomenal dimension—a cipher, a symbol or an experience—that is nonetheless shaped by the definitive politics and techno-scientific developments of modernity. For Lee, Gere and Barker, the relationship between time and art is certainly not 'unmediated': it is very much informed by the modern paradigms of relentless social 'progression,' continuous speed and acceleration, rational linear chronologies, and the measurement and regulation of individual subjective experiences. Broadly speaking, art

is said to counter this prescriptive mechanistic timescale by exploring the technological possibilities of delay, recursivity, non-linearity, multiplicity and synchronicity.

Pamela M. Lee: Systems Theory

Pamela Lee's *Chronophobia* (2004) examines the relationship between American and European art practices of the 1960s and the contemporaneous cultural apprehension towards time as a figure of technological change. Her principle argument is that the cultural landscape of the 1960s was inflected by a broad-ranging distrust of newly emergent proto-computational technologies. Lee writes that this era was pervaded by a sense of technological unease that was manifest in a wholly ambivalent attitude towards time. In this respect, the neologism 'chronophobia' aims to describe both a utopian fascination with and an inherent distrust of the timescales that became associated with emerging computational and communications technologies. According to Lee, these post-war communication systems embraced the accelerated rhetoric of modernity as a timescape of ever-faster speeds and instantaneous information processing. This is a central narrative of time and modernity that is recalled in different formulations by many of the thinkers surveyed in this study. In this respect, Lee follows the philosopher of history Reinhardt Koselleck's account of 'late modernity' as an era in the grip of an especially 'peculiar acceleration' that is shaped by the rapidity of continual teleological 'progress,' thereby emphasising the speculative values of the future over the immediate experience of the present.[1] Lee's primary thesis is that the art of the 1960s responded to this accelerated technological timescale by maintaining an

[1] Pamela M. Lee, *Chronophobia: On Time in the Art of the 1960s* (Cambridge, Mass.: MIT Press, 2004), 264-265.

'obsessional uneasiness with time and its measure.'[2] From Jean Tinguely's kinetic works, to Bridget Riley's paintings, Robert Smithson's engagements with cybernetics, Andy Warhol's films and the serialised paintings of On Kawara, time is approached by Lee as a 'compelling, if elusive, cipher'[3] of a larger cultural ambivalence towards time and technology.

Importantly, *Chronophobia* is not a study of an explicit artistic engagements with the emerging technologies and 'new media' of the post-war era. Rather, it takes up the difficult task of interpreting the art of the 1960s, not through its explicit *use* of new technological systems or media, but through its general sensitivity to the cultural reception of these systems. For Lee, the 1960s represents a 'liminal' historical period whose development is caught between the analog technologies of the 'Machine Age' and the computational communication systems that would eventually evolve into the contemporary 'Information Age.'[4] Lee writes that it was both the speed at which information could be transmitted via new communication systems and the pace of the technological development of these systems that engendered an ambivalent attitude towards time.[5] Citing the Marxist philosopher and social theorist Herbert Marcuse, she suggests that twentieth-century technology came to modulate human relationships and exchanges by imposing a bureaucratic 'administrative logic' that structured the individual consciousness of the worker.[6] Lee is not concerned with the utility of a specific tool—for instance, how a new automated system could cut costs and increase productivity—but how the *logic* of its human use permeated social spheres beyond what it 'could do.'

[2] Ibid., xii.
[3] Ibid., xiv.
[4] Ibid., xiii.
[5] Ibid., xiv.
[6] Ibid., 28.

In this respect, time is a complex and indefinite figure in Lee's study that remains an often frustratingly 'elusive cipher.' What seems significant here is that during the 1960s the 'figure of time' comes to *represent* a form of technocratic anxiety: 'time comes to signify things that the literal image of technology cannot.'[7] While the art historians Charlie Gere and Timothy Barker draw liberally on a range of twentieth and twenty first century engagements between technology and art, Lee limits the aesthetics of 'chronophobia' to the 1960s with the idea that this decade evinced a peculiar and unique cultural awareness *and* wariness of time.

I can appreciate that time as a 'cipher' of cultural representation might appear as an intangible, slippery and often abstract register—from Augustine to Husserl, time has threatened to slip from the grasp of the philosopher who follows it.[8] But Lee's argument is quite specific: the art practices that emerged roughly within the historical confines of the 1960s were especially concerned with time as a figure of technological anxiety. While it is important to acknowledge that artists of the 1960s and 1970s made significant contributions to contesting modernity's linear teleological model—along with its various technocratic strictures—my own discussion of time, art and technology moves away from the cultural unease associated with technicity. That being said, Lee's scholarship is critical to this study of art and time because it extends the discussion of time and technology beyond the categorical limitations of media. Lee offers an important analysis of works that engage the time of technology without being expressly 'technological,' or rather works that do not take the explicit form of a computational, informational or communications technology. *Chronophobia* is not simply a study of artworks that have employed or directly engaged these new technologies as artistic

[7] Ibid., 34.

[8] Edmund Husserl's famously complex phenomenological study begins by acknowledging Augustine's history of 'grappling' with the nature of temporal experience. See my discussion of Husserlian time-consciousness in Chapter Ten of this thesis.

media, rather Lee sets out to assess how the logic of modern time has also permeated the structures of aesthetic forms that remain unconnected, unwired, motionless and inert. What Lee recognises in works of the 1960s, including minimalism, is a 'systems logic' that is shaped by new theories of technology. She writes that the logic of this time is

> …explicit to the rhetoric of much art of the period as well, including minimalism. It is the time of the work of art now understood as a system, recursive and shuddering like an echo, the time of an expanding new media and the articulation of its logic within and by art.[9]

Before discussing Lee's approach to minimalism, it is worth parsing the philosophical position that underpins her arguments. Martin Heidegger's post-war critique of technology is an important point of reference for artists and art historians concerned with the relationship between technologies and the human phenomenological experience. Lee writes that Heidegger's thought is critical to her study because it denies the unsophisticated premise that technologies are inert tools that are simply passively waiting for active human use. Instead of understanding the tool as the 'mere means' of human action and agency, Heidegger proposes that our modern era is already 'enframed' (Heidegger uses the German term 'Gestell') by technological practices. In this respect, the human subject does not simply utilise technologies and apparatuses but is shaped and mobilised by a world that is already 'technological.'

Heidegger's philosophy has been important for many twentieth-century thinkers hoping to conceive of how we are shaped by the technological instrumentalism of modernity, but it has also been criticised for its marked determinism. Heidegger

[9] Lee, *Chronophobia*, 39.

proposed that technics tended to frame the human relationship with the world in a completely one-dimensional manner.[10] This philosophical approach to technology was developed just after the conflicts of the Second World War and Heidegger can be seen as regretting the human-world engagement as one of pure resource exploitation and utility.[11]

Lee is interested in how Heidegger conceives of the world, in her words, not as a collection of inert substances and things, but an environment that 'enmeshes'[12] the subject in a framework of events, processes and activities. Following Lee here, Heidegger's insight is that it is only when part of this world breaks or ends that these frameworks are truly revealed. Crucially, Heidegger suggests that the artwork plays an important role in allowing the subject to 'see' the world otherwise than it ordinarily appears. Lee writes:

> Heidegger's discussion on the artwork as world dovetails with his larger critique of technological reason. To follow the thinker, the world is increasingly displaced by objects of quasi-scientific description or technocratic rationality within modernity; for him, the technological attitude is the very foundation of modern consciousness. As opposed to a work of art that opens onto a world—let things be, to use his jargon—technological thinking is a dangerous, calculative kind of reasoning, one that saw all being as 'standing reserve': something to control, consume, enframe...'[13]

It follows that Lee argues that the art practices of the 1960s similarly assume a distrust of new technologies as much as they reframe and critique the technological pervasiveness of post-war life. According to Lee, 1960s art presents 'a sense of both

[10] For an account of Heidegger's critique of modernity, see Andrew Feenberg, *Questioning Technology* (London; New York: Routledge, 1999), 183-236.

[11] Lee, *Chronophobia*, 312.

[12] Ibid., 90.

[13] Ibid., 91.

defense and revolt' towards the dangerous instrumentalism of the new communication and information technologies that began to pervade the era.

In this respect, Lee's most compelling gambit is to recast Michael Fried's critique of minimalist time as a fear of technologically rendered time. She 'reframes' Fried's suspicion of the extended durations of minimalist sculptural arrangements—the 'theatricality' of their encounter—as a suspicion of the logic of systematicity that shaped these practices.[14] For Lee, the widespread artistic interest in serialisation and repetition in minimalist and conceptual art practices is associated with a broader interest in the new theoretical approaches to technology that emerged with post-war computational processes, including General Systems Theory and cybernetics. Lee writes that 'Systems Theory,' as it was broadly known, was a trans-disciplinary approach that initially developed from the computer processing theories of war time technologies, but in its broader post-war applications sought to describe an equivalence between different communication structures, objects, bodies and events—entities that had traditionally been thought of as discretely autonomous systems.[15] Lee notes that systems theory broadly infiltrated the cultural landscape of the 1960s and held influence in a variety of domains, from business management and modern religion, to cognitive science and environmentalism.[16] She writes:

> …systems theory is a theory of organization and *communication.* …in part descendent from the life sciences, [it] is the study of an organism as an 'organized complexity.' In parallel fashion, cybernetics—reductively put, the

[14] Ibid., 77.
[15] See Lee's introduction to the systems theory, ibid., 62-65.
[16] Ibid., 65.

> science of circular causal mechanisms or feedback—was devoted to thinking about bodies through the terms of organization and information exchange. [17]

Lee's rather complex argument is that minimalism similarly embraced a systematic arrangement of forms and seriality thereby inviting a reconsideration of aesthetic 'medium' as self-constituting process. Drawing on the work of 1960s cultural critic Jack Burnham, she suggests that minimalism initiated a serialised, interconnected and processual understanding of sculptural arrangements—inert objects that modernist art histories had approached as solid, discrete and unchanging.[18] Thus Fried's complaint of 'endlessness' in minimalist sculptural practices is in fact a complaint of the 'endless logic' of modern technology: the repetition of the automaton, the autopoesis of systems theory and the continual feedback loops of cybernetics.[19] If I interpret Lee's comments correctly, what is key here is that minimalism's 'endlessness' initiated a shift from 'medium' conceived as intrinsic material substance, to medium as an extrinsic system. Fried's 'problem' with time is recast as the fear of an artwork that has escaped modernist containment; that instead functions as a dialogic system that is responsive both to itself and its environment.

Hans Haacke's *Grass Cube* (1967) (Fig. 1.2) is offered as an insightful example of how systems theory informed the temporal qualities of many 1960s art practices. Like Haacke's *Condensation Cube* (1963-65), this work uses the seemingly benign and inanimate 'minimalist cube' to examine the biological processes that traditional art

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[17] Ibid., 64-65.

[18] The artist and theorist Jack Burnham and his influential book *Beyond Modern Sculpture* (1968) is an important point of reference for both Lee and Charlie Gere, whose own study *Art, Time and Technology* (2006) is surveyed in the next section. As Lee writes, Burnham's 'systems aesthetic' proposed the dissolution of traditional Western aesthetic traditions and media, inaugurating a 'shift from the making of discrete objects to systems-based work, alleged to mirror the waning of the Machine Age and the concomitant emergence of digital technology after the war.' See, Lee ibid., 239 and 73-75; and Gere, *Art, Time, and Technology* (Oxford; New York: Berg, 2006), 124-138.

[19] Lee, *Chronophobia*, 75 and 368.

institutions and museums attempt to keep at bay: the growth of organic plant matter, the pooling of water and fluctuations in temperature. Crucially, Haacke's work reveals art as a 'system' that is contingent upon its own environment. The perspex box exists both in relation to its own context and to other systems that, as Lee writes, are 'indiscrete, permeable, and open to one another,'[20] each predisposed to fluctuations over periods of time.

Of course, these systems are not simply biological. As Lee observes, Haacke's controversial works of the 1970s—*Shapolsky et al. Manhattan Real Estate Holdings, A Real Time Social System, as of May 1, 1971* (1971) and *MoMA Poll* (1970)—also explored a series of 'Real Time Systems' that engaged with social and political connections and processes. She suggests that these works—which would eventually became known as 'institutional critique'—paid direct homage to the interdisciplinary logic of systems theory.[21] Their responsiveness to context and environment truly abandoned the modernist ambition to shirk external associations; to be hermetically sealed from influences both physical and semiotic. In contrast, Haacke's systems-based works expand outward, soliciting connections between aesthetic objects and their worldly contexts. Crucially, this process of association is one that occurs over time. Lee's important insight is that this is the time of systems theory and cybernetics: it is not the linear or teleological time readily associated with modernity. She writes that *Grass Cube* engages a recursive, systematised temporality that is founded in its circular *parody* of the industrial minimalist cube that is lumped with an organic piece of grass:

> Grass Cube does not so much parody the formal vocabulary of minimalism as it uncovers its recursive impulses. It fulfils the Friedian critique of time and theatricality by turning the cube's 'presence' into something literally alive. If the

[20] Ibid., 77.
[21] Ibid., 78.

> minimalist box threatened to spill over into the real space and time of its beholders as theatrical, Haacke allegorizes those terms in stressing the environmental dimensions that underwrites that relationship. A piece of sod, some grass make plain the work's embeddedness in that environment. Its life depends on that environment and the various bodies that support it. Simply put, it grows. It expands into its surround.[22]

Haacke's work—a sod of grass living atop a plexiglass surface—is not shaped by a successive process of cause and effect, and neither are the satirical references to minimalism or the physical encounter between viewer and the systems that constitute the cube itself. These exist in a series of responsive, dialogic relationships: what Lee describes as 'self-generating dialogue about self-generation.'[23] This recursive patterning speaks to the importance of systems theory within the art practices of the 1960s—an importance that, Lee argues, is fundamentally underpinned by a profound wariness of the technological organisation of human experience.

Charlie Gere: Time accelerated

Charlie Gere's *Art, Time and Technology* is similarly concerned with the relationship between art and the accelerated technologies of modernity. His research specifically attends to 'real-time' technologies: communications and data-processing systems such as email and the internet that are ubiquitous in contemporary capitalist societies, but are nonetheless preceded by the late nineteenth-century development of the telegraph. Like Lee, Gere is principally interested in the *speed* at which each of these eras of technologically inscribed communication have developed and the accelerated

[22] Ibid., 80.
[23] Ibid., 81.

social interactions they appear to encourage. This interest in accelerated technics is characterised by a certain theoretical ambivalence. On one hand, Gere regrets that many contemporary artists have not explicitly taken up these technologies, preferring instead a static, unchanging art object that—I am following Gere here— operates 'according to a different, slower rhythm' that is more easily accommodated by existing institutional exhibition structures.[24] Nonetheless, he also proposes that, regardless of its technological composition, art has an important role to play in countering the pervasiveness of modern technology. He writes:

> …the history of modern art can be read, at least in part, as a history of various artistic responses to the increasing speed and accelerating evolution of technology in the modern era…if art is to have a role or meaning at all in the age of real-time technologies it is to keep our human relation with time open in the light of its potential foreclosure by such technology.[25]

While I do not share this wariness of technological foreclosure, I suggest that Gere offers an important account of the historical instantiation of accelerated communication technologies and how they have reshaped ordinary understandings of time and space over the modern period. Gere calls on a variety of social theorists and philosophers—most notably Paul Virilio, Bernard Stiegler and Richard Beardsworth—in suggesting that our contemporary engagements with real-time systems owe much to the transformations of modern industrialisation. The modernist narrative, one that I quote frequently in this study, is that the mid nineteenth-century emergence of accelerated systems of exchange, such as the telegraphic and railway networks, introduced a widespread compression of temporal and spatial magnitudes that has contributed to the contemporary cultural proclivity for speed and instantaneity. Gere

[24] Gere, *Art, Time, and Technology*, 1-2.
[25] Ibid., 13.

looks how artists from the late nineteenth century onward have responded to this transition in the technological evaluation of time. This broad-ranging study moves easily from a discussion of the canonical works of Vincent Van Gogh, to the less conventional analysis of the little-known painting career of Samuel Morse, and an examination of the more recent 'net.art'[26] works of Alison Craighead and Jon Thomson.

To this extent, Gere recalls the important work of Walter Benjamin as a means of exploring the relationship between art and technology. Benjamin's essay *The Work of Art in the Age of Mechanical Reproduction* (1936) famously embraced mechanical reproduction as a means of breaking the 'aura' of the art object: an exclusive quality that was founded on its occupying a wholly unique position in time and space. Gere writes that Benjamin's correlation of art and technology bears the gainful possibility of engaging the mechanised contrivances of industrialised world and, ultimately, countering the then looming threat of fascist autocracy. This embrace of Benjamin speaks to Gere's own ambivalent engagement with real-time technologies which are seen as both a source of cultural 'euphoria and anxiety.'[27] On the one hand, they offer an aesthetic means of radically reshaping the 'status quo' and on the other, they threaten to abrogate genuine human experience. The battlefield here is of course the issue of temporal experience as it is shaped and manipulated by technology and the modern compulsion towards acceleration.

To this extent, Gere enlists the media theorists Paul Virilio and Richard Beardsworth to make the crucial claim that the development of modern technology has prompted a form of historical acceleration that threatens to overcome the 'human

[26] As Gere notes, the term 'net.art' came to describe the work of a number of artists such Thomson & Craighead who began to explore the aesthetics of web-based artworks with the development of 'user-friendly' browsers such as 'Mosaic' and 'Netscape' in the early 1990s. Ibid., 173.

[27] Ibid., 1.

experience of the passage of time.'[28] The speed of electric communication technologies is described as collapsing spatio-temporal distances in favour of what Virilio describes as 'a communicative elsewhere' that no longer has anything to do with our 'concrete presence in the world.'[29] It seems that, in Gere's eyes, the emancipatory potential of Benjamin's reproductive technologies has never come to pass:

> the promise of untrammelled communication between people and the dissolution of barriers between art and life promised by electronic technologies…was never fulfilled. Such technologies became, instead, the means by which the human element was—and indeed still is—being increasingly marginalized by a system which is too complex and operates too fast to tolerate such elements.[30]

This is the broader philosophical predicament proposed by Bernard Stiegler whose scholarship Gere also liberally draws upon. For Stiegler, the great fear is that the acceleration of modern technological change is threatening to outstrip the *pace* of human evolution.[31] Stiegler appeals to the research of the mid twentieth-century French anthropologist André Leroi-Gourhan whose analysis of pre-historic technological usage suggests that the development of human hominization and technology went hand in hand. Stiegler proposes that it is through this synchronous development of tools and hominization that the human apprehension of time is made possible. This is facilitated

[28] Richard Beardsworth, *Derrida & the political* (London; New York: Routledge, 1996), 147-148, quoted in Gere, *Art, Time, and Technology,* 24.

[29] Paul Virilio, *Open Sky* (London: Verso, 1997), 10-11, quoted in Gere, *Art, Time, and Technology*, 4.

[30] Ibid., 111.

[31] Supplementing this reading of Stiegler, Gere underscores the crucial connection between the accelerated 'time-compressions' of the nineteenth century and the pace of digital development at the turn of the twentieth century. In the notes to this chapter, he writes that the 'idea that technology was developing faster than culture went back to the nineteenth century with the work of Antoine Augustin Cournot among others, which proposed that this meant the end of history and the advent of a state of benign technocracy…But it is the Second World War in which this process becomes most evident. The development during and after the War of radar, jet propulsion, digital computing and atomic weaponry presented vivid proof of the speed and reach of technological evolution.' See ibid., footnote 2, 32. A number of contemporary theoretical arguments regarding the social and political evaluation of the speed of technological development are discussed in Chapter Seven.

by Stiegler's insightful concept of 'epigenetic memory' whereby the functional knowledge accumulated in the use of a tool is passed down to future generations allowing for the recognition of a passage of historical time. Stiegler explains that:

> …this tool is an exteriorization of life in an organ that is not itself living, when the maker of the tool dies, the individual experience preserved in his nervous system disappears with him, but his tool remains, the trace of his experience or a part of that trace remains in the tool. In recovering the tool his descendant inherits a portion of his experience.[32]

Given the mutual development of the human form and its technologies, the contemporary concern is that the hitherto unheard of accelerated pace of modern technological evolution has or will—Gere is not clear on this point—move beyond the grasp of humanity.[33] Gere fears that the widening gap between technics and human culture becomes especially prominent with the emergence of twentieth-century computing technologies and communications systems. It is not simply the functionality of these new tools that 'risks sweeping the human away', but the *speed* at which this functionality proceeds. Again, Gere cites Stiegler as suggesting that:

> …industrial civilization rests on an ever more intense development of the process of *permanent innovation*, which results in a divorce, if not between culture and technics, at least between the rhythms of cultural evolution and the rhythms of technical evolution. Technics evolves *more quickly* than culture. More accurately put, the temporal relation between the two is a tension in which there is both advance and delay, a tension characteristic of the extending [étirement]

[32] Bernard Stiegler, *Technics and Time* (Stanford, Calif.: Stanford University Press, 1998), 191-192, quoted in and translated by Gere, *Art, Time, and Technology*, 20.

[33] Ibid., 21.

> that makes up any process of temporalization; it is as if time had leapt outside itself.[34]

Gere's approach to speed is significant in terms of the expanded understanding of different *rhythms* of duration that this study of time and art hopes to achieve. He posits the heterogeneous potential of speed as 'pure difference'—velocity being a relative measure that can only be gauged in relation to the position of external objects and speeds.[35] Following Stiegler, Gere suggests that it is only through the perception of different rates of movement that we can come to appreciate the basic qualities of time and also space. He writes:

> Recognizing the priority of speed allows us to move away from a conception of time as an overarching, stable, homogenous framework in which things happen, and to acknowledge the complex heterogeneous forces of mobility, velocity and acceleration out of which it is composed.[36]

Somewhat frustratingly, Gere's concept of relative speed is not pursued. Nonetheless, in the preceding citation, Stiegler hints at how these differential speeds might adhere. He suggests that, with advances in accelerative technologies also comes an opposing movement of suspension and deferral. Indeed, in this respect, Gere borrows a number of useful concepts of *delay* from the French philosopher Jacques Derrida in order to stake out the more complex temporal paradoxes at play in the evolution of real time technologies.[37] He specifically discusses Derridean delay—drawn from the temporal analysis of the anthropologist Marcel Mauss's famous work on the reciprocity of the gift—as an embrocation of modernity's unbridled technological

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[34] Stiegler, *Time and Technics*, 15, quoted in Gere, *Art, Time, and Technology*., 23.
[35] Ibid., 22.
[36] Ibid.
[37] These include Derrida's concept of *différance*, aporia, decision, invention and 'the gift.' The latter is particularly important to the concepts of time discussed here.

development. Here, Derrida suggests that the ritual of giving necessarily involves an elapse of time where the exchange of gifts is not simultaneous. He concludes that the gift *gives* time; a time that is, in turn, structured by the temporal mechanism of the ritual:

> It demands time, the thing, but it demands a delimited time, neither an instant nor an infinite time, but a time determined in other words, a rhythm, a cadence. The thing is not in time, it is or has time, or rather it demands to have, to give, or to take time – and time as rhythm, a rhythm that does not befall a homogenous time but that structures it originally.[38]

Gere's insight is that the work of art—posited here as a gift—also gives time by constituting a *delay* in reception, thereby refusing immediate reciprocation.[39] Against the accelerated rush of modern technology, Gere appears to position the artwork as a crucial means of interrupting the singular acceleration of modernity.

This argument is made largely in relation to Duchamp's *Large Glass* (1923)—a work described by the artist as a 'delay in glass': a sequence of actions suspended in time. While his discussion of Duchamp's work is not extensive and ultimately not pursued here, Gere does offer another, more direct, engagement with the possibilities of temporal delay in his analysis of Dan Graham's installation *Time Delay Room* (1974) (Fig. 1.3). Graham developed several versions of this work, each of them based on a basic premise: Two rooms connected by an open passage each contain a video-surveillance camera and two monitors. The first monitor shows a live feed of images from the opposite room. The second monitor shows either images of the opposite room or current room at a delay of eight seconds. Viewers that walk between these rooms will experience this delay by seeing themselves at an eight-second remove. The art historian Gregor Stemmrich offers a useful account of this complex set-up:

[38] Jacques Derrida, *Given Time. I, Counterfeit Money* (Chicago: University of Chicago Press, 1992), 41, quoted in Gere, *Art, Time, and Technology*, 30.

[39] Ibid.

> The time-lag of eight seconds is the outer limit of the neurophysiological short-term memory that forms an immediate part of our present perception and affects this 'from within.' If you see your behavior eight seconds ago presented on a video monitor 'from outside' you will probably therefore not recognize the distance in time but tend to identify your current perception and current behavior with the [conscious] state [of] eight seconds earlier. Since this leads to inconsistent impressions which you then respond to, you get caught up in a feedback loop.[40]

In Graham's work, a temporal delay, or more specifically, the observer's perception of a temporal delay, is 'gifted' through the use of real time technology. Using Fried's critique of minimalism as a point of reference, Gere notes that Graham's work specifically draws attention to the duration of perception—what Fried would describe as the endless 'theatrical' duration of minimalist sculpture.[41] For Gere, Graham's work enacts minimalism's banal staging of the perceptual relationship between observer and object with the important addition of a temporal delay achieved through technological mediation. In this respect, art is seen to institute a crucial temporal delay that facilitates the 'human experience of the passage of time' in the face of an increasingly technologically inscribed world. Gere writes:

> Graham was making his *Time Delay* pieces at the moment when real-time digital technologies were first becoming more widely used. The mid-1970s, for example, is the period when computer networks were first employed in financial trading. Graham's work can be read as a kind of assertion of the temporal rhythm of human perception, against the increasing dematerialization and acceleration being brought about by technology.[42]

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[40] Gregor Stemmrich, 'Dan Graham.' in *Ctrl [Space]: Rhetorics of Surveillance from Bentham to Big Brother*, eds. Thomas Y. Levin, Ursula Frohne and Peter Weibel (Karlsruhe; London: ZKM; MIT, 2002), 68.

[41] Gere, *Art, Time, and Technology*, 167.

[42] Ibid., 168.

My suggestion is that Gere's approach to *Time Delay* is shaped by a broader technological ambivalence that underscores many of his arguments. Here, technology is at once intimately tied to human experience and a force that threatens to supersede the authenticity of that experience: it is both a source of acceleration and a means of delay. For Gere, the technological rendition of time offers liberating possibilities as much as it provokes contemporary anxieties—a subject that becomes important in the subsequent chapter's discussion of the aesthetics of the archive.

Timothy Barker: Digital time

Where Lee and Gere's studies are concerned with the adverse consequences of a technologically prescribed world, Timothy Barker's *Time and the Digital: Connecting Technology, Aesthetics, and a Process Philosophy of Time* (2012) is more moderately interested in how contemporary digital technologies 'mediate' the experience of time. Barker discusses a selection of recent artworks that variously engage the technologies and modalities of the 'digital' to generate timescales that disrupt conventional temporal patterns. 'Digital technologies' are broadly defined here as the interconnected communication and information systems that have become prevalent in developed capitalist economies, including television, Internet platforms, Web 2.0, 'smart' devices, the Global Positioning System, digital archives, telecommunication and various computational communications systems. Barker's argument is that digital artworks employ these technologies in different ways to solicit a form of 'interactivity' that reshapes certain temporal experiences by counteracting the persistent linear understanding of time—one that, as I have discussed in these pages, is associated with the mechanistic structures of modernity. Barker does not offer an embrocation of

modernity's determinist character; rather his analysis posits technology as a productive source of new temporal experiences.

The aesthetic framework of 'interactivity' is crucial to Barker's discussion. The premise of an interactive 'user' repositions the traditionally passive viewer of art as someone who both interacts with and is shaped by an encounter with a technologically rendered work.[43] Barker contributes to a field of scholarship that looks to account for the interdependent relationship between the human subject and digital technics by appealing to the Heraclitean tradition of process philosophy and also the 'philosophies of becoming' that are more recently associated with the work of Gilles Deleuze.[44] Crucially, the viewer of art is no longer treated as a discrete Cartesian subject who is comfortably sited within the sturdy geometries and uniform flow of an absolute time and space. In the main, Barker discusses works that require some form of active engagement: the viewer is asked to 'click here,' 'download this,' contribute information, or choose a path of exploration. This approach to aesthetics is informed by the concept that technology mediates experience not simply as an apparatus intervening in 'natural' human relations, but as a *process* through which both user and tool are interdependently shaped. Barker proposes that:

> the user is not thought of as a singular and molar subject; rather the condition of 'userness' focuses on the molecular identity of a subject, as they are continually remade based on an assemblage of actors, both internal and external, human and nonhuman, past and present.[45]

[43] Timothy Scott Barker, *Time and the Digital: Connecting Technology, Aesthetics, and a Process Philosophy of Time* (Hanover, N.H.: Dartmouth College Press, 2012), 15-16.

[44] Notable contributions to this field might include Matthew Fuller and Roger F. Malina, *Media Ecologies: Materialist Energies in Art and Technoculture* (Cambridge, Mass.: MIT Press, 2005); Adrian Mackenzie, *Wirelessness* (Cambridge, MA: MIT Press, 2010); and Brian Massumi, *Parables for the Virtual: Movement, Affect, Sensation* (Durham, NC: Duke University Press, 2002).

[45] Barker, *Time and the Digital*, 193.

Understanding 'digital interaction' in this way has the consequence of dismantling the linear, chronological sequence of the time of modernity. Tool use or aesthetic engagement is not seen as a linear process of cause and effect—a quick flick of the switch or a strike of the nail—but exists instead as a *simultaneous* ensemble of multiple of timescales. Once again, Barker writes:

> …when we interact with digital technology, we interact across multiple temporal rhythms. The time of the user meshes with the time of the machine, including the asynchronous time of the software, the nonsequential time of the database, the time of the network and the time of other users. In general, the multi-temporality of the digital presents an alteration to the way we experience the occasions and events of our everyday lives, beyond a chronological sequence of events.[46]

Barker draws this concept of a 'multi-temporality' from two key sources: Firstly, the mid twentieth-century process philosophy of Alfred North Whitehead that offers a means of thinking of time as a dynamic series of interleaving entities and events. Whitehead's thought is important for Barker in as much as it challenges the traditional metaphysical focus on static, material objects by suggesting that the world is instead composed of fluctuating, dynamic structures—an interconnected, processual relationship of all things. For Barker, the definitive 'Whiteheadian' sentiment is that the seemingly static 'stone is involved in process just as much as an animal that moves or a plant that grows.'[47] Such 'entities,' as Whitehead calls them, are considered less as material objects and more as clusters of interconnected events or interleaving occasions that relate over 'nested' periods time.[48] It is this reading of Whitehead that leads Barker

[46] Ibid., 14
[47] Ibid., 45.
[48] See Barker's extensive discussion, ibid., 35-40.

to the suggestion that time is actually *produced* through dynamic interconnections of process, as opposed to being the measure *of* this process. He writes:

> An actual entity is never static, it is always pre-existent or post existent. The dying-off of every actual entity in every moment, in order to make room for subsequent actual entities, is the perpetual perishing of time, and it is this process that produces what we commonly think of as objects and things.[49]

The second key source for Barker is Gilles Deleuze's well-known survey of Henri Bergson's thought. Bergsonian time is central to my own study of time and contemporary art and will be addressed more thoroughly in Chapters Nine and Twelve of this thesis. For Barker, Bergson's thought is significant in as much as it refuses to conform to a chronological succession of discrete, linear events. Instead, Bergson proposes that the past and the present intermingle in our immediate experience of the material properties of the world. Barker's wider argument is that this 'temporal indiscernibility' is evident in digital processes and systems that offer a simultaneous aggregate of different sets of information, different manifestations of the past, the present and the future.

Barker offers the interesting example of David Claerbout's work *Present* (2000)—an 'application' (a piece of software programming) that is downloaded to a personal computer whereby a viewer or user can watch video footage of a flower blossoming over the course of a week. The viewer can choose to download to their desktop a gerbera, an amaryllis or a rose, which then proceeds to grow, bloom and perish over a week-long stretch of time that is consistent with the biological lifecycle of the chosen flower. Unlike the time-lapse photography that has become popular in nature documentaries, the viewer cannot 'fast-forward' or 'rewind' this process of

[49] Ibid., 46.

bloom and decay. Once the flower has finished its cycle, a digital 'seed' is left that can then be 'planted' on another computer where the life-cycle may begin again. Here, the computer offers a means of accumulating multiple timelines. The premise of a 'present moment' that is instantaneous and transient is rendered uncertain—the flower is certainly already dead, but is able to repeat its flourishing cycle over and over again. Recalling Gere's Derridean arguments, the 'present' is also a 'gift' and that gift is the time of delay. Barker writes:

> The event unfolds in *Present* as it combines multiple contemporary actual occasions…The time of the software, the lag that takes place when downloading the flower, the temporality expressed in the growth and decay of the digital flower, and the temporal potential embodied in the seed as a file that can be shared with another user and 'reloaded' to begin its cycle again are all entangled with one another and are thus all enfolded in the aesthetic of the work.[50]

Present offers a series of timescales that exist contiguously; that refuse chronological succession by instigating delay, and by not following one another through the irreversible sequence of past, present and future temporal phases. Barker recognises that Whitehead also drew influence from Bergsonian thought, specifically in relation to the concept of a time with 'jagged boundaries'[51] that does not observe a succession of discrete temporal phases. Importantly, such occasions of 'becoming' are not compartmentalised into a series of disconnected events, but are said to overlap or nest within each other—the residue of one event remains present in the next in a way that actually 'generates' time.[52]

[50] Ibid., 99-100.
[51] Ibid., 38.
[52] Ibid., 40.

In this respect, Barker's arguments are quite different from Lee and Gere's analysis of the cultural impact of technological change. The latter's discussions tend to address technology as a mechanism for the progression of modernity: the technocratic anxiety they describe is drawn from the driving force of technological change. Conversely, what Barker examines is a loosening of this linear, progressive understanding of time. For Barker, the potential to experience multiple timescales is anchored to the prevalence of technology in contemporary life. His argument is that the experience of the seemingly unitary 'present' is supplemented or overlaid by digital technologies and systems that have the capacity to actually produce new or at least alternative 'senses' of time.[53] But one might also extend these arguments to consider the phenomenological experience of digital time. How does the 'multi-temporality' of digital art engage the equally diverse durations of the embodied 'user'? In this respect, the contemporary dialogue between 'digital times' and the embodied subject is pursued in relation to the Apple 'iWatch' in Chapter Seven.

[53] Ibid., 67.

Figure 1.2: Hans Haacke, *Grass Cube*, 1967.

Figure 1.3: Dan Graham, schematic for *Time Delay Room*, 1974.

CHAPTER THREE

Archival Times

Introduction

The multifaceted concept of the 'The Archive' has become prominent in recent discussions of contemporary art practices that are broadly concerned with authoritative models of historical representation. The 'digital archive' or digital database has also been an important point of reference for art historians such as Timothy Barker because it offers a non-linear means by which diverse 'information' can be brought into proximity. Most significantly, contemporary aesthetic engagements with archival structures sustain a potential to disrupt the singular timeline of traditional historical chronologies. Archival aesthetics may contest the linear conscription of information and materials by 'History' as a singular authenticating model of time.

In this respect, the subject of 'The Archive' draws together a number of interrelated although crucially different theoretical motivations. These include the 'non-rational' organisational impulses of what Hal Foster has influentially described as 'archival art'; a concern for how historical narratives are represented; and the non-chronological aesthetics of the digital database. While the textual archive has traditionally worked to endorse authoritative historical accounts, in the 'digital era' this informational structure has become a figure of heterogeneity and diversity: it is associated with the proliferation of multiple and divergent sources, materials and historical narratives, both public and private, personal and collective.

Walid Raad's 'Atlas Group' project offers an important example of how many contemporary artists have engaged the structure of the archive to challenge authoritative histories, including the rationalist models of chronological time that are associated with modernity. Raad's archival project is said to have begun in 1999, amassing a collection of historical material—photographs, notebooks, films, lectures and prints—that relate to the Lebanese wars of 1975 to 1991.[1] While it assumes the authorial tenor of officiated histories, the Atlas Group archives ultimately contest the legitimacy of the modern historical narrative by integrating 'official' and anecdotal sources, factoids and statistics, with more informal memorial narratives and ambiguously fictional stories.

Atlas Group documents include the video testimony of the sole Arab man purportedly kidnapped during the Western hostage crisis, accounts of noted Lebanese historians taking bets on horse races and newspaper photographs of the singular material remnants of car bombs (Fig. 1.4)—a blackened engine surrounded by a void of destruction. While, as one critic notes, Raad's material carries with it the 'nagging suspicion of a poker-faced humour,'[2] it is not the Lebanese conflict itself that his project is sending up, but the mechanism of its historical representation. Regardless of its veracity, Raad's documents are never put in the service of a greater historical framework or a 'big picture' understanding of conflict in the region. The individual details of car bombings, horse races and hostage takings do not transcend this daily experience of violence and destruction to confirm a singular and 'objectively' chronological account of historical action, places, people and events.

[1] It must be noted that these descriptive 'facts' do not assume a transparent veracity. Especially when it comes to traditional historiographical recording of certain dates and time periods, The Atlas Group is purposefully inconsistent and elusive.

[2] Suzanne Cotter, 'The Atlas Group' in *Defining Contemporary Art: 25 Years in 200 Pivotal Artworks*, ed. Daniel Birnbaum (London; New York: Phaidon, 2011), 258.

In this respect, Raad's work presents a particularly acute example of how many contemporary artists have broadly engaged the structure of the archive as an 'aesthetic strategy.'[3] On the one hand, the archive retains the organised authority of dominant regimes of political power, and on the other, it offers these artists a means of bringing diverse materials into unexpected proximity or emphasising hitherto marginalised narratives. In his influential text *Archive Fever* (1996), Jacques Derrida observes that the archive wields the commanding 'voice' of authority just as much as it maintains the compulsion to attend to mortality: the chronic impulse to collect, keep and order the material and informational contents of the world.[4] In this respect, the archive harbours a paradox that has appealed to a variety of contemporary artists: on the one hand, it has traditionally sustained the singular chronologies of a dominant historical paradigm, while on the other, providing an anti-hierarchical means of structuring information that thwarts the premise of history as a sequential timeline of events.

Representing history

This chapter makes a distinction between contemporary art practices that engage the aggregate, non-linear aesthetics of the archive, and those that are particularly concerned with historical representations—although, for many artists such as Raad, these artistic motivations are intertwined. Nonetheless, Mark Godfrey's 2007 essay 'The Artist as Historian' is an important point of reference for the discussion of

[3] Charles Merewether's edited collection of essays *The Archive* (London; Cambridge, Mass.: Whitechapel; MIT Press, 2006), and Okwui Enwezor's *Archive Fever: Uses of the Document in Contemporary Art*, 1st ed. (New York, N.Y.: International Center of Photography; Steidl Publisher, 2008), remain crucial to discussions of contemporary art and the archive. Alongside Walid Raad, the work of a number of artists are frequently referenced in these discussions including, but not limited to, Andy Warhol, Susan Hiller, Allan Sekula, Marcel Broodthaers, Gerhard Richter, Anri Sala, Thomas Hirschhorn, RAQs Media Collective, Harun Farocki, and Tacita Dean.

[4] Jacques Derrida, *Archive Fever: A Freudian Impression* (Chicago: University of Chicago Press, 1996).

recent art practices that specifically address historical narratives, thereby appropriating and reworking traditional academic models of 'writing' history. Godfrey suggests that the aesthetics of the archive and the contemporary concern for historicity are not always synonymous. He writes:

> There are an increasing number of artists whose practice starts with research in archives, and others who deploy what has been termed an archival form of research (with one object of inquiry leading to another). These varied research processes lead to works that invite viewers to think about the past; to make connections between events, characters, and objects; to join together in memory; and to reconsider the ways in which the past is represented in the wider culture.[5]

These artists are said to develop a number of aesthetic strategies that explore the contingency of historical narratives, of which the archive is one.[6] Photography and various filmic technologies are particularly significant here for their indexical potential. But Godfrey also suggests that this recent engagement with the medium is notably different from that of the 1960s and 1970s conceptual artists and the Pictures Generation of the 1980s. While these artists appropriated the photograph as a powerful means of addressing dominant regimes of visual representation, Godfrey argues that they were more concerned with the 'opacity of such images than with using them in order to explore the past.'[7] By contrast, recent artists such as Matthew Buckingham are interested in individual narrative histories and are part of a wider contemporary

[5] Mark Godfrey, 'The Artist as Historian,' *October* 120 (Spring 2007), 142-43.

[6] Godfrey describes a number of aesthetic strategies, including filmic investigations of the locations of historical or traumatic events, such as Steve McQueen's *Carib's Leap* (2002); aesthetic explorations of the biography of individual artists, such as Anri Sala's *Intervista* (1998); artistic engagements with the authoritative structure of the archive itself, such as Santu Mofokeng's astonishing *The Black Photo Album/Look at Me* (1991–2000); various 're-performances' or 're-narrations' of these historical contingencies in the re-staging of specific events, such as Jeremy Deller's *The Battle of Orgreave* (2001) or the 'fictional' histories of Raad's Atlas Group. See Ibid., 43-46.

[7] Ibid., 142.

movement to that seeks to contest the dominance of a hegemonic historical paradigm. Buckingham engages the authoritative academic model of historical research—including the model of photographic 'documentation'—to disclose hitherto subordinate histories. Subjects variously include the exploitation of indigenous peoples, histories of racial segregation, North American political involvement in South America, the gentrification of industrial and working-class regions, and the cultural hegemony of the English language.

Buckingham's work *The Six Grandfathers, Paha Sapa, In the Year 502,002 C.E.* (2002) is an installation that includes a photograph of Mount Rushmore that has been digitally altered to show its prospective cliff-face in the year 502,002. Buckingham presents an image of the future, that paradoxically resembles one of the past where all the celebrated busts of American Presidents have eroded away. This photograph is exhibited alongside a timeline of events that chart the less popularly discussed histories of the mountain including the eviction of the Sioux peoples from this area in the nineteenth century, the mid-twentieth century carving of presidential portraits by the Ku Klux Klan–affiliated sculptor Gutzon Borglum, the tourism boom and campaigns by the Sioux for the return of their lands.

I offer this very brief summary of Buckingham's work and Godfrey's interest in artists concerned with historical narratives as a means of delineating my own study of time and contemporary art. I refrain from any further discussion of historiography—including the significant historical models described and critiqued by thinkers such as G.W.F. Hegel, Martin Heidegger, Paul Ricoeur, Reinhardt Koselleck, and Fredric Jameson—focusing instead on the perceptual experience of different temporalities within the aesthetic compositions of an artwork. My own study is less concerned with how *specific* histories have been represented, in favour of an interest in how dominant

historical regimes inform current understandings of time. The art historian Christine Ross, whose significant work I survey towards the end of this literature review, makes the point that the relationship between regimes of history and the 'lived experience' of time obliges further research in aesthetics, especially contemporary art.[8] Alternatively, I look more closely at the work of Hall Foster and Lev Manovich who have each sought to understand how the synchronic structure of the archive has indelibly shaped the contemporary experience of time; and how this structure has been variously embraced by artists who are not directly concerned with historical narratives or hegemonic models of history.

The archival impulse

Hal Foster's influential essay *An archival impulse* (2004) suggests that a unique 'archival sensibility' has flourished in a variety of art practices developing over a loose period beginning in the early 1990s.[9] Following Foster, these 'archival artists' seek to disrupt or supplement conventional historical narratives by making '…historical information, often lost or displaced, physically present…elaborate[ing] on the found image, object, and text, and favour[ing] the installation format as they do so.'[10] He brings a number of different art practices, not limited to a particular medium or narrative, under this 'archival' umbrella. Notable inclusions are Tacita Dean's filmic meditations on the failure of utopian modernist projects; Thomas Hirschhorn's temporary

[8] Christine Ross, *The Past is the Present; it's the Future Too: The Temporal Turn in Contemporary Art* (New York: Continuum, 2012), 43.

[9] Foster's influential essay discusses the work of Tacita Dean, Thomas Hirschhorn and Sam Durant, also mentioning Douglas Gordon, Liam Gillick, Gerard Byrne, Stan Douglas, Pierre Huyghe and Philippe Parreno, Mark Dion and Renee Green. Outside of these artists whose works are roughly associated with the 1990s and 2000s, Foster also includes the earlier work of Robert Rauschenberg and Richard Prince—an acknowledgement, perhaps, that this 'archival sensibility' should not be embraced as a particularly new artistic 'movement.' See Hal Foster, 'An Archival Impulse,' *October* 110 (Autumn, 2004), 3-22.

[10] Ibid., 4.

'monuments' to philosophers Georges Bataille (Fig. 1.5), Gilles Deleuze and Baruch Spinoza that consisted of loose amalgamations of textual and visual information, lectures, and social activities in urban, residential spaces; and Sam Durant's engagement with political representations, including the pop music, film, design and avant-garde art practices associated with the civil rights movements in the United States.

Foster writes that these artists practise a form of archival *détournement*, insisting on the visibility of hitherto marginalised or obscure discourses, while revealing the fundamental instability of the archive as a mechanism for preserving the past. What Foster identifies in these practices is an impulse to 'connect what cannot be connected' and to relate fragments of a 'misplaced past' against the archival tradition of ordering such fragments into a totalising narrative account.[11] This is a key attribute of archival aesthetics: the capacity to bring seemingly incongruous material and information together, creating recombinant narratives and histories that agitate, that engage in acts of *detourné*, against singular authoritative statements.[12]

Crucially, Foster suggests that such works are concerned with the *constructed* nature of the archive. For instance, he argues that they are not expressly interested in developing a critique of the traditional archival mechanisms of Western art institutions: 'that the museum has been ruined as a coherent system in a public sphere is generally assumed' writes Foster.[13] What seems to interest him is the 'quasi' organisational structure of these artistic archives—their systemic 'logic' is said to be aberrant, idiosyncratic and transient. Inspired by the spontaneous formation of flower-laden shrines mourning the death of public figures, Hirschhorn's monuments to dead philosophers appear as ad-hoc material assemblages of cardboard, packing tape,

[11] Ibid., 21.
[12] Ibid., 4.
[13] Ibid., 5.

scrawled words, books, images, people, talks and activities. These accretive 'monuments' facilitate connections and disconnection—both material, semiotic, relational, human and non-human. Crucially, this 'quasi-archival logic' is not simply a structure or apparatus, but comes to shape the contents of the archive itself. Foster offers a definition:

> …the work in question is archival since it not only draws on informal archives but produces them as well, and does so in a way that underscores the nature of all archival materials as found yet constructed, factual yet fictive, public yet private. Further, it often arranges these materials according to a quasi-archival logic, a matrix of citation and juxtaposition, and presents them in a quasi-archival architecture, a complex of texts and objects (again, platforms, stations, kiosks...).[14]

Foster writes that this conglomeration of information around sites of exchange, however sprawling and itinerant, can 'resemble mock World Wide Webs,' proliferating networks that emphasise what he rather acerbically describes as the 'the Internet rhetoric of 'interactivity.'[15] In his very last footnote, Foster offers a further, rather compelling, speculation: that archival art engages subversively with the 'society of control' and surveillance that uses networked archives to process data in order to make predictions about the future behaviours of its citizens. These arguments are redolent of current political debates concerning the use of surveillance technologies and the harvesting of internet information and 'datametrics.' Interestingly, what Foster insists on is the physicality of 'information' in archival artworks: he says that they are 'recalcitrantly material' in that their 'relational' attributes are embedded in 'tactile and

[14] Ibid.

[15] See Ibid., 4-5; and Foster's final 'speculative' footnote, 22.

face-to-face' exchanges.[16] Foster suggests that the 'archives at issue here are not *databases* in this sense…they callout for human interpretation, not machinic reprocessing.'[17]

Database aesthetics

What Foster tentatively approaches, but does not pursue is the possibility that artists engaging in archival structures are engaging with an aesthetics of the *digital* database: an amassment of information and imagery that does not maintain a dusty, paper-based existence in the world. Hirschhorn's monuments do not directly employ the Internet, networked communications or digital technologies, but the 'database logic' of such technologies cannot be overlooked as key point of reference. What is crucial here is that this logic is *temporal*: it shapes the contemporary experience of time. The digital database draws together information along non-linear pathways, which means that it treats the past, present and future as a synchronous 'set' and not a sequence of fixed stages. This temporal 'synchronicity' offers a range of aesthetic possibilities, and for the purposes of this study, a means of exploring the time-values of multiplicity, simultaneity and recursivity.

The arguments I follow here relate largely to Lev Manovich's influential concept of the database as a 'symbolic form'—an important text for the new media and multi-media discourses that emerged in the 1990s.[18] Manovich has argued that contemporary new media favours an aggregate structure for arranging information. While modernity was focused on the linear, narrative structure as a primary form of 'cultural expression,'

[16] Ibid., 5.

[17] My emphasis, ibid., 4-5.

[18] Lev Manovich, 'Database as Symbolic Form,' *Convergence: The International Journal of Research into New Media Technologies* 5, no. 2 (June, 1999), 80-99.

our 'digital age' is said to be concerned with the collection and organisation of data. Databases adopt different models of organisation, some being particularly hierarchal and others less so. But from the point of view of the 'user,' Manovich writes that they 'appear as a collection of items on which the user can perform various operations: view, navigate, and search.'[19] Most importantly, these operations do not conform to a successive chronological structure: there is no beginning and end.

Crucially, Manovich's arguments are not simply associated with 'new media.' He writes that many video games, for instance, are structured by traditional narrative sequences, while non-digital artworks such as Marcel Duchamp's *Boîte-en-Valise* (1935-41) eschew a singular sequential engagement, whereby the viewer might unpack and arrange its contents in variety of different formulations. Manovich's influential idea is that the non-linear structure of the database has become a 'symbolic form' that permeates contemporary life. He writes:

> Following art historian Erwin Panofsky's analysis of linear perspective as a 'symbolic form' of the modern age, we may even call the database a new symbolic form of a computer age…Indeed, if, after the death of God (Friedrich Nietzsche), the end of grand Narratives of Enlightenment (Lyotard), and the arrival of the World Wide Web (Tim Berners-Lee), the world appears to us as an endless and unstructured collection of images, texts, and other data records, it is only appropriate that we will be moved to model it as a database—but it is also appropriate that we would want to develop the poetics, aesthetics, and ethics of this database.[20]

Timothy Barker, whose scholarship was surveyed earlier in this literature review, is concerned more specifically with the temporal implications of Manovich's

[19] Ibid., 81.
[20] Ibid., 81.

'database aesthetics' for digital art practices. Barker suggests that the cyber-culture theories of the 1990s emphasised the geographic distance of different users that were able to communicate in the 'virtual' world of the internet.[21] In this respect, part of the aesthetic possibilities of the archive is that it juxtaposes spatially incongruous information, allowing us to 'think of information outside of its usual context; geographic location becomes just one of the many ways of organizing information.'[22] But for Barker, this method of organisation is fundamentally 'time-based' in as much as it instantiates a temporal process: the database is 'a storage system and also a generative system; it both archives and assembles.'[23] Barker discusses Raad's Atlas Group here because it functions to 'reassemble' different historical material. Unlike the traditional archive, the database is not aimed at the preservation of historical 'past,'[24] but exists in the present as a process of input and retrieval that occurs over time:

> interactive art does not just facilitate a rethinking of the past but rather an actual reformulation of the past in a dynamic way; it is not so much a past that is seen but rather a pastness that is relived as it is physically triggered by the user's actions and can be reorganized in the present. The past is not just rethought here in terms of a cinematic time and space, but in terms of an interacting time and space, shared by the content and the participant.[25]

One issue that is not addressed by Barker, is the 'real time' temporal immediacy of the digital database: the availability of information 'at your fingertips'—a subject that Charlie Gere's research has been concerned with. One might propose that Gere picks up

[21] In this respect, Barker quotes some of the spatialised popular vernacular used to describe the 'virtual' geographies of the internet: 'information 'highways,' Web 'sites,' data 'clouds,' and the now ubiquitous metaphor-based global user interfaces (GUIs) that present the desktop as an office environment containing 'files, 'folders,' and 'trash.'' See ibid., 2.

[22] Ibid., 172.

[23] Ibid., 172.

[24] Ibid., 184.

[25] Ibid., 165.

where Hall Foster left off in describing a 'crisis of the archive' brought about by modernity's compression of time and space. Gere's fear is that the emphasis on immediate, synchronous and 'live' digital interactivity appears to restrict the existence of other temporal experiences. The multiplicity of the archive is thus reduced to its capacity to be accessed immediately: a continuous condition of 'liveness' that focuses squarely on the present. The multiplicitous 'database time' that Barker describes is thereby commuted into a time of homogeneous instantaneity.

The tension between Barker's and Gere's approaches to the database and digital archive is played out in their respective discussions of Jon Thomson and Alison Craighead's composite film projections *Short Films About War* (2009) and *Short Films About Flying* (2002). In the latter work, a live-feed video showing the landing strip of Boston's Logan Airport was projected on a gallery wall. 'Live' images of various planes were accompanied by audio excerpts from the internet platform 'net.radio' that were further overlaid with textual intertitles randomly clipped from internet message rooms and chatboards. These intertitles were prefaced with the phrases 'he said' and 'she said,' suggesting a film or theatre script. Thomson & Craighead described this amalgamation of live-stream and randomly excerpted internet speech an 'endlessly mutating edition of [the] low-tech mini-movies we call Template Cinema.'[26]

The two-channel installation *Short Films About War* offers a similar aggregation of information regarding contemporary experiences of war that has been 'mined' both from social media sites and global internet platforms. In this later work, Thomson & Craighead display Google Earth images of conflict zones and photographs gleaned from the social media site Flickr. These images are sonically accompanied by a voiced

[26] Jon Thomson and Alison Craighead, 'Short Films About Flying,' accessed 21 October, 2013, http://thomson-craighead.net/sfafdoc.html.

narration of blog posts describing violent wartime incidences. A text-log of source information relating to these images is displayed on an adjacent screen, including web addresses, blog titles, user names and the Global Positioning System's geographic co-ordinates of the site of conflict. For Barker this 'present-tense' accumulation of 'live' images and textual fragments of 'the past' suggests the productive multiplicity of the database: the capacity for new temporalities to emerge where the chronological narratives of classical cinema are abandoned. He writes:

> Thomson & Craighead act as organizers of cultural data, drawing together and sequencing images and audio from the vast archive of the World Wide Web…thus gesturing toward the idea of the present moment being composed of multiple stories and multiple histories relating across multiple episodes in time.[27]

While I embrace the possibilities of time's multiplicity, I ultimately follow Gere's alternative suggestion that Thomson & Craighead's recombinant film explores an essential friction that exists between the temporal immediacy of interconnected databases and the archive's capacity to organise the past as a means of controlling the future. He writes that *Short Films About Flying*,

> sits on the sharp edge of the tension between the modernist desire to both 'seize the instant' in its plenitude and to make it archiveable. Thomson & Craighead cleverly emphasise the uncanny quality of this live experience by presenting it, ironically, in the form of a film, a medium that represents something that has happened previously and to which we have only deferred or delayed access.[28]

I have already discussed Gere's adoption of Derridean theories of delay and interval as a means of resisting the progressive, chronological models of technocratic

[27] Barker, *Time and the Digital*, 182.
[28] Gere, *Art, Time, and Technology*, 174.

modernity. What I want to explicate here is something that Gere and Barker do not address: the tension between the traditional archive and the digital database is concerned with the difference between the *relative simultaneity* of multiple times and the *absolute synchronicity* of the instantaneous connection. The valorisation of the 'liveness' of real time technologies works to contract and abbreviate the co-existence of multiple temporal flows. These are the conflicting motivations of the digital archive: databases whose aesthetic structures are not simply non-chronological and non-linear, but also entertain the ideal of a synchronous moment of connection. This particularly contemporary dialogue between the expansive proliferation of multiple timelines and the digital motivation to regulate this heterogeneity according to a singular 'real time' standard is pursued in Chapter Seven.

Figure 1.4 The Atlas Group, *Nassar*, 2005.

Figure 1.5: Thomas Hirschorn, *Bataille Monument*, 2002. Documenta 11, Kassel, Germany.

CHAPTER FOUR

The Time-Image

While Gilles Deleuze's philosophy is cited throughout this study of time and art, it is discussed most directly here in relation to his important concept of the cinematic 'time-image' introduced in the second of his works on film, *Cinema 2: The Time-image* (1985, English translation 1989). One of the most influential thinkers of the later part of the twentieth century, Deleuze's philosophy of becoming makes a significant contribution to broader philosophical effort to repeal the rationalist models of the Enlightenment in sustaining time as a dynamic and heterogeneous phenomenal dimension. His concepts of becoming, difference, multiplicity and virtuality complement the more multiplicitous understanding of time described in these pages. For the purposes of this study of time and contemporary art, the Deleuzean concept of the time-image is primarily addressed in relation to the late-nineteenth century thought of Henri Bergson. Although some important discussions of his own temporal 'syntheses' have been recently published,[1] it is Deleuze's interest in Bergsonian *durée* that remains significant here—a subject that is discussed at length in Chapters Nine and Twelve with respect to Deleuze's important work *Bergsonism* (1966).[2]

[1] See James Williams, *Gilles Deleuze's Philosophy of Time: A Critical Introduction and Guide* (Edinburgh: Edinburgh University Press, 2011); and Kevin Clayton's comparison of Deleuze and Michel Serres's respective concepts of time in 'Time Folded and Crumpled: Time, History, Self-Organization and the Methodology of Michel Serres.' *Time and History in Deleuze and Serres*, ed. Bernd Herzogenrath (New York: Continuum, 2012): 31-49.

[2] Gilles Deleuze, *Bergsonism* (New York: Zone Books, 1988).

The time-image is discussed here in advance of these chapters on Bergson's thought because it has been especially prominent in art historical discussions, specifically in relation to film or video works. While this field of research is understandably dominated by discussions of narrative film and cinematic histories, this thesis looks to John Rajchman's Deleuzean explorations of art and aesthetics *The Deleuze Connections* (2000) and the art writer Daniel Birnbaum's brief but very perceptive work *Chronology* (2005) that considers the phenomenological experience of time in the film works of Eija-Liisa Ahtila, Doug Aitken and Stan Douglas.[3] Further, the art historian Christine Ross's significant study *The Past is The Present* also discusses the Deleuze-Bergson philosophical partnership, if only to disagree with its contemporary relevance to film practices—these arguments are discussed in Chapter Five.

Although Deleuze's concept of the time-image emerges from a quite specific analysis of post-war cinematic developments, it remains more broadly relevant to this study for three reasons: firstly, it recognises 'time' as a phenomenal experience that exists 'for and of itself,' rather than as a derivative of other properties or systems such as the perception of motion or temporal measurement and quantification. Deleuze contends that temporal experience has a *quality* that, in rare occasions, comes to the fore in the cinematic images of post-war European filmmakers. Secondly, this qualitative time is aberrant and irrational in as much as it refuses the mechanised logic of modernity's chronological timescale. In this respect, Deleuze famously calls on Hamlet's observation that 'time is out of joint.'[4] Thirdly, the aesthetic experience of this aberrant qualitative time resists traditional representational structures, including the Platonic premise that art is a 'lesser' image of a greater or more fundamental 'reality.'[5]

[3] Daniel Birnbaum, *Chronology* (New York: Lukas & Sternberg, 2005).
[4] Gilles Deleuze, *Cinema 2: The Time-Image* (London: Continuum, 2005), xi.
[5] John Rajchman, *The Deleuze Connections* (Cambridge, Mass.: MIT Press, 2000), 53.

These are the broader philosophical conclusions of Deleuze's analysis of a transformation in mostly European film after the Second World War. His argument is that while the classical films of the pre-war Hollywood era were structured according to the logical progression of narrative trajectories, the post-war cinema of directors such as Alain Resnais, Michelangelo Antonioni and Yasujirō Ozu embraced a more irrational form of cinematic temporality. Classical films were said to rely on a 'sensory-motor' logic that emphasised plausible movements such as a clear sequence of linear events, causal actions and continuity between characters and scenes.[6] By contrast, post-war films were said to be populated by pure optical and sonic 'situations' (opsigns and sonsigns) whereby cinematic scenes were liberated from the logical progressions of the Hollywood narrative. Crucially, these prolonged scenes were not organised by the logical movements of cinematic cause and effect: events did not follow successive chronologies; scenes were not edited together to show a rational time-sequence; and character actions were not put in the service of a familiar narrative trajectory.

Amy Herzog, whose filmic analysis of Deleuze's time-image I follow closely here, writes that this aberrant structure also carried over into the 'worlds' of characters who ceased to be the agents of narrative action, becoming instead 'seers' or 'experiencers' of 'pure' sound and opticality.[7] The emphasis thus shifts from the representational *content* of the image to the sensory experience *of* it, whether that qualitative experience 'belongs' to the protagonist or the viewer.[8] D. N. Rodowick offers an insightful example of this in his discussion of the interplay between character 'movements' and the visual and sonic structure in Resnais's *Hiroshima Mon Amour* (1959):

[6] This is the argument presented in Deleuze's first cinema book originally published in 1983 with an English translation in 1986. See Gilles Deleuze, *Cinema 1: The Movement-Image* (London: Continuum, 2005).

[7] Amy Herzog, 'Images of Thought and Acts of Creation: Deleuze, Bergson, and the Question of Cinema,' *Invisible Culture: An Electronic Journal for Visual Studies*, no. 3 (2000), 4.

[8] Ibid.

> There are two voices-off (He: "You saw nothing at Hiroshima. Nothing." She "I saw *everything. Everything*."), and two 'times' of the image, the abstracted images of the lover's bodies, intertwined but never able to merge, and the 'documentary' images of Hiroshima, linked without distinct chronology. While the woman's voice seems to cue the documentary images, there is no concrete evidence that these images represent her point of view or her memory. Without rational chronological links to secure them the voices, bodies, and images are part of an uncertain present.[9]

This is precisely how time becomes crucial to the 'aberrant' aesthetic structure of Resnais's film. A logical sequence of voices and events is absent from this scene, thereby inviting a sense of indeterminacy that is crucial to Deleuze's concept of the time-image. He writes that in these 'indeterminable' moments the viewer no longer knows 'what is imaginary or real, physical or mental…not because they are confused, but because we do not *have to know* and there is no longer even a place from which to ask.'[10]

Deleuze develops this concept of temporal indeterminacy or uncertainty by drawing on the Bergsonian concept of *durée*—a continuous flux of duration that resists the chronological divisions of the past, present and future. Bergson's significant contention was that Immanuel Kant's categorical metaphysics had done a great disservice to time by reducing its fluctuating rhythms to the spatial magnitudes of the clock: a chain-linked sequence of discrete 'now' moments that comprise seconds, minutes and hours. According to Deleuze, post-war cinema is said to loosen this chronological timescale by abandoning rational narrative sequences and linkages, thereby drawing the past and the future into what Rodowick calls the 'uncertain

[9] David Norman Rodowick, *Gilles Deleuze's Time Machine* (Durham, NC: Duke University Press, 1997), 65-66.

[10] Deleuze, *Cinema 2*, 7.

present.' Deleuze famously describes this as a 'crystallisation' of the filmic image where fragments of the past, present and future co-exist in glancing, reflective and fractured formations:

> What constitutes the crystal-image is the most fundamental operation of time: since the past is constituted not after the present that it was but at the same time, time has split itself in two at each moment as both present and past, which differ in each other in nature, or, what amounts to the same thing, it has to split the present into two heterogeneous directions, one of which is launched towards the future while the other falls into the past…Time consists of the split and it is this, it is time, that we *see in the crystal*.[11]

For the critic and theorist Daniel Birnbaum, this glacial 'fracturing' of chronological time becomes a useful point of reference for the films of Eija-Liisa Ahtila that, he writes, are 'full of dense and temporally complex images….that seem to capture the movement of temporality in a crystalized formation.'[12] For instance, in the work *Tänään (Today)* (1996/97) (Fig 7.) a violent incident is seen through the perspectives of three different characters: a young girl, a grown man and an elderly woman. Ahtila's non-linear episodic narrative resists the impulse to provide a totalising description or a singular 'truthful' account of a traumatic event. Birnbaum writes:

> The past is present. Something has happened: an accident, a catastrophe, a tragic event. The work unfolds as a process of assessing and working through—a process of grieving that consists of fragments of narration incapable of presenting an overarching and cohesive account…There is no therapy, no catharsis, no Hegelian Aufhebung. It all starts with an ending, and then it ends again.[13]

[11] Ibid., 79.
[12] Birnbaum, *Chronology*, 35.
[13] Ibid., 33.

This refusal of the chronological sequence of rational, 'truthful' actions and events has broader implications for the conventional representational structures of art. One of the key achievements of Deleuze's time-image is its rejection of film as a 'coded' representational structure. For Deleuze, the 'meaning' of the filmic image does not exist beneath a layer of semiotic signs or 'symptoms' ripe for psychoanalysis, but, following Rajchman, exists as a wholly 'experimental' and 'intelligible material.'[14] In this respect, Deleuze explicitly abandons the structuralist interpretations of film theorists such as Christian Metz who have treated cinema like a language bearing its own decipherable 'narrative code.'[15] As Herzog writes: 'A film cannot be distilled to an analyzable structure that originates from outside itself. Instead, each film image is contingent, particular, and evolving.'[16]

Rajchman recognises the philosophical importance of refusing to treat film as coded imagistic language. In this respect, he writes that Deleuze repeals the Platonic insistence on the difference between the 'original' as pure and ideal and the 'copy' that functions as a lesser representation or a subordinate simulacra.[17] The classical model of film gives the Platonic model a chronological structure: the original is always 'past,' always historical, while the mimetic imagery of the flickering film reel is always present. But with the crystal-image, past, present and future are rendered indiscernible within the 'illogical' flux of duration that is the viewer/protagonist's unadorned 'sensation' of aberrant cinematic time. Rajchman writes:

> For to extract sensation from representation, making it a matter of experimentation rather than judgment, is also to free the art of seeing from its subordination to prior

[14] See Rajchman's discussion in the chapter 'Sensation,' *The Deleuze Connections*, 114-149.
[15] Ibid., 123.
[16] Herzog, *Images of Thought*, 11-12.
[17] Rajchman, *The Deleuze Connections*, 68.

concept or discourse.[18]

One might also add that time needs to be freed from the strictures of chronology in order to 'extract sensation from [false] representation.' Once sensation shirks the rationalist descriptions of quantification—for instance, the ludicrous means of evaluating a painting by timing the length of its viewing—then a qualitative time can be apprehended and appreciated in a range of aesthetic processes, systems, materialities and technologies. Deleuze's 'out of joint time' is important here because it offers a means of resisting the familiar measurements of clock in the pursuit of aesthetic temporalities that are more qualitative, sensorial, experiential and material.

[18] Ibid., 129.

Figure 1.6: Eija-Liisa Ahtila, *Tänään (Today)*, 1996.

CHAPTER FIVE

The Temporal Turn

Introduction

Of all the studies discussed here, Christine Ross's *Past is the Present, It's the Future Too: The Temporal Turn in Contemporary Art* (2012) is the most comprehensive in its approach to time and contemporary art—it is the only study that is solely devoted to this topic.[1] Ross makes the case for a 'temporal turn' in recent art practices, whereby a significant number of artists working in the last ten years are said to be especially concerned with the aesthetic experience of time in relation to the historical structures of modernity. This 'temporal turn' is said to encompass the work of artists Tatiana Trouvé, Francis Alÿs, Guido van der Werve, Mark Lewis, Tacita Dean, Melik Ohanian, Harun Farocki, Nancy Davenport, and Stan Douglas who seek to rework modernity's progressive momentum by drawing historical fragments of the past into the viewer's experience of the present moment. The argument follows that the relentless futuristic advance of the 'modern regime' is thwarted by a purposeful attendance to the experience of the present moment and the residual manifestations of the past that may exist within its purview. Ross writes that these artists develop a number of aesthetic strategies to 'suspend the forwardness of moving-images, moving bodies, and moving narratives' in ways that are said to 'significantly alter the future-driven modern

[1] Christine Ross, *The Past is the Present; it's the Future Too: The Temporal Turn in Contemporary Art* (New York: Continuum, 2012).

deployment of historical time.'[2] Her key claim is that artists of the temporal turn 'potentialize' these 'remnants' by developing aesthetic strategies that inscribe representations of history within the 'lived' experience of temporal passing. These strategies include 'presentifying history,' engaging the 'intermediality' of film and putting into play the 'lateralization of perspective'—a complex set of neologisms that will be discussed shortly.

It is not insignificant that the artists Ross associates with the 'temporal turn' achieve this form of aesthetic resistance through innovative engagements with film. Here, the experience of 'temporal passing' is for the most part, centred on the specific durations of the filmic medium and its capacity to structure the viewer's phenomenal experience of time through the motion, suspension and passage of 'moving' images—something that is particularly significant in the discussion of Mark Lewis's films. Although Ross discusses the object-based installations of Tatiana Trouvé, the spatial features of the film projections of Tacita Dean and Melik Ohanian and the performative (although video-documented) works of Francis Alÿs, her discussion is especially focused on, and derives much of its unique insight from, what is described as the 'inter-temporality' of film.[3] Ross's scholarship is all the more interesting in this respect for its critical circumvention of Deleuze's concept of the cinematic 'time-image' and Bergson's concomitant philosophy of *durée*. While this study does not agree with Ross's criticisms, her work is important here for its insightful assessment of the relationship between the filmic medium, concepts of temporal modernity and contemporary art.

[2] Ibid., 7.
[3] Ibid., 127.

Presentifying history

In step with Lee and Gere's discussions of art and technology, Ross's concept of a 'temporal turn' in recent art practices is orientated towards the temporal strictures of modernity. Her scholarship attends to how modernity's social and political structures have informed the Western historical narrative, and how its progressive forward momentum has shaped the individual experience of time. Drawing on the work of French historian François Hartog, Ross argues that the 'modern regime of historicity' is one of continuous teleological progress, Western cultural supremacy, technological acceleration, novelty, innovation and improvement. Following Hartog, the modern regime consistently valorises the impending future timescale to the detriment of an experiential present, whereby human 'actions are guided by the future and cease to be envisaged in continuity with the past; in which history is teleologically conceived as a vast process of emancipation of humanity through (and not merely in) time, towards universal progress.'[4] This relentless forward momentum is said to initiate a decisive break with 'historical tradition' investing in a search for novelty that renders the past continuously obsolete.[5]

Ross looks to Reinhardt Koselleck's analysis of modernity as a socio-political regime that encourages an ever-widening gap between the human experience of the present and expectations of the future—this understanding of modern historicity also featured in Pamela M. Lee's study discussed in Chapter Two. According to Ross, Koselleck posits a significant rupture of continuity between the experience of the

[4] Ibid., 13.

[5] Citing the design historian Christopher Wilk, Ross writes that the early modernist art, design and architecture that emerged in the wake of the First World War engaged critically with modernity's utopian forward momentum. These movements are said to have held a belief in the socially transformative potential of the new, and thus rejected previous aesthetic models based on ornament and figuration in favour of utilitarian geometric forms and a progression towards complete abstraction. Ibid., 129.

present and expectations of the future that is said to initially occur with Enlightenment rationalism and is subsequently accelerated by the pace of modernity.[6] In its eagerness to advance into the future, modernity both casts-off the past and disavows the present as a source of continuity. The consequence of this detachment is that the 'distance between the experience of the past and the expectation of the future is enduringly kept open. The horizon of expectation [rendered] illegible.'[7]

Ross suggests that the artists of the temporal turn contest this gap between the past and the future, between experience and expectation, by developing 'actions, representations, and performances in which the past, present, and future are more on par in relation to each other.'[8] Simply put, these artists refuse to 'leave the past behind.' Crucially, they are seen to reshape modernist concepts of history by scrutinising the relationship between representations or residual artefacts of the past, and the immediate perceptual experience of the present moment—this is largely realised through aesthetic manipulations of the moving-image. For instance, Tacita Dean's well-known 16mm film *Kodak* (2006) documents the final productions days of the Kodak film stock company's factory in the French city of Chalon-sur-Saône.[9] Dean's film focuses on the materiality of celluloid filmstrips as they are being produced, calling attention to their capacity to render abstract forms of light and colour. Dean is cited as regretting the growing obsolescence of film in the face of its replacement by digital imagistic technologies.[10] What is significant for Ross is that her work records the passage of analog film's demise using the celluloid medium itself. A doubling of temporalities is said to occur where the viewer encounters both a representation of

[6] See Ross's discussion of Koselleck's historical analyses ibid., 102-104.
[7] Ibid., 103.
[8] Ibid., 103.
[9] Dean is also important for Hall Foster's 'archival art.' See Foster, *An Archival Impulse*, 12-17.
[10] Ross, *The Past is the Present*, 165.

film's 'last days' in the factory setting and the direct materiality of its demise as it spools through the film projector. Thus, a gradual entropic disintegration, inscribed both in the vivid materiality of the film and the representation of its historical expiration, is given through the filmic medium itself. Dean's work functions as a document of the past that 'plays out' in the temporal extensions of the present. What is important for Ross's 'temporal turn' is that Dean's film 'performs' the passage of time in direct relation to the historical past. She writes:

> As spectators, we are therefore confronted with the disappearance that binds these two temporalities together: the binding of the lived passage of time ('the becoming present of future events and then their becoming past') transmitted in/by the images and the dying passage of time resulting from the vanishing of the recording technology *par excellence* of temporal passing.[11]

In this respect, *Kodak* refuses to relinquish the past to the future-oriented advancements of modernity and the technological developments that are driving film's *material* extinction. Instead, Dean's film is said to make present—to 'presentify'—the process of becoming past and becoming historical. This is how artists of the temporal turn are said to differ from those associated with the archive: they insist on the immediate aesthetic experience of the passage of time.

Contra Bergson, Deleuze and the time-image

Ross's arguments appear to position this aesthetic strategy *against* the phenomenological tradition in continental philosophy. Ross does not entirely repudiate this tradition, indeed part of her analysis draws on the work of the phenomenologist

[11] Ibid., 181.

Edmund Husserl, but she does protest a particular interpretation of the experience of time as a *continuous* passage. Ross suggests that the broadly 'phenomenological' philosophies that emerged in the late-nineteenth and early-twentieth century were primarily concerned with the unbroken continuity of time's passage—what Ross describes as 'becoming present of future events and then their becoming past.'[12] She writes that especially in the 'phenomenological tradition (Husserl, Heidegger, Merleau-Ponty), but also with Nietzsche, Bergson, and Proust, modern philosophy and literature attend to the passage of time while attempting… to reconcile itself with temporal passing and the losses entailed by such a passage.'[13] Drawing on Philip Turetzky's comprehensive survey of the philosophy of time in Western thought, Ross suggests that although they disagreed with the Kantian project to distinguish between noumena (things in themselves) and phenomena (things as they appear), these philosophies are indebted to Kant's association of time with the conditions of human experience. They are said to 'accept the empiricist project of tying all possible reality to appearances; they focus on time as closely connected to existence; and, as such, consistently seek to affirm the continuity of time, the irrevocability of its passing.'[14]

The philosophical difficulty for Ross is precisely this emphasis on the continuity of experience—the ability to grasp an unbroken and persistent passage of time.[15] Conversely, Ross argues that artists of the temporal turn are said to develop aesthetic measures that emphasise temporal disorganisation and rearrangement. Ross argues that contemporary 'time studies'—a broad disciplinary field including analytic philosophy, psychology, neuroscience, sociology, historiography, 'political ecologies',

[12] Ross borrows this terminology from the philosopher Yuval Dolev in *Time and Realism: Metaphysical and Antimetaphysical Perspectives* (Cambridge, MA: MIT Press, 2007), viii, quoted in *The Past is the Present*, 5.

[13] Ibid., 23.

[14] Ibid., 22-23.

[15] Ibid., 23.

museum studies and post-colonial studies—are similarly apathetic towards the unity or continuity of time's experience:

> a premise usually based on the philosophical belief in consciousness's or intuition's ability to grasp such temporal features. They show how time is highly mediated, in the sense that it can never directly be accessed: time is psychically, socially, technologically, environmentally, culturally, and biologically conditioned.[16]

Ross appears ultimately to find fault in a particularly confined understanding of Bergsonian *durée*—the idea that an indivisible flux of duration underpins all temporal experiences. This philosophical opposition to Bergson is thereby extended to Deleuze and his own concept of the time-image in post-war European cinema. Ross acknowledges that the temporal turn in contemporary art is indebted to this concept, but concludes that it does not endorse the breadth of its philosophical consequences. The sticking point seems to be that the time-image is structured by a temporal 'indiscernibility' that sees an intermingling of the past, present and the future 'as if,' as Deleuze writes, 'the real and imaginary were running after each other, as if each was being reflected in the other, around a point of indiscernibility.'[17] Ross draws on the arguments of the philosopher Peter Hallward in insisting that the human subject's 'ordinary' experience of time is not indiscernible, but is very much structured, divided and sectioned. Ross quotes Hallward as stating that:

> Life is an indivisible flow, but we experience it as if it were divisible. In reality, time is continuous change but we tend, precisely in order to make the most of 'our' time, to divide it into measurable segments. […] Why do we tend to think of continuous actions as isolated things? Bergson answers: because it is our own

[16] Ibid., 36.
[17] Deleuze, *Cinema 2*, 7.

> immediate interest to do so. It is useful, for the sake of our preservation or for the satisfaction of our needs, to approach the world as if it were made up of distinct moments and objects whose relationships can be measured and predicted and thus managed or controlled.[18]

Ross's rather complex take on Hallward's arguments appears to be this: Deleuze's indiscernible time which is, in fact, 'the Bergsonian conceptualization of duration as a synthetic undividable flow,'[19] leaves behind the concrete 'actuality'[20] of human experience. In other words, it fails to reflect the subject's temporal 'reality.' If I interpret her remarks correctly, Ross suggests that this is profoundly problematic for the artists of the temporal turn who need these demarcations of time to remain distinct in their resistance to the forward momentum of modernity:

> The near-dissolution of the distinctiveness of the temporal categories of the past, present, and future into indiscernibility is also seen as problematic, for the pressing concern is to create relations between these— to keep a certain level of discernibility; to reorient the articulation of the past, present, and future— so as to alter unsatisfying regimes of historicity.[21]

My own arguments, set forth in Part Three of this thesis, do not adopt this philosophical opposition to Deleuze and Bergson, nor do I follow Ross's particular interpretation of the phenomenological tradition in continental thought. This is to say that I do not conceive of these philosophies as emphasising the singular continuity of temporal passage. I suggest that their central concern is the erroneous rationalist understanding of 'the present' as a 'durationless' moment that ultimately curtails the

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[18] Peter Hallward, *Out of this World: Deleuze and the Philosophy of Creation* (London and New York: Verso, 2006), 1, 12 and 20, quoted in Ross, *The Past is the Present,* 26.

[19] Ibid., 25.

[20] Ibid., 26.

[21] Ibid., 27.

diverse breadth of human temporal experience. My own study approaches Bergson's thought as a means of preserving the fundamental dynamism of time against the determinist scientific model that treats duration simply as a numerical unit that is indifferent to change, process and becoming—a subject that will be pursued at length in the following chapters.

Film, phenomenology and 'intermediality'

I must be clear here in stating that Ross does not abandon phenomenology and the possibilities it holds for understanding the aesthetics of time in recent art practices. Her discussion of the phenomenological implications of a number of film works offers an important assessment of how this medium shapes the experience of time in relation to the temporal strictures of modernity. Mark Lewis's films of deteriorating and decrepit post-war modernist buildings and environs are particularly compelling. Much like Tacita Dean's filmic documentation of the demise of celluloid film, Ross writes that Lewis's works examine what she calls the 'remnants' of modernism: architectural sites that are '…emptied of [their] initial modernist thrust yet [remain] part of our present.'[22] Lewis's films are said to be motivated by a concern for the inhabitability of these spaces—the failure of modernity to accommodate social living patterns.[23] *Spadina: Reverse Dolly, Zoom, Nude* (2006) (Fig. 1.7) is a short 35 millimetre film that begins with a close-up of a tree and progressively pans out bringing the concrete architecture of a grimy modernist building into view, and a eventually a brief glimpse of a nude woman on one of its balconies. Ross writes:

[22] Ibid., 118.
[23] Ibid., 114.

> By making this woman visible (even if only fleetingly), [Lewis's] film has potentialized the modernist building. How? Simply by zooming in and catching a figure whose survivingness and uncanny transposition passes on life to the decaying block of concrete that still manages to architecturally support it. It has also caught a feminine semi-inward/semi-outward gaze that looks ahead, bestowing the recent past with a sense of futurity. It shows us a gaze, between past and future— a gaze that could well be our gaze.[24]

Following Ross's discussion here, Lewis work is crucial for its realisation of film's significant capacity not simply to capture the failure of modernism or its decline, but its potential to 'activate' images of the recent past—that which has only just become 'history.' Ross calls this rather complex aesthetic strategy 'potentialisation' which I tentatively summarise here as moments where the film's structure solicits the viewer's attention in such a way that she or he is asked to reconcile, and thereby to potentially reassess, the relationship between the perceptual experience of time passing and images of the 'only just past'—modernist remnants that are still 'with us,' but are nonetheless continuously becoming historical. Given the complexity of this 'potentialisation,' what seems to be of primary importance is that the historical image is experienced as a 'temporal object' that endures over a span of time.[25] Ross writes that Lewis's films

> become materialities by which we are made to see the imperceptible—acting beings, thinking/looking beings, intangible presences, elusive machines and imaginary pathways, eerie or odd occurrences…These potentializations are made possible by a threefold association between film, modernist architecture

[24] Ibid., 113.
[25] Ibid., 145.

and the spectator's phenomenology of time consciousness (in which vision plays a significant role).[26]

Ross's argument draws together the phenomenology of temporal experience and the capacity of the filmic medium to 'solicit' this experience. The 'present' that is explored in Lewis's films is said to be consistent with the philosopher and psychologist William James's 'specious present': a 'duration-block' that connects the 'now' of our experience to that which has just past *and* that which is yet to come. In this respect, Ross also appeals to Edmund Husserl's phenomenology of time-consciousness and its triadic structure of primal impression, retention and protention. Both James and Husserl and discussed more extensively in Chapter Ten of this thesis, but it will suffice to say here that their 'residual' concept of time-consciousness holds that 'the present' is always informed by temporal phases that precede and ensue from it. Lewis's films are said to engage this residual manifestations of the 'past in the present' through a specific deployment of the extended take, what Ross describes as a 'holding shot':

> The holding shots offer a temporal milieu in which temporality may affect historicity: to experience the image as an enduring temporal object through the connection of mental remnants (as the just-passing) with the just-coming is to become available to the historical quasi-remnants in the image. The phenomenology that the holding shots sustain creates conditions of possibility for a perception that mentally and historically connects the just-passed with the just-coming.[27]

What is important for Ross is how these long, unedited holding shots are structured by a visual opposition between moments of stillness and movement, continuity and discontinuity. This is achieved through the unique combination of three

[26] Ibid., 147-8.
[27] Ibid., 145.

'medialities' that are attributed to different artistic traditions: the photographic 'freeze', the pictorial 'still' and filmic 'movement.'[28] Lewis's *Spadina* variously engages these aesthetic structures where it tracks from the rippling movement of the tree to the imposing stillness of a modern apartment complex, settling lastly on a brief glimpse—a photographic 'freeze'—of a nude woman. Ross proposes that the interplay between these different modalities—film's imagistic movement, pictorial stillness and the photographic 'freezing' of movement—works to perceptually 'hold' or suspend images of historical modernist remnants in the 'extended present.'[29] This is said to contest the phenomenological emphasis on the continuity of perceptual experience. Ross argues that the tension between stillness and movement that is facilitated by the variable combination of medialities in Lewis's films actually works to disrupt the regularised, unified flow of perception. She writes:

> The hold might well connect the now, the just-passing and the just-coming, the temporal passing of the temporal span is made of tensions between the photographic, the pictorial, and the filmic. It sustains a tensional continuity. The temporal spans are also regularly interrupted by aesthetic procedures (including the shift of views resulting from the movement of the camera or zooming operations) that discontinue the hold. This means that the near-endless connectedness of now, just-passing and just-coming phases in the perception of temporal objects described by Husserlian phenomenology is highly problematized while never simply cancelled out.[30]

Outside of the photographic media discussed here, it is important to note that a thorough understanding of the aesthetics of 'stillness' and 'motion' would need to account for the *relative* evaluation of these temporal qualities. I suspect that the notion

[28] Ibid., 127-8.
[29] Ibid., 128.
[30] Ibid., 145.

of 'pure' stillness shares an affinity with Clement Greenberg's 'timeless instantaneity' as a fixed and absolute temporal marker that might be attributed to an artwork. Rosalind Krauss's tentative description of sculpture as a 'medium peculiarly located at the *juncture* between stillness and motion, time arrested and time passing'[31] is significant in that it recognises the peculiar 'impurity' of art's engagement with fixed temporal values. In this respect, a transcendent stillness can never hold fast in the tenuous and dynamic 'in between' passage of aesthetic encounters. Film offers an imagistic 'freezing' of motion into a sequence of snapshot representations, but this 'fictional instant' does not 'still' the dynamic perceptions of its viewing. For Ross, Lewis's films appear to occupy a captivating position between both the fiction of absolute photographic 'stillness' and the fiction of 'perception' as a continuous, unwavering phenomenological stream of experience.

[31] My emphasis, Krauss, *Passages in Modern Sculpture*, 4.

Figure 1.7: Mark Lewis, *Spadina: Reverse Dolly, Zoom, Nude*, 2006.

The 'lateralization' of perspective

Francis Alÿs's work *Rehearsal 1* (1999-2001) records the movements of a red Volkswagen as it attempts to climb a dirt road in Tijuana, Mexico. The car's uphill journey is accompanied by a soundtrack of a Mariachi band practising a song—stopping and starting their rehearsals as the musical sequence is learnt and refined. The all-important timing of a well-played joke is key here: each time the musicians pause to retune their instruments or repeat a section of the song, the Volkswagen appears to stop and roll back down the hill. When the musicians return to full-swing, the car begins its climb again. This Sisyphean 'performance' remains in the preparatory stages; there is no culmination, final 'run-through' or triumphant finale: the car never reaches the top of the dirt track and the band never recites the song in full.

Ross is interested in this work and others by Alÿs because they enact a form of 'unproductive time' that counteracts, if not completely refuses, modernity's emphasis on future-oriented progression and associated narratives of relentless economic 'development.' She follows the work of Boris Groys who has most notably argued that Alÿs's performances and video works (often documents of performative actions) engage a time of futility that transforms the modernist historical progression into an absurd cycle of repetition.[32] Groys writes that, for Alÿs,

> the time of modernity is the time of permanent modernization, never really achieving its goals of becoming truly modern and never satisfying the desire that it has provoked. In this sense, the process of modernization begins to be seen as wasted, excessive time that can and should be documented—precisely because it never led to any real result.[33]

[32] See Ross's discussion of Groys's concept of modernity in *The Past is the Present*, 65-69.
[33] Boris Groys, 'Comrades of Time,' *e-flux journal* 11 (December 2009), 6.

More specifically, Ross suggests that the Volkswagen that never reaches the summit offers an allegory for the empty promise of modernisation in Latin America. Like many of Alÿs's works, this video presents a continual process without clear denouement, tangible outcome or end product—they are constantly moving forward without ever seeming to 'progress.' Citing Mark Godfrey's important analysis of Alÿs's work, Ross proposes that the artist's cyclical actions attest to the perpetual forestalment of Latin American economic progression: a promise of financial prosperity that is thwarted by the opposing 'desire to modernize…and a compulsion to resist the imposition of Western economic practices.'[34]

For Ross, Alÿs's work is significant to the 'temporal turn' in contemporary art because it introduces a key aesthetic strategy: a visual 'apprehension' of forward movement that she describes as the 'lateralization of perspective.' Ross argues that both Alÿs and the film artist Guido van der Werve counter the modern rhetoric of forwardness by 'lateralizing' or suspending the linear geometries of perspective.[35] The establishment of single-point perspective is a well-known feature of Renaissance art history: Leon Battista Alberti's *costruzione legittima* established a central line of vision from the viewer's eye to the painting's vanishing point. A number of art historians discussed in this thesis, including Rosalind Krauss, Caroline A. Jones and Jonathan Crary, make an association between the influential Western pictorial tradition and a singular, mechanistic or 'mono-temporal' understanding of time in art.[36] Ross does not discuss this scholarship, but her own contribution to this discourse is to suggest that Alÿs's futile performative actions work to 'dramatize' the Albertian vanishing point by refusing

[34] Mark Godfrey, 'Politics/poetics: the work of Francis Alÿs,' in *Francis Alÿs: A Story of Deception*, eds. Francis Alÿs, Mark Godfrey and Klaus Biesenbach (London: Tate Publishing, 2010), 18.

[35] Ross, *The Past is the Present*, 87.

[36] These art historians each develop distinct arguments with respect to this association. See my earlier discussion of Krauss in Chapter One. For my discussion of Crary, see Chapter Seven. For Jones and a further discussion of Ross's 'multi-perspectivalism,' see Chapter Eight.

its 'forwardness.' Ross notes that Alÿs's works often involve the construction of a line that might hold the promise of progression—a Volkswagen climbing a straight road in *Rehearsal 1*—but that this line is invested with a sense of futility or 'unproductivity' that lacks 'tangible' material, social or political outcomes.[37] Indeed, both Alÿs and Van der Werve are known for developing works that involve the artist or a local participant walking along specific path that does not seem to lead to anywhere or anything. In this respect, Ross writes that

> Alÿs exacerbates the perspectival system by dramatizing the vanishing point as the eclipsing point of destination toward which the modern subject continuously and unproductively flees. He also exacerbates it by fissuring the central optical ray that relates the viewpoint and the vanishing point. In so doing, the performances consistently alter the perspectival system and what remains of it today as a modernizing structuring of vision and as a modernizing mobilization of the body in space— two operations that sustain the forwardness of modernity's conceptualization of historical time.[38]

A more explicit example of the 'fissuring of the central optical ray' is given in Ross's discussion of van der Werve's film *Nummer acht. Everything is going to be alright* (2007) (Fig. 1.8). This film tracks a solitary figure clad in cold weather gear walking slowly across an expansive field of ice. The figure, who is the artist himself, walks towards the viewer while being shadowed by a towering industrial ship—an ice breaker—that lurches forward through the ice. The forward movements of both van der Werve and the ice breaker are almost imperceptible: the aggressive motion of the ship is suggested only by peals of white water crashing against its prow and sounds of the violent cracking of ice. While viewers are presented with a scene filled with dramatic

[37] Ibid., 77.
[38] Ibid., 76.

potential, van der Werve's film is without denouement. Although it threatens to, the towering ice breaker never overwhelms the diminutive figure. Furthermore, this figure never seems to gain ground, to move forward or to increase in relative size as he nears the foreground of the film's 'picture plane.' This is achieved through a synchronisation of the movement of both camera and walker facilitated by the use of an earpiece that allowed the film crew and van der Werve to move together at the same steady pace.[39] As Ross writes, the huge white expanses of sky and ice work to flatten any depth of field the image might achieve, thereby making it both difficult to ascertain the distance between ship and walker and to track physical progression across the ice.

Ross makes two important arguments regarding van der Werve's compelling film: The first relates to the aesthetic composition of the image and draws upon Louis Marin's discussion of the 'lateralization' of perspective in Nicolas Poussin's *The Shepherds of Arcadia* (c.1638-40).[40] Comparing this painting with an earlier one of the same scene, *The Arcadian Shepherds: 'Et in Arcadia Ego'* (1628), Marin claimed that Poussin's reorientation of the scene's tomb and figures—a ninety-degree rotation of its key compositional features—resulted in a displacement of the classical vanishing point. Ross argues that a similar compositional 'lateralization' occurs in van der Werve's work where the figure walks toward the viewer, across an expanse of ice, without seeming to move forward. He is said to occupy a lateral 'slice' of space that appears to 'thicken' and 'expand' as the forward movement of the walker seems to paradoxically achieve a form of stasis as it is 'flattened out' by the operations of the camera. Ross suggests that this form of 'lateralization' anchors Van der Werve (the performer) to the landscape in an active engagement with his environment. She writes that this instigates

[39] Ibid., 90.

[40] See Louis Marin, 'Toward a Theory of Reading in the Visual Arts: Poussin's the Arcadian Shepherds,' in *The Reader in the Text: Essays in Audience and Interpretation*, eds. Susan R. Suleiman and Inge Crosman (Princeton NJ: Princeton University Press, 1980), 314.

> a major disruption of the linear system of perspective by connecting the objects or the performers to their environment instead of situating them in relation to a transcendent vanishing point or viewpoint. They set into play an ecologization of a slice of space, which brings the past and future closer together. In so doing, they invent a unique historicity—one that alters the modern regime of historicity from within.[41]

Ross's second argument seeks to relate this compositional 'lateralization' and its suspension of directional movement to the historicity of the modernist regime. She suggests that van der Werve's lateral engagement with the landscape and the refusal of both a directional vanishing point and transcendent viewpoint work to emphasise the present—the temporal phase that is said to be unnecessarily abridged by modernity's futuristic orientation. Ross writes:

> This human body is tied to an environment that barely moves forward with him as his movement confirms itself as expanding to the sides, sticking as much as possible to the present-ness of that interconnectedness. He adheres to it and so, in this adherence, becomes slightly anachronistic with any historical time sustained by a principle of forwardness….Historicity ceases to be motivated by the future's distancing of the past and encroaching upon the present, to become a presentifying force.[42]

While it is clear that van der Werve's work makes a captivating filmic manipulation of linear perspective, it is not entirely evident how this work attends to the modern regime of history. These arguments seem to be shaped by two motivations: to disrupt forward momentum of modernity and to reassess 'history' by soliciting attention to the experience of the present. While these motivations are certainly related, their meeting is, at times, tenuously conceived.

[41] Ross, *The Past is the Present*, 64.
[42] Ibid., 97.

Ross's description of the aesthetic resistance to modernity's relentless forward movement is compelling. But I suspect that this discussion of 'lateralization' in Alÿs's and van der Werve's works overlooks the important temporalities associated with the 'human body' that are noted in the preceding quote, but ultimately not pursued. The difficulty with arguments that focus on the singularity of Western art's perspectival tradition is that they establish the primacy of a 'disembodied' eye that facilitates the aesthetic relations between performer, environment and viewer—even though these arguments may ultimately want to contest the privilege of this 'bodiless' opticality.

One might argue that Alÿs's works need to be considered in relation to the art histories of 'embodied' performance artworks because they very often consist of an extended activity—a seemingly futile action—that is undertaken by one or many participating subjects. For instance, the work *Paradox of Praxis I (Sometimes Doing Something Leads to Nothing) Mexico City* (1997) (1. 12) involves Alÿs pushing a solid block of ice, similar to those used by drink vendors in Mexico City, around its streets until it melts. In a more collective effort, *When Faith Moves Mountains (Cuando la fe mueve montañas) Lima* (2002) involved five hundred students taking up shovels in an attempt to 'move' a huge sand dune on the outskirts of Lima, Peru by advancing on it in a single line. This work was conceived in response to the collapse of the Peruvian Fujimori government and, like the *Paradox of Praxis*, presents a feat of collective human activity that is effectively 'unproductive' on an economic scale. In each case, Alÿs establishes a dialogic equivalence between an impressive laborious effort and a comparatively miniscule (material) outcome: the dialogue is between the durations of material substance, sand or ice, and the exertive durations of the human body. While Alÿs's subversion of modern 'linearity' is compelling, it is important to recognise a multitude of divergent durations that also 'push' against this singular model of

politically inscribed time. Through body and ice, both Alÿs's and van der Werve's works engage qualitative durations of persistence, endurance and ephemerality that are both 'embodied' by human actors and non-human materialities—a subject that is pursued in the latter chapters of this thesis.

Figure 1.8: Guido Van der Werve, *Nummer acht. Everything is going to be alright*, 2007.

Figure 1.9: Francis Alÿs, *Paradox of Praxis I (Sometimes Doing Something Leads to Nothing) Mexico City*, 1997.

CHAPTER SIX

Duration and Performance Art

Introduction

While the durations of the embodied subject have been an abiding concern for the performance practices that developed from the late 1950s, it is only very recently that the subject of time has been specifically addressed by art historical discourses.[1] This chapter surveys Adrian Heathfield's brief but insightful overview of the issues of time and performance in his introduction to the edited compendium *Perform, repeat, record: live art in history* (2012).[2]

Additionally, this chapter also looks at Marina Abramović's recent retrospective staging of a number of significant performance works from the 1960s onwards—a set of 're-performances' that have brought issues of time, immediacy, documentation and durational authenticity to the fore. This includes the 2005 work *Seven Easy Pieces* where Abramović re-performed significant historical works by Bruce Nauman, Vito Acconci, VALIE EXPORT, Gina Pane and Joseph Beuys.[3] Further, in 2010 Abramović staged a

[1] Adrian Heathfield's survey of Tehching Hsieh's long-term performance projects remains particularly relevant to the broad subject of time in performance. See *Out of Now: The Lifeworks of Tehching Hsieh* (London; Cambridge, Mass.: Live Art Development Agency; MIT Press, 2009). Most recently, a number of scholars have published a general review of this subject (still forthcoming at the time of writing). See Stuart Grant, Jodie McNeilly and Maeva Veerapen, *Performance and Temporalisation: Time Happens* (Basingstoke; New York: Palgrave Macmillan, 2015).

[2] This volume was co-edited by Amelia Jones. *Perform, Repeat, Record: Live Art in History*, eds. Amelia Jones and Adrian Heathfield (Bristol; Chicago: Intellect, 2012).

[3] This performance series took place at the Guggenheim Museum, New York and entailed the 're-performance' of the following works: Bruce Nauman's *Body Pressure* (1974); Vito Acconci's *Seed Bed* (1972); VALIE EXPORT's *Action Pants, Genital Panic* (1969); Gina Pane's *The Conditioning, First Action of Self Portrait(s)* (1973); Joseph Beuys's *How to Explain Pictures to a Dead Hare* (1965); Abramović's own *Lips of Thomas*, first performed in 1975; and *Entering the Other Side* (2005), a new work by Abramović.

retrospective exhibition at the Museum of Modern Art, New York where her own works were performed by other participants. This also included Abramović's performance of the new work *The Artist is Present* (2010) in which she sat in silence in the museum's foyer for the duration of the two-month long exhibition while visitors were invited to sit in a chair that faced her own. Abramović's practice does not encompass all issues of time, duration and performance art, but her own feat of performative endurance and the fact that she re-staged a number significant works that obtain their own diverse durational qualities, has meant that these projects have become a key point of reference in the contemporary debates and discussions of this subject.

Now and then: the paradox of performance

Heathfield's essay offers four important art historical observations regarding time and performance—many of which relate to Abramović's works, and all of which I critically summarise here. Firstly, he argues that performance art 'bear[s] a temporal paradox' whereby a 'live' act is performed and then variously 'imprinted' or retained in some form, whether it be the viewer or performer's memory of these events or an imagistic, textual or archival documentation of them.[4] In this respect, Heathfield writes that performance maintains 'tendencies toward disappearance and dematerialization [that] are countered by its capacities to adhere, mark, and trace itself otherwise.'[5] Crucially, Heathfield suggests that this interest in retaining some documentation or mark of ephemeral performative events is particular to more recent art practices. Conversely, the performance artists of the 1960s and 1970s were said to not be wholly

[4] In this respect, Heathfield acknowledges the title of Jones's own introductory essay 'The Now and the Has Been: Paradoxes of Live Art in History.' See Heathfield, *Perform, Repeat, Record*, 27 and Jones, 11-25.
[5] Ibid., 28.

concerned with maintaining any historical trace of their works. Heathfield writes that this interest in creating a historical record of ephemeral events is seen as a more recent *institutional* development that thereby underscores the 'paradox' of performed durations: here, time is said to be split between the temporal immediacy of the present and the institutional obligation to retain a document of the past.[6]

One might point out that the 'temporal paradox' that emerges with the motivation to reconcile the seemingly ephemeral present moment with the expired past is a stalwart of classical philosophical debates of time's ontological status—a subject that will be discussed in Chapter Eight. Suffice it to say here, that performance is not unique when it comes to time's 'paradox': regardless of media or modality, time will always appear paradoxical if it is simply understood as a chronological timescale that supports separate and successive performative 'nows' and documentational 'thens.' It may be that this 'paradox' is a response to the theorist Peggy Phelan's notable description of performance art as an act that resists commodification in its exclusive adherence to being in the 'present.' In her influential work *Unmarked: The Politics of Performance* (1993) Phelan writes:

> Performance cannot be saved, recorded, documented, or otherwise participate in the circulation of representations of representations: once it does so, it becomes something other than performance. To the degree that performance attempts to enter the economy of reproduction it betrays and lessens the promise of its own ontology. Performance's being […] becomes itself through disappearance.[7]

That performance might 'betray' its ontological standing by engaging with documentation is a somewhat reductive understanding of 'live' art that a number of more recent art historians, including Jones and Heathfield, seek to temper.

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[6] Ibid., 27-28.
[7] Peggy Phelan, *Unmarked: The Politics of Performance* (New York: Routledge, 1993), 146.

Further to this, Gregory Minissale proposes a somewhat different understanding of the relationship between the 'original' performance act and its trace or documentation in respect to Abramović's *Seven Easy Pieces*. He suggests that this set of 'reperformances' is not a naïve attempt to simply 'replay' the perfomative power of the original, but instead presents a dynamic *archive* of different acts, events and durations. The key here is that Abramović is seen to 'perform' this archival aggregation of historically distinct events 'through' her body. He writes:

> In curating several ephemeral (that is, dematerialized) artworks through her own performance of them, Abramović's foregrounds sensations, pain, discipline, memories, duration and gestures all as a series of structured relations and intervals, protocols and durations lived through and in the body. These, usually invisible, forces are *embodied* by Abramović who does not stand behind the work, as the hidden curator.[8]

In some sense, Abramović realises that the body is a 'living' archive that is always aggregating the variable durations of endurance, pain, boredom and sensation. But using her own body to restage historical performance works precisely complicates the temporal 'paradox' that Heathfield describes—this embodied archive denies a firm distinction between a 'live' act and 'dead' or derivative mode of 're-playing' that event. Ultimately, as Minissale notes, Abramović's archive of 're-performances' pours doubt on the authentic value of the original embodied performance. He writes that '*Seven Easy Pieces* should be seen as an active deconstruction of [the claim] to have easy access to the truth of presence and an original.'[9]

[8] Gregory Minissale, 'Performing the Curator, Curating the Performer: Abramović's *Seven Easy Pieces*' in *The Artist as Curator*, ed. Celina Jeffery (Bristol, UK; Chicago, USA: Intellect, 2015), 133-148.
[9] Ibid., 136.

Wasting time

Heathfield's more compelling second observation is that since the late 1950s, many performance practices have been shaped by the 'anti-capitalist' motivation to subvert the regulation and habitual conscription of the body in time. The lengthy durations of works such as Abramović's *The Artist is Present* refuse the capitalist imperative to 'use' time to produce consumer goods, services or affective labour. The accoutrements of capitalist time, such as the motivation to 'keep to' a numerical schedule, are notably absent from this encounter. As Heathfield writes, many performance works 'offered self-loss, sacrifice; it was a wasteful or excessive form of expenditure. The physical giving (of one's self) that performance required, seemingly without reserve or recompense, set it aside as a modality marked by an escape from predominant economies.'[10]

Tehching Hsieh's performance works of the 1970s and 1980s are particularly important in assessing the relationship between diverse embodied durations and the singular, mechanised timescale of twentieth-century labour practices. Heathfield's broad-reaching survey of the artist's work makes an important contribution to art historical discourses of time and performance. Hsieh's notable *One Year Performance (1980-1981)* (1980-1981) (Fig. 1.10) involved a yearlong artistic commitment to 'observing' time as an instrument of workplace regulation. Dressed in a worker's boiler suit replete with number and nametag, Hsieh undertook to punch a factory time clock on the hour, every hour, for the duration of an entire year. Each time the card was punched, a photograph was taken of the artist and these images were subsequently compiled into a six-minute filmic sequence. Hsieh began the project by shaving his head

[10] Heathfield, *Perform, Repeat, Record*, 28-29.

and over the course of this sequence of stills the artist is shown in the same position, wearing the same factory 'boiler suit' while his hair grows steadily longer. For Heathfield, Hsieh's performance enacts a 'perturbation' of the 'accelerated temporality of late-capitalism'[11] whereby the artist's 'work' presents a 'wasteful form of labor; it saves nothing, and as such it is often deployed as a means to disturb or suspend narrative resolutions and consolidated identities.'[12]

Hsieh's work undermines the habitual observance of a single capitalist timescale through an almost-absurd commitment to observing this very same timescale—a long-term dedication to 'keeping time' that is discussed in relation a number of key conceptual works in Chapter Seven. What is interesting in Hsieh's work is that the 'biological durations' of the artist's body are set against the mechanical indifference of the hourly punch-card system. As the hours are 'clocked-in' the artist's close-cropped hair simply grows longer. The divergence of these different timescales is amplified by the contraction of this yearlong project into the relatively short sequence of a six-minute 'flicker-film.' This means that the viewer's retrospective 'experience' of Hsieh's yearlong performance is never contiguous with that of the artist. While this might point to the 'paradox' of time in performance practices that are stretched between the original act and its documentation, I would suggest that Hsieh's work underscores broader possibilities for performance as an aesthetic mode that draws together multiple temporal registers, both embodied and machinic, recognising, as such, that time will always 'play out' in more than one way.

[11] Heathfield, *Out of Now*, 23.
[12] Ibid., 22.

Figure 1.10: Tehching Hsieh, *One Year Performance 1980-1981*, 1980-1981.

Endurance and the ethics of slowness

Heathfield's third point is that long-term performances such as Hsieh's engage an 'ethic of slowness' that purposefully resists the temporal accelerations of capitalist modernity.[13] One might also extend this interest in a 'slowed pace' to works such as Abramović's that refuse to 'distract' from the elongated, potentially tedious, durations of the body. While capitalist rhetoric might valorise speed, productivity, connected immediacy and synchronicity—values that are discussed in relation to the Apple iWatch in the following chapter—many of Abramović's performances insist on a 'counter-

[13] Heathfield borrows this concept from the final pages of Lee's *Chronophobia.* Lee's original reference to slowness was made in relation to the politics of labour bargaining and the 'Slow Food' movement. While the latter has garnered attention within some political spheres, Lee perceptively describes slowness on an individual level as a means of recognising timescales that diverge from the relentlessly singular pace of modernity. She writes: 'For it is in slowness and the capacity to parse one's own present that one gains ground on what's coming up next, perhaps restores to the everyday some degree of agency, perhaps some degree of resistance. In slowly taking measure of the endless present, one refuses teleological end games. Instead one rests with the immanence of being and the potential to act.' See Lee, *Chronophobia*, 308 and 357. For Heathfield's use of this terminology see *Perform, Repeat, Record*, 29; and *Out of Now*, 23. For an account of the criticisms of the 'Slow Food Movement,' see Judy Wajcman *Pressed for Time: The Acceleration of Life in Digital Capitalism* (Chicago: University of Chicago Press, 2015), 173-5.

experience' of waiting, delay, suspension and slowness.[14] Nato Thompson's description of *The Artist is Present* evocatively summarises the purposeful 'tedium' of many recent performance works:

> In witnessing Abramović's steady breathing calm, we sense our own fidgety qualities. We sense our own nervous appetites. The arts have long played host to patience and duration. One can usually identify contemporary video art, dance, and performance by its agonizing embrace of all things slow, endless, and tedious. Operating against the grain of contemporary temporality may not only be a hallmark of the arts, but also the delineation of their discursive boundary. How do we know it is art? Because it takes so long to appreciate, it couldn't be aimed at a typical consumer. Because it is so annoyingly long it must be interesting.[15]

It is important to recognise that the 'endurance' of audience attention spans is sometimes accompanied by a physical act of painful endurance on the part of the artist. Abramović's seven-hour long performance *The Lips of Thomas* (Fig. 1.11), re-staged as part of the *Seven Easy Pieces* project, involved the artist cutting a star into the flesh of her stomach then lying on a block of cold ice while a heater blew warm air on the wound to keep its blood flowing freshly. This 'agonizing embrace' of slowness is not emotionally 'tedious,' but fraught with physical danger and conflict both for the artist whose body is in pain and the audience members that must decide how to react to this violence. In this respect, the 'ethics of slowness' involves a potentially 'excruciating' personal decision to intervene in the artist's actions, to simply watch on in act of passive

[14] An important point of reference here is the artist Vanessa Beecroft's 'VB' performances of the late 1990s and early 2000s. These durational works involved groups of young sparingly-clothed women who had been mainly contracted from modeling agencies to stand completely still in exhibition spaces for several hours. While these bodies suggested the idealisation of the 'stilled' female nude in Western art history, they could not maintain this poised stasis, eventually giving in to fidgeting, slumping and a range of dynamic embodied movements.

[15] Nato Thompson, 'Contractions of Time: On Social Practice from a Temporal Perspective,' *e-flux journal* 20 (November 2010), 2.

endorsement, or to sustain an emotional discomfort, perhaps indecision, for the length of the performance.

In describing the nomination 'Endurance Art' that was often employed in relation to early performance and body art, Heathfield writes that 'the meaning of the word duration itself, evolving from the Latin *duratus* [to last], is bound into the notion of persistence, of remaining through time, and is inseparable from but shadowed by the term endurance, often associated with sufferance.'[16] Such painfully 'enduring' performance practices suggest that the body's phenomenological experience of time is never authentically pure or unadorned; and that 'duration' is always organised by social, political and ethical imperatives. While the futile slowness of some embodied activities might be endorsed as a counter-capitalist act, the 'ethics of pain' recognises that the *pace* of duration always takes on vastly different social valences—the slowness of torture, for instance, is not celebrated by 'post-haste' movements that embrace lengthy processes and systems against the contemporary proclivity for speed and immediacy.

In this respect, performance is crucial to this study of time and contemporary art because it recognises the intrinsic complexity of temporality. More specifically, because they acknowledge the diverse durations of the human body, many performances also inevitably acknowledge that time is always multiplicitous and valued according to divergent social and political strictures. It follows that durations of performance never conform to a singular conceptual model or framework, whether it be the universalised time of the capitalist clock, or the seemingly 'authentic' or 'original' time of human phenomenal experience.

[16] Heathfield, *Out of Now,* 22.

Figure 1.11: Marina Abramović, *Lips of Thomas*, 1975.

PART TWO

Time Measured

Introduction

Following the literature review, this study identifies three discursive frameworks that shape the relationship between time and contemporary art: Part Two: Time Measured discusses the standardisation of time in the twentieth century; Part Three: Lived Time examines perceptual experiences of duration; and Part Four: Beyond Times considers timescales that exist outside the scope of human conscious experience. While many of these concerns have been discussed in the preceding chapters, the difficulty with this survey of recent art histories was that 'time' enjoyed a somewhat loose and slippery definition, due in part to the subject's complex ontological and phenomenological status: time *is* a dimension that easily evades fixed designations. Nonetheless, the theoretical frameworks described here offer a more structured and particular account of the different times, temporalities and durations that have been significant to the contemporary art practices of the post-war period.

Chapter Seven: Clock-time and Modernity surveys the historical establishment of the global time-standard as an achievement of both the determinist scientific practices of the Enlightenment and the development of modern technocratic capitalism. Discussing the rational socio-historical standardisation of time is an important theoretical step in recognising the greater significance of 'non-rational,' heterogeneous and multiplicitous times in recent art practices. The time of art is multifarious: it might

be the clock-time of capitalist labour practices, the elongated durations of boredom, or the biological systems of living plant matter. But these divergent timescales are readily co-opted by the universal time-standard as a seemingly 'objective' numerical measure that transcends all potential differences. The purpose of explicitly discussing the historical development of standardised time is to reveal the intrinsic conventionality of this global measure and to thereby refuse its authoritative status as 'The Time.' This chapter looks at projects such as On Kawara's *Today* series (1966-2013) and Christian Marclay's *The Clock* (2010) that variously scrutinise this measurement of time through aesthetic structures of observation and activity.

While the rationalist gearing of the Enlightenment has worked to reduce and standardise the messier complexities of time, the singular modern timescale has also enjoyed a rather complicated historical trajectory over the course of twentieth century. Just as the universal time-standard came to dominate global trade and labour practices towards the end of the nineteenth century, this period also saw the development of a revolutionary scientific theory that would contest the foundational universality of time itself. Chapter Eight: Relative Times explores how Albert Einstein's 1905 special theory of relativity transformed the prevailing understanding that time and space existed as fixed, sturdy and reliable physical dimensions. Einstein's radically new theory suggested that the 'spacetime continuum' was relative and malleable—and this meant that time could not exist as a universal and constant feature of the physical world. This chapter discusses how artists such as William Kentridge and Tomás Saraceno variously embrace special relativity as a figure of 'temporal uncertainty' that has the potential to disrupt the traditional fixity of the encounter between a viewer and an artwork.

In many respects, Einstein's special relativity still retains the Enlightenment motivation to reduce time to a numerical quantity for the purposes of scientific analysis,

but this theory also insists on the co-existence of multiple perspectives on time, as opposed to one transcendent timescale. This picture of rationalised modern time sustains a compelling temporal irony that persists today: at the beginning of the twenty-first century, the multiple and malleable times of the Einsteinian universe are still kept in check by the global time-standard. Einstein's theoretical physics ushered in an era of technological precision and accuracy that actually works to maintain the universality of measured time. The widely used Global Positioning System takes readings from a network of earth-based and orbiting satellites that are calibrated to account for the divergent effects of special relativity. In this respect, time is multiple, but it is also readily standardised—a particularly 'contemporary' temporal condition that is reflected in the use of digital technologies. On the one hand, the 'digital world' appears to loosen the strictures of chronological clock-time, offering aesthetic structures that aggregate or 'archive' multiple, asynchronous durations. But just as these times proliferate, they may also sink into the mono-temporal slipstream of digital instantaneity and immediacy. Thus on the other hand, the modern temporal impulse to be continuously online and 'in sync' means that time will always be split between multiplicity and universality; between a dizzying flux of many times and the global certainty of 'The Time.'

Figure 2.1: Apple ‘iWatch’ worn on various wrists, 2015.

CHAPTER SEVEN

Clock-Time and Modernity

Introduction: Start your watches

In April 2015, the global technology company Apple launched its latest digital device: a wristwatch (Fig. 2.1) that connects wirelessly to the internet and other communication platforms. Like many contemporary tech-companies, Apple's brand is built on the promise of technological novelty and innovation. While its latest offering was modelled on a piece of 'wearable technology' that first became popular during World War One, this anachronistic interest in the ordinary wristwatch should come as no surprise. One hundred years may have passed, but the underlying motivations have not changed: time is important and universal 'clock-time' is essential.

The 'iWatch' interface allows its wearers to note the time, as the advertising publicity suggests, to 'within 50 milliseconds of the definitive global time-standard.'[1] This level of temporal precision might be redundant for many ordinary daily activities, but maybe not for the granular behaviours that the device measures. The watch 'syncs' to a variety of applications that generate data relating to a wearer's habits and activities: from heart rates, steps taken, diet and sleep patterns, to addictions, time spent with the family or hours spent working. Unlike other commonly used screen-based devices, this small, lightweight object is appended to the body: the year, month, day, hour, minute,

[1] 'The watch re-imagined,' *Apple Inc*., accessed 21 September, 2015, www.apple.com/nz/watch/watch-reimagined.

and second can be absorbed with a single glance, creating a tight circuit of exchange between human vision, embodiment, information and 'the time.'[2] Of course, the aim of this visual-time-data circuit is a broad-reaching human efficiency: a competent and speedy 'use' of time across all of life's activities, both prosaic and exciting, mundane and laborious. The hyperbolic advertising claim is that '…in addition to showing you the time, Apple Watch actually understands what time means to you. It helps you be more productive and efficient. So you get more out of every moment.'[3]

The Apple Watch is discussed here, in rather stark terms, because it presents an assumption about time that a number of contemporary artists have sought to interrogate. This is the tacit idea that time functions as a universal gauge of all worldly activities and experiences; that this singular timescale can be mathematically divided and quantified; and, perhaps most importantly, that this time is precious, that it must be saved and cannot be unwittingly squandered. The iWatch is the legacy of modernity, the time of capitalist labour practices, the time of regulation, measurement and quantification. This chapter discusses work by a range of artists that engage and sometimes resist the universal timescale. Beginning in the 1960s, On Kawara, Hanne Darboven and Roman Opalka's well-known conceptual art projects marked time through a daily practice of painting or drawing its numerical expressions. Kawara's famous date paintings consist of nothing more than the calendrical date of their creation—a sequence of numbers and letters painted in a white *san serif* script. More recently, Christian Marclay's ambitious twenty-four-hour film *The Clock* (2007) has directly enlisted the viewer's observation of clock-time with a montage of cinematic images of clocks whose 'time' has been perfectly synchronised to the global time-

[2] The much-discussed 'Google Glass' is similarly appended to the body by way of a head-mounted display that resembled a pair of eye-glasses. Google's 'wearable technology' has failed to gain widespread popularity within global technology markets, with the company closing its development program in early 2015.

[3] 'The watch re-imagined.'

standard: at 9.25am the onscreen clock-face will read '9:25am.' Alternatively, Julieta Aranda and Anton Vidokle's *Time/Bank* (2009-ongoing) is an online 'banking' system that makes the value of the viewer or participant's time explicit through a form of economic mutualism that eschews the use of national currencies. According to the *Time/Bank*, an hour is equivalent not to money, but to what can be made or generated within that period of time, whether that be the baking of a cake or the translation of a text.

Given the prominence of modern timescale, it might be easy to forget that clock-time has no 'primordial' or 'natural' claim on time itself. The global time of capitalism is based on the Babylonian sexagesimal system and the Gregorian calendar—methods of measurement that emerged gradually in concert with the pre-modern development of mathematics, the observation of astronomical cycles, and historical variations in the social, religious and political status of time.[4] The contemporary time of globalised markets and economies was initially set in 1884 at landmark International Meridian Conference where a quorum of powerful governments agreed to measure time from the point at which the sun passed the 'Prime Meridian': the famous, yet ultimately arbitrary, geographical marker of time at Greenwich, England. This Universal Time (U.T.) is now calculated not by astronomical observations or geographical markers, but by the miniscule vibrations of over two hundred globally distributed atomic clocks.

But regardless of its procedural measurement, the contemporary dominance of the universal timescale is an achievement of modernity: it represents the definitive techno-scientific 'triumph' of human rationality over the messy inefficiencies of nature. Critical to capitalist economies, 'time' regulates the movement of goods and information

[4] For a useful overview of the history of astronomical, calendrical and religious time-keeping in the Western tradition, see Leofranc Holford-Strevens, *A History of Time* (Oxford, England; New York: Oxford University Press, 2005).

across widely dispersed geographic regions, allowing the contemporary subject to be positioned within this quantified flow of value, codifying experience by mapping the activities of individuals against a common temporal network. Or, as the advertorial hyperbole of the iWatch suggests, it helps its wearers to get stuff done, to be more productive, to be more 'global' and to be more effectively 'in-time.'

It follows that at its most 'quantifiable' extreme, the iWatch supports the modern fear that a technologically rendered time will come to abrogate basic human experience. In the preceding literature review, I discussed how art historians Charlie Gere and Pamela M. Lee argue that twentieth-century art has been concerned with mechanised time as a source of cultural unease. At issue here is the idea that the *speed* of time in the modern era threatens the inherent sluggishness of human bodies and the slow 'thickness' of the subject's ordinary experience. In the digital era, the suspicion is that lightning-fast information communication technologies appear to be reshaping individual experiences of temporality: that time itself is sharp with haste and a 'feeling' of ever-increasing fastness.

Contemporary sociologists such as Judy Wajcman quite rightly point out that the digital accelerations of different timescales are not evenly experienced by the working populace—a concern that is taken up in relation to the tradition of women's 'maintenance time' towards the end of this chapter. But the temporal paradigm of 'speed vs. slowness' persists in contemporary capitalist economies as a key narrative of modernity. In the world of deadlines and shift-work, to be 'off the clock' is to unwind, to relax into slackened human responses, to be lazy and useless. But it is also to go wild, to undertake aberrant actions, to forget the time, to dance into the night, to be untameable. By contrast, a device such as the iWatch facilitates the contemporary valorisation of

discipline, self-control and restraint: 'useful' human qualities that contribute to the capitalist drive for greater efficiency and productivity.[5]

This chapter sets out to explore a central question: why have artists such as Kawara, Darboven and Opalka insisted on the close-observation of this capitalist timescale? While these conceptual artists committed their lives to being so firmly 'on the clock,' Christian Marclay's epic cinematic time-piece obliges *us*, as viewers, to observe its pedantic measurements—a filmic punctuality that is wholly unavoidable. Each of these works seeks to scrutinise the relationship between 'clock-time' as a universally observed time-standard and the variable structures of making and viewing art. They each make the practice of time's observation an aesthetic action, event, activity or 'thing.' As an ideal form of measurement, clock-time stands outside human experience as a perfectly neutral and objective gauge. The works discussed in this chapter put pressure on this seemingly external neutrality, by refusing traditions of 'representing time' either through pictorial symbolism—such as the iconography of mortality in Dutch still life paintings—or through numerical indexicality: the idea that the numbers associated with the twenty-four-hour clock can represent a particular division of duration.[6] In Kawara's work, 'observing' calendrical time becomes a daily practice of painting and 'marking' time through activity. In this case, temporal measurement is not simply a quick glance at the slick digital surface of a watch. It is not about noting 'the time' for *another* purpose or activity. The purpose of these works *is*

[5] The sociologist Judy Wajcman suggests that conspicuous 'busyness' is supplanting the consumption of leisure as a symbol of status within certain socio-economic groups. By extension, devices such as the iWatch exploit or respond to this valorisation of hectic labour schedules, but also draw on the 'gold-plated' historical status of the watch as thing of adornment. See Wajcman on 'busyness' in *Pressed for Time: The Acceleration of Life in Digital Capitalism* (Chicago: University of Chicago Press, 2015) 71.

[6] For instance, the logician Charles Sanders Peirce writes: 'This experience of the world we live in renders the map something more than a mere icon and confers upon it the added characters of an index…A weathercock indicates the direction of the wind. A sun-dial or a clock indicates the time of day. Geometricians mark letters against the different parts of their diagrams and then use those letters to indicate those parts.' See Peirce 'What is a Sign?' in *The Essential Peirce: Selected Philosophical Writings* (Bloomington: Indiana University Press, 1992) 8.

time. The works discussed in this chapter refuse to let the rational gauge of capitalism transcend the messy durations of activity: the time of the artwork is not 'pointed at' from a distant vantage but variously 'instantiated' within the observations of the work itself. While the iWatch offers an immediate optical apprehension of the time—the second, minute, hour 'absorbed' in the 'blink of an eye'—these works insist on time as a process or system that actually 'takes time.' They put pressure on the temporal 'objectivity' that lies at the heart of the singular global timescale.

The river of time: Newton and Kant

While the time of modernity is the central subject of this chapter, this temporal standardisation has its paradigmatic roots in the mechanistic values of the Enlightenment. The history of seventeenth-century scientific and philosophical transformations is certainly well known, but is worth reiterating here because the temporal certitude introduced by thinkers such as Isaac Newton and Immanuel Kant continues to shape the modern understanding of time. From the late seventeenth century, the time dimension came to play a significant role in the rational humanist description of the universe. Newton's achievement was to unfasten what he described as 'absolute time' from the capricious phenomena that populated the natural world. He conceived of time as an entirely autonomous dimension: a 'River of Time' that flowed regardless of whatever was swept into its singular course. Newton famously distinguished this mathematical time from the common time of hours and days that was determined by the more fickle solar cycles of 'nature':

> Absolute, true, mathematical time, of itself, and from its own nature, flows equably without relation to anything external, and by another name is called

> duration: relative, apparent, and common time, is some sensible and external (whether accurate or unequable) measure of duration by the means of motion, which is commonly used instead of true time; such as an hour, a day, a month, a year.[7]

The prevailing Aristotelian belief was that time adhered in the universe as a measure of physical motion. Time was effectively a subordinate of movement: a derivative of the transitions of objects and events. Furthermore, René Descartes' dualistic separation of the abstract thinking 'mind' and the physical 'body' underscored a distinction between 'time' as a subjective mode of thought that measures the 'duration' of worldly substances.[8] But for Newton, absolute mathematical time was not simply a derivation or even an abstract formulation—it was a very 'real' property of the physical universe. While Descartes readily applied a geometry of fixed co-ordinates to Euclidean space, Newton proposed that time could be measured in geometric units, one mathematical moment after the next.

Immanuel Kant's *Critique of Pure Reason* famously completed the 'reversal' of Aristotle's subordination of time to motion.[9] As the historian of philosophy Philip Turetzky writes, Kant did not entirely oblige the autonomy of Newtonian time because he could not conceive of a temporality that was independent of the human perceptual capacities to grasp it.[10] Nonetheless, he did embrace the application of a strict mathematical time to the objects and events that do appear in phenomenal experience.

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[7] Isaac Newton, *Newton's Principia: The Mathematical Principles of Natural Philosophy*, eds. Andrew Motte and N. W. Chittenden (New York: Turney & Lockwood's Stereo, 1846) 6.

[8] Philip Turetzky, *Time* (London; New York: Routledge, 1998), 71.

[9] Gilles Deleuze makes this point at the very beginning of *Cinema 2: The Time-Image*. He writes: 'Over several centuries, from the Greeks to Kant, a revolution took place in philosophy: the subordination of time to movement was reversed, time ceases to be the measurement of normal movement, it increasingly appears for itself and creates paradoxical movements. Time is out of joint: Hamlet's words signify that time is no longer subordinate to movement, but rather movement to time.' While Deleuze acknowledges Kant here, ultimately he moves against the tradition of Kantian transcendentalism in embracing the 'paradoxical' times of Henri Bergson—the subject of Part Three of this thesis. Deleuze, *Cinema 2*, xi.

[10] Turetzky, *Time*, 73.

Kant's much-discussed philosophical position is that the subject cannot have knowledge of things outside of how they appear in experience (phenomena), but this experience is itself made possible by certain *a priori* conditions, namely those of time and space. This correlation of phenomenal experience with the worldly properties of that experience will prove problematic for a number of contemporary 'speculative' philosophers whose work is discussed in the final chapter of this thesis. Suffice it to say here, that in Kant's thought, time has a special status: it is an ideal and transcendent dimension that is not directly given in experience, but it is a universal condition of all experiential appearances. He explains this mathematical 'spatialisation' of 'inner time' in the *Critique of Pure Reason*:

> Time is nothing other than the form of inner sense, i.e., of the intuition of our self and our inner state. For time cannot be a determination of outer appearances; it belongs neither to a shape or a position…And just because this inner intuition yields no shape we also attempt to remedy this lack through analogies, and represent the temporal sequence through a line progressing to infinity, in which the manifold constitutes a series that is of only one dimension, and infer from the properties of this line to all the properties of time, with the sole difference that the parts of the former are simultaneous but those of the latter always exist successively.[11]

Following Kant's studies on time and consciousness, the subject can experience objects and events *in* time, and organise these activities according to strict mathematical intervals, because this time is already 'hardwired' into the brain as part of its cognitive 'architecture.'[12] In this respect, the legacy of Kant and Newton's thought is a

[11] Immanuel Kant, *Critique of Pure Reason*, trans. Paul Guyer and Allen W. Wood (Cambridge: Cambridge University Press, 1998), 163.

[12] Barry Dainton, *Time and Space* (Montreal; Ithaca N.Y.: McGill-Queen's University Press, 2010), 219. This summary of Newton and Kant's concepts of time is indebted both to Turetzky and Dainton's invaluable historical analyses.

time of rational certainty that structures both human experience and the world beyond it. It offers an unequivocal sequence that consists of a past that does not change, a present that is quantifiable, and, *crucially,* a future that can be predicted. What is lost to this determinist picture of the universe is a time of movement, change, dynamism and creativity—an issue that will become significant for the artists discussed in the latter chapters of this thesis.

Time and modernity

Beginning roughly in the middle of the nineteenth century and drawing to a close with World War One, the period of industrial modernity amplified the mechanistic ambitions of the Enlightenment. In the ever-expanding imperial territories of Europe, Great Britain and Northern America, time was established as a universal standard that regulated both labour practices and the exchange of goods and information. In the preceding literature review, I surveyed Pamela M. Lee's, Charlie Gere's and Christine Ross's respective studies, each of which was broadly concerned with modernity as a historical source of relentless political, cultural and economic progression. The most prominent historical narrative here is one of a great 'time-space compression' that was ushered in by exceptional industrial and technological changes.[13] The international expansion of railway and communications networks toward the end of the nineteenth century was significant because it allowed for huge areas of land to be traversed and

[13] I follow the sociologists Jon May and Nigel Thrift's critical analysis of the contemporary 'time-space compression' narratives broadly associated with this historical period. See their expansive introduction to the collection of essays: *TimeSpace: Geographies of Temporality* (New York: Routledge, 2001), 1-46.

conquered at ever-reducing speeds.[14] This spatio-temporal compression was seen to dislocate periods of duration from 'concrete' physical geographies, thereby 'abstracting' time as a pure measure of velocity. Karl Marx famously described this as the 'annihilation of space by time.'[15]

As the sociologists Jon May and Nigel Thrift observe, the broadly accepted historical account is that modernity's techno-scientific innovations accelerated the pace of ordinary life, hollowing out experiences of the present to serve a persistent cultural advance towards the future.[16] The social theorist Judy Wajcman, whose work I follow closely here, writes that the innovation of the telegraph was particularly significant because it rendered the transfer of information 'immaterial' by uncoupling the exchange of communication from the physical necessities of transport causing 'people to wonder, much as the Internet does today, about the rapid and extraordinary shifts it wrought in the spatial and temporal boundaries of human relationships.'[17] The latter is critical: modernity's time-space compression is intimately bound up with the temporal values of our contemporary 'digital era.' How and why they are related is a matter of some debate that is parsed in these pages, but recent theorists such as Paul Virilio conclude that 'times' are not simply changing, so much as the social faculty of time itself has changed.

[14] It is important to acknowledge here that the development of the global time-standard and the industrial 'compression' of temporal and spatial values also facilitated the expansion of colonial empires in the nineteenth century. The universal time-standard allowed dispersed geographic regions to be efficiently controlled from a single base, thereby enabling the conquest of vast territories and the efficient exploitation of labour and natural resources. This is the subject of William Kentridge's work *The Refusal of Time* that is discussed in Chapter Eight. The history of colonisation in the Pacific is also the subject of Lisa Reihana's filmic animation *in Pursuit of Venus infected* (2015) that is similarly discussed in Part Two of this thesis. Further, time's role in the imperial colonisation of different geographic areas is not limited to scientific standardisation, but is also shaped by the linear teleology of Christianity. The singular cultural hegemony of Christian social and religious practices effectively flattened a number of diverse 'subaltern' cosmologies and timescales. See Giordano Nanni's historical study of how British standard time was used to colonise territories in Africa, Australia and India; and how both indigenous peoples and settler groups resisted its regulations: *The Colonisation of Time: Ritual, Routine and Resistance in the British Empire* (Manchester; New York: Manchester University Press; Palgrave Macmillan, 2012).

[15] See Wajcman, *Pressed for Time*, 17.

[16] May and Thrift, *TimeSpace: Geographies of Temporality*, 6.

[17] Wajcman, *Pressed for Time*, 45.

To be more specific, the theoretical suspicion is that the immediacy and interconnectivity of the 'digital era' has transformed the way time is valued and experienced by subjects in advanced capitalist economies.[18]

Nonetheless, not all social theorists accept the broad-reaching premise that the technocratic machinations of modernity have *comprehensively* regulated and homogenised human temporal experience. One might add that there exists no general consensus on how time is actually experienced by the human subject and the broader ontological implications of this experience—time is a complicated, multifaceted subject whose very complexity is attested to by its long history in a multitude of different philosophical traditions. What May and Thrift point out is that the period of modern time-space compression also accommodated a number of philosophical and scientific developments that contested both the sturdy, Newtonian sciences and the establishment of a single time-standard. These include Albert Einstein's special theory of relativity that is discussed in the following chapter, Henri Bergson's concept of *durée* that is the subject of Part Three of this thesis, Darwin's theory of evolution, and scientific advances in dating the geological age of the earth.[19] While the modern cosmopolitan citizen became increasingly concerned with smaller intervals of time and with the minute mechanisms of its measurement—watches, clocks and other time-pieces becoming *de rigueur* amongst those who could afford them—May and Thrift's

[18] See Charlie Gere's discussion of Virilio's work in Chapter Two of the preceding literature review.

[19] One might note that these scientific movements offered further confirmation of the shortcomings of biblical calculations of the age of the earth and the teleological modelling of time—a subject that is pursued in Chapters Thirteen and Fourteen in relation to the geology of 'deep time.' Nonetheless, the linear Christian timescale still shapes the contemporary social 'practice' of time. In the Western world, the seven-day week has its roots in the Genesis description of creation (on the seventh day God rested) and the anno domini system of marking years before and after Christ's birth is established in the calendrical reforms of Julius Caesar in 46 BC and by Pope Gregory XIII in AD 1582. Aside from these systems of temporal measurement, the Judeo-Christian influence is still felt in time's linear direction—a singular, progressive 'march' forward that supplanted the cyclical time of the Greeks and other ancient peoples, and remains especially prominent in modernist narratives.

point is that these subjects were also keenly aware of a *multiplicity* of different, sometimes conflicting concepts of time.

In the present tense, the universal atomic time-standard does not accommodate any multiplicity or variance. While the global time-standard was initially measured from the Greenwich meridian, it is no longer co-ordinated by geographical, solar or astrological markers. Instead, standard clock-time is 'observed' using a set of microscopic vibrations that are functionally imperceptible to the human eye. The fiercely precise atomic clock defines a single second as the '…time it takes a Cesium-133 atom at the ground state to oscillate exactly 9,192,631,770 times.'[20] This means of measuring time will only deviate one second every twenty million years. In many ways, these developments realise the Enlightenment ideal of humanity's advancement over its environment, whereby a set of rational mechanist technologies, wrought by human ingenuity, triumphs over the unruly properties of nature.[21]

A number of artists practising in the 1960s and 1970s engaged geological and astronomical timescales that recalled earlier mechanisms of temporal observation, thereby resisting the wholesale abstraction of modern time. Nancy Holt's seminal work *Sun Tunnels* (1973-76) consists of four industrial concrete pipes arranged in an X-formation in a remote part of the Great Basin Desert in north western Utah. The tunnels have been positioned so that they match the solstice solar trajectory at sunrise and sunset, and a series of small holes reflecting the constellations of Draco, Perseus, Columba, and Capricorn have been drilled into their surfaces. Visitors to the site can sit inside the tunnels—especially if they wish to avoid the sun-baked heat of the desert—whereby the constellations of the night-sky become pricks of sunlight that play on both

[20] 'What is International Atomic Time (TAI)?,' *Time and Date AS*, accessed 14 June, 2013, http://www.timeanddate.com/time/international-atomic-time.html.

[21] Ibid., 44-45.

the inner surfaces of the concrete pipes and the viewer's own body. Time is engaged not as an entirely external measure, but as a dialogue between outside and inside, between the viewer's body and the astronomical movements of celestial bodies, and between the smooth surfaces of industrial concrete and the geological rock formations of the Utah desert. Holt wrote that ' 'Time' takes on a physical presence….[it is] not just a mental concept or a mathematical abstraction in the desert. The rocks in the distance are ageless; they have been deposited in layers over hundreds of thousands of years.'[22] Like many land artists of the 1970s, Holt approached the global time-standard as a rubric of modernity: 'time' as an authoritative model and a singular temporal regiment that is contested by 'physical,' earthly and natural processes. This aesthetic concern for the 'deep time' of the earth is discussed in relationship to the seminal earth artworks of Holt's frequent collaborator Robert Smithson in Chapter Thirteen.

Alternatively, this chapter discusses the long-term conceptual art projects of the artists On Kawara, Hanne Darboven and Roman Opalka. Beginning at roughly the same period in the mid-1960s, these projects involved the daily numerical observation of time through painting or drawing. Kawara made 'date paintings' that simply proclaimed the calendrical date on which they were painted; Darboven developed a mathematical system of marking time based on numerical calendar dates; and Opalka set out to paint decimal numerals from '0' to 'infinity' on a sequence of primed canvasses. While land artists such as Holt expressly engaged 'deep' timescales of geology and astronomy, Kawara, Darboven and Opalka's conceptual projects embraced the numerical description of time only to scrutinise its seemingly 'objective' regulation of human activity and experience.

[22] Nancy Holt, 'Sun Tunnels,' *Artforum International* 15, no. 8 (1977), 34.

I take Marcel Duchamp's parody of metric standardisation in *Three Standard Stoppages* (1913-14) as an important point of reference here. Like Kawara, Darboven and Opalka's projects, Duchamp's work is the outcome of a specific procedure of measurement: from a height of one metre, the artist dropped three threads of one metre in length onto a primed canvas. The curved lines that these metre-long threads assumed became the template for a set of wooden 'straightedges'—the drafting tool that was once widely used to make accurate fabrication measurements. Duchamp's 'joke' effectively lampoons the intrinsic *conventionality* of metric standardisation as a form of regulation that can be literally 'twisted' to produce absurdly counter-productive results. This 'twisting' of the ridged spatial standard is achieved through the introduction of the temporal values of contingency, chance and change—values that are restrained by the uniform, mechanistic timescale of modernity. In an interview in 1964 Duchamp said:

> This experiment was made in 1913 to imprison and preserve forms obtained through chance, through my chance. At the same time, the unit of length, one meter, was changed from a straight line to a curved line without actually losing its identity [as] the meter, and yet casting a pataphysical doubt on the concept of a straight edge as being the shortest route from one point to another.[23]

While Kawara, Darboven and Opalka's projects do not adopt Duchamp's satirical tenor, they do 'twist' temporal standardisation through the act of observing the modern timescale. Like Duchamp's *Three Standard Stoppages*, they render universal time functionless through an almost absurd commitment to its daily observation. While the Apple Watch is a device that uses standard time to measure 'something else'—heart-rates, steps, pulses, weight, et cetera—these projects 'use' time to measure the act of

[23] Anne D'Harnoncourt and Kynaston McShine, *Marcel Duchamp* (London: Thames and Hudson, 1974), 273-74.

measurement itself. Ultimately, these conceptual projects hinder modern time's will to abstraction by rendering this 'neutral' temporal scale immanent unto itself.

On Kawara's *Today* series

On Kawara's celebrated project the *Today* series (1966-2013) (Fig. 2.2 and 2.3) is a sequence of date paintings that were produced according to a set of simple conceptual guidelines. On any given day, Kawara set out to paint the date according to the Gregorian calendrical conventions of the country he happened to be in. A date painting painted in the Unites States of America on March of 1975 thereby reads '*Mar. 21, 1975.*' Thousands of these paintings were made while Kawara was alive, each of them observing a few restricted compositional principles: the date is painted in a white *san serif* script and floats dead-centre against a monochrome background of blue, grey, black or red. The results are bureaucratic, almost boring. Like many conceptual works of the 1960s, Kawara's date paintings offer a simple, straightforward communication of information without embellishment or illustration. The conceptual 'key' to this series is the artist's steadfast commitment to the date itself. If a painting was not finished by the stroke of midnight, then its makings were completely destroyed. By eliminating any trace of the 'next day,' Kawara underscored his conceptual 'temporal mechanism': the painting *is* the date and the date is also the painting.[24]

Anne Rorimer's important essay 'The Date Paintings of On Kawara' examines affinities between Kawara's conceptual project and the self-referential abstract paintings of artists such as Robert Ryman and Frank Stella, which similarly eschewed representational pictorial traditions. She writes:

[24] The formative text here is Anne Rorimer, 'The Date Paintings of on Kawara,' *Art Institute of Chicago Museum Studies* 17, no. 2 (1991), 120-137 and 179-180.

> The significance of these paintings lies in the fact that they depict not only a date, but also their own date. If, historically, paintings have been fixed in time by a date on the front or back of the canvas, the date itself for Kawara becomes the subject of the painting and the sole embodiment of the work's figurative imagery.[25]

What I am interested in is Kawara's engagement with the calendrical time-standard as an abstract system of measurement: the Enlightenment ideal of an absolute gauge that stands outside all worldly properties. While the objective date peels away from the objects and activities it 'marks,' Kawara's date paintings appear to 'ground' this timescale *in* an activity, both personal and laborious. The perfectly monochrome surface of each painting is achieved through the daylong application of multiple layers of paint—the results of which may or may not be destroyed come midnight. Further to this, these thinly applied layers actually work to obliterate the artist's 'hand' from the surface where individual brushstroke are assimilated by the gradual accumulation of painterly strata. What the viewer is ultimately presented with is a seemingly objective date that floats against a uniform field of colour. Where layers of paint consolidate to form a singular, solid surface, the length of a day is collapsed into a simple numerical description: the painting folds in on time itself.

In this way the *Today* series establishes a 'temporal tension' between time as an indifferent and abstract measure, and time as a process of personal labour and activity. For the artist, the process of creating a date painting is invested with the lengthy experience of multiple daily durations. But for the viewer, the encounter of a painting bearing a calendrical date may or may not obtain any form of duration. The simple

[25] Ibid., 122. One might also refer to Joseph Kosuth's conceptual works of the same period where the artist created 'tautological propositions' with neon signs such as the self-descriptive *Five Words in Green Neon* (1965).

format of the date might be 'consumed' in the blink of an eye, or it might be pondered at length, perhaps in relation to other date paintings exhibited side by side. The date might prompt the viewer to consider specific events: perhaps her or his own birthday, or more 'collective' histories events such as the Vietnam War that is the subject of an earlier painting triptych by Kawara.[26] The viewer may or may not consider or even realise the protracted activity that produced these paintings: the hours Kawara has spent erasing any trace of his own hand and his own labour. Or the viewer might be compelled to reflect upon this activity at length and to consider Kawara's movements across the globe, through different time zones that are indicated by the sequential formats of the Gregorian dates and the language in which they are expressed. Or, these dates might just remain dates: the seemingly indifferent marker of time that can be found at the corners of newspapers, at the top of emails and on the reflective surfaces of most digital devices.

Ultimately, Kawara's date paintings repeal the 'objectivity' of the global timescale through a strikingly tautological process: they make the measurement of time a personal artistic activity, thereby refusing its capacity to be a measure *of* that activity. This is realised not through simply eschewing pictorial representation, but by refusing time's indexical representation. As I have discussed in this chapter, the universal time-standard, including the Gregorian calendrical systems, is indexical in as much as a set of numbers represents or 'stands in' for a period of time. Even though the iWatch is bound to the wrist, it can function as an effective measure of the activities of the body—heart rate, weight, food consumption—because the time-standard it observes transcends its corporeal form. Kawara's *Today* series refuses to represent time by making a numerical

[26] Kawara's 1965 triptych *Title*—three sequential canvasses onto which the phrases 'ONE THING,' '1965' and 'VIET-NAM' have been painted—precedes the *Today* series that began a year later.

description of the past 'present' *again*: to 're-present' it, so to speak. Kawara's calendrical date 'measures' nothing other than the date itself. Like Duchamp's parody of the metric system in *Three Standard Stoppages*, Kawara's date paintings reveal the *idealism* of universal time as a completely abstract and disinterested system of measurement.

This interplay between temporal measurement and personal activity informs a number of Kawara's concomitant works. The *I Got Up* series consisted of postcards on which the artist had stamped the time of his morning awakening and sent to different friends over a period from 1968 to 1979. In that latter year, Kawara began *One Million Years (Past)* and subsequently *One Million Years (Future)* in which the dates from 998,031 BC to AD 1,001,995 were printed and bound into 20-volume collection books. Readings and recordings of these calendar volumes have been made in various exhibition settings where a series of participants, one woman and one man, alternately voice each date from start to finish. Each of these works investigates a tension drawn between a subject—the artist or participant—who 'addresses' the objectivity of the universal time-standard by drawing it into a rather repetitive and prosaic activity or protocol.

The principle of time's objective universality is similarly scrutinised where Kawara has stored each individual date painting with a newspaper or small clipping bought on the day of its creation.[27] Gathered from different locations around the world, these newspaper clippings record an array of worldly events which have no special significance to the 'content' of Kawara's artwork other than that they occurred on the day of its painting. Rorimer interprets Kawara's concern for these papery scraps of

[27] Similarly, Hanne Darboven also began incorporating newspaper clippings in her works in the late 1970s as a means of attending to collective systems of observing time. With the contemporary demise of the print newspaper, this soon-to-be anachronistic artefact of time has been of interest to a number of contemporary artists including Fiona Connor, Yuk King Tan, Roman Ondak and Gabriel Kuri.

public media through the history of modernist painting: these inclusions are said to recall the Cubist collaged fragments of newspaper text that challenged the division between 'high art' and the more prosaic qualities of everyday life. She writes that Kawara's newspapers 'ground' his seemingly disinterested date paintings in a 'world of constant flux and continuing events (as opposed to the supposed 'timeless' context of art).'[28] I prefer to see these newspaper clippings as underscoring the paradox of public, objective and disinterested time: the multitude of events, activities and histories that held so much significance and value within the public imagination are so easily reduced to the date that exists on the white margins of the newsprint. At heart, Kawara's different conceptual procedures for 'marking time' address a compelling friction that exists between the seemingly transcendent universal timescale and the mundane immanence of human activity and experience.

Figure 2.2: On Kawara, date paintings, David Zwirner, New York, 2012.

[28] Ibid., 130.

Figure 2.3: On Kawara, date paintings, 13th Street studio, New York, 1966.

Hanne Darboven: time and labour

On Kawara's *Today* series shares a remarkable affinity with the life-long conceptual projects of Hanne Darboven, whose *Konstruktionen* drawings (Fig. 2.4) began in 1966, and Roman Opalka, whose series of *Infinity* paintings began in 1965. Like Kawara, Darboven takes the Gregorian calendrical sequence as a starting point for marking time. The *Konstruktionen* project consists of thousands of graph paper 'drawings' comprising columns of successive computations generated by a specific mathematical system: the four to six digits that form the basis of the Gregorian sequence (day, month and year) are added together, while the numbers that indicate the millennium and century are omitted. Sometimes these tabulations were accompanied by a cursive 'l' shape that, as the artist Coosje Van Bruggen has written, 'appear as a regularized yet cursive loop repeated over and over and called 'daily writing'.'[29] These annotations form the basis of a series of systematised arithmetical permutations; equations that are most often arranged in columns, hand written or typed, framed as individual drawings, or collated in multiple books, folders and files. For instance, the work *Ein Jahrhundert (One Century)* (1971-75) (Fig. 2.5) consists of 365 binders that include all the hand-written calculations and annotations for the previous century—the dates '1.1.00' to '31.12.99.'

The immense volume of these drawings speaks to the magnitude of Darboven's commitment to the daily activity of temporal measurement. Like Kawara and Opalka, this daily observation makes the numerically 'objective' timescale immanent to the artist's own hand. In this respect, the numerical calculations of the hand allude to the looming possibility of a dehumanised form of mechanisation where the sensorimotor

[29] Coosje van Bruggen, 'Today Crossed Out,' *Artforum International* 26, no. 5 (1988), 72.

actions of the body assume the discipline of the machine. Crucially, Darboven acknowledges that this activity is ineludibly shaped by modern capitalist working practices, specifically the equivalence of time and labour—a fundamental correlation that also underscores Kawara and Opalka's projects. In a letter to fellow conceptual artist Sol LeWitt, Darboven mused that the work of the 'work of art' is equivalent to the work described by labour practices, stating: 'Art is work….not every work is art, but art is work and vice versa.'[30]

An important point of reference here is Helen Molesworth's discussion of photographs of Marcel Duchamp's studio-cum-residence, where the artist's ready-made works such as the hat-rack, snow shovel and typewriter cover mingle with the 'everyday' detritus of the his domestic life. For Molesworth, Duchamp's indifference to the modernist division between 'art' and 'life' suggests an ambivalent attitude to work as it was increasingly prescribed by capitalist managerial practices at the beginning of the twentieth century. Occupying a space that is partly dedicated to the humdrum domesticities of life, Duchamp's ready-mades evade both the prescriptions of the labour market and the traditions and values associated with art. Molesworth writes:

> In 1913, Duchamp jotted a note to himself: 'Can one make works which are not works of 'art'?' Can one make something that has no function, that performs no work, that is not beholden to a purpose, even that of art?[31]

While Duchamp's interest in the potential 'purposelessness' of the artwork may not tally with Darboven's insistence on the equivalence of 'art work' and 'labour work,' both artists were manifestly concerned with how the capitalist economic system framed the labour of the 'work of art.' For Darboven, the relationship between 'art work' and

[30] Hanne Darboven in a letter to Letter to Sol LeWitt, October 19, 1973, Sol Le Witt Collection, Wadsworth Atheneum, Hartford, quoted in Anne Rorimer's *Hanne Darboven: Hommage À Picasso* (New York: London: Guggenheim Museum; Thames & Hudson, 2006), 14.

[31] Helen Molesworth, 'Work Avoidance: The Everyday Life of Marcel Duchamp's Readymades,' *Art Journal* 57, no. 4 (Winter, 1998), 57.

'labour work' is most explicitly an issue of time—an issue that is also pursued in this chapter in relation to Mierle Laderman Ukeles's important series of 'Maintenance' performances.

The collusion of numerical clock-time and capitalism is a well-known narrative of modernity, but it is worth parsing here in as much as contemporary labour practices have yet to shake its strictures. From the mid-nineteenth century, time was progressively institutionalised as a means of regulating labour and generating profit. The orthodox Marxist analysis is that time becomes a useful economic mechanism, in this respect, where it is disconnected from human-centred biological and diurnal cycles. In his classic essay on the subject 'Time, Work-Discipline, and Industrial Capitalism' (1967), E.P Thompson argued that capitalist industrialisation had introduced a form of time-discipline where labour was prescribed according to the divisions of the clock instead of the 'natural' diurnal cycles of the day.[32] The key here is that time is *abstracted* from worldly activity—and it is precisely this abstraction that Judy Wajcman writes is the precondition for its dual-use both as a neutral value of exchange and a means of commodifying labour and nature. She writes:

> Only on the basis of this neutral measure could time assume such a pivotal position in all economic exchanges. Since 'moments' are the 'elements of profit,' it is command over the labour time of others that gives capitalists the initial power to appropriate profit as their own [33]

This commodification of labour was both formalised and 'streamlined' in the scientific managerial practices of the early twentieth century where the manufacturer Frederick Taylor's 'Taylorist' system rigorously divided production into discrete tasks

[32] E. P. Thompson, 'Time, Work-Discipline, and Industrial Capitalism,' *Past and Present* 38 (1967), 56-97.

[33] Wajcman, *Pressed for Time*, 40.

that could be assigned a unit time. Henry Ford famously expanded upon the Taylorist division of labour by 'flowing' the task to individual workers through a dynamic production line. In Ford car factories, the execution of individual tasks was determined by the continuous, uninterrupted movement of the conveyor belt, rather than the embodied rhythms, abilities and experiences of the worker. Today, few workers clock in and out of factory workplaces but, as Wajcman notes, the 'logic of industrial time still ticks away.'[34] This logic underwrites Darboven, Kawara and Opalka's conceptual engagement with numerical time. Even as their long-term projects extended into the twenty-first century where increasingly globalised economies and instantaneous communication technologies were transforming the practice of scientific managerialism, their laborious temporal observations are still informed by the capitalist equivalence of time and work.

Darboven's daily computational 'workings' of the time contest its abstract neutrality. The *Konstruktionen* system is a means of measuring time at both the granular pace of the day, and the protracted passage of years, but what it truly measures is Darboven's own practice of computation. Here, time is not used to measure the laborious work of the artist; rather the work *is* the measurement of time. Unlike the brushless paint strokes of Kawara's date paintings, the artist's hand remains prominent, evoking an image of a daily, desk-bound practice of abstract mathematical thinking and incremental mark making. In Darboven's work, the act of keeping time loses its abstracted condition, becoming instead a very human-scaled and hand-rendered activity. To be clear, Darboven's numerical time is, in her own words, a 'meaningless'[35] system of measurement, but one that can be manipulated, reworked and cross-

[34] Ibid., 166.
[35] Darboven and Rorimer, *Hanne Darboven*, 13.

calculated in the intimate quotidian practice of pressing ink to paper. Her computations are less about using numbers as a system of quantification for some other 'more productive' purpose so much as they are concerned with marking the daily passage of time.

Figure 2.4: Hanne Darboven, *Konstruktionen (*detail), 1968.

Figure 2.5: Hanne Darboven, *Ein Jahrhundert* at Westfälischer Kunstverein, Münster, Germany, 1971.

Roman Opalka: the body of work

More so than Kawara and Darboven, Roman Opalka's project known as the 'Infinity Series,' *1965/1*-∞ (1965-2011) (Fig. 2.6 and 2.7), attests to the relationship between abstract numerical time and the gradual maturation of the human body. Opalka's long-term project comprises a sequence of paintings that consist only of numbers painted in successive rows from left to right and from top to bottom. The first painting in the series begins with the number '1' inscribed in white paint in the uppermost corner of the canvas and follows the decimal sequence until it ends at the lower right hand corner with the number 35327. These numbers comprise the title of the painting or 'detail,' as Opalka describes them: *1965/1*-∞ *(Detail 1-35327*). At the end of each working day Opalka took a photograph of himself; a headshot of his increasingly aged and wrinkled face. In this respect, the *Infinity Series* presents two documents of time: one a rational, numerical sequence and the other a process of aging, change and transformation; an explicit juxtaposition of the indifference of infinite mathematical time with the finitude of human mortality. A third 'document' of time consists of a recording that Opalka makes of himself speaking the numbers as they are painted. This articulates the relationship between the time that is measured and the physical act of measurement itself. Like Kawara and Darboven's projects, Opalka's series refuses the abstraction of time by grounding its measurement in a personalised, *embodied* activity.

But unlike Darboven and Kawara, Opalka is more interested in the dynamic temporality of expiration. His paintings consist of a ridged numerical sequence, but also a gradual degeneration that seems to evade easy quantification. The painting is a self-contained object, a thing for and of itself, but it is also one 'detail' in a sequence of numbers that could be infinite, that could go on forever. But in Opalka's work, this *ideal*

of mathematical infinity is always contested by physical limitations. Unlike Kawara's crisply delineated dates, Opalka's numbers form painterly striations across the canvas. He begins by dipping the brush into white paint and writing across the canvas until it runs dry, until the numbers fade. These paintings are not explicitly concerned with calendrical or clock-time, rather they function as a numerical realisation of a set of finite durations: the length of time it takes for the brush to become dry, the time it takes for the canvas to be entirely filled with numbers, and the time of Opalka's own incremental aging. In the 1970s, Opalka began adding a small component of white paint to the black background of each painting so that his white numerical inscriptions gradually became imperceptible against their bleached-out canvases. But the primary finite timescale is Opalka's own time: a physical mortal existence that will always remain commensurate with the ideal infinity of numbers.

In this respect, Opalka's series holds some affinity with the performative work of artists such as Tehching Hsieh and Francis Alÿs who engage the working body in various futile temporal procedures. As I discussed in the preceding literature review, Hsieh's *One Year Performance 1980–1981 (Time Clock Piece*) and Alÿs's important 'walking' works saw these artists undertake a set of seemingly fruitless activities that refused the relentless imperatives of capitalist production. While the subject of this chapter is more precisely concerned with the seemingly 'objective' measurement of time, Opalka, Darboven and Kawara's works adopt this 'temporal futility' where their time is not 'spent' producing goods, but is 'trapped' instead in its own cycle of observation: an absurd tautological procedure that measures the activity of measuring time itself.

Figure 2.6: Roman Opalka, *1965/1-∞: Detail 1-35327*, 1965.

Figure 2.7: Roman Opalka, Le Bois Mauclair studio, 2011.

Time and immaterial labour

E. P. Thompson's classic analysis of the 'tyranny of the clock' describes how temporal punctuality, discipline and thriftiness became essential cultural values within the industrialised labour forces of the late nineteenth century.[36] The cultural narrative that emerges with these capitalist labour practices is that time 'belongs' to an individual subject; that it is a finite and valuable quantity that the judicious worker will 'spend' wisely, within the boundaries of their own economic condition. Of course, this quantification of time not only overlooks those who are not paid for 'their time' (often women who do housework or look after dependents) but the fact that time appears to contract and dilate in ordinary experience—that this 'fixed' quantity can seem to slow down or quicken; that it assumes variable characteristics in the events and activities of our daily lives. While these 'qualitatively' different registers of time are discussed in Part Three of this thesis, I want to follow the capitalist dictum here in exploring time as the 'property' of an indivdual—something that both Duchamp and Darboven have considered with regards to the time of the artist. Indeed, while Kawara, Darboven, Opalka and Hsieh have developed conceptual projects that involve the measurement of their own 'personal' time, a number of recent works have more explicitly engaged the viewer's time as a quantified unit.

Julieta Aranda and Anton Vidokle's *Time/Bank* (Fig. 2.8 and 2.9) is a platform facilitated by the online journal *e-flux* where 'viewers' or participants can exchange goods and services without using a standard currency as a measure of value.[37] Aranda and Vidokle's platform does not function through bartering, but through a form of

[36] Thompson, *Time, Work-Discipline, and Industrial Capitalism*, 83.

[37] By contrast, the artist Eve Armstrong's 'trading tables' exchange goods, services and materials through an artist-facilitated bartering system. In 2007, these 'tables' were set up within the auspices of a number of public art institutions, offering a means of exchanging different things without the quantifications of time or money.

economic 'mutualism' that was practised in Britain by the nineteenth-century industrialist Robert Owen and in America by the anarchist Josiah Warren. Owen and Warren each developed systems of trade that eschewed state-backed currencies. The general premise of these 'time banks' was that each member produced goods or services whose monetary compensation was determined not by their market value but by the span of time involved in their production. Aranda and Vidokle's *Time/Bank* offers an online platform where members can list or request goods or services—everything from translating documents and *reiki*, to 'working in a vege patch'—that are compensated by 'hour notes.'[38] These notes are physical tender—much like the 'notgeld' notes that were circulated in the 1920s in Germany as a response to hyperinflation—but they also appear to take a variety of different forms. For instance, Vidokle's prototype for a *Time/Bank* hour note is a recipe for a banana cake that takes one hour to make. The cake is equivalent to the hour, and *not* to a particular sum of money.

This direct equivalence of time and product hinders both the generation of surplus profit and the accumulation of wealth. Instead of generating profit by fixing value to a product and treating time as an abstract variable, the *Time/Bank* fixes units of time to the goods or services produced: an hour *is* a cake. The system makes 'biological time'—described here as the labouring time of the body—an intransigent and concrete 'reality.' Vidokle states that:

> because our money is pegged to biological time, nobody in the bank can really hoard it, since you only have so many hours available to you in a day. There is not much opportunity to extract surplus value from others in the bank and it's

[38] See 'Time Bank Listing: Work in Veggie Patch for Time Hour of Trade for Food,' *e-flux*, accessed 23 November, 2014, http://www.e-flux.com/timebank/listing/work-veggie-patch-time-hour-or-trade-food.

hard to speculate with this currency. It's not a compulsory system: you only participate in this economy and use its currency if you want to.[39]

Like the systems of temporal observation developed by the earlier conceptual artists discussed here, Aranda and Vidokle's economic project articulates the relationship between temporal measurement and 'biological' human activity. But while Kawara, Darboven, Opalka and Hsieh's projects involved their 'own' time as artists, the *Time/Bank* is explicitly concerned with the value of the viewer or participant's time. The platform facilitates an intersubjective exchange between its various participants that is akin to 'social' or 'relational' works such as Thomas Hirschhorn's 'monument' projects that enlist the involvement of a range of individuals. While participation in Hirschhorn's monuments works was comparatively 'open-ended' and unspecified, the *Time/Bank* operates according to a specific economic imperative whereby 'interaction' is tightly prescribed by the hours of the clock. The bank's facility actually formalises the interactions of its participants through a contractual agreement founded in the exchange of 'hour notes.' The focus here is not on observing and recording standard-time, but on cultivating interconnections and relationships between participants—what Hall Foster so acerbically described as 'interactivity' in his discussion of contemporary archival art practices.

With its emphasis on inter-subjective exchange and conversation, *Time/Bank* shares some affinity with Foster's 'archival' works, but also with a number of social art projects that were somewhat controversially described as 'relational' in Nicholas Bourriaud's influential text *Relational Aesthetics* (1998).[40] Somewhat fittingly, the 2011

[39] Anton Vidokle quoted in Jolien Verlaek, 'Working with that 'we-Feeling': Anton Vidokle on Time/Bank,' *Metropolis M* 1, (2011), accessed 22 June, 2015, http://metropolism.com/magazine/2011-no1/werken-met-een-wij-gevoel-1/.

[40] Bourriaud's *Relational Aesthetics* attempts to define a number of significant works from the 1990s as

Time/Bank exhibition at Frankfurt's Portikus gallery was similarly accompanied by a series of talks and lectures, a 'physical' bank where goods and services could be exchanged for the official *Time/Bank* mint, and the publication of a book outlining its economic premise. While *Time/Bank* engages the same aesthetic strategy of earlier artists in that it makes abstract time 'concrete' by firmly drawing together the 'biological' temporalities of the labouring body with abstract temporal measurement, its economic mechanism more precisely implicates the time that 'belongs' to the viewer.

In this respect, it is important to recognise that Aranda and Vidokle's interest in developing a platform for the equitable and money-less exchange of goods and services is shaped by significant post-Fordist transformations in contemporary capitalist economies. *Time/Bank* is informed by the work of a number of political philosophers including Paolo Virno, Antonio Negri, Michael Hardt and Maurizio Lazzarato that variously attend to the increasing importance of 'immaterial labour' in economies that are shifting from the mechanised production of material goods to the quantification of exchanges in knowledge and information. In a discussion of the service industries of the late 1990s, Hardt writes:

> Most services indeed are based on the continual exchange of information and knowledges. Since the production of services results in no material and durable good, we might define the labor involved in this production as immaterial

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a 'set of artistic practices which take as their theoretical and practical point of departure the whole of human relations and their social context, rather than an independent and private space.' See Bourriaud, *Relational Aesthetics* (Dijon: Les presses du réel, 2002), 113. This characterisation has been discussed, somewhat shrewdly, by a number of critics and art historians. Most notably, Claire Bishop's critique 'Antagonism and Relational Aesthetics' seeks to assess the political efficacy or agency of Bourriaud's arguments and many of the works he espoused. See Bishop 'Antagonism and Relational Aesthetics,' *October* 110 (Fall, 2004), 51-79. Each of these texts has become a touchstone for art historical discourses that address the aesthetics of social and political interactions between large groups of participants. Aranda and Vidokle's *Time/Bank* suggests one way in which the contemporary capitalist timescale organises such intersubjective exchanges, but their platform is somewhat unique in its highly formalised conscription of participants into a particular economic system, rather than facilitating the looser, casual and often *unpaid* exchanges that are associated with works such as Rirkrit Tiravanija's meal-based installations, for instance *Untitled (Free)* (1992) that took place at 303 Gallery in New York.

> labor—that is, labor that produces an immaterial good, such as a service, knowledge, or communication. One face of immaterial labor can be recognized in analogy to the functioning of a computer. The increasingly extensive use of computers has tended progressively to redefine laboring practices and relations (along with, indeed, all social practices and relations).[41]

Virno, Negri, Hardt and Lazzarato have each proposed, in some form, that the 'dematerialisation' of labour practices in post-Fordist economies has led to the significant reconfiguration of the traditional capitalist relationship between time and profit. Increasingly, the time of work is said to be absorbing all other potential times. The new knowledge worker is required to provide 'immaterial labour' around the clock, irrespective of the cultural mores and diurnal cycles that once determined 'when' labour would occur. On one hand, the *Time/Bank* system seems to facilitate the 'precarity' of this contemporary condition: it is difficult to imagine how a truly destitute shift worker might participate in this scheme. Thomas Hirschhorn's 2002 *Bataille Monument* is useful point of comparison here as a temporary civic structure—an ad-hoc hybrid of a library, snack bar, television studio and public sculpture—that offered a loose engagement with the philosopher's thought, but more effectively established systems of social exchange that underscored the political and economic status of its participants.[42] Like the other monuments in this series, the *Baitalle Monument* was installed in a Turkish neighbourhood in the German town of Kassel during Documenta 11, inviting a purposeful contrast between the potential elitism of intellectual milieus that frequented the art exhibition and Germany's immigrant communities.

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[41] Michael Hardt, 'Affective Labor,' *Boundary* 26, no. 2 (Summer 1999), 94.

[42] Hirschhorn's European monuments to philosophical figures have each taken place in 'unofficial' sites or neighbourhoods in the respective countries of their birth. For instance, the *Spinoza Monument* (1999) took place in the red-light district in Amsterdam, and the *Deleuze Monument* (2000) was situated in the North African quarter of Avignon.

In some respects, *Time/Bank* adheres to the temporal *ideal* of economic mutualism that shares some affinity with the ideal of classical capitalist economics, whereby time is an indifferent quantity that is free of individuated biases such as class, gender, ethnicity and sexuality. Interestingly, Aranda and Vidokle's platform is explicitly orientated toward the 'immaterial' labour of 'creative workers' who are often compelled to volunteer their time to various contemporary art economies without monetary remuneration.[43] Like Mierle Laderman Ukeles's 'Maintenance project' that will be discussed shortly, *Time/Bank* seeks to ensure that contemporary art's 'invisible labour' does not go unnoticed or uncompensated. While the question of the social and political status of each 'hour note' is still pressing, this online platform ensures that 'creative time' never achieves a purely 'immaterial' existence as an abstract capitalist measure. Like Kawara, Darboven, Opalka, the *Time/Bank* system anchors a seemingly indifferent unit of time to a set of biological or sensorial actions carried out by an individual body. In this respect, time is not simply a neutral and independent numerical measure but a 'material' activity: time *is* the accumulation of layers of paint, hand written calculations, numerals spoken aloud, photographs snapped, time-cards punched, reiki performed and cakes baked.

[43] Vidokle has stated that '…what we were specifically interested in is the kind of work that takes place in the arts and is extremely necessary, but is not valued by society and always falls through cracks.' See Julieta Aranda and Anton Vidokle, 'Time/Bank: A Conversation with Julieta Aranda and Anton Vidokle,' *Manifesta Journal* 14 (25 October, 2015),131-133.

Figure 2.8*: Time/Bank* currency designed by Lawrence Weiner. 'In circulation' during 2010.

Figure 2.9: Anton Vidokle's *Time/Bank* currency prototype, 2009.

24/7: Time in the digital era

Toril Johannenssen's *Mean Time* (2011) (Fig. 2.11) is a standard Dutch train station clock that has been programmed to tick at a rate determined by the global activity of the internet: the more data processed, the faster the seconds tick by. According to Johannenssen's clock, standard-time is not the reliable and even-handed measure of train travel, but a changeable rhythm whose tempo is relative to the collective exchanges and processes of the 'web.' Johannenssen's work rather perceptively brings together the civic railway time of modernity with the contemporary time of online interconnectivity and immediacy. Modernity's great mechanical innovation and the enduring symbol of its technological triumph is brought into proximity with the seamless temporality of the internet age.

Johannenssen's *Mean Time* speaks to a contemporary suspicion that the 'immaterial' communications technologies of our digital information age are transforming the human experience of time. This suspicion is not new: the technologies of industrial revolution were also charged with compressing the ordinary experience of time and space, thereby accelerating the pace of life—a subject discussed in relation to the art historical scholarship of Pamela Lee and Charlie Gere in the literature review. Nonetheless, the digital world is said to embrace a particular form of 'real-time' immediacy that is distinct from the clunky machinic processes of the industrial revolution. The prominent philosopher and theorist Paul Virilio warns that the contemporary emphasis on the speed of connection and the simultaneous exchange of information may expunge time *spans* altogether by collapsing extended durations into instantaneous 'real-time' connections. As much as Johannenssen's 'mean time' might refer to the mathematically computed 'average' of internet data uploads and downloads,

it also suggests a lag in time, a pause in a sequence of events that could take place 'in the meantime.' Ultimately, contemporary connective technologies such as the iWatch seek to eliminate this time of deferral through the seamless synchronisation of its wearer and the global time-standard.

Exactly how the seemingly immaterial systems of the internet are reshaping the human experience of time is the subject of a great deal of contemporary debate amongst social and political theorists. A prominent concern, most explicitly expressed in Virilio's work, is that so-called 'real time' immediacy is supplanting clock-time: that the contemporary proclivity for simultaneity is suppressing the successive and chronological timescales established over the course of modern industrialisation. Virilio's concept of 'dromology' suggests that late capitalist cultures have been absorbed by a 'cult of speed' and acceleration that threatens to eclipse humanity. The fear is that time will be rendered wholly *immaterial*, while the human body remains obstinately lodged in its fleshy, corporeal condition. He suggests that:

> I think the old image, the old reality, was a reality that can be presented as a space-time reality. Man lived in a time system of his actual presence: when he wasn't there, he wasn't there. Today we are entering a space which is speed-space. Contrary to popular belief, the space we live in is a speed-space. This new other time is that of electronic transmission, of high-tech machines, and therefore, man is present in this sort of time, not via his physical presence, but via programming.[44]

The art historian Jonathan Crary has made a similarly vivid argument in his recent book *24/7: Late Capitalism and the Ends of Sleep* (2013). For Crary, the '24/7 world' is one where electronic devices have perforated the modernist barrier between work and life, thereby abbreviating visceral human conditions to the point of

[44] Paul Virilio, *Virilio Live: Selected Interviews*, ed. John Armitage (London: Sage, 2001), 70.

obliteration. His prime example is the respite of sleep where capitalist production cycles are progressively encroaching on the 'deadened' hours of the night. Crary argues that the constant connectivity of techno-capitalist exchanges revokes 'distinctions between work and non-work time, between public and private, between everyday life and organized institutional milieus.'[45] According to Crary, the continuous 24/7 time of contemporary life is unique in its assimilation of the 'rich textures' of embodied perceptual experience, including the critically restorative activity of sleeping. Connected devices such as smart phones and tablets overcome the physicality of 'concrete' material exchanges by drawing an 'equivalence between what is immediately available, accessible, or utilizable and what exists.'[46] In this respect, Crary's arguments appear to lean on the post-Fordist analysis of the increasing 'immateriality' of contemporary labour practices. Following this argument, where time was once used to regulate working bodies that shaped material goods, contemporary capitalism valorises a form of widespread homogenous immediacy. Crary writes:

> 24/7 announces a time without time, a time extracted from any material or identifiable demarcations, a time without sequence or recurrence. In its peremptory reductiveness, it celebrates a hallucination of presence, of an unalterable permanence composed of incessant, frictionless operations…[47]

This description of the contemporary digital era is extreme—a difficulty that will be discussed shortly—but Crary's analysis remains important to this discussion of the aesthetics of temporal measurement because it attempts to describe the contemporary relationship of time and visuality inscribed in apparatuses such as the iWatch.[48] For

[45] Jonathan Crary, *24/7: Late Capitalism and the Ends of Sleep* (London; New York: Verso, 2013), 74.
[46] Ibid., 19.
[47] Ibid., 29.
[48] Crary's broader scholarly project is concerned with the nineteenth-century visual cultures of spectacle and perception, whose industrial and technological developments saw an increasing artificial

Crary, the 24/7 world is constantly illuminated in an 'unending condition of visibility' that transcends the necessities of the body.[49] The iWatch is colloquially known as a 'glanceable' technology that is appended to the body for easy reference, effectively reducing the time it takes to 'tell the time.' This is consistent with devices such as the somewhat ill-fated 'Google Glass' that can be worn as a headset or eyepiece whereby digital data and the ability to connect online are integrated in the wearer's field of vision.[50] Crary's argument is that these technologies purposefully emphasise a homogenous visual experience that diminishes the richness of embodied perception in order to make the subject pliable, 'manageable and predictable' for the purposes of capitalist exploitation.[51] He writes that, since the nineteenth century, the culture of perceptual spectacle has not been 'founded on the necessity of making a subject see, but rather on strategies in which individuals are isolated, separated, and inhabit time as disempowered.'[52]

Crary paints an undoubtedly bleak picture of the digital era and its recent technological developments. It might be that his understanding of 24/7 time as a homogenous plane of simultaneity is at odds with Timothy Barker's 'digital database aesthetics.' As I discussed in the literature review, Barker expands upon Lev Manovich's important concept of 'database aesthetics' where digital time allows for the co-existence of multiple timescales that unravel the singular, prescriptive chronologies of modernity

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illumination of hitherto darkened nightscapes. Electric light is a key motif for Crary as the luminescent force that extends the human capacity for vision, thereby extending hours of capitalist production into the nocturnal realm. See the Crary's chapter 'Illuminations of Disenchantment' in *Suspensions of Perception: Attention, Spectacle, and Modern Culture* (Cambridge, Mass.: MIT Press, 1999), 149-280.

[49] Crary, *24/7*, 5.

[50] Crary describes a contemporary world were the subject's vision is co-opted by both intelligence agencies and large-scale corporations. He writes: 'Widely employed are screens or other forms of display that track eye movements, as well as durations and fixations of visual interest in sequences or streams of graphic information. One's casual perusal of a single web page can be minutely analyzed and quantified in terms of how the eye scans, pauses, moves, and gives attentive priority to some areas over others.' If Crary is right, this gleaning of visual data implies a strange reversal of Jeremy Bentham's panopticon whereby the subject's seemingly autonomous vision is used to predict and control their future consumer activities. See Crary, *24/7*, 48.

[51] Crary, *Suspensions of Perception,* 43.

[52] My emphasis, Ibid., 3.

as a source of richly diverse experiences.[53] Most recently, the artist Hito Steyerl has proposed that contemporary three-dimensional animation technologies integrate multiple perspectives thereby resisting fixed, monocular chronologies. She writes:

> …if we accept the multiplication and de-linearization of horizons and perspectives, the new tools of vision may also serve to express, and even alter, the contemporary conditions of disruption and disorientation…In many of these new visualities, what seemed like a helpless tumble into an abyss actually turns out to be a new representational freedom.[54]

As I discussed earlier, the sociologists Jon May and Nigel Thrift also attempt to temper the extreme techno-determinism of the arguments made by Virilio and Crary by pointing to the great variability of timescales that co-existed throughout the modern period. While Thompson's classic Marxist analysis of industrial work practices described a wholesale shift from an agrarian diurnal time-cycle to the clock-time of capitalist production, May and Thrift argue that the modern subject was not completely ruled by the clock; that their lives accommodated of a 'multiplicity of times': 'many different time notations, astronomical, biological, private and public and so on.'[55] Most recently, the sociologist Judy Wajcman has similarly proposed that contemporary life is inscribed by a series of multiple, asynchronous temporal flows that are shaped by technologies in both 'productive' and unproductive ways.

[53] Barker, *Time and the Digital,*161.

[54] Hito Steyerl, 'In Free Fall: A Thought Experiment on Vertical Perspective,' *e-flux journal* 24 (April, 2011): 9, accessed 10 July, 2015, http://www.e-flux.com/journal/in-free-fall-a-thought-experiment-on-vertical-perspective.

[55] Wajcman, *Pressed for Time,* 42.

Maintenance Time

After the revolution, who's going to pick up the garbage…? [56]

Wajcman's argument is that the permeable barrier between work and life must be seen not simply as the product of new connective technologies, but as a condition of the transformation of women's labour in the twentieth century. She suggests that the accelerated pace of modern life needs to be considered in relation to the time-patterns of entire households, rather than individual workers:

> Time scarcity may result not so much from a shortage of time, but because of the increasing complexity of scheduling personal, domestic, and work activities. Taking this approach reveals that the experience of harriedness is not uniform, but takes a variety of forms. Time pressure may be experienced by employed lone wolf mothers, by two-parent families who work shifts, and by dual-career managerial or professional couples, but the sense of time squeeze and the mechanisms causing it differ.[57]

This expanded understanding of the multiple asynchronous times of contemporary life would therefore need to include the unpaid labour that has hitherto been 'invisible' to the classic Marxist analysis: this is, of course, the domestic work which was the traditional preserve of women in Western societies. The point here is that the simplistic distinction between 'work time' and 'non-work' time has *always* been tenuous for working women who continually juggle both paid labour and domestic 'duties.'[58] While Crary's *24/7* criticises the increasing homogeneity of the digital world,

[56] A reprint of Ukeles's Manifesto with responses from Miwon Kwon and Helen Molesworth can be found in Mierle Laderman Ukeles, Miwon Kwon and Helen Molesworth, 'Artist Project: Mierle Laderman Ukeles Maintenance Art Activity (1973),' *Documents* 10 (Fall 1997).

[57] Wajcman, *Pressed for Time,* 82-3.

[58] See Wajcman's 'The Temporal Disorganization of Daily Life,' Ibid., 74-8.

his critique fails to take into account the diversity of experiences of time and labour; the fact that the tyranny of 'busyness' is not uniformly distributed.[59]

Mierle Laderman Ukeles's important 'Maintenance' performances of the early 1970s made the iniquitous time of cleaning and care explicitly 'visible' within the public realm. Her works set out to draw equivalence between the 'domestic' labour traditionally undertaken by women and the maintenance and preservation of art institutions and museums.[60] While these performances are not directly concerned with the explicit measurement of time, they are important within this chapter because they acknowledge the biased equivalence of time and labour in classical economics. 'Maintenance time' is as invisible to the classic Marxist analysis as it is to Crary's more contemporary arguments because the private 'domestic' work of cleaning, organising, caring and preservation is never publically remunerated.[61]

Ukeles's 1973 performances at the Wadsworth Athenaeum in Hartford, Connecticut (Fig. 2.10) transformed acts of maintenance and cleaning into artworks. Ukeles's 'floor paintings' involved the artist scrubbing the museum's galleries and its

[59] While this chapter discusses Laderman Ukeles's important 'Maintenance' performance series, I also suggest that Tracey Emin's infamous work *My Bed* (1998) offers a challenge to Crary's account of the homogenous capitalist timescale by emphasising the embodied processes of the female side of the human reproductive system. Alongside an array of objects and materials relating to Emin's activities over a four-day period, this work includes condoms, tampons, birth control pills and hormonal test-kits. While Crary criticises the contemporary temporal regulation of the body's sleep patterns, this critique does not account for how contraceptives have already regulated the timescales of the female body. Like many contraceptives pills, Emin's Cilest is dispensed in packets that refer to the sequential days of the week—it necessitates the daily observation of *calendrical* time. Of course, this temporal regulation of the body has allowed many women to have more control over the long-term trajectories of their lives, thereby transforming traditional workplace and social relationships—the subject of the section of Wajcman's research that is cited here.

[60] A number of important artworks and films have attended to the time of 'women's work' or domestic endeavours. Chantal Akerman's film *Jeanne Dielman, 23, Quai du Commerce, 1080 Bruxelles* (1975) offers a patient account of the domestic undertakings of the eponymous protagonist. Agnès Varda's feature film *Cléo from 5 to 7* (1962) follows the wanderings a young singer as she navigates the streets of Paris. Moira Davey's more recent films, such as *Les Goddesses* (2011), also attend to the images, objects and activities of her personal 'domestic' life.

[61] An important point of reference here is Helen Molesworth's discussion of Ukeles's critical refutation of the traditional relationship between private 'housework' and public 'artwork.' Molesworth writes that along with Ukeles, artists such as Mary Kelly and Judy Chicago developed aesthetic strategies that contested the seemingly 'ungendered' political neutrality of the public sphere, including the while-walled spaces of exhibition that were 'activated' by expansive minimalist sculptural practices. See, Helen Molesworth, 'House Work and Art Work,' *October* 92 (Spring, 2000), 71-97.

exterior steps during public opening hours. Like Duchamp and Darboven, Ukeles was concerned with how the relationship between the 'artwork' and the 'work of art' is prescribed by capitalist labour practices. Crucially, her performances did not presume that the 'work of art' was indifferent to the politics of gender. In her proposal for these performances—a document that doubles as Ukeles's 'maintenance manifesto'—the artist makes it clear that the 'maintenance work' that comprises her artwork is no different to her own domestic activities as a mother and wife. She writes:

> Now, I will simply do these maintenance everyday things, and flush them up to consciousness, exhibit them, as Art. I will live in the museum as I customarily do at home with my husband and my baby, for the duration of the exhibition.[62]

While Ukeles's performances precede the '24/7' digital era that Crary critiques, it is important to recognise that the 'invisible' labour of the maintenance worker still supports the so-called 'immaterial' economies of knowledge and exchange that are proliferating in contemporary times. Someone, or some*body*, still has to clean up. The 'frictionless' and homogenous time that Crary describes does not entirely map onto the multitudinous competing timescales that occupy the activities of both capitalist household and contemporary museum. In this respect, one might propose that Crary's 24/7 era still supports an unproductive and false binary relationship between the sanitary 'seamlessness' of the inorganic digital world and the 'unclean' organic messiness of the gendered human body. The blue screen replete with emails might glow into the night, but that does not mean that dust ceases to accumulate on its surfaces.

[62] Ukeles, *Artist Project.*

Figure 2.10: Mierle Laderman Ukeles, maintenance series, Wadsworth Athenaeum in Hartford, Connecticut, 1973.

Christian Marclay's *The Clock*

Christian Marclay's film *The Clock* (2010) (Fig. 2.12) is a twenty-four-hour montage of scenes of clocks and time-pieces gleaned from the variable breadth of classical cinematic history. From John Hughes's *Breakfast Club* (1985) to François Truffaut's *The 400 Blows* (1959), Marclay has combed through a range of largely Western films for images of wristwatches, alarm clocks, digital and analog clock-faces, church bells, institutional public clocks, personal time-pieces and, occasionally, qualities of light associated with different times of day. Marclay's simple yet rather brilliant aesthetic strategy has been to synchronise these 'clock-time-images' with the global time-standard: at 10:25am, the onscreen time-pieces of *The Clock* will read 10:25am. This synchronisation establishes a 'closed temporal circuit' of aesthetic reception where the 'watching' of art and the 'watching' of time are drawn into close proximity. While Marclay's film establishes a temporal homogeneity based on an inescapable observation of the global time-standard, it also presents a heterogeneous and anachronistic montage of different cinematic periods, histories and narratives. In this respect, *The Clock* instantiates a particularly complex and compelling engagement with 'modern times': it is at once an artefact of the mechanistic chronologies of modern clock-time that is nonetheless motivated by digital immediacy and the contemporary need to be constantly 'in sync.'

Like the conceptual artists discussed in this chapter, Marclay's film makes the seemingly objective global timescale immanent to the activity of observation. But unlike Kawara, Darboven, Opalka's long-term projects, *The Clock* more directly implicates the time of spectatorship: it is the viewer who 'watches' the watching of time. As I have

discussed in this chapter, the objectivity of the global time-standard is founded on its Enlightenment capacity to stand outside what is observed. The subject can thus step back and 'make sense' of a capricious world by referencing a sturdy and impartial external gauge. But in positioning its viewers before a wholly unavoidable, and rather spectacular, slipstream of chronological time, Marclay's film refuses this worldly abstraction. Time is not the means by which experience of viewership is measured, rather it becomes the act of viewing itself. *The Clock* is not a time-piece that is quickly consulted or surreptitiously checked, but an extended aesthetic experience of do 'nothing' other than watching the time.

For some viewers, such as the critic Lynne Tillman, this unrelenting reminder of clock-time has been a cause for concern; she writes:

> And now I'm reminded of my acute anxiety seeing Christian Marclay's extraordinary video The Clock (2010). It was Thursday – 3:15pm, 3:16pm, 3:17pm— I was watching time pass. My time. It was passing, and I was watching it. What is this watching, what am I watching for? I wouldn't, couldn't, wait for the end.[63]

Indeed, there is no escaping the tick of Marclay's clock: its obligatory viewing does present a rather gleeful consumption of cinematic clock-time images that might be akin to the visual consumerism famously described in Guy Debord's *Society of the Spectacle* (1967). Debord writes that the consumerist 'spectacle is not a collection of images, but a social relation among people, mediated by image.'[64] Perhaps this 'social relation' is the publically collective watching of time that is prescribed by Marclay's film.[65] But

[63] Lynne Tillman, 'Marking Time,' *Frieze*, no. 153 (March 2013), accessed 26 October, 2015, http://www.frieze.com/issue/article/marking-time/.

[64] Guy Debord, 'Separation Perfected,' in *The City Cultures Reader*, eds. Malcolm Miles, Iain Borden and Tim Hall (London; New York: Routledge, 2000), 83.

[65] By contrast, Gregory Minissale offers an account of the 'personal' encounter between an individual subject and the ordinary utilitarian clock-face in relation to Felix Gonzales-Torres own famous 'synchronic' clock piece *Untitled (Perfect Lovers)* (1991). He writes that 'There is a sense of expectation that any clock I

Debord's analysis also speaks to the way in which the chronological language of classical cinema has shaped popular temporal perceptions. While narrative Hollywood films might insist on a chronological trajectory, the complex temporal structure of films such as *Memento* (2000) and *Inception* (2010) are successful in doubting the complete rationality and infallibility of time as a universal and unbending physical dimension.[66]

While film maintains a capacity to subvert the capitalist prescription of time, I suggest that Marclay's *The Clock* is also informed by the homogenous, mechanised and efficient 'temporal logic' of the Apple iWatch. This is not simply the logic of techno-scientific capitalist time that continues to tick away in contemporary labour practices, but the digital *ideal* of simultaneous immediacy that thinkers such as Jonathan Crary have critiqued. The *visual* synchronisation of the time of cinematic viewing and the global time-standard is significant. Like the iWatch, Marclay's film makes capitalist timescale readily available and close-to-hand, or more accurately, close-to-eye. Instead of the bare, often chairless galleries that have commonly been the site of exhibition-based film and video projections, Marclay's setting is more akin to the comfortable surrounds of the theatre. Deep-seated couches and beanbags reinforce the importance of a persistent optical experience by overriding the discomfort of the body in establishing a continuous, uninterrupted cycle of temporal observation.

This easy visual consumption of time might be grist to Crary's mill. As I discussed earlier in this chapter, Crary has made a rather shrewd criticism of contemporary

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single out for my gaze is momentarily mine, that it is there for me, to tell me, personally, what the time is; this is the notion of the clock's 'face.' But as an artwork, Gonzales-Torres's dual-clocks solicit a complex series of conceptual operations that allows the viewer to make associations beyond the habitual confines of everyday clock-time: 'Rather than telling the time and using the clocks as concrete concepts or tools, the artwork invites us to step outside of the ordinary and think about the clocks using abstract concepts to do with bereavement, cohesion, the endurance of desire and memory.' See Minissale, *The Psychology of Contemporary Art* (Cambridge; New York: Cambridge University Press, 2013), 81 and 83. In this respect, both Marclay's *The Clock* and Gonzales-Torres's work offer an important point of reference for the more recent series of public billboards developed by RAQs Media Collective.

[66] For an account of complex time-structures within a number of popular narrative films, see Allan Cameron, *Modular Narratives in Contemporary Cinema* (Basingstoke; New York: Palgrave Macmillan, 2008).

'panoptic technologies' such as Google Glass that do not simply allow the wearer greater connective 'tools' at their visual disposal, but actually 'return' the observational gaze of the subject (viewer/participant/consumer) by gleaning economically relevant temporal information: how long it took the wearer to walk a certain distance or how long an advertisement held their attention.[67] Nonetheless, one would be greatly remiss in presuming that Marclay's film simply sustains this 'visual tyranny.' *The Clock* also engages the almost-absurd futility of Kawara, Darboven and Opalka's earlier conceptual art projects. Ultimately, the minutes and hours spent watching *The Clock* are of no use to the 'productive' cycles of capitalism. The temporal tautology holds true in Marclay's work: whoever watches *The Clock* watches time itself, instead of time 'watching' their laborious, consumerist and profitable activities.

This circuit of 'watching the watch' is further complicated by the temporal traditions of cinematic viewing. Marclay's work breaks the narrative logic of classical Hollywood cinema: although the successions of the twenty-four-hour clock are associated with certain filmic tropes (for instance, both sex and horror scenes often occur at night), the film itself is not structured by the curving arc of a single storyline. Gilles Deleuze's concept of the time-image is particularly relevant here because it addresses the 'aberrant' temporality of films that have rendered classical narrative time 'out of joint.' As I discussed in the preceding literature review, Deleuze argues that pre-war and classical Hollywood films were structured by rational, chronological sequences of movement: scenes followed each other in a logical pattern, chronological continuity was always maintained, and the actions of protagonists contributed to a consistent and coherent narrative. Alternatively, post-war directors such as Alain Resnais, Michelangelo Antonioni and Yasujirō Ozu, eschewed the cinematic emphasis on

[67] Crary, *24/7*, 48.

narrative logic, creating 'irrational' scenes where both protagonist and viewer were left to experience 'pure' filmic images of sound and opticality.

The Clock is particularly interesting where it combines both the rational chronologies of the classical 'movement-image' and the irrational timescale of the post-war 'time-image.' Marclay's film consists of a magnificent array of scenes from the history of Western cinema, an admittedly confined aesthetic genre, but one that nonetheless expresses the diversity of means by which the clock-time is integrated into the 'everyday' lives of capitalist subjects. The time-keeping devices in Marclay's film range from small, private apparatus to domestic clocks and bedside alarms; from grandiose institutional civic structures to robust and utilitarian industrial meters. Here, the viewer's attention is split between anticipating when or where a time-piece might appear in any given scene and the potential recognition of a specific film, historical period or film actor. Especially for the viewer versed in cinematic history, the experience of observation is stretched between expectation and memory.

An important point of reference here is Andy Warhol's seminal film *Empire* (1964). Like Marclay's film, *Empire* toys with the viewer's expectations regarding the traditional time-signatures of cinema, but through an entirely different, almost opposing, aesthetic procedure. Warhol's film consists of a single eight hour and five minute long shot of the iconic Empire State Building from sometime in the late afternoon to the darkened hours of the early morning. Once night falls, the building is suddenly illuminated by its electric floodlights and is subsequently plunged into complete darkness several hours later. Aside from these illuminations, the absence of any other notable events in Warhol's 'movie' offers a stark reproach to the classic

Hollywood narrative arc: there is no action, no characters and no editing.[68] Instead, *Empire* creeps forward in minimal increments that are determined by a non-standard slow projection speed of sixteen frames per second, meaning that the diurnal transition from light to dark is almost imperceptible to human eyes.

The cognitive and phenomenological perception of time will be discussed more thoroughly in Chapter Ten, but it will suffice to say here that, for most viewers, *Empire* will be inescapably boring. I mention this here as a means of underscoring the captivating quality of *The Clock:* this film is *not* boring. While Marclay's film presents a sequence of potentially mundane timestamps, each image carefully attuned to the global time-standard, the experience of viewing this work is not directly akin to watching the disinterested ticking hands of clock: it lacks the slow tedium of Warhol's film. While no narrative exists*, The Clock* is compelling as a singular stream of *movement* that compels the viewer forward in time. The careful montage and editing techniques of the movement-image are retained here where characters are more often than not seen to be undertaking a form of action: a movement from one side of the screen to the next; a scene that unfurls before us; eyes that glance in one direction or another.[69] Such actions are never abbreviated or severed by the montage—the film is a continuous succession images in motion, not a staccato sequence of static timestamps. Ultimately, these sequences *do* observe the rationality of the movement-image and the logic of sensory-motor action. Even though a singular narrative is missing from Marclay's film, these techniques sustain the experience of a wholly chronological succession of time.

[68] Warhol's film includes two unequivocal moments filmic 'action': the flash of light as the Empire State Building is illuminated at dusk and the abrupt early-morning transition where Warhol and the cinematographer Jonas Mekas break to change film-reels. Otherwise, *Empire* contains no other explicit objects, actions or points of reference against which the speed of time's passage can be gauged.

[69] This is the analysis is indebted to Max Weintraub's own observations: 'Christian Marclay's The Clock,' *Arts 21*, accessed 12 May, 2013, http://blog.art21.org/2013/01/03/on-view-now-christian-marclays-the-clock/#.VmNxxd8rLBK.

This discussion of Marclay's significant work *The Clock* has been weighed on two hands: On one side, the film's wildly heterogeneous montage of scenes from different historical periods, genres and traditions contests the uniform narrative structure of classical cinema. On the other side, this array of pre-existing cinematic images and snippets of disconnected action are arranged by the wholly rational aesthetic logic of the clock.[70] In Marclay's film, there is no filmic story; the abiding logic *is* chronological succession. Further, these images are available to the viewer 'around the clock' establishing a 24/7 cycle of passive imagistic consumption that would trouble theorists such as Jonathan Crary. But by entwining the watching of time with the watching of art, *The Clock* ultimately denies the capitalist utility of clock-time: the viewer is not creating goods and services that are either material or 'immaterial', instead she or he is engaged in the seemingly futile activity of 'watching the watch.' This presents a particularly complex image of time, thereby making a particularly vivid contribution to the aesthetics of temporality in recent art practices. Ultimately, time in Marclay's film is both 'out of joint,' in the Deleuzean tradition, and strangely rational in its steadfast observance of clock-time. Like Kawara and the conceptual artists discussed here, this observance of capitalist time underscores its futility and fallibility. The proto-conceptual artist Sol LeWitt satirically remarked that 'irrational thoughts should be followed absolutely and logically.'[71] It is precisely within this spirit of 'logical irrationality' that many of the artists in this chapter have engaged the time of the clock and the mechanised time-signatures of modernity.

[70] I also suggest that Marclay's *The Clock* presents a curious engagement with Lev Manovich's concept of non-linear 'digital database aesthetics,' discussed in the preceding literature review. On one hand, Marclay's film cleaves to the chronological successions of modernity, and on the other it functions as a heterogeneous aggregation of archival 'clock-time-images' that refuse narrative conventions.

[71] Sol LeWitt, 'Paragraphs on Conceptual Art,' *Artforum International* 5, no. 10 (Summer 1967), 82.

Figure 2.11: Toril Johannessen, *Mean Time*, 2011. installed at the Witt de With, Rotterdam.

Figure 2.12: Christian Marclay, The Clock, 2007. White Cube Mason's Yard, London.

CHAPTER EIGHT

Einsteinian Times

Introduction

Published in 1905, Albert Einstein's special theory of relativity transformed prevailing scientific understandings of time and space.[1] Einstein's theory denied the existence of a Newtonian 'River of Time': a universal, master timescale that could be efficiently tracked by the mechanisms of the clock. In this respect, special relativity held momentous consequences for the ordinary position of the subject 'in time.' While Newton's timescale was sturdy and reliable, Einstein's time was far stranger and unconventional as one part of a united 'spacetime' dimension that was rendered both relative and malleable. Almost twenty years after the establishment of global standard time, during a period where cosmopolitan citizens were increasingly concerned with clocks and time-pieces, special relativity said that 'the time' could no longer hold claim to being the only neutral measure of all worldly activities. It follows that while Einstein's theory set out to identify a stable scientific 'fact' of the physical universe, it also became a touchstone for temporal uncertainty—for a timescape that was, in its own way, put out of joint.[2]

[1] Einstein's special theory of relativity will henceforth be referred to as 'special relativity,' as opposed to the expanded theory of 'general relativity' that was published in 1916 and accounted for the effects of gravity, famously introducing a curvature into the spacetime continuum. Special relativity is of particular concern here because of its radical reformulation of the time-dimension. For a recent English translation of the 1905 paper see Albert Einstein, 'On the Electrodynamics of Moving Bodies,' in *Einstein's Miraculous Year: Five Papers that Changed the Face of Physics*, ed. John J. Stachel (Princeton, N.J.: Princeton University Press, 1998), 123-160.

[2] Deleuze, *Cinema 2,* xi.

This chapter discusses the recent works of William Kentridge, Matthew Ritchie, Melik Ohanian, Tomás Saraceno and Daniel Crooks—artists who are well versed in Einsteinian relativity and whose installation, painting, sculptural and film practices similarly contest the familiar fixity of time and space. For these artists, Einstein's special relativity is not a theoretical model but a point of reference that contributes to a broader 'destabilisation' of the traditionally immobile, hermetic and fixed encounter of art. Kentridge, Ritchie, Ohanian and Saraceno develop spatially expansive installations that invite transitory and sometimes vertiginously disorientating navigations. While Crooks's films are not concerned with this ambulatory experience, they do suggest a world where human bodies do not maintain the solid and predictable shapes that are guaranteed by the Newtonian universe. This chapter sets out to describe how the Einsteinian concept of time is critical to understanding the art historical significance of the 'unstable' phenomenological experiences variously solicited by these works.

Einstein's special relativity contests the *universality* of the global time-standard and this has important consequences for the traditional relationship between the embodied viewer and the artwork as a singular, unchanging 'object.' Universal clock-time effectively 'fixes' both body and object against a singular phenomenal timescale. While the regional clocks of hotel lobbies will show that clock-time is certainly 'different' according to various time-zones, the comparative scale of measurement stays the same. Einstein's theory does not deny the time of these clocks as quantifiable measures, but it does wholly reject the premise that this comparative scale is set in stone: clock-time in New Zealand, Africa, Jupiter or the International Space Station *is* different in the Einsteinian universe. In this respect, special relativity can be seen to propose situations and conditions that are antithetical to 'commonsensical' everyday experiences of time and space. Einstein's well-known thought experiments predict some

wonderfully strange situations: twins who age at different rates, simultaneous flashes of lightning that hit at different times, spaceships whose solid material forms actually contract according to who is looking at them.[3]

In the artworks discussed in this chapter, the 'strangeness' of this Einsteinian time is engaged as means of contesting familiar phenomenal experiences of art. But more specifically, Einstein's rejection of a universal timescale has significant implications for the traditional understanding of the temporal relationship between viewer and artwork. Special relativity denies a perfectly *simultaneous* encounter between viewer and work—it challenges the persistent Greenbergian ideal of an instantaneous visual experience that is stable, singular and entirely transferable from one viewing subject to the next. Regardless of whether one measures or experiences it, time in the Einsteinian universe becomes the site of phenomenal instability. This 'uncertainty' is key to understanding the potentially disorientating aesthetic experiences of the works discussed in these pages.

It must be acknowledged that while Einstein's 'miraculous year' presented a significant shift in the scientific understanding of time and space, it was not wholly unique in contesting the certain structures of the Newtonian universe.[4] In the late nineteenth and early twentieth centuries, pressure was brought to bear on the epistemological certitude of the Enlightenment, not only by advances in the sciences, but also by the aesthetic explorations of modernist artists. Linda Henderson's important study *The Fourth Dimension and Non-Euclidean Geometry in Modern Art* offers an

[3] See Einstein's popular descriptions of his two revolutionary theories, Albert Einstein and Nigel Calder, *Relativity: The Special and the General Theory*, (New York: Penguin Books, 2006).

[4] It must be noted here that the principles of classical Einsteinian physics ultimately became incompatible with the field of quantum mechanics that emerged towards the middle of the twentieth century. As Karen Barad outlines in her important work *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007), quantum mechanics thoroughly dismantled the Enlightenment understanding of the natural world as a set of discrete and impervious properties. The quantum behavior of wave-particles and the implication this holds for concepts of time are briefly discussed in Chapter Nine.

indispensable survey of the relationship between early twentieth-century avant-garde movements and the non-Newtonian sciences.[5] Further, Gavin Parkinson's *Surrealism, Art and Modern Science* looks at how Surrealist artists responded to the development of quantum mechanics.[6] The work of these artists was influenced by shared affinities with Einsteinian physics but also the very different understanding of time proposed by the philosopher Henri Bergson—a subject that is pursued in Chapters Nine and Twelve.

But unlike these early modernists, the artists discussed in this chapter are not historically contiguous with the radical developments in modern physics—they do not share the same fervent cultural and scientific milieu. Rather, they engage with a world that has already embraced Einsteinian relativity. I want to make clear here that the works discussed in this chapter do not function as models of special relativity or its so-called paradoxical and counter-intuitive corollaries. The immersive installations and film works discussed here are expressly concerned with the phenomenological experience of the viewer and the implications of making time entirely relative to this experience. In this respect, what this chapter traces is an affinity between science and art, not a causal or explicatory relationship.

The Special Theory of Relativity

At its most basic, Einstein's famous equation, $E=mc^2$ describes the equivalence of energy to mass that is multiplied by the speed of light squared. The equation establishes two central postulates, the first of which is the principle of light's absolute speed. Einstein's theory recognises that light behaves in a 'peculiar' manner: it travels at a

[5] Linda Dalrymple Henderson, *The Fourth Dimension and Non-Euclidean Geometry in Modern Art* (London, England; Cambridge, Massachusetts: MIT Press, 2013).

[6] Gavin Parkinson, *Surrealism, Art, and Modern Science: Relativity, Quantum Mechanics, Epistemology* (New Haven: Yale University Press, 2008).

constant rate of 299,792,458 miles per second regardless of the movement of its source or recipient.[7] The speed of light is a maximum cosmic speed—an absolute value that is completely blind to all other properties in the universe.[8]

This absolute speed might *seem* strangely fixed because it appears to contradict the second postulate of Einstein's theory: the principle of relativity, first observed by Galileo and later enshrined in Newton's laws of motion and gravity. This principle states that no movement can make claim to be absolute or 'true' because all movement is relative.[9] Consider the prospect of sitting in train carriage as it moves through the countryside. While *you* might think that your body is at rest, someone watching from a nearby field could equally determine that you are in fact moving. The train carriage and the countryside are known as inertial frames of reference and the principle of relativity states that the laws of physics must hold true within each frame. If you were to take a walk along the length of the carriage, the rocking of the train on its tracks might cause you to wobble, but your journey will not be affected by the wholesale speed of the train itself—your speed is relative to the frame of reference that is the carriage.[10]

Apply this principle to the propagation of light and one might expect that its speed would naturally vary according to the relative positions of the thing that produces the light (a lit match or a neon sculpture, for instance) and the person or object that sees or receives it. If you were to race head-on towards a beam of light you

[7] For an interesting rendition of the constant speed of light in blazing neon lettering, see Cerith Wyn Evans's sign *299,792,458 m/s* (2004).

[8] David Grandy, *The Speed of Light* (Bloomington: Indiana University Press, 2009) 2.

[9] To expand on this point, another important way of expressing the relativity postulate is to say that 'the laws of nature are the same in all inertial frames of reference, so there is no experiment that can reveal whether one is at rest or in uniform motion.' See Dainton, *Time and Space,* 314.

[10] Moving trains have been frequently used to explain the consequences of special relativity to a public not versed in physics. See Einstein's own examples in his popular account of relativity in Einstein and Calder, *Relativity*, 129. William Kentridge's collaborator Peter Galison's important account of Einstein's 1905 theory also explores the significance of railway technology to shifting understandings of time in the late-nineteenth century. See Galison, *Einstein's Clocks, Poincaré's Maps: Empires of Time* (London: Sceptre, 2003), 389. The linear 'panoramic' movement of the train is also significant to Crooks' film works and, as I argue later, to Lisa Reihana's own panoramic sequences.

might expect to meet it faster than if you ran in the opposite direction.[11] But light does not work like this. The special theory of relativity fixes its speed at an absolute and invariant value. While this was at odds with Newtonian mechanics, fixing light's speed in this way was not new to science. The velocity of light was already treated as a solid, unwavering value in the well-respected theory of electromagnetics developed through the nineteenth-century work of physicists Michael Faraday and James Clerk Maxwell. The new and remarkable feature of Einstein's special theory of relativity was its reconciliation of *both* the principle of light's speed and the principle of relativity. Crucially, this was achieved by relinquishing a cornerstone of Newtonian mechanics: the absolute status of time and space.

Newton's laws of motion and gravity treated time and space as autonomous and extrinsic dimensions whose values held true across all frames of reference. These dimensions functioned as the phenomenal 'containers' of the objects, events and activities that populated the world. While Newton respected the relativity of motion in our ordinary perception of transitory activities, he did presume the existence of a privileged frame of reference that could determine which movements were actually 'true.' This privileged frame was the absolute and perfectly uniform space described by Euclidean geometries, whose infinite number of spatial points endured through an infinite stretch of time.[12] This gives rise to the familiar idea that we exist 'in' time and not 'with' time, so to speak. But it also suggests a stable unity of time and space from which to stand and view the world and, for the purposes of this study, from which to experience art. The suggestion is that this stable frame of reference was inscribed in the

[11] I borrow this example for Paul Davies's discussion of the invariance of light in *About Time: Einstein's Unfinished Revolution* (London: Ringwood, Vic.: Viking; Penguin, 1995), 49.

[12] Dainton, *Time and Space*, 165 and 195-7.

Western pictorial tradition through the development of linear perspective—a subject that is discussed shortly.

While Einsteinian relativity has reshaped the modern scientific engagement with the physical universe, it is important to acknowledge that Newton's laws of motion and gravity remain useful to us today in describing human-scale forces and material relationships. These principles were, after all, developed through the keen empirical observation of the natural world—a key motivation of the humanist efforts of the Enlightenment. Their hold on the 'everyday' experience of things and events in the world is one reason why Einstein's special relativity might seem radical, even weird. Once time and space are set free, objects and events also become free to take on different shapes and durations; to contract and dilate in ways that seem might seem plainly odd.

These potentially strange consequences are explained by the intrinsic and conditional nature of Einsteinian time and space. Special relativity says that the speed of light is the only absolute value that can transcend different perspectives. This means that any measurements or calculations that we glean from temporal or spatial dimensions, such the duration of a particular journey or the length of a piece of string, are effectively restricted to a particular perspective. Einstein's theory is radical because it suggests that not only the length of time, but also the physical shape of an object will vary according to different perspectives. This suggests that there is no 'right way,' no privileged perspective, from which to measure a single thing. Barry Dainton, whose analysis I follow closely here, explains the broader consequences of Einstein's theory for human experience:

> [If] you and I pass one another travelling at near-light speed, and I look across and see you flattened and slowed, I am not seeing a distorted image of you. I am

> seeing you as you truly are, just as someone who shares your velocity and who doesn't see you flattened and slowed *also* sees you as you truly are. We naturally think of shape and duration as invariant intrinsic properties; [the special theory of relativity] renders them perspectival; objects and processes still have determinate shapes and durations, but these are now frame-relative properties (only interval is frame-invariant). We can no longer speak of *the* shape of an object. We can speak only of its shape in such and such inertial frame, and likewise for events and their durations.[13]

But the potentially strange and counter-intuitive effects of special relativity are not always given in 'everyday' experience because human perceptive faculties are too slow to account for the quick-fire speed of light. It is only in reaching extreme speeds and approaching vast distances that solid objects occupying different frames of reference will actually appear to visibly blur, dilate or contract. The widely-quoted 'Twin Paradox' thought experiment describes one such extreme situation where a twin who embarks upon a particularly distant journey—be it into space or even up a very high mountain—will age at a slower rate than her sister who remains earthbound or at sea level.[14] Regardless of their biological similitude, the twins occupy different frames of reference and will, crudely speaking, be subject to different rates of time.

While these potentially disorientating experiences belong, for the meantime, to the realm of science fiction, special relativity is still 'hard wired' into the 'stuff' that populates this world.[15] Experiments conducted on elementary particles known as a 'muons' exhibit relativist effects where the rate of decay for moving muon particles is

[13] Ibid., 327.

[14] The 'twin paradox' was originally introduced by Einstein in his 1905 paper. It attends to the localisation of time according to different frames of reference that are in motion. If one twin speeds away from earth at 240,000 kilometres per second then her journey, according to Einstein's calculations, will be twelve years in duration. But for the twin who remains on earth this same journey will occur over a stretch of twenty years, accounting for the discrepancy in their biological ages. The key here is that neither twin experiences the 'right time'—both accounts of durational length are valid. See Davies, *About Time*, 59-60.

[15] This wonderful description is borrowed from Timothy Morton's *Hyperobjects: Philosophy and Ecology After the End of the World* (Minneapolis: University of Minnesota Press, 2013), 65.

slower than those remaining at rest.[16] Recent studies have also shown that the visual characteristics associated with heavy metals such as gold and mercury are due, in part, to the relativity affecting particle orbits.[17] This is to say that Einstein's theory of time is not simply instantiated by the 'science-fiction' extremes of space-travel. From the macroscopic to the microscopic, special relativity is crucial to understanding, not simply the physical composition of the universe, but how this structure is continually transformed by the relative movement of particles, people, objects and events.

Nonetheless, a clarification maybe required here: The muons exhibit relativistic effects that are manifested to 'us,' the human subject, through microscopic observation. Conversely, Einstein's twin paradox is a thought experiment that is intended to explain the consequences of special relativity—the significance of abandoning the singular Newtonian timescale—within the realm of 'ordinary' human experience. For instance, one might note that the curious difference in ages between these twins is not actually experienced *by* them, within their embodied encounter, but is the product of a 'theoretical' comparison between them. The consequences of this comparison are certainly strange, but one might conclude that this speculative thought experiment does not explore or even explicate the greater implications of Einstein's theory for the phenomenological human experience of time.

It is notable perhaps that none of the artists discussed in this chapter appeal directly to these popular Einsteinian thought experiments. One might propose that this comes about because contemporary art already sustains a greater sensitivity to the mutable relationship between observer and observed, between viewer and artwork, and the phenomenological inscription of this encounter. The artworks that are

[16] Davies, *About Time*, 55-58.

[17] For gold, see Davies, *About Time*, 69. For mercury, see F. Calvo et al., 'Evidence for Low-Temperature Melting of Mercury Owing to Relativity,' *Angewandte Chemie International Edition* 52, no. 29 (2013), 7583–7585.

discussed here are not models of special relativity—they do not hope to offer a direct 'experience' of its weird effects.[18] Rather they engage Einstein's theory as a means of both 'testing' the phenomenological experience of time in art—specifically, the traditional confirmation of a single experiential frame of reference—and underscoring its political, social and cultural implications.

William Kentridge: refusing time

William Kentridge's installation *The Refusal of Time* (2012) (Fig. 2.13) presents an important thematic engagement with both the historical development of Einsteinian relativity and its theoretical implications. This complex and expansive multi-media work comprises a five-channel video projection that is accompanied by a cacophonous soundtrack of ticking clocks and a wooden 'breathing machine' with mechanical arms and bellows that intermittently whirrs into life. Kentridge's projected animations circulate across a panorama of multiple screens and amplify this frenzied kinetic mix of moving-image, sound and machine. These animated vignettes variously refer to the historical invention of mechanical clocks, the establishment of industrialised time-measurement, Einstein's special theory of relativity, and the colonisation and subjugation of Africa.

The Refusal of Time is important within this chapter because it articulates the relationship between the institution of the global time-standard and imperial colonial territorial expansions: the two are seen to be co-dependent historical conditions. In this respect, Kentridge establishes Einstein's radical new theory of time as a figure of socio-

[18] A useful point of comparison is the videogame 'A Slower Speed of Light' developed by the MIT Game Lab that does offer individual players a means of experiencing the 'visual effects' of special relativity by incrementally slowing the speed of light within its user interface. See 'A Slower Speed of Light,' *MIT Game Lab*, accessed 3 August, 2013, http://gamelab.mit.edu/games/a-slower-speed-of-light/.

political uncertainty that emerges from the entwined histories of industrial development and colonisation. He states that in the history of African colonisation, 'the refusal was a refusal of the European sense of order imposed by the time zones; not only literally, but this refusal also referred metaphorically to other forms of the control as well.'[19] In this respect, the 'local' and relative time of the Einsteinian universe is given a political inflection: special relativity is not simply approached as an abstract description of the physical world, but is engaged as a temporal figure of social and cultural 'destabilisation.'

The Refusal of Time is the product of collaboration between Kentridge and the science historian Peter Galison whose scholarship investigates the scientific achievements of Einstein and the French mathematician Henri Poincaré.[20] As a means of underscoring its political potential, Kentridge's wildly kinetic and cacophonous filmic installation introduces Einstein's seemingly impartial mathematical proof to the uneven tangle of times that structures human experience. Crucially, Kentridge observes that this fungible time was not completely opposed to human temporal experience:

> When Einstein said there is not one single time, there are multiple times, this was difficult to understand scientifically, mathematically or logically….But internally, this was so much closer to our sense of time being not Newton's single fixed-speed clock, but being bound up with psychological states, with excitement, fear, time expanding, time compressing...Destabilisation, which was rigorously demonstrated through science, corresponds to the much less rigorous, but much more internally felt, instability of time.[21]

Crucially, Kentridge realises the political potency of this temporal 'instability.' *The Refusal of Time* is concerned not only with the scientific wonder or certitude of

[19] William Kentridge, *The Refusal of Time* (Paris: Barral, 2012), 157.
[20] Galison's important study *Einstein's Clocks, Poincaré's Maps* has already been noted here.
[21] Kentridge, *The Refusal of Time*, 159.

Einstein's theory, but how it can be deployed as a means of 'refusing' a dominant power structure whose instrument of control is time. Amongst the many images and activities projected in Kentridge's installation, various silhouetted figures, often wearing African-style garments, begin to dance to the multitudinous ticking of mechanical clocks. Like many of the images that comprise *The Refusal of Time*, these tread a fine line between restraint and expression, controlled order and flamboyant chaos. Are these figures dancing to their 'own' time or the mechanised heartbeat of globalised clock-time? On the one hand, this dance suggests a physical conformity to mechanical time, but on the other this 'embodiment' of time is not productive or profitable. Where the movement of bodies is *not* used to produce capital goods and services, the economic equivalence of labour and time collapses. When the tick of the clock is *appropriated* as a beat—as it is here—time is personalised, even privatised: it becomes a form of embodied temporal resistance.

Ultimately, Kentridge's work recognises what Einstein's science did not: that the concept of a local, private and intrinsic timescale has much broader political consequences. While Einstein's special theory contested the unbending certainty of time and space in the Newtonian world, *The Refusal of Time* acknowledges that these dimensions were never equably distributed amongst all subjects in the first place. The premise that absolute time and space are the 'unbiased' containers of human activity and experience is a fallacy of the Enlightenment that is not *only* challenged by special relativity—this subject is more expansively discussed at the close of this chapter in relation to the panoramic work of Lisa Reihana.

Figure 2.13: William Kentridge, *The Refusal of Time,* 2012. City Gallery, Wellington, 2015.

Einstein's multiple perspectives

While Kentridge's work explored the collective political potential of 'local time,' the art historians Caroline A. Jones and Christine Ross are more directly concerned with how Einstein's special relativity informs the individual phenomenological experience of viewership.[22] Just as Einstein's theory refuses the universality of Newtonian time, it also refuses the premise of a masterful perspective. Special relativity suggests that 'time' cannot always hold the same value across different frames of reference—this effectively invites the proliferation of multiple perspectives and multiple temporalities. While the theoretical complexities of this will be discussed shortly, Jones and Ross each argue that this 'multi-perspectivalism' is relevant to the variable phenomenological experiences of

[22] Caroline A. Jones, 'Rendering Time,' in *Einstein for the 21st Century: His Legacy in Science, Art, and Modern Culture*, eds. Peter Galison, Gerald James Holton and S. S. Schweber (Princeton: Princeton University Press, 2008) 130. For Ross, see my discussion in Chapter Five of the preceding literature review.

contemporary installation art. Jones discusses the 'spatialised paintings' of Matthew Ritchie, while Ross looks at Melik Ohanian's large-scale panoramic film projections—two artists that have explicitly engaged Einstein's theories as a point of artistic reference.

This allegiance of Einsteinian multi-perspectivalism and art is not new. At the beginning of this chapter, I acknowledged Linda Henderson's and Gavin Parkinson's respective studies that attend to the relationship between a range of early modernist art movements and the transformative scientific developments of the twentieth century. These studies discuss how modernists including various Cubists, Surrealists and Marcel Duchamp, sought to broadly explore time as the 'fourth dimension' by embracing non-Euclidean spatial values and integrating multiple, shifting perspectives. It is important to recognise these art practices were roughly contiguous with developments in Einsteinian relativity. What Jones alternatively suggests is that artists such as Ritchie have inherited a 'thoroughly Einsteinian universe': one that is already familiar with its multiplicitous and 'dizzying' descriptions of time and space.[23] For Jones and Ross, the spatial expansiveness of Ritchie's and Ohanian's respective works solicit an 'unstable' and transitory aesthetic experience: heads must turn, bodies must be put into play to catch an image, follow a line or traverse rooms and galleries, never settling on a single perspective or privileged point of view. The transitory structure of these works means that any perceptual perspective is always, partial, biased and restricted: the viewer will never achieve a comprehensive and unified visual experience.

[23] Jones, 'Rendering Time.' 131.

Relative simultaneity

The concept of 'relative simultaneity' holds considerable implications for the structure of time in the Einsteinian universe. In its most simplistic sense, 'simultaneity' is the idea that two events can 'occur' at the same moment.[24] Newton's description of the physical world ensured that meaningful scientific conclusions could be gained from 'being in the same place at the same time': the fixed observer could make useful observations regarding the simultaneity or succession of the variable encounters of bodies, objects, and events. But Einstein's special relativity denies the certain existence of *absolute* simultaneity—this holds important implications for the ontological status of time, specifically the physical existence of a singular, successive temporal passage.

Special relativity says that there is no sure way of determining whether two events objectively occur at once. For sure, simultaneity does exist in the Einsteinian universe—it is hardly an illusion—but it is not a universal condition. According to Einstein's theory, that two clocks may strike at exactly the same time is entirely dependent upon an observer's frame of reference. If two observers do not share the same frame—for instance, if one was orbiting the earth in a satellite space station—they will either perceive the clocks to be striking simultaneously or in succession. The key to Einsteinian relativity is that neither observation is the 'true' one: both of these perspectives are equally valid. Taken to its philosophical conclusion, this equivalence puts pressure on identifying an absolute 'now' moment in time and has significant consequences for the sequencing of the temporal phases of past, present and future. Einstein's relativity conceives of a universe of multiple, proliferating perspectives and

[24] This necessary reduction will suffice for the purposes of this study, but a greater exploration of the philosophical and scientific examination of the physics and the metaphysics of 'simultaneity' can be found in Max Jammer, *Concepts of Simultaneity: From Antiquity to Einstein and Beyond* (Baltimore, Md.: Johns Hopkins University Press, 2006).

multiple spatio-temporal observations—none of which can make claim to being the 'real time.'

In 1908, Einstein's mentor and teacher Hermann Minkowski developed an influential model of special relativity that more thoroughly explicates this point. Minkowski's four-dimensional 'spacetime' continuum is divisible by multiple units—seconds and fractions of seconds, et cetera—that are ontologically equivalent in as much as they do not observe a unique 'now' point in time. One could identify a now moment by slicing through the spacetime block and awarding this 'foliation' a time-signature (for instance, 12.45pm), but this now-slice would not be superior to any other potential foliations. The relativity of dimensions in Minkowski's model shows that all time exists at one point in space and all space exists at one moment in time. Thus it follows that all potential foliations or now points are *co-present* in the spacetime continuum. While the Newtonian universe was able to successively order its 'nows' into a singular, universal timeline that stretched from the past to the future, Minkowski's geometric spacetime denies that this chronological order is itself an objective feature of the universe. Accordingly, it is not the succession of past, present and future moments that determine the structure of time, but the adoption of different geometrically conceived perspectives.

Matthew Ritchie: painting and perspective

Matthew Ritchie's expansive mural *Games of Chance and Skill* (2001-2002) (Fig. 2.14) is a 'spatialised' painting: a network of two-dimensional scrawling patterns that traverse the walls, ceiling and glass windows of a twenty-four-metre long corridor that runs alongside an Olympic-class swimming pool at the campuses of the Massachusetts

Institute of Technology. Ritchie's abstract, linear configurations represent scientific descriptions of the universe after the Big Bang. While some of these patterns may involve the principles of special relativity, for the art historian Caroline A. Jones, it is the phenomenologically 'immersive' nature of *Games of Chance and Skill* that is truly Einsteinian: the work solicits a potentially 'dizzying' ambulatory navigation. Her argument is that the phenomenal variability of Ritchie's work is only made possible by the proliferation of multiple perspectives in the Einsteinian universe.[25] For Jones, these 'spatialised paintings' contest the traditionally immobile viewing conventions of the Western academic painting, by inviting a more vertiginous exploration of line, surface, space and, most importantly, time.

This argument is made by comparing Ritchie's spatialised paintings with the more 'monocular' works of Claude Monet—an artist who, as Jones observes, was interested in 'depicting' time, but remained wedded to the singularly fixed perspective of the pictorial painting tradition. The key for Jones is that Monet and Ritchie's art practices occur on either side of historical development of Einstein's special relativity: his theory is said to determine the temporal structure of their respective works. This is a notably reductive art historical analysis that overlooks the more complicated surveys of historians such as Henderson and Parkinson, but Jones explains it thus:

> The primary comparison set up by this argument pivots between the epoch before Einstein and our own. Einstein is the unspoken fulcrum. This is not to say that physicists were the only ones to grapple with the meaning of time and space in modernity (Freud, Marx, Virginia Woolf, Pablo Picasso—the century unfurled scores of comparable titans), but it is to claim that Einstein's theories were part

[25] Jones, 'Rendering Time.' 131.

> of the mix, crucial for 21st-century modes of representing space and time in the known universe.[26]

According to Jones, while Ritchie's paintings embrace a multiplicity of temporal perspectives, on the other side of the historical Einsteinian coin the Renaissance pictorial tradition sought to regulate the depiction of time through the establishment of single-point perspective.[27] In this tradition, time and space are represented according to a commanding perspective: a single frame of reference that establishes an authoritative 'here and now.'[28] Jones does write that the temporal schematics of single-point perspective were not comprehensively observed by all Western painting practices, but that it remained a guiding pedagogical principle in European art academies.[29]

It is this legacy that Impressionist painters such as Monet are said to contest in exploring the transformative time of modernity. Jones writes that Monet's paintings of working railways—emblems of modernity's technological acceleration—begin to flatten perspective, eschewing pictorial depth for the heady immediacy of the present:

> The new spatio-temporal system crafted by the Impressionists was obsessed with the momentary; it sacrificed the fullness of time and change for the apparent flatness and paradoxical permanence of the fleeting slow impression, forever fixed by paint.[30]

Nonetheless, Monet is still on the wrong side of Einsteinian history. According to Jones, his paintings render time by attempting to 'freeze' a penultimate moment in multiple dabs of paint. She suggests that Monet and the Impressionists were still wedded to the

[26] Ibid.
[27] Ibid.
[28] This pictorial standardisation of time was discussed in the literature review in relation to Christine Ross's concept of 'lateralization.'
[29] Ibid., 133.
[30] Ibid., 139.

'monocular' perspectival tradition where a painting assumed a static and immobile surface that retained the capacity to convey and *transfer* the sensation of a single, arrested moment in time.[31] By contrast, Ritchie's paintings refuse to freeze time according to a fixed perspective. The phenomenal encounter of his spatially expansive drawings is always 'localised' to the extent that the viewer will never attain a comprehensive assessment of their composition. The painting is effectively 'recomposed' step-by-step and moment-to-moment as the viewer physically parses this array of visual 'information.' Here, Jones brings together the shifting and transient phenomenological experience of contemporary installations and the multi-perspectivalism that is said to be Einstein's legacy. She writes:

> The place of embodied time in pictorial experience has been my leitmotif… [This] could only be possible in the multiplied frames of reference Einstein bequeathed us. Staring at Ritchie's abstractions induces reverie (the gaze), but moving around and among them generates a higher informational uptake (scanning, the glance, the unconscious operation of pattern recognition). Suddenly the conscious and unconscious movements of our body—at the level of breath, glance, and stride—are pricked by what the subliminal scanning operation has put together at one of many referential frames.[32]

Melik Ohanian: relative simultaneity

Christine Ross offers a similar analysis of Melik Ohanian's filmic installation *Seven Minutes Before* (2004) (Fig. 2.15). This large-scale multi-channel projection comprises a series of seven films that were simultaneously recorded in a small valley in the French Vercors. These films each begin with the same rather momentous event—a

[31] See Jones's discussion of Monet's 'dialectics of time,' 'Rendering Time,' 135-143.
[32] Ibid., 148.

collision between a truck and a motorcycle—and then proceed to take different paths, encountering a variety of activities and images, including scenes of the local landscape, a Japanese musician playing *koto*, a wolf sitting in a cage and a field of illuminated light bulbs, to name a few examples. These filmic trajectories are seemingly continuous, including few edits or narrative elisions.

Although the viewer might understand these films to be shot and then projected simultaneously within the exhibition space, she or he cannot physically 'see' this overarching orchestration. Ohanian's films are projected onto screens that are arranged in a large-scale panoramic sequence—the work is only available to be viewed in blocs of between two and five screens.[33] Like Ritchie's spatialised paintings, this expansive arrangement is said to emphasise the 'perceptual insufficiency' of the viewer's experience by refusing the 'unifying principle of opticality' that, as Jones similarly argues, has been the guiding temporal schema of Western painting practices.[34]

In *Seven Minutes Before*, an all-encompassing point of view is consistently refused in favour of a relative appreciation of different filmic trajectories. Ross's argument is that Ohanian effectively establishes an Einsteinian relativity of simultaneous experiences by insisting on the very partial nature of vision. Multiple timescales proliferate in the different filmic images of the Vercors, but not all of these perspectives are available to the viewer who can only ever see between two and five filmic trajectories at once. I quote Ross at length here:

> This is so because the image (spread out as it is over seven screens) is just that: an infinity of heterogeneous layers of time, which cannot fit in any Gestalt, cause-and-effect or dialectical resolution of images and for which there is no privileged frame of reference, no privileged observer….[T]he lack of narrative coherence

[33] Ross, *The Past is the Present,* 233.
[34] Ibid., 238.

> activate[s] a spacing of time, which keeps problematizing our perception of them as a succession. Cultural geography settles in now: there is no one cultural perspective but cultural perspectives within the installation as there is no one observer but observers within the space of the installation; there is no one simultaneity, but excess, a reality that problematizes the very notion of the frame of reference; there is no time but equally real times. There is a multitude of observers cohabiting in the seven-screen projection, in the exhibition site and in the world at any given time— a multitude never reducible to a totality to be known once and for all.[35]

In this way, Ross identifies an affinity between the multi-perspectivalism of the Einsteinian universe and a form of postmodern pluralism: there is not one masterful 'interpretation' of events, but many proliferating interpretations. In this respect, Einstein's recognition of multiple times and multiple perspectives is analogously said to embrace manifold and divergent cultural understandings and phenomenological experiences of art. The possibilities of multiple 'cultural perspectives' will be discussed in relation to Lisa Reihana's important work *in Pursuit of Venus infected* (2015) at the close of this chapter.

Ross's more expansive and complicated claim is that Ohanian's refusal to privilege a particular optical perspective contests the 'regime of historicity' that is said to characterise modernity. This feature of Ross's argument has been parsed in the literature review of this thesis and I will not review it here. Suffice it to say that, if I interpret her remarks correctly, Ross suggests that Ohanian's aesthetic deployment of a 'relative simultaneity' challenges the cohesion of an individual embodied experience by recognising the 'co-presence' of different times and different perspectives. This is motivated by an aesthetic resistance to modernism's relentless progressive

[35] Ibid., 233.

advancement—Ohanian's work does not recognise a privileged temporal perspective from which to gauge the succession of past, present and future temporal phases. According to Ross, relative simultaneity thwarts modernity's forward movement by proposing the equivalence and recognising the 'reality' of all perspectives and all times.

Figure 2.14: Matthew Ritchie*, Games of Chance and Skill*, 2001-2002.

Figure 2.15: Melik Ohanian, *Seven Minutes Before*, 2004.

Tomás Saraceno: embodied perspective

Tomás Saraceno's ambitious installation *On Space Time Foam* (2013) (Fig. 2.16) offers a crucial means of moving these Einsteinian discourses beyond the concerns of vision and perspective. Saraceno's work firmly establishes the embodied phenomenal experience as an aesthetic platform for exploring the spatio-temporal consequences of Einsteinian relativity and its more recent scientific legacy. *On Space Time Foam* presents an extraordinarily vertiginous environment whose spatio-temporal co-ordinates are wholly unpredictable.[36] Originally installed in the vast exhibition hall at the HangarBicocca in Milan, Saraceno's work consists of three transparent plastic membranes that are suspended twenty-four metres above the ground. Air is pumped into the chambers between these layers at variable pressures so that their ductile plastic surfaces maintain a degree of buoyancy. Participants are invited to navigate across these transparent and flexing membranes, or to watch from the ground below as other bodies negotiate this unusual environment.

The key feature of Saraceno's work is the mutability of these unstable surfaces and the transformation of space that occurs as participants attempt to negotiate this volatility. Each participant creates a physical impression in the different plastic layers that is caused by the weight of her or his body. Depending on what other forces are in play, an individual might be physically surrounded by the membrane or manipulated by the movements of other participants within this inflated network. As Saraceno notes, the responsiveness of the environment and the interdependency of its participants creates a phenomenological instantiation of the 'butterfly effect'—the widely discussed

[36] This description of the experience of Saraceno's work is indebted to the art historian Leila W. Kinney's own account given at the 'Seeing/Sounding/Sensing' symposium held at the Massachusetts Institute of Technology in 2014. A transcript of Kinney's presentation has been published online: http://arts.mit.edu/wp-content/uploads/2014/12/Symposium2014_Video-6.pdf, accessed, 1 December, 2015.

example of 'chaos theory' where small changes in one state (a butterfly flapping its wings) can cause an event of a much greater magnitude in another state (a tornado).[37] In Saraceno's work, no single physical force—gravity, time or space—is dominant in determining the movements of participants or the composition of the space around them. Because of the carefully calibrated air pressure, even a single breath might modify the surrounding environment.

Where the Newtonian universe treats time and space as the fixed containers of experience, Saraceno presents a 'container' that is not only flexible and fungible, but uneven and irregular. This experience is most explicitly orientated toward the malleability of space—the defining feature of Saraceno's work is that it effectively eliminates the familiar rigidity of the earth's surface. In this respect, Man Ray's influential Surrealist photographs of mathematical models of non-Euclidean spatial geometries (1934-36) might offer a useful point of reference. As Gavin Parkinson writes, Man Ray distorted the 'scientific voice' of these pedagogical models by removing them from their display cases at Institute Poincaré, sometimes masking their descriptive algebraic labels, thereby removing any potential indications of their scale.[38] The definitive 'frame of reference' given by these institutional markers is absent thereby obscuring their spatial magnitude. Of course, this spatial 'disorientation' is amplified in Saraceno's *On Space Time Foam* where participants are asked to physically occupy a framework of unorthodox curvatures whose conditions are constantly transforming.

While the spectacular phenomenological 'theatre' of Saraceno's work is focused on these spatial manipulations, the relativity of time cannot be overlooked. *On Space Time Foam* creates an unpredictable environment whose temporal interrelationships

[37] See Kat Austen, 'The Butterfly Effect–in Giant Balloons,' *New Scientist* 216, no. 2893 (December 2012), 46.

[38] Parkinson, *Surrealism, Art, and Modern Science*, 71.

are subject to constant and change: just as bodily movements become interdependent within this network, so too do periods of duration and elapses of time. This is significant to the concept of 'spacetime foam' or 'quantum foam' that Saraceno refers to in the title of this work. John Wheeler's 1955 concept suggests that while Einsteinian relativity described a smooth and 'structureless' spacetime, at the level of sub-atomic particles these dimensions are unevenly distributed: they have a fluctuating, 'jittery' and 'bubbly' form. Writing in response to Saraceno's work, the physicist Jerome Friedman states:

> When it comes to the atomic scale, the normal properties of spacetime are disrupted. Its texture becomes not smooth but bubbly and foam-like due to fluctuations in energy (which is known to have a curving effect on space). But without an overarching theory of quantum gravity, similar to what Einstein offered for the visible world, quantum foam remains one of many cosmological puzzles.[39]

Spacetime foam is one of many quantum theories that are not consistent with Einsteinian relativity and are the source of on-going investigation in the experimental sciences. The theory is important to this study because it describes not simply the malleability of time, but also the potential irregularity of its adherence in our phenomenological engagement with the world. For many thinkers, Einsteinian relativity, and specifically Minkowski's spacetime, is too focused on an even-handed overly geometric description of time and space. This understanding of time is more associated with complexity or systems theories that ultimately challenge the classical principles of Einsteinian mechanics—a subject that is pursued in relation to the concept of entropy in Chapter Thirteen.

[39] Jerome Friedman quoted in 'Saraceno: Conversations on Cosmology,' *Arts at MIT*, accessed 7 October, 2015, http://arts.mit.edu/cosmology/.

Figure 2.16: Tomás Saraceno*, On Space Time Foam*, 2013. HangarBicocca, Milan.

Figure 2.17: Daniel Crooks, *Pan No. 7 (strange attractor)*, 2010.

Time without passage: the great divide

This concern for the embodied experience of the viewing subject is particularly interesting in relation to the influential orthodox scientific interpretations of special relativity. Einstein's theory has been embraced by many thinkers, including the physicist himself, as scientific proof that the ordinary phenomenal experience of the *passage* of time is illusory.[40] While linguistic expressions such as 'the march of time' or 'the flow of time' might attest to a deeply held conviction that time *seems* to move forward, special relativity does not recognise the objective existence of this future-oriented momentum. This has significant consequences for the experience of passage, including the aesthetic 'passage' of encounter that has been important for art historians such as Rosalind Krauss.

The earlier discussion of Minkowski's spacetime block showed that chronological succession is not an objective feature of the Einsteinian universe: what exists is a co-presence of multiple 'nows,' multiple perspectives and multiple times. This means that Einsteinian time has no 'direction': it is not an arrow that flies ceaselessly into the future or a phenomenal force that 'marches' forward. As the particle physicist Russell Stannard observes, one of the '…disconcerting features about four-dimensional spacetime is that nothing *changes*.[41] This can be a difficult proposition for the human experience of a world where icebergs melt, flowers blossom and skin becomes

[40] Einstein's much-quoted statement regarding the 'illusion' of time was not argued in a scholarly paper, but suggested instead in a letter to his good friend Michele Besso's widow. He wrote: 'Now Besso has departed from this strange world a little ahead of me. That means nothing. People like us, who believe in physics, know that the distinction between past, present, and future is only a stubbornly persistent illusion.' Albert Einstein in a letter to Vero and Bice Besso, March 21, 1955 (Einstein Archives #7-245) quoted in Alice Calaprice, *An Einstein Encyclopedia* (Princeton: Princeton University Press, 2010), 65-66. For a more nuanced account of Einstein and Besso's friendship, including their musings on the subject of time, see Jimena Canales, *The Physicist & the Philosopher: Einstein, Bergson, and the Debate that Changed our Understanding of Time* (Princeton: Princeton University Press, 2015).

[41] My emphasis, Russell Stannard, *Special Relativity: A Very Short Introduction* (New York: Oxford University Press, 2008), 30.

increasingly wrinkled. That such patterns of change appear as vivid temporal markers in ordinary experience is cause for some scientists and philosophers to describe the human experience of time as (merely) representational or illusory.[42] For them, time is simply a *conviction* of the human subject.

The art historians Jones and Ross have fruitfully embraced Einsteinian time as a means of contesting the naïve premise that a viewer may achieve a totalising phenomenological experience of a spatially expansive artwork. Ross extends this argument by pitting the immobile parity of Einsteinian times against the *disparity* of modernity's relentless forward advance: the equivalence of many times and many perspectives are seen to contest the future-oriented motivation to constantly 'progress.' Nonetheless, it must be acknowledged that the absence of temporal passage in the Einsteinian universe may present a problem for artworks that are concerned with the dynamic material processes. For instance, Olafur Eliasson's sculptural piece *Your waste of time* (2006) involves the relocation of large shards of an Icelandic glacier to galleries in Berlin and New York where they are exhibited at below-freezing temperatures. Eliasson's work is concerned with water as a portent of environmental degradation and its greater complexities are discussed in further detail in Chapter Thirteen. But I mention it briefly here because, without the *potential* for these shards of ice to undergo the transformational process of melting, Eliasson's work loses its critical urgency. Indeed, without the possibility of a looming, incontrovertible change *Your waste of time* may lose its capacity to engage with the imminent threat of the 'climate change' crisis.

While the works discussed in this chapter are not directly concerned with Eliasson's environmentalism, I mention the problem of change in the Einsteinian

[42] For the most recent rehearsal of this argument see Paul Davies, 'That Mysterious Flow,' *Scientific American*, September (2002), 40-47.

universe because it clarifies two very distinct ways that time can be 'conceptualised': On the one hand, time can be thought of as a static and indifferent measurable property and, on the other, it can be considered a dynamic, ephemeral and transitory force. It is here that special relativity encounters the classical debate in Western philosophy regarding the reality (or unreality) of time. This debate is characterised by a philosophical division between those who believe that time is dynamic and that its passage is a basic feature of reality, and those that believe that this passage is not objectively real—that the fundamental difference between the past and present is not determined by a dynamic passage from one to the next, but by the adoption of different static perspectives. Although this blanket opposition is not particularly useful to this study of art and time—for instance, no artwork can be said to align itself wholly with either position—most of the philosophies of time that are discussed in these pages have been associated with either camp. In this respect, I follow the philosopher Barry Dainton's invaluable account of what he describes as the 'great divide' between stasis and dynamism in the physics and metaphysics of time.[43]

The dynamic view of time derives from the process philosophy of Heraclitus (approx. 535-475 BCE) who believed in a form of 'presentism': the idea that the present is a unique and ephemeral moment that is continually shifting and changing.[44] Presentism is motivated by premise that nothing can be said to exist outside of the present moment, or as the early theologian and philosopher Augustine of Hippo evocatively wrote: 'What now is clear and plain *is*, that neither things to come or past *are*.'[45] How and why this unique present moment shifts, and how it is abutted by past

[43] Dainton, *Time and Space*, 6-10.

[44] Steven Savitt, 'Being and Becoming in Modern Physics,' *The Stanford Encyclopedia of Philosophy*, (Summer 2014), accessed 2 June 2015, http://plato.stanford.edu/archives/sum2014/entries/spacetime-bebecome.

[45] My emphasis, Augustine quoted in Barry Dainton, 'Temporal Consciousness,' *The Stanford Encyclopedia of Philosophy*, (Fall 2010), accessed 6 June, 2012,

and the future moments, has been the subject of different philosophical positions that are parsed in Chapter Ten. What is broadly significant here is that Heraclitus's process philosophy championed the intrinsic dynamism of time and preserved the ontological status—in other words, the 'reality'—of temporal qualities associated with becoming. This ensures the intrinsic worldly existence of change and creativity—processes that are, it must be noted, not insignificant to many artworks and art practices. In this respect, Heraclitus precedes the more recent 'philosophers of becoming'[46] Henri Bergson and Gilles Deleuze whose dynamic concepts of time are discussed in the following chapter.

In direct opposition to Heraclitus's presentism, Parmenides (approx. 520–430BC) developed a philosophical position known as 'eternalism' that considered time to be static and unchanging, infinite and perpetual. Parmenides believed that for time to be indisputably 'real' it could only ever be eternally present, he writes: 'What Is has no beginning and never will be destroyed: it is whole, still, and without end. It neither was nor will be, it simply is—now, altogether, one… .'[47] Crucially, the eternalist position respects the equivalence of the past, present and future: it says that all objects and events that occur in different times are equally valid. Time does not take the form of a river that flows in one direction, but a 'block' that supports the parity of different positions in time and space. Just as one's 'here' may not be the same as another's, then one 'now' cannot claim to be any more present than other 'nows.'

It is not difficult to see how twentieth-century block theorists such as Hillary Putnam embraced Einstein's special relativity as evidence of the fundamental stasis of

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http://plato.stanford.edu/archives/fall2010/entries/consciousness-temporal.

[46] I borrow this description from Quentin Meillassoux whose own 'speculative' philosophy of time challenges the Heraclitean tradition—a subject that is pursued in Chapter Fourteen of this thesis. See Quentin Meillassoux, *Time without Becoming*, ed. Anna Longo (Milan: Mimesis International, 2014), 26.

[47] Parmenides quoted in Savitt, *Being and Becoming in Modern Physics*.

time. Like Einsteinians, block theorists do not believe that time passes, but that all the differences associated with its passage are given to exist, all at once, in the spacetime continuum. For Putnam, Einsteinian relativity 'solved' the philosophical problem of dynamic time, leaving us simply with the static spatial problem 'of determining the exact physical geometry of the four-dimensional continuum that we inhabit.'[48] For some thinkers, this geometric conception of time is a difficult prospect because is suggests that the future is predetermined as an already-existing inscription in the ever-present spacetime block. Indeed, against the aforementioned description of melting icebergs and the hitherto predicted, but ultimately unknown, consequences of climate change, the block universe might be very hard to imagine. For this reason, I quote Barry Dainton's wonderful description of this static world at length:

> Think of a long, solid crystalline block embedded within which are small plastic figures in various poses…All the people frozen in different poses at different places and times in this block are equally real; indeed, some of these people are *you*, as you were yesterday and at still earlier times, and tomorrow and at still later times…Although all the contents of the block are permanent fixtures it is a mistake to suppose that the block is a thing that *endures*. The block does not exist *in* time as we do; it would be more accurate to say that time is *in* the block, for time is simply one of the dimensions that the block possesses.[49]

Daniel Crooks: slicing time

Barry Dainton's description of the block theory is particularly evocative of Daniel Crooks's filmic explorations of the spatialisation of time. While the block universe might not support the human experience of change and transformation, Crooks's films of fairly

[48] Hillary Putnam, 'Time and Physical Geometry,' *The Journal of Philosophy* 64, no. 8 (1967), 247.
[49] Dainton, *Time and Space*, 6-10.

ordinary public spaces and activities consider how the parity of different times and perspectives might 'shape' perception. Using the high-frame rate of time-lapse camera technologies, Crooks develops composite panning shots of transitory activities within a range of populous civic spaces: crowds of people cross a street, a man practices tai chi, commuter trains rumble along their tracks. These ordinary scenes are invested with spatio-temporal peculiarities: an anamorphic manipulation of shape, duration and movement. Crooks generates this tilted, skewed and protracted vision of the world by reformulating the conventional filmic relationship between space, time and movement. He treats filmic time as a thickened material medium: he 'slices' these tracking shots in different ways so that the form of seemingly sturdy and substantial objects begins to contract and dilate across the spacetime 'block.'

Train No. 1 (2005) consists of a single panning sequence filmed from the carriage of one train as it moves along the tracks of Melbourne's transit network capturing images of other trains, platforms and passengers as it hurtles by. Crooks has taken a very thin slice—a 'foliation,' perhaps—from each frame of this film and 'spliced' these together in a chronological, panoramic sequence. The result is a train whose movement is splintered by the jagged staggering of filmic frames. The disruption is slight but effective: it does not disturb the persistence of vision or the 'phi phenomenon' that facilitates the cinematic perception of motion—the viewer still 'sees' the train moving—but it does splinter this movement so that the train appears to 'stutter' across time. This has unusual visual consequences for objects as they move in and out of 'shot.' A person walking along the platform is effectively 'spread out' across the sequence so that they appear to disintegrate into the past as they move into the future.

Crooks describes this filmic manipulation as a 'polyocular view' of time and space where a singular perspective is dispersed across multiple frames of visual

information.[50] This is analogous to the discussions of Matthew Ritchie's spatialised paintings and Melik Ohanian's own panoramic projections, but the considerable differences between these works are important. Crooks is not concerned with the ambulatory or embodied experience the viewer. Unlike Ohanian's filmic projections, Crooks's camera angle is static and his viewers maintain a largely stationary position. The key aesthetic device deployed here is the slow panning of a panoramic sequence of moving-images. Crooks rather perceptively uses the movement of the train as an analogue of linear Newtonian time, altering its relentlessly advancing passage so that new temporal possibilities are revealed.[51] Past, present and future co-exist, if just for a moment, but enough to disturb the tacit understanding of the way time 'should be.' What these images hint at is the strange Einsteinian prospect that is made possible by the block universe: that seemingly solid, singular entities such as people and objects can be 'in two places at once.' As Dainton writes of the small plastic figures that are embedded in the block universe: '…some of these people are *you*, as you were yesterday and at still earlier times, and tomorrow and at still later times… .'[52]

This possibility is 'stretched' in another direction in Crooks's series of panning films. In *Pan No. 7 (strange attractor)* (2010) (Fig. 2.17) people crossing a crowded shopping area appear to expatiate and 'smear' across the screen, but also to contract into elongated slivers that slide by. A slightly different slicing technique is employed here. While in *Train No. 1*, only a single slice of pixel-information is taken from the centre of the frame so that the sequence is effectively offset by spatial separation. In this

[50] Daniel Crooks quoted in Daniel Crooks and Justin Paton, *Daniel Crooks: Everywhere Instantly* (Christchurch, N.Z.: Christchurch Art Gallery, 2008), 4. Laurence Simmons also notes that this term is used in anthropology and organisational theory in describing the capacity to understand different cultures from multiple perspectives—a concept that is particularly important for the discussion of Lisa Reihana's in *The Pursuit of Venus infected* (2015) in the following chapter. See Laurence Simmons, 'Daniel Crooks: The Future of the Past,' *Artlink* 29, no. 1 (2009), 34.

[51] Crooks, *Daniel Crooks: Everywhere Instantly*, 10.

[52] Dainton, *Time and Space*, 8.

film, all frames are used but the 'slices' are offset in *time* so that, as Crooks states, 'the variables become the width of the slice [taken] from the video, and the speed with which the camera itself was travelling.'[53] The result is that the shape of a person becomes either distended or elliptically squeezed as the sequence scrolls across the screen.

Once again, we might compare this to Saraceno's work for clarification of how time and space are being aesthetically manipulated. While Crooks's and Saraceno's works are wildly different in form and execution, they are motivated by a similar need to stretch the fixed relationship between time and space; to test its relativity by 'twisting' it in different directions. Saraceno achieves this by replacing the sturdy surfaces of the Newtonian world, with a malleable and unreliable terrain. One could say that he 'injects' the uncertainty of time *into* space. On the other hand, Crooks plies the malleability of film by treating time *as* space—as a material 'thing' that can be 'sliced and diced' into variable arrangements. The key here is that both artists work to distort the steadfast and secure composition of the physical world: they manipulate the relationship between spatial and temporal dimensions to defy the way time 'should be.' Like Man Ray's photographs of nineteenth-century models of non-Euclidean space, these works refuse to confirm a 'cohesive' and unified embodied experience of the spatio-temporal continuum. Ultimately, Einsteinian time is engaged as a means of confronting unified perceptual experiences. It describes a spatio-temporal framework that lies beyond the familiar and cosy confines of human phenomenology—one that confirms the continual existence of an external 'non-human' timescale. This subject will be revisited in the final chapters of this thesis.

[53] Crooks, *Daniel Crooks: Everywhere Instantly*, 14.

Coda: In pursuit of Venus

Lisa Reihana's *in Pursuit of Venus infected* (2015) (Fig. 2.18 and 2.18a) is a panoramic filmic animation that depicts a series of historical encounters between Pacific peoples and British explorers of the eighteenth century. Reihana's ambitious work invites a multitude of discussions regarding the historical representations of Pacific colonisation.[54] *in Pursuit of Venus infected* is important to this study of time and art because its scrolling animated structure holds some affinity to Daniel Crook's own 'polyocular' panoramic films. While Reihana's work is not explicitly concerned with the discourses of Einsteinian relativity, this filmic animation does bring into play a multiplicity of 'perspectives' that put pressure on the sturdy Enlightenment inscription of time and space. I argue here that Reihana's work truly instantiates what Christine Ross has described as the panoramic refusal of '*one* cultural perspective' in the work of Melik Ohanian.[55] In Reihana's imagined Pacific timescape, Einstein's multiple and proliferating perspectives are made to consider the historical framing and cultural encounters of imperial exploration and colonisation.

in Pursuit of Venus infected, known as '*iPOVi',* refers to the scenic wallpaper *Les Sauvages de la Mer Pacifique* (1804-5) designed by Jean-Gabriel Charvet and produced by the popular nineteenth-century manufacturer Joseph Dufour. Reihana first encountered a print of Dufour's wallpaper at the National Gallery of Australia, describing its exotic, fantastical and wildly imprecise depiction of the Pacific as 'a fabulation invented in someone else's elsewhere.'[56] In Reihana's work, Dufour's

[54] The accompanying catalogue attends to these subjects, including a variety of responses from art historians, historians and theorists. See *Lisa Reihana: In Pursuit of Venus*, ed. Lisa Reihana (Auckland: Auckland Art Gallery Toi o Tāmaki, 2015).

[55] Ross makes this observation in relation to Melik Ohanian's panoramic film *Seven Minutes Before* (2004).

[56] Lisa Reihana, *In Pursuit of Venus*, 7.

landscape of rolling hills, calm inlets and lush tropical foliage has been populated with a series of filmic vignettes that show various interactions between Pacific residents and British explorers that are based on actual historical accounts of the British Royal Navy Captain James Cook's voyages in the Pacific.[57]

These scenes present a complex a narrative of encounter and captivating entanglements that are often fraught with imminent violence. While Dufour's wall-paper included an image referring to Cook's infamous death at Kealakekua Bay in Hawai'i, *iPOVi* supplements this representation with a range of much more complicated historical narratives. These include various interactions between Pacific residents and British sailors, the trade of material objects and sexual favours, the negotiations of the imminent navigator and translator Tupaia, the investigations of the botanist Joseph Banks, the historical accounts of sailors and island residents being violently reprimanded, and moments of wonderment and entertainment always interspersed with frequent skirmishes and misunderstandings. The limitations of 'cultural perspective' truly settle in where the activities of and exchanges between foreigner and indigene are never wholly transparent or predictable for either 'player' in this historical montage.

Recorded using green screen technologies, these dynamic scenes appear to take place against a still landscape whose pictorial stasis suggests the theatrical backdrop to a strangely 'placeless' exotic setting. Reihana has developed slightly different installations and iterations of the same animated sequence, each of which takes on different aesthetic characteristics. For instance, the film's installation at the Auckland Art Galley Toi o Tāmaki comprised a twenty-five metre multi-channel projection that

[57] A key point of reference is Anne Salmon's historical account of Cook's voyages in the Pacific that draws on both oral histories from different Pacific groups and observational naval records. Anne Salmond, *The Trial of the Cannibal Dog: Captain Cook in the South Seas* (London: Allen Lane, 2003).

'scrolled' seamlessly from the left side of gallery to the right. The Queensland Gallery of Modern Art holds an alternate version of Reihana's work that is played across four channels on large-scale LCD monitors whereby the film appears to scroll between the delineated 'frames' of each screen.

In this respect, Reihana and Daniel Crook's panoramic films share a similar aesthetic structure: they consist of a montage of images that scroll slowly past a viewer who is most often stationary.[58] Crook's 'polyocular' description might be extended to Reihana's work, not simply because it presents a montage of variously filmed sequences, but because it draws together a series of multiple 'perspectives' associated with individual vignettes. These scenes are 'co-existent' in as much as they occur simultaneously in cycles that successively scroll past the fixed position of the viewer. In this respect, the work suggests an 'alternate' timescape; one that 'twists' both the familiar chronologies of the clock and traditional cinematic narrative structures. But an important difference is that while Crooks generally presents a multiple sequence of singular 'slices' of time, Reihana's scrolling animation is 'seamless': these lushly 'exotic' images of historical events appear to float past the viewer, almost as though this person is sitting in a train carriage watching this fantastical world 'go by.' Just as Einstein's thought experiments suggest, the moving 'train' retains its own frame of reference whose calculations, measurements and physical 'truths' may not be shared by those beyond it.[59]

[58] It is entirely possible to walk alongside an individual vignette as it scrolls from left to right, but most viewers at the Auckland Art Gallery Toi o Tāmaki and Queensland Gallery of Modern Art seemed content to adopt a single viewing position.

[59] For an important account of Einstein's interest in 'train time,' see Galison, *Einstein's Clocks, Poincaré's Maps.*

In this respect, it is no accident that the acronym for the title of this work refers to the filmic term for 'point of view' or 'P.O.V.'[60] Crucially, Reihana's film insists that 'perspective' is not simply a neutral spatio-temporal dimension—a foliation of the Einsteinian spacetime continuum—but is inflected by the often inequitable power dynamics of history and culture. *iPOVi* shows that the narratives of Enlightenment scientific 'discovery' are very much intertwined with the history of the imperial exploration of 'new' geographies within the Pacific.[61] The work's title refers to one of the initial aims of Cook's first voyage to observe the rare planetary trajectory of Venus from Tahiti in 1769. A number of vignettes show either Cook or the naturalist Joseph Banks peering through telescopic instruments and noting various observations. Their astronomical measurements were to contribute to the identification of a longitudinal naval measure that, in the broader scheme, would confirm the determinist scientific imperatives of the Enlightenment and aid the expansive navigation of the globe. In this respect, it is important to realise that Einstein both inherits the scientific motivations of the Enlightenment as much as he radically transforms some of its founding principles. Time and space might be relative and rendered malleable with the special theory of relativity, but his theoretical aim was still to identify an absolutely invariant principle that substantiates all physical structures and behaviours.

The difficulty here is that this seemingly objective description of time and space overlooks the Enlightenment modelling of the exotic Pacific 'Other.' The anthropologist Johannes Fabian's influential argument is that the non-Western Other ultimately denied the temporal 'fruits' of Western scientific observation. In his critique of anthropology

[60] Of course, the 'Venus' of the title both refers to Cook's undertaking to record the celestial Transit of Venus in 1769, but also Louis de Bougainville's famous description of Tahiti as the 'New Cythera'—a libidinous allusion to Aphrodite's island. See Reihana, *In Pursuit of Venus*, 9 and 132.

[61] This is also explored in William Kentridge's *The Refusal of Time*, which centres more explicitly on the historical development of Einsteinian special relativity in relation to colonial expansions in African continent.

Time and the Other (1983), Fabian suggests that the anthropological study of subaltern cultures establishes what he calls an 'allochronic' condition whereby the social group that is being observed is denied the contemporary time of the observer.[62] Fabian's rather stark argument is that the non-Western Other never exists within the 'co-eval' present framework of observation, either being lodged firmly in an historical past or simply relegated to an alien (and potentially exoticised) timescape. Fabian suggests that this inscription of time is the basis of a number of inequitable binaries that separate the 'West from the Rest' including the dualisms of literate and illiterate, natural and mechanical, urban and rural.

I suggest that Reihana's work twists and subverts the binary relationship between 'observer and observed' by embracing the possibilities of multiple perspectives and times. While the figures of Cook and Banks are variously shown peering through telescopes, the stationary viewer is also watching these figures as they scroll past. Other scenes also establish different observational and 'perspectival' dynamics: the indigenous groups watch the explorers perform; an explorer watches a Tahitian woman in the ceremonial performance of 'unwrapping'; naval officers watching while one of their own is whipped. These moments of potentially violent and comic observational encounter exist in a particularly complex time and soundscape. On one hand, Reihana's film is structured by a dynamic scrolling duration that may seem 'irrational' and perhaps alluringly exotic in comparison to the chronological certitude of the Enlightenment model of time and space. But on the other hand, this historical narrative is both entirely chronological *and* cyclical: it moves forward in time as series of events that scroll slowly past the stationary viewer, 'concluding' eventually in Cook's

[62] Johannes Fabian, *Time and the Other: How Anthropology Makes its Object* (New York: Columbia University Press, 2014), 37.

death, only to have this very same sequence repeat in a loop, over and over again. This linear history is inevitable—Cook's Hawaiian death cannot be undone—but the animation is also recursive and circular: a chronology suspended in multiple perspectives. History is 'replayed' in *iPOVi*, but this work is not a 'costume drama' or even an artistic 'corrective' of Dufour's spuriously exotic wall-paper scenes. Rather, the traditional chronologies of narrative film are referenced but ultimately abandoned for a more complex 'fabric' of time that presents an interleaving of the past in the present.

One might turn here to the work of the historian Merce Eliade whose concept of eternal recurrence describes the active reiteration of archetypal mythologies and rituals in a wide variety of ancient societies.[63] Eliade suggested that the repetition of originary actions or images resulted in a suspension of chronological succession, allowing an escape from profane, concrete durations in favour of a sacred time: *in illo tempore.*[64] Nonetheless the Māori concept of 'Te Kore' or The Void is more than adequate to the task of articulating a non-chronological timescape. Writing in response to Reihana's work, the historian Anne Salmond states that 'In Māori cosmological ideas, space-time is a spiral, a vortex. Standing in the present, one can spin back to Te Kore…and then back again to the ancestral source.'[65] In this circular movement, the artist is said to hold both the ability and the mandate to absorb ancestral sources in the present and project them into the future. This is what Reihana's innovative aesthetic structure achieves: a

[63] Mircea Eliade's scholarship attends to the myth of the eternal combustion (*ekpyrosis*)—the idea that the universe will be periodically destroyed and created anew in an eternal cycle. This was prevalent across a wide number of early mythologies including those of the Roman-Oriental world, India and Iran, the Mayas and Aztecs of South and Central America. Against popular nihilistic and doom-laden interpretations of these 'myths,' Eliade describes a temporal optimism borne of continual repetition. He writes that the myth of the eternal combustion, for instance, confers 'a cyclical direction upon time, annuls its irreversibility. Everything begins over again at its commencement every instant. The past is but a prefiguration of the future. No event is irreversible and no transformation is final….Time but makes possible the appearance and existence of things. It has no final influence upon their existence, since it is itself constantly regenerated.' Mircea Eliade, *The Myth of the Eternal Return*, (New York: Pantheon Books, 1954), 88.

[64] Ibid.

[65] Anne Salmond *Lisa Reihana: In Pursuit of Venus*, 2.

scrolling, 'spiralling' rendition of historically successive chronologies. While Enlightenment scientific practices might derogatively describe this turn towards the past as 'backward,' the twentieth-century philosophies of phenomenology were precisely concerned with how the past appears to reside within the experience of the present. Especially in Henri Bergson's thought, experience is never given over to empirical periods of chronological succession, but exists as a multiplicity of co-extensive durations—this is the subject of Part Three of this thesis. Ultimately, Reihana abolishes the Enlightenment hold on time by refusing its familiar inscription of the singular historical model. This scrolling timescape seems as strangely 'timeless' as Dufour's exotic landscape is strangely 'placeless.' Here, the rigid geographical and temporal markers of Enlightenment observation are never wholly infallible.

Figures 2.18 and 2.18a: Lisa Reihana, *in Pursuit of Venus infected*, 2015. Auckland Art Gallery Toi o Tāmaki.

PART THREE

Lived Time

Introduction

Part Three of this thesis moves away from the modern quantification of time, focusing instead on the human capacity to perceive different temporalities and durations as an integral dimension of the viewer's phenomenal experience of art. The following chapters attend closely to the qualitative 'feeling,' sensation and impression of time in experience, precisely because this temporal perception is an implicit feature of many contemporary artworks. From the late 1950s to the present, the hugely variable works discussed in this study each acknowledge the multifaceted aesthetic experiences of one or many viewers whose engagement is said to contribute to the 'completion' of the work itself.[1] Rosalind Krauss and Michael Fried's discussions of minimalist sculptural practices are a continual point of reference within this study because they recognise, however critically, that this experiential 'contribution' is never without duration, and that this duration is integral to the aesthetic 'meaning' of an artwork. Time is not 'in' contemporary art, so much as it *is* the enduring phenomenal dimension of any aesthetic experience: the temporality of aesthetics is bound up in embodied

[1] In the lecture 'The Creative Act' (1957) Duchamp states that 'the creative act is not performed by the artist alone; the spectator brings the work in contact with the external world by deciphering and interpreting its inner qualification and thus adds his contribution to the creative act.' Marcel Duchamp, 'The Creative Act,' in *Theories and Documents of Contemporary Art: A Sourcebook of Artists' Writings*, eds. Kristine Stiles and Peter Selz (Berkeley Calif.: University of California Press, 2012), 818-819.

encounters, cognitive reflections, memorial processes, material sensations and inter-subjective exchanges.

It might go without saying that these temporal attributes cannot be described by simply referring to the quantified divisions of the clock—the mainstay of both the modern capitalist labour practices and the determinist sciences discussed in the previous chapter. Considering time as an intimate feature of 'lived' experience—not simply a numerical measure *of* this experience—is critical to building a more sophisticated picture of the complex interrelationships of time, viewer and artwork that are pursued in subsequent chapters. The human experience of temporal qualities such as waiting, delay, acceleration, prescience, boredom or speed always exists in excess of a singular numerical timescale, thereby offering one avenue to resist the universal utility of the capitalist clock. The very premise of 'lateness' suggests that time does not always conform to a unitary scale, that the multiple durations of 'everyday life' are not always perfectly synchronised, and that this 'asynchrony' might obtain different socio-political values.

Indeed, one of the abiding concerns of twentieth-century continental philosophy has been the particularly 'knotty' question of the human perception of time—a subject that famously captivated writers such as Marcel Proust and philosophers such as Henri Bergson, Edmund Husserl, Maurice Merleau-Ponty and Martin Heidegger.[2] Part Three of this thesis looks to this phenomenological tradition as a means of exploring this subject,

[2] This very short and incomplete list of names is informed by a selection of broad-reaching surveys of the philosophy of time in Western thought, many of which focus on the late nineteenth and early twentieth-century discussions of 'time,' 'phenomenology,' 'consciousness' and 'experience.' Roger McLure's study might supplement this brief list with the work of Emmanuel Levinas; David Couzens Hoy might add Jean-Paul Sartre and Jacques Derrida; and Mark Muldoon might also include Paul Ricœur. My decision to focus on Bergson and Husserl in these chapters is directed by a number of significant contemporary artworks whose discussion, I argue, gains from the frameworks of time that these philosophers propose. See, Roger McLure, *The Philosophy of Time: Time before Times* (London; New York: Routledge, 2005).; David Couzens Hoy, *The Time of our Lives: A Critical History of Temporality* (Cambridge, MA: MIT Press, 2009).; Mark Muldoon, *Tricks of Time: Bergson, Merleau-Ponty and Ricoeur in Search of Time, Self and Meaning* (Pittsburgh, Pa.: Duquesne University Press, 2006).

following the theorist Roger McLure in roughly expanding 'phenomenology' to encompass both the Bergsonian concept of *durée* and the Husserlian concept of 'internal time-consciousness.' Bergson and Husserl certainly emerged from distinct philosophical traditions, but McLure proposes that they each adopted the Augustinian understanding that 'what deserves to be called time is the time of our consciousness.'[3] In this respect, time is not treated as a purely physical dimension or numerical measure that exists *prior* to conscious human experience, but is considered as a living 'phenomenon' (from the Greek 'appearance') that surfaces *with* consciousness. While the determinist scientific practices of the Enlightenment and the mechanisms of industrial modernity established time as a seemingly 'objective' and external gauge of worldly properties, the phenomenological tradition draws time into the immanent and messy textures of human experience.

While phenomenological explorations of time-consciousness have been compelling for many thinkers, it must be noted that this absolute correspondence between 'experience' and 'time'—a tight affiliation of the consciousness of the human subject and the world beyond it—has become untenable for a recent group of 'speculative' philosophers whose objections are discussed in Part Four of this thesis. Nonetheless, the workings of human temporal experience continue to be of interest to a number of contemporary disciplines, including the relatively nascent field of cognitive neuroscience that studies the physiological basis of 'time perception.'[4] These studies paint a particularly complex picture of temporal perception as a diverse set of interrelated cognitive phenomena that include biological and circadian rhythms; the perceptual discrimination between simultaneity, succession and endurance; the

[3] McLure, *The Philosophy of Time: Time Before Times*, 2 and 176.

[4] See José Luis Díaz's survey and description of this burgeoning field of research, 'Chrono-Phenomenology: Time Subjective and Clock Elastic,' *Salud Mental* 34, no. 4 (July-August 2011), 375-385.

capacity to estimate and predict time; the functions of long and short-term memory; and the variable fluctuations of emotion.

Part Three of this thesis proposes that a more complex understanding of human temporal experience is crucial to recognising the hugely variable 'textures' of time in recent art practices. Dan Graham's *Time Delay* (1974), which was discussed in the preceding literature review, makes the viewer's immediate perception of time especially salient by recording and 'replaying' this experience at a slight delay. Alternatively, a very different work, Wolfgang Laib's *Milk Stone* (1978), explores a more implicit 'impression' of temporality where the viewer's aesthetic encounter is shaped by the intrinsic transience of milk and the enduring solidity of marble. Bergson's thought is particularly relevant here because it acknowledges that duration is a feature of human experience as much as it is a feature of the materialities and processes that populate this experience.

Ultimately, what each of these works realise is that 'time' never conforms to a singular, cohesive or unified perceptual mechanism and that this disunity has important implications for the plurality or multiplicity of what Krauss would describe as aesthetic 'meaning.' The diverse architectures of time perception contribute to art's temporal heterogeneity: the viewing subject does not always experience time as a mono-temporal sequence of flashing digits or ticking clocks. The following chapters on Bergsonian *durée*, Husserlian phenomenology, the neuroscience of time perception each contribute to a larger theoretical framework that aims to describe the multiple, divergent and asynchronous temporalities that proliferate in contemporary art.

CHAPTER NINE

Bergsonian *Durée*

Introduction: Bergson and Einstein

Henri Bergson's concept of *durée* conceives of an original duration that underlies all conscious experience. Against the modern motivation to treat time as a quantitative measure that can be efficiently divided into hours, minutes and seconds, Bergsonian *durée* recognises time as an indivisible *quality* of both 'lived experience' and material properties. In the broadest sense, time in Bergson's thought is an intrinsic rhythm, flux or tempo that underscores the worldly existence of creativity and becoming: Bergsonian *durée* is not fixed or numerical, but dynamic and fluctuating. This philosophy of time was embraced within European intellectual and artistic milieus over the turn of the twentieth century. The scholarship of the art historian Mark Antliff offers an important account of the affinity and influence of Bergson's philosophy amongst artists such as Umberto Boccioni, Constantin Brancusi, Henri Matisse, Kasmir Malevich and Fernand Léger, and the Cubist theoreticians Albert Gleizses and Jean Metzinger.[1] These artists developed distinct and sometimes markedly divergent art practices, but more broadly,

[1] The editors of a recent volume on Bergsonian thought and art history, Charlotte de Mille and John Mullarkey, write that Antliff's work remains the most sustained art historical study of Bergson's influence amongst modernist artists—a field of research that continues to go somewhat under-recognised in studies of European aesthetics. De Mille and Mullarkey give two primary reasons for Bergson's 'undistinguished reception' within art historical discourses: Firstly, they suggest that Bergsonian thought has been conflated with that of Gilles Deleuze, whose cinema books I discussed in the literature review. Secondly, they suggest that because Bergson never published a dedicated treatise on art and aesthetics, this has been problematic for those art historians not directly familiar with philosophical metaphysics. See, John Mullarkey and Charlotte De Mille, *Bergson and the Art of Immanence: Painting, Photography, Film* (Edinburgh: Edinburgh University Press, 2013), 3.

Antliff suggests that they each engaged Bergsonian *durée* as means of endorsing a form of aesthetic dynamism, vitality and temporal rhythm.[2]

Antliff writes that the Cubist interest in non-Euclidean spatial representation was seen to hold some analogy to the temporal heterogeneity of *durée*. Alternatively, Antliff also suggests that the Futurist sculptor Umberto Boccioni looked to Bergson to explicate a more dynamic understanding of the sculptural relationship between time and spatial extension.[3] Importantly, this rhythmic dynamism was not simply confined to the 'internal' structural components of a sculpture, but also encompassed the viewer's perceptual engagement with an aesthetic form. For instance, Antliff writes that the vibrant hues and flattened perspectives of Matisse's works imparted a visual temporal sensation where 'volumetric depth and unmodulated decorative surfaces….introduced a rhythmic pulse to [the] reading of a painting.'[4] Most importantly, this dynamic 'pulse' was seen to resist the uniform quantifications of temporal modernity. For Antliff, the towering grandfather clock in Matisse's *The Red Studio* (1911) proposed a candid symbolic distinction between the rhythmic time of Bergsonian viewership and the mechanised timescale of the clock. He writes:

> Clock-time is the quantified, anonymous time of the scientist. Real duration can only be grasped through intuition, it is part of a creative process. To signal the suspension of the former experience of time in favour of the latter, Matisse removed the hands of the clock and let it stand as a testimony to a concept of

[2] See Antliff, 'The Rhythms of Duration: Bergson and the Art of Matisse,' in *The New Bergson*, ed. John Mullarkey (Manchester: Manchester University Press, 1999); and *Inventing Bergson: Cultural Politics and the Parisian Avant-Garde* (Princeton: Princeton University Press, 1993). Another important contribution to this field of research is the essay by Brian Petrie 'Boccioni and Bergson,' *The Burlington Magazine* 116, no. 852 (March 1974), 140-147.

[3] Antliff, 'Shaping Duration: Bergson and Modern Sculpture,' *The European Legacy* 16, no. 7 (December 2011), 905.

[4] Antliff, The Rhythms of Duration, 191.

time he consciously rejected, and as a foil to the durational experience of rhythmic extensity that gave shape to the 'plastic space' of his canvases.[5]

While this study focuses on a number of contemporary works, not all of which directly inherit the legacy of artists such as Matisse and Boccioni, I open this chapter by acknowledging Bergson's impressive philosophical influence in light of its subsequent diminishment. It must be noted that, although Bergson was celebrated over the turn of the century, by the start of the Second World War, his concern for the rhythms of *durée* no longer held sway in philosophical or scientific debates. Although I do not endorse Bergson's intellectual 'down fall,' I mention it here because this trajectory continues to frame contemporary understandings of time: it establishes a distinction between the sturdy quantifications of the clock and the more nebulous, 'unreliable' rhythms of perceptual experience.

As I discussed in the previous chapter, the early twentieth century witnessed a remarkable transformation in modern scientific understandings of time—the most significant development being Albert Einstein's 1905 and 1915 theories of relativity. The contemporary philosopher Roger McLure makes the point that the 'tenseless' interpretation of Einstein's special relativity—the block universe concept of a static spacetime continuum—introduced a means for many philosophers to abandon phenomenological considerations of the *human* experience of time. He writes:

> The suggestion is that because time is about to "cease to have a role in the foundations of physics," we had better start replacing our temporal ways of thinking about the world by timeless ways, and that "timeless principles will explain why we do feel that time flows"…The underlying metaphysical premise

[5] Ibid., 192.

> here is…that the real is exhausted by the physical, or equivalently, that either time inheres in physical reality or time is unreal.[6]

This argument can be readily extended to the fortunes of Bergsonian *durée*. Bergson's concern for an indivisible 'flux' that existed at the heart of human experience was historically superseded by the 'static' time of the Einsteinian block universe: simply put, the latter was considered to be more 'real' than the former. This conclusion is unorthodox, but it is not without precedent. Bergson and Einstein *did* encounter one another in a little-known public debate at the *Société Française de Philosophie* in Paris in 1922 where the physicist's single contribution to the hour-long discussion was a pithy effort to dismiss the *philosophical* pursuit of 'real' time altogether. Of the perceived simultaneity of events in human experience, Einstein tendentiously stated that 'the latter are only mental constructions, logical beings. Hence there is no philosopher's time; there is only a psychological time different from the time of the physicist.'[7]

The historian Jimena Canales quite rightly approaches this encounter between imminent philosopher and physicist as broadly symbolic of the intellectual victory of scientific 'rationality' over philosophical 'intuition' at the beginning of the twentieth century. For Canales, the Bergson-Einstein debate explicates the infamous Science Wars that characterised this period, instigating the emerging disciplinary split between 'hard-nosed' positivist scientific practices and the 'softer' intellectual inquiries of the arts and humanities. She writes that the conflict between Bergson and Einstein was '…in essence a controversy about who could speak for nature and about which of these two

[6] McLure, Philosophy of Time, 168.

[7] Albert Einstein, from P.A.Y. Gunter's translation published in 'Bergson's Theory of Matter and Modern Physics,' in *Bergson and the Evolution of Physics* (Knoxville: University of Tennessee Press, 1969), 133.

disciplines would have the last word.'[8] According to contemporaneous reports, Bergson was popularly thought to have 'lost' his debate with Einstein, and this was seen to reflect upon the entire metaphysical discipline. As Canales writes, the 1921 Oxford Congress of Philosophy happily included papers that discussed both Bergsonian *durée* and Einsteinian relativity side by side, but it was only after the 1922 debate that Bergson's concept of *durée* became increasingly associated with a Luddite's grasp of the physics of time.[9] Bertrand Russell's famous claim was that Bergson's 'woolly' philosophies led an 'insurgence against reason' and a form of spiritualist anti-intellectualism that was said to affect 'ants, bees and Bergson.'[10]

Not surprisingly, Bergson's fall from intellectual favour does not feature in recent art historical discussions of his philosophy that have been largely motivated by Gilles Deleuze's important 'rehabilitation' of Bergsonism in the later part of the twentieth century.[11] Nonetheless, I mention the debate between Bergson and Einstein here because it describes a particularly persistent approach to time's ontological status—one

[8] Jimena Canales, 'Einstein, Bergson, and the Experiment that Failed: Intellectual Cooperation at the League of Nations,' *MLN* 120, no. 5 (2005), 1169.

[9] Following the debate with Einstein, Bergson published a rather technical and somewhat misplaced critique of special relativity, *Duration and Simultaneity* (1922). The science philosopher Milič Čapek offers the most thorough scientific analysis of these arguments. He suggests that Bergsonian time is not entirely *in*compatible with special relativity and that Bergson quite rightly sought to correct the inappropriate spatial emphasis given by Hermann Minkowski's geometric spacetime modelling of the theory. On the other hand, Čapek writes that Bergson did blunder in retaining some aspects of classical Newtonian physics in his arguments, specifically the concepts of 'absolute simultaneity and the separation of absolute (instantaneous) space from absolute time.' While Bergson's discussion of special relativity is not wholly inaccurate, it appears that what he failed to account for were the broader implications of the general theory of relativity. See Čapek's extensive discussion in the chapter 'What is living and what is dead in the Bergsonian critique of relativity.' *The New Aspects of Time: Its Continuity and Novelties* (Dordrecht; Boston: Kluwer Academic, 1990), 296-323. Gilles Deleuze offers another important gloss of Bergson's later work suggesting that his larger ambition was to build a new philosophy of metaphysics in support of the truly radical achievements of special relativity. Against the overly spatialised interpretations of Einstein's theory, Deleuze writes that 'For Bergson, science is never 'reductionist' but, on the contrary, demands a metaphysics—without which it would remain abstract, deprived of meaning or intuition. To continue Bergson's project today, means for example to constitute a metaphysical image of thought corresponding to the new lines, openings, traces, leaps, dynamisms, discovered by a molecular biology of the brain: new linkings and re-linkings in thought.' See Gilles Deleuze, *Bergsonism*, (New York: Zone Books, 1988), 116-117.

[10] Bertrand Russell, *The Philosophy of Bergson* (Cambridge: Bowes and Bowes, 1914), 3.

[11] Deleuze's key works in this respect are the cinema books that were discussed in the literature review, *Cinema 1: The Movement-Image* (1986) and *Cinema 2: The Time-Image* (1989). Alternatively, Chapter Twelve looks more closely at Deleuze's 1966 Bergsonism and its important discussion of temporal multiplicity.

that I propose many contemporary art practices seek to contest. The Bergson-Einstein debate roughly falls along philosophy's historical 'party lines': Bergson sitting on the side of Heraclitus's process philosophy and its dynamic time of becoming, and Einstein on the side of Parmenides's eternalism and its disinterested time of equivalent perspectives. But more than this, the Einstein-Bergson debate could be seen to underscore a tacit assumption regarding time: that a greater 'scientific' time exists 'out there' which is superior to the more fallible 'internal' human experiences of temporality. I take Canales's point that this division is central to the contemporary evaluation of time in societies shaped by the techno-scientific achievements of modernity. The underlying belief is that the human experience of time is not simply different from the technocratic time of science and capitalist labour practices, but actually *inferior* to it.

As a means of ameliorating this unfortunate division of time, the philosopher Bruno Latour re-staged the 'bungled dialogue' between Bergson and Einstein before an audience at the Centre Georges Pompidou in 2010.[12] The exchange was re-enacted by Canales along with the philosopher Elie During and the artist Olafur Eliasson, whose work is discussed in Part Four of this thesis. Latour's aim was to overcome the simplistic division between a scientific interest in measurement and a philosophical interest in human conscious experience. He writes:

> the space and time in which we live—experientially, phenomenologically—might not be a mere mistake of our subjective self, but might have some relevance for what the world is really like. Instead of accepting the divide between physics and philosophy, this re-enactment was a means of answering Alfred North Whitehead's famous question: 'When red is found in nature, what else is found there also?' Likewise, is it possible to imagine a world where scientific

[12] Bruno Latour, 'Some Experiments in Art and Politics,' *e-flux journal* 23 (March 2011), 2 May 2015, http://www.e-flux.com/journal/some-experiments-in-art-and-politics.

knowledge is able to add to the world instead of dismissing the experience of being in the world?[13]

Latour and Canales's reassessment of the Bergson-Einstein debate offers an important theoretical context for a greater appreciation of Bergson's own philosophical achievements. But it also suggests one reason why time has not been readily associated with some contemporary art practices. This chapter discusses works by Wolfgang Laib and Vija Celmins that do not include familiar markers of time, such as the numerical divisions of the clock or scientific theoretical frameworks that have been discussed thus far. These works might even appear to be resolutely *static* compared to the 'dizzying' immersive installations of the previous chapter, or the life-long projects of conceptual artists such as On Kawara that were discussed in Chapter Seven. Nonetheless, Laib and Celmins's sculptures and drawings each engage time as an 'indiscernible' rhythm, or many rhythms, that develop from the viewer's encounter with different material compositions. In this respect, I begin Part Three of this thesis with a discussion of Bergson's *durée* as means of expanding the 'scope' of time in art to consider temporal aesthetics both beyond the prominent symbols of the clock and the explicit durations of sensory-motor movements.

Bergson's *durée*: quality over quantity

Along with the concomitant concepts of multiplicity, intuition and memory, Bergsonian *durée* is an attempt to understand the different qualities of human experience and how these qualities are engaged with the multiple material properties of the physical world. In Bergson's thought, the human perception of time, particularly the

[13] Ibid., 7.

experience of an enduring and continuous flow, is not treated as an illusionary attribute or representational function of the mind, but exists as a very 'real' feature this world. In this respect, he appeals to the durations of 'ordinary' moments of perception: listening to music, identifying the gradients of emotion, walking around the neighbourhood, waiting for a cube of sugar to dissolve in a glass of water.[14] For Bergson, the qualitative 'identity' of these events, processes and things is the particular *rhythm* of duration by which they adhere in the world.[15]

Bergson's key insight is that perception consists of a congregation of different 'inner' states of duration that, like the individual notes of a melody, cohere to form a single advancing stream of temporal continuity. Crucially, these moments do not correspond to a strictly chronological succession of individual instants. Unlike the crisp divisions of clock-time, *durée* is the indiscernible 'interpenetration' of diverse states of consciousness.[16] This indiscernibility fundamentally undermines what Gilles Deleuze has described as the persistent premise that our experience conforms to a sequence of past, present and future moments of cognition.[17] I quote Bergson at length here:

> Pure duration is the form which the succession of our conscious states assumes when our ego lets itself *live*, when it refrains from separating its present state from its former states. For this purpose it need not be entirely absorbed in the passing sensation or idea; for then, on the contrary, it would no longer *endure*...[In] recalling these states, it does not set them alongside its actual state as one point alongside another, but forms both the past and the present states into an organic whole, as happens when we recall notes of a tune melting, so to speak, into one another….We can thus conceive of succession without distinction, and think of it as a mutual penetration, an interconnexion and organisation of

[14] For Bergson's famous description of melting sugar crystals, see *Creative Evolution* (London: Macmillan, 1922), 10.

[15] McLure, Philosophy of Time, 14.

[16] Henri Bergson, *Time and Free Will, an Essay on the Immediate Data of Consciousness* (London; New York: S. Sonnenschein & Co.; Macmillan Co., 1910), 228.

[17] Deleuze, *Bergsonism*, 58.

elements, each one of which represents the whole, and cannot be extinguished or isolated from it except by abstract thought.[18]

The difficulty for Bergson was precisely this human perceptual propensity towards abstract thought: the compulsion to 'divide' experience into isolated chunks and instantaneous moments, like the individuated pearls on a string.[19] The former was consistent with popular empirical models of 'psychological time' whereby human consciousness was thought to comprise a sequence of discrete moments from which the human subject cognitively 'derived' or deduced time's passage. According to the rational empiricists, time was equivalent to moving one's hand along a textured surface and feeling a sequence of sensations that could be easily reversed by moving this hand in the opposite direction.[20] But for Bergson, the idea that perception ran back and forth along a single experiential 'track' could not account for the indiscernible and dynamic rhythm of time in experience.

Bergson's great complaint was that in following the Kantian tradition, metaphysics had erroneously mistaken the qualities of time for quantities of space.[21] While Kant sought to 'represent the temporal sequence through a line progressing to infinity,'[22] Bergson countered that 'pure time' was never divided, chopped up and evenly distributed as though it conformed to a Euclidean spatial geometry. This 'erroneous' spatialisation of time will be discussed shortly, suffice it say here that Bergsonian *durée* was an attempt to consider time outside of quantification—to

[18] Bergson, *Time and Free Will*, 100-101.
[19] Ibid., 90.
[20] Ibid., 99-100.
[21] Ibid., 233-34.
[22] As I discussed in Chapter Seven, Kant adopted the Newtonian mathematical description of an 'absolute time' distributed along an infinite continuum. See Kant, *Critique of Pure Reason*, 163.

appreciate the dynamism of time as a 'succession without distinction' and a duration stripped of the mechanised divisions of the modern industrial timescale.

Milk and marble: Wolfgang Laib

Bergson's 'indiscernible' time of *durée* is critical to appreciating the temporal qualities of Wolfgang Laib's sculptures and installations. While Laib's sculptures have been celebrated for their seemingly unadorned material 'presence,' I argue that recognising their variable material *durations* offers a more sophisticated understanding of their aesthetic significance. Consisting of one or two basic material substances such as beeswax, pollen, brass or granite, Laib's works offer a simple, 'bare-bones' encounter with a set of material processes. In the early 1970s, Laib began his well-known series of 'Milk Stones' (Fig. 3.1) comprising a simple white marble slab onto which a pool of store-bought cow's milk is carefully poured. This block of marble has been patiently sanded to form a subtle concave surface. After the milk is poured, a finger is run around the edges of the block breaking its liquid skin and 'smearing' any distinction between white marble and white milk. Prone to occasional rippling eddies, this meeting of marble and milk presents a beautifully monochromatic surface of white whose fragile liquid properties gradually evaporate throughout the day.

It might be tempting to appreciate Laib's sculptures as a 'pure' encounter with simple material properties that are free of worldly associations, or as one critic suggested, 'we feel the presence of these substances—and we relate to them immediately without questioning their meaning.'[23] Nonetheless, Laib acknowledges that these works cannot be thought of as entirely 'uncorrupted' experiences of matter; that

[23] Peter Lodermeyer, 'Time—Space—Existence: A Conversation with Wolfgang Laib,' *Sculpture* 27, no. 2 (March 2008), 27.

his materials, as he states, are never free of the 'symbolisms and meanings that might be connected to them.'[24] Rather than insisting on the 'pure presence' of Laib's sculptures, I suggest that their unique temporality is drawn instead from different material rhythms of duration—rhythms that expressly refrain from the quantification of time. One of the notable aspects of Laib's Milk Stones is the near-complete absence of the 'accoutrements' of measured time: it is as though the smearing of marble and milk has metaphorically smudged the spatialised divisions of duration, of seconds, minutes and hours.

Instead, the temporal 'logic' of these works is built on a dialogue between perishability and endurance: the solid permanence of marble meeting the ephemeral qualities of milk. While the artist's own temporally laborious effort clings to the indented marble like a virtual residue, the viewer's own embodied encounter with its milk surface contributes to its gradual expiration. Just like Hans Haacke's *Condensation Cube* (1963-65), the evaporation of milk in Laib's work underscores the impact of a warm human body on its surrounding atmosphere. The past, present and future intermingle as much as the warm durations of the body coalesce with the cold durations of milk and marble. In this respect, it is not the 'presence' of a given substance, so much as the particular rhythm of its endurance that becomes significant. Through foregrounding the interrelated rhythms of solid marble, ephemeral milk and embodied subject, Laib's work could be said to realise Bergsonian *durée* in conceiving of 'succession without distinction' through a temporal 'organisation of elements, each one of which represents the whole.'[25]

[24] Wolfgang Laib quoted in Lodermeyer's 'Time—Space—Existence,' 28.
[25] Bergson, *Time and Free Will*, 101.

Figure 3.1: Wolfgang Laib, *Milk Stone*, 1987/1988.

The problem with space

It is important to recognise that the qualitative time of Bergsonian *durée*—and its adherence in the rhythmic durations of Laib's milk stones—contributes to a wider philosophical project that resists the subjugation of the dynamic time of becoming by the determinist scientific practices of the Enlightenment. As the science historian Milič Čapek writes, Bergson's concept of time presented a counterpoint to the forms of scientific determinism that developed in the wake of Newton's *Principia* and were *not* entirely abandoned with the transformations of Einsteinian physics. This 'spatialised' vision of determinist science was most famously posited by the eighteenth-century mathematician and physicist Pierre-Simon Laplace who conceived of a universe composed of discrete particles and entirely knowable forces: a 'permanence of

corpuscles,' that could be enumerated by a single unifying theory of matter.[26] Laplace called for a form of rational intelligence that,

> at a given instant, will know all the forces with which nature is animated and the respective situation of the beings which comprise it, if moreover it is vast enough to submit these data to analysis, will embrace in one formula the motions of the largest bodies as well as the lightest atom: nothing will be for it uncertain, and the future, like the past, will be present to its eyes.[27]

The problem for Bergson was that this static, corpuscular understanding of the universe ultimately constrained the free will of the human subject by eliminating the dynamic uncertainty of an unknowable future.[28] While Laplace's determinism was transformed with the scientific developments of the twentieth century, Einsteinian physics still retained its motivation to identify invariant physical laws that would provide a solid scientific base from which to make accurate future-oriented predictions.

In this respect, Čapek argues that Hermann Minkowski's geometrically conceived spacetime continuum ultimately maintains an emphasis on spatial quantification over temporal dynamism and becoming.[29]According to Minkowski's model, Einsteinian spacetime is composed of mathematically conceived 'point-instants' that are 'spatial' (in Bergsonian terms) in as much as they consist of units which can be infinitely divided and juxtaposed. For Čapek, this geometric vision of time does not jibe with the human experience of a heterogeneous and continually fluctuating timescale. He suggests that time does not appear in experience like a slivered foliation of the spacetime continuum,

[26] Čapek, *Bergson's Theory*, 307.
[27] Pierre-Simon Laplace, Introduction à la théories des analytique probalitités (Oeuvres complétes) VII, (Paris, 1886), vi. Quoted in Čapek, Bergson's Theory, 305-306.
[28] Bergson, *Time and Free Will*, 74.
[29] Čapek, *Bergson's Theory*, 310.

rather it obtains a certain 'thickness' which cannot be reduced to a brief 'point-instant.'[30]

Čapek proposes that Bergson's philosophy of *durée*—specifically his dynamic understanding of matter—actually presented a metaphysical foreshadowing of the 'indeterminacy' of particle behaviours in quantum mechanics.[31] Crucially, the determinism that still underpinned Einstein's 'classical mechanics' did not entirely survive the mid-century quantum experiments of physicists such as Niels Bohr and Werner Heisenberg. The summation of Bohr and Heisenberg's quantum analyses, what is roughly known as the 'Copenhagen Interpretation,' suggests that a quantum particle cannot be said to exist in a determinate state—an absolute 'here and now'—but may obtain different states 'simultaneously.' A 'quantic entity' might take the form of an individuated particle or a collective wave, but this formation only obtains through observation, not through maintaining a fixed position in the solid chronologies of time and space. As the philosopher of science Karan Barad has remarked:

> It's not that the experimenter changes a past that had already been present or that atoms fall in line with a new future simply by erasing information. The point is that the past was never simply there to begin with and the future is not simply what will unfold.[32]

It is the fundamental indeterminacy of these particle behaviours that Einstein famously struggled to accept.[33] Čapek, along with a number of theorists such as Timothy Murphy, suggests that Bergson's much earlier metaphysics of *durée* enjoyed an affinity

[30] Ibid., 302.
[31] Ibid., 320.
[32] Karen Michelle Barad, Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning (Durham: Duke University Press, 2007), 315.
[33] Barad's important discussion of quantum entanglement and Einstein's incredulous 'spooky-at-a-distance' response is only lightly glossed here and only in relation to the subject of time. For a broader discussion, see Barad *Meeting the Universe Halfway*, 317-322.

with this 'spooky' quantum indeterminacy because it also refused to 'fix' both time and matter to the mechanistic scales of classical physics. Murphy writes, 'Bohr's refutation of determinism in the quantum realm repeats key aspects of Bergson's defence of free will as the impossibility of breaking up a process of movement or change in duration.'[34] The significance of this quantum affinity is not that science eventually marched in-step with Bergsonian *durée*—both Murphy and Čapek resist this easy consonance of ideas—but that the concern for 'indeterminacy' refuses to simply treat time as a spatialised quantity.

Vija Celmins: doubling duration

Vija Celmins's carefully detailed drawing *Untitled (Desert-Galaxy)* (1974) (Fig. 3.2) offers a particularly complex engagement with different times that are shaped by both determinist scientific practices and by the variable rhythms of artistic labour. This work consists of two detailed black and white images that are based on photographs. The image on the left 'looks up' to the multitude of stars in the night sky, while the image on the right 'looks down' to the dusty, cracked landscape of the Californian desert. The photograph of the Coma Berenices constellation has been sourced from a general reference book, while the picture of the desert floor is one that the artist took herself during one of many trips to the Mojave Desert.

In the astronomical image, Celmins's diligently drawn corpuscular pinpoints of light suggest the mechanistic worldview of the determinist sciences, whereby the careful and systematic observation of astral and planetary movements provided the

[34] Timothy S. Murphy, 'Beneath Relativity: Bergson and Bohm on Absolute Time,' in *The New Bergson*, ed. John Mullarkey (Manchester: Manchester University Press, 1999), 73.

groundwork for Newton's unified theory of forces. In another etched drawing, *Constellation - Uccello* (1983), Celmins juxtaposes a similar image of the stars with Paolo Uccello's *Perspective Study of a Chalice* (c.1430–40). Alongside the mathematically conceived workings of Uccello's perspectival study, Celmins's field of stars suggests the temporal-spatial certitude of the Enlightenment: a world of rational forces, known properties and physical laws that could predict and therefore control the wayward vicissitudes of natural phenomena. Celmins states:

> I have always liked the scientific image because it is sort of anonymous. Often the artist…has been a kind of machine [for the image]. I like the idea that I can relive that image and put it in a human context. And I would like you to be able to scrutinise it and relive the making of it, the way I have been doing for a long time.[35]

In *Untitled (Desert-Galaxy)* this expanse of stars is juxtaposed with an image of the desert floor that has been rendered in a laborious accumulation of graphite pencil marks on a smooth gesso-primed paper surface. Like Laib's painstaking sanding of marble milk stones, Celmins's drawings of photographs are often worked-on for several months or even years at a time, thereby developing a temporal tension between the durations of artistic labour and the near-instantaneous click of the camera shutter. Celmins describes the relationship between drawing and photography thus: 'the photograph always seemed to me kind of dead…I crawl over the photograph like an ant. And I document my crawling on another surface.'[36]

The 'photographic' nature of these pictures is suggested by the landscape photo-format of the desert image that is situated slightly off-centre, suggesting a printed

[35] Vija Celmins quoted 'TateShots: ARTIST ROOMS, Vija Celmins,' *Tate Online*, accessed 1 September, 2014, http://www.tate.org.uk/context-comment/video/tateshots-artist-rooms-vija-celmins.

[36] Vija Celmins in Susan Sollins, *Art: 21: Art in the Twenty-First Century*, Vol. 2 (New York: Harry N. Abrams, 2003), 168.

photograph that has been positioned or nudged by hand. This composition solicits a continual visual comparison; the viewer's eyes are compelled to glance back and forth between a close-cropped image of the night's sky and a marginally tilted, and therefore vaguely perspectival, photograph of the textured desert ground. The darting of the eyes between these images replaces a virtual body that might look up the stars and down to the desert floor. Further, this comparative movement actually reflects Celmins's own practice of glancing between the reference photograph and its drawing, but is also oddly akin to a camera lens coming in and out of focus. This optical dance between 'up and down' and 'in and out,' shares some affinity with Antliff's discussion of the rhythms of Bergsonian *durée* in the reception of Matisse's works: a rhythmic visual pulse that invites extensions of time and duration into the flat, static surface of a painting.

I suggest that this optical frisson of duration is further complicated by the subject matter of Celmins's photographs. While the desert floor might suggest the ancient temporalities of Nancy Holt and Robert Smithson's earthworks, the images of stars present a contraction of billion-year old timescales that complicate the chronological ordering of mechanistic time. The stars emphasise the fact that visual experience is never immediately present but always becoming 'past': the light from the stars nearest the earth would take about eight minutes to reach human eyes—and four years for the Alpha Centauri triple-star system that includes the Coma Berenices. Looking up at the night sky is akin to looking into several 'pasts' at once: the stars are not arranged in fixed chronological order like a stack paper, but exist simultaneously within a single field of vision.

In this respect, Celmins's drawings suggest one way in which pictorial compositions might refuse the strictures of chronology by collapsing different timescales into one another. Her sculptural piece *To Fix the Image in Memory* (1977-82)

(Fig. 3.3) also functions to disassemble the strictures of linear chronologies. This work consists of eleven rocks that have been cast in bronze and painted to resemble one another. Celmins collected the original rocks during walking trips in New Mexico and often exhibits their replica casts side by side, soliciting a constant visual comparison of 'rock doubles' that are akin to the optical dance of 'up and down' in her pictorial works. Like Laib's Milk Stones, Celmins's rocks draw into proximity the lengthy timescales of hard, sedimentary minerals with the repetitions of aesthetic labour—the artist's hand carefully attending to the nuanced details of their *trompe-l'œil* representation.

Expanding on the photographic themes of the earlier works discussed here, the title of Celmins's collection of stones might be thought of as a reference to photography's fictitious capacity to 'fix' the past in an image that persists in the present: the memories of a journey on foot lodged in a small rock that is pocketed along the way. But Celmins's doubling of 'rock images' would also seem to render this photographic function irrelevant, or at least complicate its simplistic 're-presentation' of the 'past in the present.'[37] Here, the viewer's immediate perception shuttles back and forth between a doubling of memories and a doubling of durations. Ultimately, the doubled object or the repetitious image suspends the singular linearity of temporal succession: time is never a sequence of wholly unique points along a track, or a series of photographic snapshots, each one neatly following the next.[38] My broader argument is that Celmins's laborious replications remain aesthetically compelling because they generate a play of

[37] Roland Barthes's much more sophisticated discussion of the photographic instantiation of 'the past' is discussed in Chapter Ten in relation to the work of photographer and filmmaker David Claerbout.

[38] The artist Fiona Connor has also made a series of large-scale sculptural works that involve the laborious *trompe-l'œil* replication of visual details. Works such as *Notes on the half page* (2009) involved the replication of increasingly obsolete newspaper stands, while *Reading the map while driving* (2011) presented a fabricated collection of visitor seating exhibited alongside their 'originals.' While Connor's works are often discussed in terms of their augmentation of familiar spatial structures, one must also recognise 'their doubling' as a temporal aesthetic strategy that holds the durations of making and the durations of viewership in tension.

visual comparison that confuses the familiar chronologies of clock-time: the time of modern capitalism and the time of classical mechanistic sciences.

In this respect, *To Fix the Image in Memory* presents a complex instantiation of different rhythms of duration, giving rise to a set of temporal questions and problems that are not addressed here, but pursued in subsequent pages: How do the temporal phases of the past, present and future 'appear' in experience? What is the role of human memory in the perception of time? How do different material processes contribute to the sensations of duration? How have the variable media and modalities of contemporary art shaped and challenged these frameworks of time? These 'problems' of experienced time—of *lived* durations—are the subjects of the following chapters.

Figure 3.2: Vija Celmins, *Untitled (Desert-Galaxy)*, 1974.

Figure 3.3: Vija Celmins, *To Fix the Image in Memory*, 1977-82.

CHAPTER TEN

Husserl's Phenomenology

Introduction

Edmund Husserl's phenomenology of internal time-consciousness remains the twentieth century's most sustained philosophical inquiry into the fine-grained 'architecture' of human temporal perception.[1] Husserl's thought presents an important methodological framework for discussing the 'lived' experience of time outside of simple chronological successions. In his opus, *On the Phenomenology of the Consciousness of Internal Time (1893-1917),* Husserl developed an influential 'retentional' account of temporal experience that rejected the naïve empirical model of temporal perception as a uniform succession of chronological instants, focusing instead on how residual fragments of the past might be 'retained' within the scope of the immediate 'present.' Alongside the broader philosophical ambitions of his phenomenological project, Husserl's more sophisticated understanding of perceptual experience has been influential for a number of cognitive neuroscientists such as Francisco Varela who similarly rejected 'computational' models of neurological perception. In this respect, Husserl's phenomenology is engaged in this chapter as a means of discussing the incremental 'shades' of temporality that are important to the photographic and filmic work of the artist David Claerbout.

[1] Husserl's seminal work is *On the Phenomenology of the Consciousness of Internal Time (1893-1917)* (Dordrecht; Boston: Kluwer Academic Publishers, 1990).

Nonetheless, Husserl's phenomenology of internal time-consciousness is not without its difficulties. This vertiginously complex philosophy appears to propose a form of temporality that underscores *all* conscious experiences as a primal, pre-reflective flow that unifies the act of human 'experiencing.'[2] In this respect, Husserl firmly establishes all possible 'times' within the purview of a lived human experience. The implication is that time is not simply external to human consciousness as a phenomenon that exists 'out there' ready to be experienced, but emerges as an intrinsic dimension of 'living' itself—something that the 'speculative realist' philosophies discussed in Part Four of this thesis will pointedly contest. As a philosophical methodology, phenomenology is distinctive in that it draws a 'bracket' around experience thereby excluding any transcendental, ideological or categorical claims to 'explaining' its significance. This was important for many minimalist sculptural practices of the 1960s that attended to the embodied experience of a viewer in space and time.[3] More specifically, Maurice Merleau-Ponty's pivotal work *The Phenomenology of Perception* (1945) contested the prescriptive Cartesian distinction between body and mind, thereby realising the importance of a viewer's multi-sensorial perception of an artwork, specifically those that expanded in space.[4]

Although Husserlian phenomenology ably overcomes the mind-body dualism by insisting on the lived experience of time, it may also risk 'essentialising' this experience as a primordial human phenomenon: a basic time-consciousness that is common to all 'consciousnesses' regardless of individual difference. Works such as Faith Wilding's

[2] For a thorough overview of the Husserlian 'constitution' of time in immediate phenomenal experience, see John B. Brough, 'Notes on the Absolute Time-Constituting Flow of Consciousness,' in *New Contributions to Husserlian Phenomenology of Time*, eds. Dieter Lohmar and Ichirō Yamaguchi (Dordrecht; London: Springer, 2010), 21-49.

[3] In Chapter One of the literature review, I explained how both Husserl and Merleau-Ponty's thought shaped some of Krauss's arguments in *Passages in Modern Sculpture*.

[4] See Amanda Boetzkes's useful overview of embodied phenomenology and the spatially expansive art practices of the 1960s, 'Phenomenology and Interpretation Beyond the Flesh',' *Art History* 32, no. 4 (2009), 690-711.

influential performance *Waiting* (1972) are important here because they recognise that seemingly 'pure' experiences of time such as waiting, pause, and delay are ineludibly inscribed by the politics of gender. While this chapter discusses how many recent feminist theorists have broadly appealed to phenomenology as a means of actually emphasising the divergent experiences of different bodies 'in time,' Husserl's specific thought is met with cautious discussion in the following pages.

Retentional time-consciousness

The 'retentional model'[5] of time consciousness is perhaps Husserl's greatest contribution to the twentieth century philosophy of time. Like Bergson, Husserl refuses to treat perceptual experience as a chain of discrete instances or punctual 'now moments' that follow a strictly chronological sequence. His alternative phenomenological position is that the immediate experience of the present contains both a residue of the past and anticipations of the future. The instantaneous 'now' is thereby expanded to encompass a brief span of time. While Michael Fried and Clement Greenberg may have valorised the instantaneous and 'durationless' encounter of a modernist painting, the works discussed in this chapter variously solicit this 'thickened' duration. These works do not gain from the empirical model of perception where experience is seen to proceed from one unitary moment of conscious 'enlightenment' to the next. Martin Creed's infamous work *No. 227: The lights going on and off* (2000), where the lights of a bare gallery room are switched on and off in intervals of five

[5] This is Barry Dainton's description of the model of time-perception proposed by philosophers and proto-psychologists such as E.R. Clay, William James and Franz Brentano. See Dainton, 'Temporal Consciousness,' *The Stanford Encyclopedia of Philosophy* (Fall 2010), accessed 6 June, 2012, http://plato.stanford.edu/archives/fall2010/entries/consciousness-temporal.

seconds, might be seen as parody of this empirical understanding of temporal experience. Creed's uniform 'flashes' of illumination satirically suggest that the conscious *visual* experience of the viewer might be treated like an 'on/off switch'—a mechanised understanding of perception that cannot hope to encompass the complex shades of all human experiences.

This simplistic 'on/off' model of time-perception fails to account for what Barry Dainton describes as the 'paradox of temporal awareness' in the historical philosophical explorations of time: the idea that while immediate experience might appear momentary and ephemeral, it must also, somehow, extend beyond the confines of the instant. Barry Dainton writes:

> We can remember the past and anticipate the future, but we are only directly aware of what is present—or so it is natural to say and suppose. But the present, strictly speaking, is momentary. So if our awareness is confined to the present, our awareness must itself lack temporal depth. Hence we are led swiftly to the conclusion that our direct awareness cannot possibly encompass phenomena possessing temporal extension. We are thus confronted with a conundrum: it seems our awareness must extend over time, but it seems it can't.[6]

In the late nineteenth century the influential proto-psychologist William James developed a notable response to this temporal paradox. He suggested that the immediate now moment was 'specious' in as much as it was always sinking into the past. James adopted E.R. Clay's earlier expression of the idea that immediate awareness is never exclusively 'present' but consists of a span of time that sinks backwards. James famously described the 'specious present' as:

> a saddle-back, with a certain breadth of its own on which we sit perched, and from which we look in two directions into time. The unit of composition of our

[6] Ibid.

> perception of time is a duration, with a bow and a stern, as it were—a rearward—and a forward-looking end.[7]

Although Husserl reportedly owned a well-thumbed copy of James's influential work *The Principles of Psychology* (1890), his own scholarship makes no mention of a 'specious present.'[8] Husserl's tripartite structure of 'time consciousness' presents a much more precise understanding of how immediate perception both trails back into the past and reaches forward into the future. According to Husserl, perception is comprised of the interrelations of three 'impressions': an immediate 'primal impression'; a 'retention' that supplements the primal impression with an awareness of what has just past; and a 'protentional' aspect that orientates this primal impression towards the future. Like Bergson, Husserl also looked to music to explore this interrelated structure. The philosophical conclusion is that immediate experience, however momentary and ephemeral, must somehow expand both into the past and the future in order to maintain the smooth continuity of a musical note. While the empirical model might suggest that this single tone will 'appear' in experience as a staccato sequence of blinking instants, Husserl writes,

> I hear it as now, and the now that immediately precedes it changes into a past. Therefore at any given time I hear only the actually present phase of the tone, and…the whole enduring tone is constituted in an act-continuum that is in part memory [retention], in smallest punctual part perception and in further part expectation.[9]

The contemporary Husserlian phenomenologist Dan Zavahi, whose account I lean on here, describes this retentional continuum using the phrase '*protention-primal*

[7] William James, *The Principles of Psychology, Vol. I* (New York, NY: Henry Holt and Co, Inc, 1890), 609.

[8] Dainton, 'Temporal Consciousness.'

[9] Husserl, *On the Phenomenology of the Consciousness of Internal Time*, 25.

impression-retention.'[10] On the written page, this description aims to maintain the crucial premise that each of Husserl's phases exist in a synchronous relationship. The protention-primal impression-retention does *not* follow a chronological succession, but each of its impressional phases is said to overlap and encase one another. This is Husserl's answer to the unity of conscious experience—the fact that the human perception of longitudinal events such as musical melodies and flying birds is not fractured by a succession of singular moments of awareness. It might be tempting to think of this structure as a sequence of past, present and future phases—like a video of a flying bird that might be played and rewound several times over—but Husserl argues that experience simply does not work like this, that the present moment is always inflected with past and future impressions.

The temporal fringe: now and then

Like Bergsonian *durée*, Husserl's tripartite structure of time-consciousness challenges the strict linearity of temporal perception: the premise that consciousness moves along a singular track from one chronological moment to the next. While some have criticised the seemingly linear expression of Husserl's 'protention-primal impression-retention,'[11] the very premise of a retentional feature of conscious experience confounds the empirical assumption that the past is always lost to the present moment. In this respect, Husserl's retention is not simply a 'memory' in the empirical sense of a mental evocation of a past event retrieved from the 'memory-

[10] Ibid., 321.

[11] McLure explains that this spatial criticism largely arises from the 'vectoral' diagrams that Husserl used to explain the progression of his tripartite structure. He writes, 'Two words often used in criticism of Husserl's time-consciousness are 'linear' and 'homogeneous', both of which have exclusively spatial connotations in Bergson's vocabulary. I think the common view that Husserl's time is spatialized is a mistake induced by his diagrams.' See McLure, *Philosophy of Time*, 74.

banks.' Crucially, Husserl distinguishes between wholesale 're-presentations' of the past and a residual intuition of 'pastness.'[12] The retention is the perceptual 'inkling' of the just-past that always accompanies the 'immediate' experience of the present. The cognitive neuroscientist Francisco Varela, whose research has drawn on Husserlian phenomenology, writes,

> time in experience presents itself not only as linear but also as having a complex texture (evidence that we are not dealing with a 'knife-edge' present), a texture that dominates our existence to an important degree. In a first approximation this texture can be described as follows: There is always a center, the now moment with a focused intentional content (say, this room with my computer in front of me on which the letters I am typing are highlighted). This center is bounded by a horizon or fringe that is already past (I still hold the beginning of the sentence I just wrote), and it projects toward an intended next moment (this writing session is still unfinished). These horizons are mobile: this very moment which was present (and hence was not merely described, but lived as such) slips toward an immediately past present.[13]

For neuroscientists such as Varela, phenomenology offered a means of exploring the greater 'textures' of a situated and embodied cognitive experience. His research sought to overcome the still-prevalent Cartesian distinction between an externalised body and an internalised mind by rejecting the 'brain-in-a-vat' model—the premise that the mind was akin to a computer processing data with little concern for the body.[14] While this model tended to emphasise neuronal processes as a discrete sequential stream of activity, Varela drew on Husserl's tripartite structure of time-consciousness in identifying a non-linear organisation of neuronal assemblies that contribute to the

[12] Husserl, *On the Phenomenology of the Consciousness of Internal Time*, 37-38.

[13] Francisco J. Varela 'The Specious Present: A Neurophenomenology of Time Consciousness,' in *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science*, ed. Jean Petitot (Stanford, Calif.: Stanford University Press, 1999), 268.

[14] Shaun Gallagher and Dan Zahavi, *The Phenomenological Mind* (London; New York: Routledge, 2012), 5.

experience of time.[15] Varela's cognitive research sought to account for the 'textures' of temporal experience as a 'lived' phenomenon whose conscious 'horizons' were rendered mobile and dynamic. Husserl's concept of the 'temporal fringe' of experience refuses to observe a strict distinction between the experience of 'now' and the remembrance of 'then.' It this 'fringe' of temporal experience that David Claerbout films each seek to inhabit.

David Claerbout: the residual *punctum*

David Claerbout's filmic works explore the residual trace of the past in the immediate perception of the present: the Husserlian 'inkling' of pastness that accompanies conscious experience. Claerbout brings the viewer's experience of time to prominence through a composite integration of dynamic film footage and static photographic images. His notable work *Shadow Piece* (2007) (Fig. 3.4) is a black and white film that consists of a static shot of the entranceway to a mid-century modernist building that boasts a large glass entrance, spiral staircase and expansive marble floor. At first glance, Claerbout's projected work looks like a still photograph, but its imagistic stasis is soon disrupted by a series of people who walk by the glass entrance. This scene is shot at a vantage point within the building, at the top of its spiral staircase. In adopting this perspective, the viewer looks outward to various figures who peer in, perhaps hoping to enter its spacious lobby. Claerbout's carefully arranged composition suggests that the completely still space of the interior 'belongs' to the viewer, while the dynamic exterior space is given over to these transitory figures. These mobile bodies

[15] Ibid. 80.

cast long rippling shadows across the marble floor of lobby, thereby disturbing its cool photographic stillness.

In her discussion of Mark Lewis's comparable film works, the art historian Christine Ross suggests that the aesthetic attributes of movement and stillness can be associated with different representational traditions. In the literature review of this thesis, I discussed Ross's distinctions between the photographic 'freeze,' pictorial 'stillness' and filmic 'movement'—each of which is variously engaged in Lewis's works.[16] Here, this interplay between stillness and movement is said to resist the forward momentum of modernity, contributing to a much wider 'temporal turn' in contemporary aesthetics that seeks to undermine the relentless progressive forces of the modern regime of time.

While Claerbout's *Shadow Piece* stages a similar dialogue between stillness and movement, I suggest that this temporal binary might benefit from the Husserlian understanding of retentional time. The 'freeze' suggests an erroneously empirical model of time whereby the lightning-fast click of a camera creates a hermitically sealed image of the past that is then made 'present.' Claerbout realises that a certain tension exists within the stilled image where the viewer's own continuous perception of its aesthetic components always 'continues on.' He states:

> As often in my work, duration is an important tool for altering what we see, unlocking the flow of time from a fixed situation. Despite the fragmentation there is also continuity, or is it rather that despite continuity, everything is fragmented?[17]

[16] See my discussion of Ross's analyses in the literature review; Ross, *The Past is the Present*, 119 and 128-136.

[17] David Claerbout, *David Claerbout: The Shape of Time* (Zürich: JRP Ringier, 2008), 134.

For Timothy Barker, whose study *Time and the Digital* was also discussed in the literature review, Claerbout's work engages Roland Barthes's important concept of the photographic *punctum.* Like Vija Celmins's drawing, Claerbout has based *Shadow Piece* on an archival photograph and in Barthes's well-known work *Camera Lucinda* he describes how such historical photographs always involve a ' "prick" of pastness: a 'lacerating emphasis on the *noeme* ("that-has-been").'[18] While the historical content of the image is known as the *studium*—Barthes famously uses the example of a photograph of the Lewis Payne prior to his 1865 hanging for an assassination attempt at the then American Secretary of State—he suggests that the prick of the punctum is the knowledge that this person is already dead. Barthes publishes this photograph with the caption: ' "He is *dead* and he is *going to die…"* .'[19] In encountering this photograph, Barthes describes a complex, non-linear temporality: Payne's death is both an impending fate and fatality that has already occurred. The chilling prick of the punctum is the photographic recognition of the residence of the past in the present moment of encounter. Claerbout's *Shadow Piece* is particularly compelling in this respect because it emphasises the *residual* punctum of time by introducing movement into a seemingly still photographic image. Claerbout's aesthetic organisation of photographic movement and stillness works to foreground the residual inkling of pastness that always accompanies the experience of a specious present.

[18] Roland Barthes, *Camera Lucida: Reflections on Photography*, trans. Robert Howard (New York: Hill and Wang, 1981), 94-97.

[19] My emphasis, ibid., 95.

Figure 3.4: David Claerbout, *Shadow Piece*, 2007.

The problem with phenomenology

While works such as Claerbout's suggest that Husserl's close-analysis of the retentional framework of perception is important for certain aesthetic structures, the broader difficulty with the phenomenological 'bracket' is that it presumes a basic consciousness that underpins all human experiences. This bracketing of experience risks overlooking the particularities and socio-political *inequities* of gender, sexuality, ethnicity and class. As the art critic Daniel Birnbaum suggests, one might argue that phenomenology 'not only offers us a box of useful descriptive tools, but also provides a path for reflections that break with its own fundamental conditions of possibility.'[20] To put it bluntly, both phenomenology and the neuroscience discussed in the following chapter attempt to look at 'time perception' as a basic feature of human functional experience. The difficulty might be that this basic experience 'defaults' to the position

[20] Birnbaum, *Chronology*, 28.

traditionally occupied by the historically ascendant heteronormative white male subject, thereby denying the differences of experience obtained by those who have not traditionally shared this privilege: women, queer cultures, indigenous peoples, non-white citizens and non-cis identifiers.

One option here would be to pursue the burgeoning field of feminist phenomenology that considers the relationship between gender and embodied experience.[21] The gender theorist Linda Fisher offers a useful overview of the issues at stake. On the one hand, Fisher surmises that phenomenology has been associated with a form of essentialist doctrine, but on the other hand a number of recent discourses have sought to describe sexual difference through the phenomenology of embodied experience, particularly the experience of time.[22] For instance, the editors of a recent anthology of feminist phenomenologies and time state that:

> Experiences are gendered insofar as they are bound to the body and to the world. Experiences, as phenomenologists have clearly shown, are always temporal, and, as feminist theorists have argued, experiences are also gendered; thus, the interrelation between time and gender must be examined. The difficulty of thematizing this relation lies in the fact that neither time nor gender is 'something' that can simply be thematized as something…. The gender, the

[21] Jacque Derrida also offers a significant critique of Husserlian time-consciousness. He suggests that Husserl's phenomenology posits a primordial consciousness whereby the subject enjoys an absolute intimacy with the present 'now' moment. But for Derrida, this seemingly authentic present is not consistent with Husserl's own retentional structure of time consciousness. Following Derrida, the retention is not simply a residue of the past in the present, but an element of *non-presence*: a radical alterity that is intrinsic to the seeming authenticity of the now moment. Within the now, there is always something that is not now, Derrida writes: 'we receive the other into the identity-with-itself of the Augenblick [instant]: non-presence and non-evidence into the wink of the instant; and it closes the eye.' This contributes to Derrida's broader philosophical argument that the self is never unified, but always invites division in as much as its auto-affective consideration embraces otherness. See Jacques Derrida, *Speech and Phenomena, and Other Essays on Husserl's Theory of Signs* (Evanston: Northwestern University Press, 1973), 65.

[22] Linda Fisher's introduction to the collection of essays *Feminist Phenomenology* offers an invaluable overview of relationship between feminist discourses and the phenomenology of Husserl and Merleau-Ponty. See 'Introduction: Feminist Phenomenology' in *Feminist Phenomenology* (Dordrecht; Boston: Kluwer Academic Publishers, 2000), 1-15. More recently, Helen Fielding, Dorothea Olkowski, and Christina Schües have edited a volume of texts that attend specifically to questions of gendered experiences and time. See, *Time in Feminist Phenomenology*, eds. Helen Fielding, Dorothea Olkowski and Christina Schües (Bloomington: Indiana University Press, 2011).

> woman, and the man are concepts that are as senseless as saying the time. Thus, for both we might pose the same kind of question: How does time show itself? How does gender show itself? And: how does gender show itself in relation to time?[23]

Faith Wilding's performance *Waiting* (Fig. 3.5) makes a crucial contribution to this discussion. The original performance of Wilding's work took place in Womanhouse in Los Angeles in 1972 and involved artist reading a monologue that described the prospective cycle of a woman's life from birth to death. Her dialogue was structured by the repetition of the phrase 'waiting.' An excerpt reads: '*Waiting to lose weight. Waiting for the first gray hair. Waiting for menopause. Waiting to grow wise.*'[24] Wilding performed this piece while sitting on a stool and gently rocking back and forth.

Wilding's performance describes a woman's life that is entirely structured by time, specifically by waiting, hiatus and deferral. The fairly heteronormative events and activities that are said to be waited upon range from specific to abstract: the nameless protagonist is waiting for her children to come home from school—a specific event—but she is also waiting for such notional things as to grow wise or to find fulfilment. The message is clear: The domestic life of the prototypical woman that is described by Wilding *is* waiting because it is always deferentially relative to male existence: it requires a man or a child to be active 'in time.'

Nonetheless, Wilding's work is more than a 'representation' of relentless gendered passivity. Time is not simply something that is perceived at the level of 'basic' human consciousness, but is a dimension that is structured by extant social and political systems—something that Mierle Laderman Ukeles's maintenance performance series

[23] Ibid., 7-8.
[24] See 'Waiting: A Poem by Faith Wilding' published in *Perform, Repeat, Record: Live Art in History*, eds. Amelia Jones and Adrian Heathfield (Bristol; Chicago: Intellect, 2012), 255-258.

realised in relation to women's 'invisible' labour. What is interesting in Wilding's work is that a poem or performance about waiting actually *instantiates* a period of delay in its very aesthetic constitution. Wilding's work takes fifteen minutes to perform and during this period of time the audience is treated to a state of constant deferral: she implicates the viewer—female or male—in her own experience of waiting. Wilding addresses time thematically as a socially prescribed value, but she also obliges viewers to experience this phenomenon as extensive, embodied and enduring. Line after line, the audience is asked to contemplate a mode of passive anticipation and, in this respect, Wilding's performance takes '*our*' time—it instigates a form of stasis that makes us wait.

Like Claerbout's *Shadow Piece*, *Waiting* puts into play a specific temporal 'aesthetic strategy': the durations of stillness, suspension, or delay obliges viewers or audience members to consider their own experience of time as they are 'experiencing it.' Waiting *is* the distension of time in experience; the inescapable duration that swells with awareness. What Wilding recognises is that this seemingly passive time of deferral is never wholly neutral, but is always inscribed by social and political systems.

Figure 3.5: Faith Wilding, *Waiting*, 1972.

CHAPTER ELEVEN

Neuroscience and Time Perception

Introduction

This chapter surveys a selection of recent studies in cognitive time perception that aim to identify the physiological bases of human temporal experience. This relatively new transdisciplinary field of research emerged in the 1980s with the development of non-invasive brain imaging technologies[1] and encompasses branches of classical psychophysiology and contemporary cognitive neuroscience. In his indispensable survey of the most recent literature, the cognitive neuroscientist José Luis Díaz paints a particularly complex and multiplicitous picture of temporal experience and is appealed to here as a means of contesting the simplistic 'computational' models that were similarly critiqued in the previous chapter in relation to work of Francisco Varela. Díaz writes that recent studies suggest that temporal perception is not a singular cognitive mechanism that is located within a particular area of the brain, but is the product of the dynamic coordination of different neurological, biological and physiological registers.[2] He writes:

[1] These include magnetic resonance imaging (*f*MRI) and positron emission tomography (PET).

[2] This 'multi-modal' modelling of time perception might be contrasted with Bertrand Russell's famous distinction between a 'subjective time' that is generated by a subject's apprehension of objects that change position or take on different characteristics, and a 'physical time' that comprises the unchanging relationship between the objects themselves. In this respect, 'time perception' is generated from the comparison of different material objects in space: crudely put, this is the premise that 'I saw something here and then I saw it there, thus I can deduce that time has passed.' The difficulty is that the latter is often endorsed as the 'real' time of the physical world that is superior to the potentially 'illusory' fluctuations of human experience. See Joshua M. Mozersky 'The B-Theory in the Twentieth Century' in *A Companion to the Philosophy of Time*, eds. Heather Dyke and Adrian Bardon (Chichester, West Sussex; Malden, MA: Wiley-Blackwell 2013), 178.

> [Time] perception is peculiar and quite distinct from visual, auditory, tactile and pain perception, as it is not determined by just one sense and cannot be compared with organic sensations or perceptions, such as hunger, thirst or nausea, which are based on afferent systems and the viscera. Indeed, we do not perceive time as we do light, sound, temperature or pain, as time itself does not constitute a physical stimulus; rather, we perceive the motion of objects, processes and events occurring simultaneously or in succession.[3]

A number of contemporary artworks have attended to cognitive time perception as a complex, multifaceted phenomenon and explicitly engage the neurological structures that contribute to the viewer's sensation of time passing.[4] Dan Graham's video replay in *Time Delay* (1974)—a frequent point of reference in this thesis—is structured according to the eight-second neurological limits of short-term memory. Similarly, Tony Conrad's infamous 1965 'flicker film' and Olafur Eliasson's comparably stroboscopic work *Model for a timeless garden* (2011) engage various neurological processes to produce unexpected perceptual experiences of time and vision. Alternatively, Thomas Hirschhorn's much-discussed installation *Cavemanman* (2002) takes the form of the four chambers of the cerebral cortex, each of which is filled with an 'overwhelming' surfeit of consumerist images, objects and materials. These works stretch the cognitive perceptual capabilities of the viewer in multiple directions, thereby confounding the traditional unity of aesthetic experience. They challenge the habitual 'comfort' of the viewing subject by refusing to endorse a cohesive and unitary perception of time and space.

[3] Díaz, 'Chrono-Phenomenology,' 376.

[4] The works discussed in this chapter are interested in the cognitive neurology that specifically concerns temporal perception, while a number of other contemporary works have more broadly adopted neuroscientific technologies and experimental procedures. The notable example is Marta de Menezes's *Functional Portraits* (2002-2003) that consist of *f*MRI brain-scans of different people while they perform an activity, for instance playing the piano.

If the cognitive experience of time cannot be thought of as a unified perceptual phenomenon, then neither can the viewer's aesthetic experience be idealised as universal and 'timeless.' Although relatively nascent, the field of cognitive neuroscience is pursued in this chapter as a means of building a more sophisticated understanding of time as a multiplicitous phenomenon, referred to here as a 'polychronous' condition. The following chapter's discussion of Bergsonian multiplicity will expand this understanding of time to consider the relationship between human perceptual experience and the multiple materialities that populate the physical world.

Consciousness lagging

Benjamin's Libet's notorious experiments of 1960s and 1970s explored the temporal patterning of conscious awareness. Libet's somewhat controversial tests identified a lag in immediate conscious awareness suggesting that 'experience' was by no means a continuous, streamlined succession of perceptual states. Although artists such as Conrad and Eliasson do not explicitly reference these cognitive studies, their works similarly realise the granular boundaries of human perceptual experience through various aesthetic compositions—works that attend to the phenomenological processes of viewership.

Libet's experiments tested the stimulus responses of patients who were awake while undergoing brain surgery. These tests identified a surprising lag between the subject's conscious awareness of an electronic stimulus applied to the skin and the brain activity that corresponded to it. When a stimulus was applied, Libet noted the brain registered this sensation in a few hundredths of a second. Only *after* this period of time did the patient become consciously aware of the stimulus—one half second would

pass before they reported a sensation. The neuroscientist Antonio Damasio offers a useful description of this lag in consciousness, he writes:

> It takes time for the physical changes that constitute an event to impinge on the body and to modify the sensory receptors of an organ such as the retina. It takes time for the resulting electrochemical modifications to be transmitted as signals to the central nervous systems. It takes time to generate a neural pattern in the brain's sensory maps. Finally, it takes time to relate the neural map of the event to the neural map and image of the self….the last critical step without which the event will never become conscious.[5]

Some neurological studies suggest that the reason these microtemporal delays do not appear in conscious experience is because the brain 'antedates' certain events in relation to the different 'informational' streams it is required to process. While these studies remain inconclusive, they broadly suggest that the perception of time is supported by a particular function of the brain that works to aggregate, arrange and rearrange multiple sources of sensory information.

Not surprisingly, Libet's experiments have made a controversial contribution to debates in consciousness studies regarding the existence of human free will.[6] But aside from contesting the traditional Cartesian concept of the cogito, his experiments also go some way to determining the numerical duration of conscious experience. Libet's experiments suggest the perception of time is structured by momentary intervals and this lends some support to William James's concept of the 'specious present' as a span of consciousness that obtains a brief duration.[7] The psychologist and neuroscientist Ernst

[5] Antonio R. Damasio, 'Remembering When: A Matter of Time,' *Scientific American,* (February 2006), 41.

[6] For an overview of the philosophical implications of Libet's experiments, see the chapter 'Benjamin Libet' in Andrea E. Cavanna and Andrea Nani, *Consciousness: Theories in Neuroscience and Philosophy of Mind* (Heidelberg: Springer, 2014), 145-149.

[7] Simon Grondin, 'Timing and Time Perception: A Review of Recent Behavioral and Neuroscience Findings and Theoretical Directions,' *Attention, Perception, & Psychophysics* 72, no. 3 (2010), 564-565.

Popple has argued that this 'temporal window' has an outer limit of approximately three seconds,[8] while Libet's experiments suggest that an inner limit might be a minimum of 500 milliseconds. Crucially, the measurement of this unit of experience seems to be significant in as much as different neural functions are associated with what occurs before and after this still somewhat hazily defined threshold.

In his survey of recent time-perception literature, Simon Grondin notes that although it is somewhat arbitrary, many studies adopt a distinction between the perception of intervals below one second that are associated with 'automatic' sensory reactions and those above one second that engage the brain's wider 'cognitive resources.'[9] Similarly, Díaz writes that the human subject becomes conscious of what he calls a 'lived-present' that lasts for between of two or three seconds in which simple body movements and cognitive activities such as waving a hand or reading poetry can be established.[10] Beyond these one or two seconds of 'lived time', a very different set of neural functions relating to the processes of memory are activated in support of larger-scale temporal experiences—a subject that will be discussed shortly.

The Flicker Film

It must be acknowledged that these cognitive studies do risk describing neurological temporal systems as somehow distinct from the activities they attend to. Simply put, the neuroscientific description of experience risks positing human cognition as a 'processing unit' that is separate from other systems and durations in the world. What remains compelling here is that a number of artists such as Conrad, Eliasson and

[8] Ibid., 65.
[9] Ibid.
[10] Díaz, 'Chrono-Phenomenology,' 378.

Graham have developed works that expressly attend to the 'thresholds' of human temporal experience. Their works anchor the cognitive descriptions of neuroscience in the 'concrete' phenomenological experiences of art. Graham's *Time Delay* is directly concerned with testing the margins of immediate experience. The art historian Gregor Stemmrich describes the eponymous 'delay' in Graham's work in this way:

> The time-lag of eight seconds is the outer limit of the neurophysiological short-term memory that forms an immediate part of our present perception and affects this 'from within'. If you see your behavior eight seconds ago presented on a video monitor 'from outside' you will probably therefore not recognize the distance in time but tend to identify your current perception and current behavior with the state eight seconds earlier.[11]

Much earlier than Graham, the pioneering structuralist filmmaker Tony Conrad was similarly concerned with intervals of time that exceeded immediate human perceptual experience. His notorious film *The Flicker* (1965) (Fig. 3.6) reduces the cinematic apparatus to its basic components: a film reel of alternating black and clear frames. The rapid and varied sequence of these frames provokes a stroboscopic effect that stimulates the impressions of various colours and forms. *The Flicker* does not only fragment the illusion of smooth cinematic motion, but also generates a series of unexpected optical visualisations. The film was understandably preceded by a title-card that warned against potential epileptic episodes.[12]

Conrad was well versed in the 'flicker fusion' and 'persistence of vision' experiments of the 1950s that sought to determine at which point the illusion of motion

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[11] Gregor Stemmrich, 'Dan Graham' in *Ctrl [Space]: Rhetorics of Surveillance from Bentham to Big Brother*, eds. Thomas Y. Levin, Ursula Frohne and Peter Weibel (Karlsruhe; London: ZKM; MIT, 2002), 68.

[12] These perceptual effects share some affinity with Cerith Wyn Evans's recent reconstructions of the artist and writer Brion Gysin's 1960s 'dream machines'—lightweight wooden cylinders whose surfaces have been perforated, placed on rotating turntables and 'backlit' by 100 watt bulbs thereby generating a flickering sequence of light that solicits 'alternative' perceptual sensations.

was perceived by a test-subject who was asked to view a rapid sequence of static visual information. These experiments observed that in just under a tenth a second, a series of discrete images would be 'blended' and perceived as movement—the perceptual basis for the dynamic experience of cinema.

Conversely, Olafur Eliasson's *Model for a timeless garden* (Fig. 3.7) fractures this perception of movement by 'inserting' a darkened interval into the viewer's supposedly seamless field of vision. This work comprises a series of burbling water fountains whose dynamic trajectories are fragmented by a strobe light that breaks the immediate perception of movement. Eliasson's jets of crystal clear water appear like a series of Eadweard Muybridge's early stop-motion photographs. The crucial point here is that, by appealing 'directly' to the neurological processes that shape the apprehension of time and space, works such as Conrad's, Graham's and Eliasson's contest the absolute transparency and idealistic 'immediacy' of aesthetic vision that was endorsed by both Clement Greenberg and Michael Fried. Neuro-cognitive studies such as Libet's prove the existence of durations that are not available to immediate conscious experience and this means that vision cannot remain the instantaneous, reliable and masterful means of engaging what is actually only an 'apparent' shape of the world.

Conrad's *Yellow Movies* (1973) more explicitly explored the limitations of vision in relation to time. Like *The Flicker,* these 'paintings' are concerned with durations that exceed human perceptual capacities. The *Yellow Movies* are a series of paper panels that have been painted with a light-sensitive emulsion that becomes increasingly yellow over time. These works replicate the horizontal cinematic format, almost adopting the appearance of frames in a film reel. Conrad described these panels as 'movies' because, like *The Flicker,* they were comprised of the same basic elements of cinema: light and exposure. Of course, the notable difference is that this cinema does not seem to 'move,'

let alone project any narrative content. Nonetheless, the light sensitive surfaces of Conrad's *Yellow Movies* do gradually change colour over time and, in this respect, they might be thought of as 'moving-images' that simply cannot be perceived by human eyes.

The Flicker and *Yellow Movies* each present a complex temporal proposition that refuses the naïve computational chronologies of temporal perception. Both of Conrad's works offer an experience that is entirely unique to the spectator: no two viewers will experience the same thing; nor will two *viewings* 'generate' the same visual experience. Writing retrospectively, Conrad recognises the multiple registers of time that arise with his works as they age. He states that:

> …unlike the Dead Sea Scrolls, the *Yellow Movies* were not legible in the time of their own making, and so now invite a double reading. The transitive reading that we are entitled to expect of artworks today, announces the *Yellow Movies* as a system of engagement between cinema and painting, a delivery vehicle that flattens out the service contours of an audience. This seems at first to have little to do with the durational extension of the pieces, their intended darkening and patterning slow ageing; but (like history, which is always in the present) the *Yellow Movies* also, perversely, reverse the direction of duration, and infer a reading back toward a virtual origin at which the terms—audience, service, transitivity, intervention—were part of a future vocabulary.[13]

[13] Tony Conrad *Tony Conrad: Yellow Movies* (Köln; New York: Galerie Daniel Buchholz; Greene Naftali Gallery, 2008), 22.

Figure 3.6: Tony Conrad, *The Flicker*, 1965.

Figure 3.7: Olafur Eliasson, *Model for a timeless garden*, 2011.

Distinguishing memory

The cognitive functions of memory have long been of interest to scientists and philosophers, from the proto-psychologists of the late-nineteenth century to contemporary neurologists who are concerned with how memory is conserved and organised by the physiological structures of the brain. While the rational empiricists proposed a 'storehouse' model where the mind becomes the depository of a sequence of discrete images of past events and activities, artists and philosophers in the early twentieth century began to explore memory as an intrinsic aspect of the emotional shape of conscious experience. Instead of the mind collecting a series of memorial images that could be recalled from the 'memory-banks', memory was seen to emerge in variable and distinct ways *with* experience.

In the last chapter, I discussed how Edmund Husserl's phenomenology distinguished between 'retentional impressions' and 'memories,' differentiating between the residual 'inkling' of the past and a wholesale recollection of historical events. A similar distinction is made by Henri Bergson between 'habit-memory' that informs sensory-motor functions and a 'memory-image' of the past—a subject that is discussed in the subsequent chapter. These distinctions are similar to those made in various neurological studies. Roughly speaking, they each distinguish between a wholesale recollection of events known in cognitive terminology as 'episodic memories,' and the more granular 'working memory' that informs our immediate experience.[14] The 'timing' of these distinctions is what studies such as Libet's contribute to. For instance, Díaz writes that beyond,

[14] Díaz, 'Chrono-Phenomenology,' 375-385 and 377.

> …the present moment—that 'two or three [seconds]' that occurs in less than the blink of an eye—everything we add, for example, the fact that an experience can seem long or short to us, are sensations that are derived and different from our awareness of the present, and are related to memory.[15]

These episodic memories hold information regarding the shape of an event or activity, but they also 'record' the chronological time of the event (the 'when') and the period of its duration. Exactly how episodic memory is 'encoded' within the brain has been a topic of debate for some time. As Damasio writes, contrary to a simplistic picture of human temporal experience, the brain does not 'store' memories in a single region ready to be retrieved at any moment. [16] Like many of the cognitive functions associated with time, the processes of memory are distributed across the regions of the brain. Damasio explains that the hippocampus is responsible for the creation of new memories that contribute to a timeline of events that manifest a sense of personal chronology. Subjects with damage to this area will not be able to retain new information including factual memories, such as where they left a book. What is interesting is that the hippocampus does not 'store' these memories, rather they are distributed in regions of the cerebral cortex associated with the event or material that has been 'recorded.'

Thus, while patients with damage to the hippocampus may not be able to retain factual information about recent events or their surroundings for longer than a minute, patients with damage to their neural pathways may not be able to recover long-term episodic memories. This suggests markedly different neural functions whereby a patient with retrograde amnesia might not be able to remember an event that has a particular 'timestamp', for instance their wedding, which is different again from not remembering the concept of marriage itself. Damasio recalls one patient who suffered

[15] Ibid., 378.
[16] Damasio, 'Remembering When,' 36.

from both retrograde and antegrade amnesia who could not effectively place himself 'in' time.[17] Outside of approximating time by noting qualities of sunlight he could not remember the calendar date or his own age. The patient existed in a 'permanent present' in which he could not remember events that occurred only one minute ago. Working memory and episodic memory are thus clearly interdependent (in healthy subjects) and function differently to shape experience of the world.

Anri Sala's celebrated work *Intervista (Finding the Words)* (1998) looks precisely at how the fine-grained structures of both episodic and working memory can be integral to collective historical narratives.[18] *Intervista* is a video 'document' of Sala's discovery of a black and white film reel of the artist's own mother, Valdet Sala, being interviewed at a state Albanian Youth Conference in the 1970s. The soundtrack is missing from the footage and part of Sala's work follows the process of decoding his young mother's words through a lip reader. Through this interpretation of her statements, Valdet is revealed to be extolling the virtues of the Stalinist regime of Enva Hoxha. This ideological rhetoric seems totally surprising to her older self as Sala replays this sub-titled footage for his mother.

Intervista functions as an intriguing amalgam of different documentary formats: it includes both footage of Valdet and other political material from this era, various re-enactments of Sala's own 'journey' as he uncovers this material, and the record of his mother's reaction to her own words. It is a document that undoes the firm chronologies

[17] Ibid., 36.

[18] A significant number of contemporary artists address the subject of 'memory' including, but not limited to Yto Barrada, Christian Boltanksi, Tacita Dean, Jeremy Deller and Susan Hiller. I must be clear that this chapter looks not at artists who are concerned with 'memorial cultures' and historical narratives, but those who attend more closely to the perceptual processes of 'subjective' working memory. For an account of contemporary forms of public remembrance and Deleuze's thought, see Adrian Parr, *Deleuze and Memorial Culture: Desire, Singular Memory and the Politics of Trauma* (Edinburgh: Edinburgh University Press, 2008). For an art historical discussion of various contemporary practices that engage memory as a means of re-assessing the authoritative historical voice of modernity, see Joan Gibbons, *Contemporary Art and Memory: Images of Recollection and Remembrance* (London: Tauris, 2007).

of history seen dualistically as either a private 'subjective' experience or an 'objective' authoritative narrative of a particularly controlling political regime. Sala's work brings together his mother's emotional effort and struggle with the intimate process of recalling episodic memories and reconciling their meaning within the present political context. On the one hand, the viewer is almost 'witness' to Valdet's cognitive workings as this information is received and then juxtaposed against both seemingly 'factual' video footage and Sala's re-enactments of events that are recent within his own timeline. The very premise of a factual and truthful narrative history is rendered uncertain by this composite of cognitive, authoritative and imagined 'memories.'

The elastic time of multiple clocks

Given the great complexity of cognitive temporal processes, Díaz writes that a number of neuroscientists have been most recently concerned with how the brain organises or regulates these manifold influences to produce a cohesive temporal flow. The experience of time is gleaned from a diverse array of temporal 'signals' including circadian rhythms, biological cycles such as hunger or menstruation, the vicissitudes of emotion and attention, and the perception of the spatial order of objects and events. In this respect, a number of researchers have proposed the existence of one or many internal biological clocks that regulate the pace and course of these divergent temporal registers.

The broader significance of 'multiple clock' theories is that temporal experience is treated as an *elastic* phenomenon and not a mechanical or computational mechanism. This contributes to a more complex picture of time perception as a movement of continual adaptation; as the on-going negotiation between internal and external

durations. Addressing the way in which such adaptations might be thought of as temporal 'distortions' of a more fundamental timescale, the neuroscientist Sylvie Droit-Volet suggests that:

> There is no single, uniform time, but rather multiple times which we experience. Our temporal distortions are a direct translation of the way in which our brain and body adapt to these multiple times, the times of life.[19]

Díaz writes that the best known 'internal clock model' is a biological 'pacemaker' that emits a series of pulses against which a multitude of comparisons can be made.[20] The most well-researched of these internal 'pacemakers' is the circadian clock that is located in the hypothalamus and is responsible for the ability to adjust bodily rhythms to environmental light and darkness, for instance the cycles of day and night. Nonetheless, this biological clock is not precise enough to account for smaller experiential timescales within the range of minutes, seconds and milliseconds. This has led some researchers to propose a more complex system of time perception that includes the co-ordination of multiple individual internal clocks. The basic idea is that there is not one single pace-maker that organises variable durations, but a network of different 'clocks' that respond to different tasks. Díaz acknowledges the important work of the neurophysiologist Hugo Merchant who has identified three neural clocks that codify the passing of time in different ways. He writes that

> …for tasks requiring calculation of inception, such as avoiding an unexpected obstacle, a particular population of neurons enters into play, while for other tasks requiring calculation of intervals of time, a different population is involved.

[19] Sylvie Droit-Volet quoted in Marc Gozlan, 'A Stopwatch on the Brain's Perception of Time,' *The Guardian Weekly,* 1 January, 2013.

[20] Díaz, 'Chrono-Phenomenology,' 382.

> The network collectively would constitute a clock with specialized sub-units, plastic modalities and functions adaptable to the demands of each task.[21]

This model of multiple integrated 'cognitive clocks' finds a curiously literal analogue in Thomas Hirschhorn's sprawling installation *Cavemanman* (2002) (Fig. 3.8). In this work, Hirschhorn transformed an extensive gallery space into a network of cave-like chambers constructed out of the artist's infamous brown-packing tape and cardboard boxes. Each of these irregularly shaped caves related to different regions of the cerebral cortex and contained a range of transient consumerist objects and images, suggesting a visual agglomeration of the stuff of contemporary capitalism: silver-foiled mannequins, neon lights, pop-cultural posters, photocopies of philosophical tracts, books, bundles of fake dynamite, paper cut-outs and televisions. Amongst this overwhelming aggregation of image and material was also a series of clocks that purported to tell the time in different cities including Kandahar, Jakarta, Marrakech and Phnom Phen—each of whose names had been scrawled in spray-paint beneath them. The absurdity of the paper-clocks was underscored by the fact that, regardless of their geographic distribution, they all told exactly the same time.

Given the plethora of diverse consumer materials, Hirschhorn's uniform clocks might suggest a satirical gibe at how global markets regulate their 'chaotic' cycles of consumption through a universal timescale. While *Cavemanman* does not explicitly reference the most recent cognitive studies in 'multiple clock' models, Hirschhorn's work does tenaciously attend to the perceptual and sensorial capacities of the viewer. His amassment of 'stuff' is purposefully experientially overwhelming. Hirschhorn has stated that:

[21] Ibid., 383.

> I want to do too much because it is only when the eyes and the brain get exhausted that there are no lies anymore and you can get to the truth. I want to give from myself, in an offensive and aggressive manner. I want to create space and time within my work. This is why there are often massive amounts of information. This is the exchange my work wants to propose.[22]

In this respect, Hirschhorn's work invites time as a form of experiential 'chaos'—of duration as perceptual attention being tugged in different directions. Time is not a fixed numerical description, but a dynamic aggregation of durations whose only observance of uniform capitalist chronology is the satirical rendering of global clock-time. Hirschhorn's understanding of time is summed up precisely by his use of packing tape: it is an entirely transitory substance as a material tool that intends to 'fix' a structure, but only in the consumerist short-term. This aggregation of different 'temporal values' shares some affinity with the discussions of 'digital archive aesthetics' in the work of Lev Manovich and Timothy Barker (see Part One Literature Review) where the chronologies of modernity are abandoned for the simultaneous accumulations of divergent times. This elastic and 'polychronous' interplay of perceptual and material durations is pursued in the following chapter.

[22] Thomas Hirschhorn quoted in Stephanie Rosenthal, Mami Kataoka and Susan J. Blackmore, *Walking in My Mind: Charles Avery, Thomas Hirschhorn, Yayoi Kusama, Bo Christian Larsson, Mark Manders, Yoshitomo Nara, Jason Rhoades, Pipilotti Rist, Chiharu Shiota, Keith Tyson* (London: Hayward Publishing, 2009), 12.

Figure 3.8: Thomas Hirschhorn, *Cavemanman*, 2002.

CHAPTER TWELVE

Accumulative Time: Memory and Materiality

Introduction: Black Market Time

Daniel Malone's *Black Market Next to My Name* (2007) (Fig. 3.9 and 3.9a) is a sprawling collection of the stuff of art and life: twenty years' worth of domestic detritus, objects and things, artworks, packaging, machines and devices. An incomplete list of objects might include: geographic maps, knitted jumpers, records, furniture, wooden salad spoons, peanut shells, tampon packages, plastic supermarket bags, prototypes for a New Zealand flag, fruit, documents relating to exhibitions, cigarette packets, a heater, and rolls of toilet paper dipped in red dye. In 2007, this was everything Malone owned—the entire contents of an Auckland studio-cum-flat that he was leaving behind. This array of objects was exhibited in a suite of gallery rooms where viewers could navigate between and explore a tangle of things, each of which was loosely arranged according to the logic of domestic living: toilet paper in the bathroom, records in a larger space and knitted jumpers and shirts in yet another room.

Just as Malone's previous works had continually transgressed and re-marked the division between art and life, so too did these 'collections within collections.' When the entire work and its multiple 'moving parts' was eventually acquired by a collecting institution, the 'vibrant' dynamics of the artist's studio/life were absorbed into the seemingly 'timeless' space of the museum: the dynamic impetus to accumulate,

aggregate and accrue stuff was faced with the traditional institutional prerogative to keep, catalogue and preserve. These multiple and divergent temporal motivations are the subject of this chapter. This final discussion in Part Three of this thesis concerns the phenomenological experience of different material durations that are brought into proximity in the artwork: polychronous times that obtain within the memories of stuff, and the stuff of memories.

As a spatially expansive installation of multiple heterogeneous objects, *Black Market Next to My Name* is not unique. Malone's amassment of objects and materials recalls Thomas Hirschhorn's packing-taped installations including *Cavemanman* (2002) that was discussed in the previous chapter, Andy Warhol's *Time Capsule* project (1974-1987), Sarah Sze's sprawling sculptural arrangements of 'organic' and 'inorganic' consumables, and the nocturnal detritus of Tracey Emin's notorious *My Bed* (1998).[1] Even closer to Malone's work, a number of artists have recently developed projects whereby massive collections of seemingly ordinary or inconsequential objects, both personal and public, are arranged in exhibition spaces. These include Song Dong's exhibition of his mother's collection of household goods in *Waste Not* (2009), Dahn Vo's exhibition of the New York artist Martin Wong's assortment of objects *I M U U R 2* (2012), and Gabriel Orozco's *Sandstars* (2012) which entailed the collection and exhibition of debris washed up along Mexico's Western coastline. These works accumulate and then exhibit both the manifold detritus of consumerism and the cherished possessions of individual lives. In this respect, they engage an 'aesthetics of time' that is neither the product of an abstract numerical measure nor an exclusively

[1] Malone acknowledges Hirschhorn and Warhol alongside Joseph Beuys, Jason Rhoades and Dieter Roth as models of 'the archive, the 'frozen' studio, the Gesamtkunstwerk, the museum' that suggest future formulations of his own work. In this respect, I am quoting Malone from a document 'Imagining the Future of *Black Market Next to My Name*' that has been written to accompany this work within an institutional environment. See Malone's 'Imagining the future of *Black Market Next to My Name*' in *Made Active: The Chartwell Show*, ed. Natasha Conland (Auckland, N.Z.: Auckland Art Gallery Toi o Tāmaki, 2012), 35.

human conscious experience. Rather, this time is 'lodged' in the active accumulation of stuff, the exhibition of collections, the performance or enactment of materials and the viewer's encounter with this heterogeneous field of sensorial 'information.'

Henri Bergson's *Matter and Memory* (1896) is appealed to here as a means of exploring the multiple, intercalated durations that adhere in works such as Malone's. Nonetheless, it must be noted that Hal Foster's essay 'The Archival Turn' and Lev Manovich's concept of database aesthetics—and by extension, Timothy Barker's 'digital database'—also attend to the artistic motivation to 'synchronically' exhibit aggregated collections of materials.[2] Manovich's database aesthetics is important here because it emphasises the *non-linear* structure of accumulation. Most often, these works refuse the institutional categorisation of objects and materials according to a singular historical timeline: placing an object 'in' historically prescribed time is not the goal of their exhibition. As Foster points out, the 'archival artists' he discusses are not directly interested in critiquing institutional structures or contesting a specific historical representation or narrative.

Following Foster, I would suggest that artists such as Malone are more concerned with the dynamic act of accumulation itself: the impulse to keep the manifold durations of different objects close-to-hand. Their works bring into proximity multiple durations that are the preserve of various objects and materials, each with their own rhythms or processes of 'being in time.' Crucially, these multiple rhythms resist a homogenous synchronicity: the durations of perishing fruit do not 'keep' the same time as the eventual obsolescence of video tapes and television screens. In this way,

[2] Foster's distinction between 'institutional critique' and 'archival art' was similarly discussed in Chapter Three of the literature review.

accumulative works such as Malone's invite an *asynchrony* of multiple, elastic trajectories of time.

Figures 3.9 and 3.9a: Daniel Malone, *Black Market Next to My Name*, 2007.

Multiple rhythms of duration

Bergson's concept of *durée* was discussed in the first chapter of Part Three of this thesis as a fluctuating, qualitative time that resists the quantifications of temporal measurement. In *Matter and Memory* (1896), Bergson considers how *durée* is shaped by the immanent experience of the heterogeneous materialities of the physical world. Here, Bergson describes a reciprocal movement between the 'virtual' memories of human perception and the 'actual' material 'stuff' of experience. This description of memory invites a more dynamic understanding of matter in experience—one that Bergson hoped the physical sciences would also pursue.[3] Against the their determinist models of time, Bergson acknowledged the co-existence of multiple durations of matter and memory whose tension, friction and sympathy comprise the variable qualities of experience.

In this respect, Bergsonian *durée* does not simply assume the 'bracketed' intimacy of Husserl's phenomenological time-consciousness. Rather, it expands beyond the conscious durations of human experience to encompass a multiplicity of 'other' times. According to Gilles Deleuze, whose important work *Bergsonism* (1966) is a key point of reference here, Bergson conceives of different durations, one of which may encompass human experience, that relate to each other through variable rhythms, speeds and temporal 'tensions':

> In reality there is no one rhythm of duration; it is possible to imagine many different rhythms which, slower or faster, measure the degree of tension or relaxation of different kinds of consciousness, and thereby fix their respective places in the scale of being. To conceive of durations of different tensions is perhaps both difficult and strange to our mind, because we have acquired the

[3] Gunter, *Bergson and the Evolution of Physics*, 41.

useful habit of substituting for the true duration, lived by consciousness, an homogeneous and independent Time…[4]

As I noted in the first chapter of Part Three, Bergson's 'multiplicitous' understanding of time—something I have dubbed 'polychronous' time—contributes to a wider philosophical project to preserve temporal dynamism, process, becoming and creativity in the face of determinist scientific regulation and reductionism. The Bergsonian time of 'becoming' rejects the rigid permanence of the global time-standard, but most significantly it also proposes a more sophisticated phenomenology of temporal experience. As Deleuze writes, 'multiplicity' has had two fates in the twentieth century: the first is phenomenology, where multiple phenomena are unified in conscious experience, and the second is 'Bergsonism' that aims to maintain the heterogeneity of different perceptual and material states.[5] The challenge for thinking about time as 'a' multiplicity is to consider how divergent durations relate to one another—how they cohere in a continuous advancing movement or how they exist as individual singularities—or both.

This thesis has surveyed a number of philosophers and social theorists that are committed to maintaining time's multiplicity. Their discourses share an important affinity with the sprawling and dynamic accumulations of the multifaceted artworks discussed here. In Chapter Seven, I recalled the work of sociologists Nigel May and Jon Thrift who have been at pains to describe the uneven distribution of temporal modernity within the political and technological developments of late nineteenth and early twentieth centuries. This chapter also discussed the work of Judy Wajcman who

[4] Henri Bergson, *Matter and Memory* (London; New York: G. Allen & Co., Ltd.; Macmillan Co., 1911), 275.

[5] Leonard Lawlor and Valentine Moulard Leonard, 'Henri Bergson,' *The Stanford Encyclopedia of Philosophy* (Winter 2013), accessed 15 March, 2015, http://plato.stanford.edu/archives/win2013/entries/bergson.

has sought to build a more nuanced understanding of the impact of digital time in working lives. A number of twentieth-century philosophical approaches could also be recalled here as a means of exploring temporal multiplicity. These include Gilles Deleuze's own concept of synthetic time[6]; Michel Foucault's concept of 'heterochronic' time[7]; Michel Serres's evocative description of non-linear time as a crumpled handkerchief[8]; Michel de Certeau's 'heterologies'[9]; and the intercalated 'families of durations' in Alfred North Whitehead's process philosophy.[10] While these theoretical patterns of multiplicity are important, this chapter follows Deleuze's 'Bergsonism' because it offers a particularly compelling means of attending to the relationship between the perceptual functions of memory and the experience of multiple materialities in art.

Memory against chronology

Matter and Memory begins by acknowledging the infamous dualism that has been a feature of the Western philosophical tradition.[11] This well-known seventeenth-century philosophical dualism establishes an opposition between the mind of the human subject—a unique consciousness that furnishes experience with representative images of the world—and the physical body of the subject that is lodged within this world of materials and events. Ultimately, Bergson's thought overcomes the firm

[6] For a discussion of Deleuze's syntheses of time, see James Williams, *Gilles Deleuze's Philosophy of Time: A Critical Introduction and Guide* (Edinburgh: Edinburgh University Press, 2011).

[7] Michel Foucault, 'Of Other Spaces,' *Diacritics* 16, no. 1 (1986), 26.

[8] Michel Serres and Bruno Latour, *Conversations on Science, Culture, and Time* (Ann Arbor: University of Michigan Press, 1995), 60.

[9] Michel de Certeau, *Heterologies: Discourse on the Other* (Minneapolis: University of Minnesota Press, 1986).

[10] Alfred North Whitehead, *The Concept of Nature: Tarner Lectures Delivered in Trinity College, November, 1919* (Cambridge: Cambridge University Press, 1920), 49-73.

[11] Bergson, *Matter and Memory*, ix.

distinction between representation and matter that is said to beleaguer both the traditional idealist and realist engagements with this dualism.[12] Bergsonism does not endorse either the idealism of the mind that is held aloft from the activities of the body or the deep-seated realism of physical matter.[13] Rather, Bergson develops a theory of perception whereby human consciousness and material properties are related to one another through a difference of 'degree' instead of a firm difference in 'kind.' The role of *durée* and memory in human experience is critical to this 'difference of degree.'

In *Matter and Memory*, Bergson's concept of *durée* takes on a more elaborate and complex task: it preserves the past in the form of memory, but it also attends to the composition of the 'present,' or how the different qualities of the present are given in experience. What Bergson argues is that when the subject perceives something, she or he *does* perceive the thing 'in itself' and not a representation of the thing, as forms of idealism would have it. But Bergson argues that this perception is always infused with a wealth of prior perceptions and memories that have no material existence beyond the firing of synapses. Prior to Husserl's phenomenology of time-consciousness, Bergson rejected the empirical model of memory that posits 'remembrances' as weaker 'images' of more intense and immediate experiences.[14] According to this model, memories are given to fading successively into the past—thereby attaining some form of 'spatial' distance from immediate conscious experience. In this respect, memory becomes a diluted perception, different from an immediate experience by a matter of a degree of distance from the present. Conversely, Bergson's philosophy of time approached memory as a novel 'event' in and of itself; not a weaker derivation of what has been. For Bergson, memory is an entity that supplements immediate perceptual experience with

[12] Lawlor and Moulard Leonard, 'Henri Bergson.'
[13] Ibid.
[14] See McLure, *Philosophy of Time*, 17 and 219; and Bergson, *Matter and Memory*, 173 and 318.

the 'virtual' force of the past.

Bergson's problem with the empiricist understanding of memory is, once again, the result of an impure 'mixing' of two different cognitive activities that work to retain elements of the past. He makes a critical distinction between 'habit-memory' that is based in sensory-motor activities orientated toward the present and a 'pure memory' or a 'memory-image' that is the wholesale evocation of the past.[15] An example of the former is the memory of a poem learnt by heart, whereas an example of the latter is the memory of the activity of learning that poem, such as the manifold qualities of the classroom environment in which it was 'memorised.' One memorial movement recalls immediately 'useful' information that is related to the body, much like the knowledge of how to walk or write, and the other movement recalls an image of the past that is cultivated within our present experience. Crudely speaking, Bergson proposes that the empiricist model fails to appreciate the difference between these two movements of memory, thereby reducing one to the other.[16]

From a contemporary perspective, the empiricist model might be described as overly 'computational': a poem is recalled by 'filing through' successively arranged 'memory banks' until the correct 'ready-made' memory is located and dragged to the surface of the present. Conversely, Bergsonian memory is never far-removed from our immediate perceptual experience. Instead of being filed away 'somewhere' in the brain, memory 'swells incessantly with the present that it picks up on its way.'[17] Bergson writes that

> Inner duration is the continuous life of a memory which prolongs the past into the present, the present either containing within it in a distinct form [of] the

[15] Ibid., 89-105.
[16] Ibid., 94.
[17] Henri Bergson, *An Introduction to Metaphysics* (London: Macmillan, 1913), 12.

> ceaselessly growing image of the past, or, more probably, showing by its continual change of quality the heavier and still heavier load we drag behind us as we grow older. Without this survival of the past into the present there would be no duration, but only instantaneity.[18]

In this respect, Deleuze writes that the human subject is too accustomed to thinking of the 'present' as the thing that becomes 'past' only when it replaced by another 'present,'[19]—one domino toppling the next. But Bergson's concept of memory refuses to site temporal experience along a sequential chronological scale. In *Matter and Memory* Bergson describes the relationship between 'virtual' memories and the 'actual' perception of the present as an inverted memorial 'cone' whose tip bisects the flat plane of experience.[20] Although spatial descriptions of time are problematic for Bergsonian thought, the cone is intended to symbolise the dynamism of perception. To call on a contemporary example, Bergsonian memory does not work like the Microsoft operating system which files documents within a successive hierarchy of folders, rather the cone describes a loose flux of multiple memories that are contracted into the point at which they meet the actual plane of experience, ready to be put into action, to be deployed in concert with the objects, materials and events of the world.

Slackened matter

Accumulative works such as Malone's *Black Market Next to My Name* similarly resist the chronological inscription of memory and duration. While each of the many objects and collections presented in Malone's installation might provoke a Proustian

[18] Ibid., 44-5.
[19] Deleuze, *Bergsonism*, 58.
[20] Bergson, *Matter and Memory*, 196-7.

bout of remembrance—especially for the friends of the artist who may have shared his Auckland life—the objects are not prescribed according to a chronological historical model. While a museum might collect and display a single object as an exemplar of a social history, accumulative works such as Malone's are notable, and entirely captivating, because there is *always more than one thing*. From peanuts to plastic shopping bags, the collection and repetitive accumulation of the *same* object is crucial because it intrinsically denies temporal succession. Malone's things are displayed within a public exhibition structure, ripe for individual scrutiny, but this amassment of stuff does not observe a timeline of collective events. *Black Market* does not appeal to historical chronology to communicate the wider social external significance of an object. The mass of stuff in *Black Market* suggests that the activity of collecting, accumulation and accretion transcends the 'thing' itself. Installations such as Malone's assume a non-chronological logic whereby material 'memories' of the past are never sequentially discarded through time, but are given to 'swell' with their accumulative existence in the present.

Song Dong and his mother Zhao Xiangyuan's ambitious project *Waste Not* (2009-ongoing) (Fig. 3.10 and 3.10a) bears an important comparison to Malone's work. Like *Black Market,* Song's work is an expansive installation of a multitude of domestic material objects and devices collected by Zhao over a period of thirty years. Following the 2002 death of Zhao's husband and Song's father, the artist developed a project whereby his mother could exhibit the things she had carefully preserved in the course of her familial life. These include a wide-variety household ephemera including, but not limited to, the dried remnants of soap bars, a multitude of buttons, buckets and vessels, clothes and children's toys, scraps of fabric, pots and pans, toothbrushes, string and

packaging foam, insulation wire and twine, light bulbs and, like Malone's work, an array of plastic shopping bags folded neatly into individual triangles.

Zhao's thrifty collections were a response to the economic privations of the Chinese Cultural Revolution of the 1960s and 1970s that marked her adult life. This assiduous stockpiling of everyday items observes the Chinese concept of '*wu jin qi yong*' or 'waste not,' whereby Zhao would keep the remnants of valuable goods as a cautious protection against possible future hardships. Unlike Malone's and Hirschhorn's more vertiginously haphazard installation of objects and materials, Song and Zhao's arrangements are orderly: they are roughly arranged according to domestic type and function, often carefully folded or organised into grid-like formations. Song has spoken about the process of unpacking and arranging these materials with his mother. He says:

> Every day, we came to [the exhibition space] to work together. We continued to organise these things. So actually, this exhibition is not about displaying, but about organising...Every time we did the organising, we always found something new, thus a new memory was awakened.[21]

This process of organisation suggests that *Waste Not* does not simply stand as a memorial to a singular past that is 'frozen' at one point along a chronological continuum. Rather this installation keeps the past 'close-to-hand' by establishing a dialogue between the historical act of collecting and the present-day process of unpacking and exhibition. In this respect, the greater philosophical importance of Bergson's rejection of chronological memory lies in its refusal to wholly divorce the past from the present. According to Bergson, the past exists *continuously* as a multitude of

[21] Song Dong quoted in 'One man's treasure: Chinese artist Song Dong's 'Waste Not' in Sydney,' *Art Radar*, accessed, 08 June, 2015, http://artradarjournal.com/2013/01/21/one-mans-treasure-chinese-artist-song-dongs-waste-not-in-sydney/.

virtual memories that act upon the contents of immediate perceptual experience. This is precisely what accumulative works such as Song's *Waste Not* and Malone's *Black Market* achieve: their repetitive collections of personal materials refuse to relinquish the past to a sequential 'march of time.' While these processes of collecting and exhibition might hold some memorial significance for the artist, it must be noted that the viewer's encounter of these accumulative works solicits a very particular experience of time. The viewer is asked to navigate a huge array of materials that often betray their own 'history': a piece of cloth may appear worn and frayed, bright plastic colours faded or technological devices such as video-recorders rendered obsolete.

In this respect, it is important to recognise that Bergson's insistence on non-chronological time does not simply lean on the virtual force of personal memory, but also concerns the divergent durations of matter. Bergson suggests that human perception is the product of a dynamic continuum that encompasses the 'contraction' of memory and the 'relaxation' of diverse material states.[22] At the sharp point of Bergson's memorial cone, the mind is said to contract or condense the past in the form of 'pure memory,' ready to act on the multiplicity of slackened material states that solicit its attentions. Memory is the highly contracted state that maintains a *virtual* existence in experience, while matter is more relaxed, sluggish and *actualised*. In this respect, Bergson's concept of matter and memory cuts a path, or many paths, right through the dualism of the philosophy of mind: it subscribes neither to idealism which holds that matter is represented only through the faculties of the mind, or realism that contends that matter has some special means of producing cognitive sensations. In Bergson's thought, the mind works to contract matter according to what is needed, or what has been habitually inscribed as a response to the present condition: a cup is raised to the

[22] Deleuze, *Bergsonism*, 60-1.

lips with the prior knowledge that there is coffee in it; attention snaps to the slick screen of a digital phone that is checked for incoming messages.

Crucially, this continuum of contraction and relaxation reveals a *multiplicity* of divergent *rhythms* of duration. Matter insists on the existence of 'other times': different and divergent speeds, tempos and markers of temporality. Bergson writes:

> In one sense, my perception is indeed truly within me, since it contracts into a single moment of my duration that which, taken in itself, spreads over an incalculable number of moments. But if abolish my consciousness, the material universe subsists exactly as it was; only since you have removed that particular rhythm of duration which was the condition of my action upon things, these things withdraw back into themselves…Matter thus resolves itself into numberless vibrations, all linked together in uninterrupted continuity, all bound up with each other, and travelling in every direction like shivers through an immense body.[23]

The 'vibrant' jostling of different material durations in Song's and Malone's respective works intrinsically shapes their aesthetic encounter. The curious appeal of these accumulated objects is lodged in various perceptual states of contraction and relaxation. A piece of insulation wire or a collection of tampon packaging might provoke a personal memorial response, just as the dried bars of soap or faded plastics insist on their own historical durations. These rhythms of time are precisely what make these accumulative works so compelling: their navigation and encounter is always stretched between the contractions of perception inscribed in viewership and the 'withdrawal' of objects into their own temporalities. That these 'non-human' material durations might actually escape the confines of the human-viewer's perceptive faculties is the subject of the following chapters.

[23] Bergson, *Matter and Memory*, 276.

Figure 3.10 and 3.10a: Song Dong, *Waste Not*, 2009. Above: Installation at Carriageworks, Sydney, 2013.

PART FOUR

Beyond Times

Introduction

Part Four of this thesis extends the framework of temporal multiplicity outlined in the previous chapter by considering time beyond the confines of human experience. Parts Two and Three of this study discussed the human utility of time as either a mathematical tool of measurement or an intrinsic phenomenological feature of conscious experience. But for a group of thinkers recently associated with the philosophies of speculative realism, the time actually offers a means challenging this human bias. A number of notable contemporary artworks have similarly explored temporal systems and processes that extend beyond human lifetimes, putting pressure on the anthropocentric premise that time is simply orientated towards 'our' phenomenological existence.

In Chapter Seven, I briefly discussed Nancy Holt's *Sun Tunnels* (1973-76) (Fig. 4.1): a constellation of astronomically aligned concrete tunnels located in a remote desert in north-Western Utah. Holt's work sought to engage time not as 'a mathematical abstraction,' but as a vast timescape in which the privilege of human experience was contracted; dwarfed by the prolonged durations of the 'universe.' She writes:

> Only ten miles south of *Sun Tunnels* are the Bonneville Salt Flats, one of the few areas in the world where you can actually see the curvature of the earth. Being part of that kind of landscape, and walking on earth that has surely never been

walked on before, evokes a sense of being on this planet, rotating in space, in universal time.[1]

These 'deep time' features of the Utah landscape also appealed to Holt's frequent collaborator Robert Smithson whose own diverse artistic practice proposed a particularly complex understanding of time. Smithson was specifically interested in the concept of 'entropy' as both a dynamic process and theoretical framework that truly contested the mono-temporal models of historical modernity. His land art works actually *instantiated* physical processes of entropic degeneration—the transfer of energy within a system—but on theoretical grounds, they also pushed against the singular reductionism of modernity. Smithson's complex and sometimes conflicting engagement with entropy contributes to this study's ambition to establish a more multiplicitous phenomenology of time in art. From the crunch of salt-crystals underfoot to the swirling, rotating expanse of 'deep time,' Smithson's entropy brings multiple durations and different phenomenologies into dizzying proximity.

Nonetheless, for some philosophers associated with speculative realism, the question of human privilege is still more pressing. The speculative position is that the human subject cannot presume to occupy the nucleus of this 'spiralling' timescape. For Quentin Meillassoux, the modern scientific dating of 'deep time' artefacts offers a crucial philosophical means of speculating 'existence' beyond, or more precisely, *without* human interests: 'we' will not last forever and 'our' sense of being on this planet is extraneous. In this respect, Meillassoux's speculations present a challenge to a contemporary art that is orientated solely toward the experience of one or many viewing subjects. While Smithson's and Holt's respective works stage an encounter

[1] Nancy Holt, 'Sun Tunnels,' *Artforum International* 15, no. 8 (1977), 34.

between the viewing subject and the non-human temporalities of rock sedimentations, desert landscapes and astronomical trajectories, a number of works have also established various biological and technological systems as a means of more explicitly challenging the viewer's capacity to monopolise this encounter. Trevor Paglen's *The Last Pictures* (2012) is perhaps the most ambitious in its technological constitution, but also in its relationship to 'humanity' as a finite entity. In this work, Paglen has mounted a gold-plated disc etched with one hundred photographic images to the deck of a television satellite that is set to orbit the earth for billions of years, thereby outlasting the prospective existence of the human species itself.

Regardless of their affinity to the philosophy of speculative realism, the works discussed in the following chapters expand the 'scope' of time in art. Their multiplicitous and interrelated durations are far removed from the idealised aesthetic 'instantaneity' of the modernist Greenbergian painting, or even the somewhat uni-dimensional phenomenology of Rosalind Krauss's concept of passage.[2] While these works recognise an asynchronous multiplicity of divergent times, they also resist their anthropocentric utility, instantiating a range of 'non-human' biological, geological and technological systems. More specifically, they deny the human subject an all-encompassing perspective over this diversity of times and durations. The challenge here is to 'conceptualise' the co-existence of these multiple durations; of times that always exceed 'our own.' Gilles Deleuze's expansion of Bergson's famous allusion to the process of dissolving sugar crystals in a glass of water[3] offers one avenue. Deleuze alights upon

[2] Krauss's important 'spiralling' description of Smithson's *Spiral Jetty* does not quite succeed in articulating the multi-temporality of that work: her interest still arguably lies with a basic phenomenological sympathy between human 'experience' and 'art.' She writes: 'In every case the image of passage serves to place both viewer and artist before the work, and the world, in an attitude of primary humility in order to encounter the deep reciprocity between himself and it.' Krauss, *Passages in Modern Sculpture*, 283.

[3] Henri Bergson, *Creative Evolution* (London: Macmillan, 1922), 10.

this fracturing of a singular time into multiple times—a multiplicity that ensures that some durations will always exist beyond the horizon of human experience. He writes:

> Bergson's famous formulation, 'I must wait until the sugar dissolves' still has a broader meaning than is given to it by its context. It signifies that my own duration, such as I live it in the impatience of waiting, for example, serves to reveal other durations that beat to other rhythms, that differ in kind from mine. Duration is always the location and the environment of differences in kind; it is even their totality and multiplicity.[4]

[4] Gilles Deleuze, *Bergsonism*, trans. Hugh Tomlinson and Barbara Habberjam (New York: Zone Books, 1988), 32.

Figure 4.1: Nancy Holt, *Sun Tunnels*, 1973-76.

Figure 4.2: Robert Smithson, *Spiral Jetty*, 1970.

CHAPTER THIRTEEN

Entropy and Deep Time

Introduction

The concept of entropy invites a multitude of expressions and interpretations. Also known as the Second Law of Thermodynamics, entropy can be described as a law of the physical universe, a measure of disorder and a statistical principle. At its most basic, entropy describes the movement of energy within a system—it is often expressed by the principle that heat will always shift from a warmer state to a cooler one. The mid nineteenth-century physicist Rudolf Clausius's coinage emphasises entropy's inherent dynamism bringing together 'energy' from the German term 'energie' and 'tropē' from the Greek 'turning.'[1] Regardless of its various iterations, entropy entails transformative temporal properties that are not wholly supported by the determinist sciences that emerged with the Enlightenment or the orthodox interpretations of Einsteinian physics. In this respect, the concept of entropy compels a discussion of what has been hitherto overlooked in this thesis: the relationship between time and change.

This chapter discusses two important mid twentieth-century engagements with entropy: the artworks and criticism of the land artist Robert Smithson and the contemporaneous scientific analyses of the Nobel laureate chemist Ilya Prigogine and theorist Isabelle Stengers. Where Smithson both critically referenced and 'instantiated'

[1] See John E. J. Schmitz's account in *The Second Law of Life: Energy, Technology, and the Future of Earth as we Know It* (Norwich, New York: William Andrew, 2007), 15-16.

different concepts of entropy as a means of contesting the determinist chronologies of art historical modernity, Prigogine and Stengers's *Order out of Chaos* (1984) and *The End of Certainty* (1997) have sought to 'reinstate' entropic dynamism within the physical sciences.[2] As a chemist, Prigogine's theory of dissipative structures has broadly contributed to more recent movements in complexity theory—as well as chaos theory and dynamic systems theory—that aim to describe dynamic non-linear processes and systems, both biological, social and technological. In art and science, Smithson and Prigogine have respectively engaged the transformational potential of entropy against a singular mechanistic conscription of time. While the end of the nineteenth century saw the establishment of a universal global time-standard, the end of the twentieth century recognises more turbulent timelines, multiple rhythms and polychronous systems that are not 'in sync' with the master timescale.

The Second Law of Thermodynamics

The Second Law of Thermodynamics was developed in the mid-nineteenth century during a period of particularly prolific investigations into the science of thermal energy. The law itself was formally described by Sadi Carnot in *Reflections on the Motive Power of Fire (1824),* but it is also associated with the work of engineers and physicists Rudolf Clausius, James Joule and Lord Kelvin. Entropy is the state variable that is the *measure* of disorder or dispersal within a system. The Second Law of Thermodynamics broadly states that within an isolated system, a concentration of energy will either remain the same or will disperse until it reaches a point of equilibrium. While a cube of

[2] Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos: Man's New Dialogue with Nature* (Toronto; New York: Bantam Books, 1984); and *The End of Certainty: Time, Chaos, and the New Laws of Nature* (New York: Free Press, 1997).

ice might be described as a low entropy system because its molecules form a highly ordered lattice structure, when placed in a warm environment the Second Law states that these molecules will always tend towards dispersal. The melting ice cube thus achieves a greater measure of entropy where cold and warm molecules are gradually interspersed. This dispersal of energy can either be described as a movement towards equilibrium or a tendency towards chaos. Regardless, this dynamic process is said to be common to all physical properties. For instance, an early interpretation of 'global' entropy suggested that the universe emerged as a highly ordered state with the Big Bang and continues to disband, thereby achieving an ever-more 'chaotic' dispersal of energy, and eventually a thermal equilibrium.[3]

The Second Law is significant to debates of time's ontological status where it appears to describe a wholly irreversible process of energy dispersal. Bar a sudden drop in temperature, the ice cube molecules discussed here will never spontaneously reverse their fortunes and re-order themselves without intervention. This intrinsic irreversibility seems to support the human experience of certain processes and occurrences: a cold cup of tea will never spontaneously become warm again and spilt milk will never 'un-spill.' For those thinkers following Heraclitus's process philosophy, a key feature of time is its 'asymmetry': the premise time *seems* to be 'uni-directional' as it continually marches forward. A 'lived' experience of time might be seen to furnish this philosophical insight: ordinary or commonsensical human experiences would suggest that events, activities and processes cannot be 'rewound' as though life proceeded along a sequential chronological track. The simple assumption here is that this 'psychological

[3] See Schmitz's discussion of the controversial 'heat death' of the universe in *The Second Law of Life*, 135-136.

arrow of time' can be correlated to a 'physical arrow of time' whose basis is the process of entropy.

This temporal asymmetry naturally comes into conflict with classical physics—both Newtonian and Einsteinian—whose laws remain indifferent to time's supposed direction. That things might *seem* to proceed in one irrevocable direction is, for the orthodox Einsteinian, merely an attribute of the human mind. In Chapter Eight, I discussed how the 'block universe' theory of time and space 'explains' the existence of change as the comparison of different spatial locations in the spacetime continuum. In this respect, some thinkers and scientists have embraced the Second Law of Thermodynamics as an antidote to the absence of truly dynamic change in the mechanistic sciences.[4] As a physical principle, entropy could be interpreted as emphasising the importance of dynamic time over the static geometries of space. The basic claim is that entropy suggests that change is 'real'; that it is not a derivative product of human perception, but a 'concrete' physical occurrence.

Ilya Prigogine and Isabelle Stengers

This position has been most prominently expressed in the work of the chemist and physicist Ilya Prigogine who, along with his co-author the theorist Isabelle Stengers, examines the 'subtle physics' of dynamic processes and systems traditionally associated with chemistry or biology.[5] Much of Prigogine's work has been devoted to identifying

[4] For a useful survey of the determinist reduction of Aristotelian change in modern physics, see Mike Sandbothe's *The Temporalization of Time: Basic Tendencies in Modern Debate on Time in Philosophy and Science* (Lanham, MD: Rowman & Littlefield, 2001), 111.

[5] This description is given in the physicist Paul Davies's critique of irreversible time theories. A number of contemporary scientists do not concur with Prigogine's insistence on the existence of irreversible processes at the 'subtle' microscopic level. See Davies 'That Mysterious Flow,' *Scientific American* (September 2002), 40-47.

intrinsically irreversible structures in dynamic microstates or 'non-equilibrium states' that would suggest that a uni-directional time is embedded in the minute properties of 'life itself.'[6] In 1977, Prigogine was awarded the Nobel Prize in Chemistry for his theory of 'dissipative structures' that are organised by irreversibility. While classical physics has been largely concerned with describing entropy in closed systems, Prigogine has attempted to extend this theory to open systems, such as weather phenomena, that exchange energy and matter with their environment. He and Stengers write that,

> The primordial role of the direction of time is evident in the processes we study at the macroscopic level….No description of the eco-sphere would be possible without taking into account the innumerable irreversible processes that determine weather and climate. Nature involves both time-reversible and time-irreversible processes, but it is fair to say that irreversible processes are the rule and reversible processes the exception.[7]

At issue here is the scientific distinction between macro and microscopic physical states and the implication it holds for the human perception of change. Classical physics maintains that while macroscopic states such as weather phenomena may *appear* irreversible, the microscopic states that give rise to them still conform to physical laws that are indifferent to temporal direction. While the human subject might perceive weather phenomena as obtaining intrinsically irreversible properties, classical physics suggests that this is the result of the 'coarse graining' function of perceptual faculties.[8] The argument is that while the subject might consider the process of dissolving sugar in a cup of coffee to be entirely irreversible (and thus time-directional), a microscopic analysis would reveal the individuality of each sugar/coffee/cup molecule

[6] 'Nobel Lecture: Time, Structure and Fluctuations,' Nobelprize.org. Nobel Media AB 2014., , accessed November/23, 2014, ttp://www.nobelprize.org/nobel_prizes/chemistry/laureates/1977/prigogine-lecture.html.

[7] Prigogine and Stengers, *The End of Certainty*, 18.

[8] Ibid.

as a heterogeneous state that is indifferent to temporal direction. But because human experience cannot account for every probable formulation of a microstate, this sweetened cup of coffee simply appears as an irreparable homogenous swill.

Alternatively, Prigogine and Stengers's project remains significant in counteracting the 'static' determinism of modern physics by insisting that the traditional discipline attend to the changeable biological processes that form part of the 'lived-experience' of the world. Where classical physics has worked to reduce the understanding of phenomenal transformations to quantities of motion and space, Prigogine expressly aligned his experiments with more recent scientific movements that seek to understand the complexities of evolution, dynamism and change.[9] What is particularly compelling for this study of time and art is Prigogine's interest in the work of Henri Bergson. For Prigogine, Bergson's concept of *durée* presents a particularly captivating scientific problem in that it approaches time as both a dimension of human experience *and* a force of becoming in the universe. Prigogine recalls reading Bergson's *Creative Evolution* (1907) as a young man; he writes:

> I felt that some essential message was embedded, still to be made explicit, in Bergson's remark: "The more deeply we study the nature of time, the better we understand that duration means invention, creation of forms, continuous elaboration of the absolutely new."[10]

Although Prigogine's physics of irreversibility has been flatly refuted by many notable contemporary physicists,[11] his work has been influential in the diverse transdisciplinary field of complexity or 'chaos' theory that began to gain currency in the 1980s after taking its lead from post-war dynamical systems and cybernetics

[9] Prigogine, *From Being to Becoming: Time and Complexity in the Physical Sciences* (San Francisco: W. H. Freeman, 1980), vi.
[10] Prigogine, 'Nobel Lecture: Time, Structure and Fluctuations.'
[11] Davies, 'That Mysterious Flow,' 40-7.

movements. Seeking to counter the reductionist scientific tradition, complexity theory attends to 'human scale' concerns in scientific, ecological and socio-political systems. At heart, this theory rejects the atomised premise that a form of 'truth' can be reached by reducing scientific problems to the sum of their parts. It draws on the work of scientists such as Prigogine whose models of physical behaviours—dissipative structures, non-equilibrium states and nonlinear dynamics—offer a nuanced understanding of situations that have multiple parts, evolve in divergent directions and engage time as a dynamic variable.

Robert Smithson: Entropy actualised

In the year following the publication of Robert Smithson's well-known essay 'Entropy and the New Monuments' (1966), the art critic Lucy Lippard and John Chandler drew an affinity between what they described as the 'current international obsession with entropy' and the 'dematerialized' transformations of 1960s art practices.[12] In Lippard and Chandler's essay, 'entropy' is expressed as increasing disorder and chaos. The 'beautiful' *order* of Greenbergian modernism is seen to acquiesce to the more chaotic 'break-up' of traditionally distinct media.[13] Lippard and Chandler observed that, beginning in the late 1950s, artists became less interested in the aesthetic or material value of the art object as a final 'end-product.' They wrote: 'The medium need not be the message, and some ultra-conceptual art seems to declare that

[12] Lucy R. Lippard and John Chandler, 'The Dematerialization of Art,' *Art International* 12, no. 2 (1968), 48.

[13] Lippard and Chandler are citing the American Cubist Joseph Schillinger's model of developmentary art 'zones.' The zonal phase of 'post-aesthetic' and 'intermedia' art practices was the fifth in a sequence of artistic movements. See ibid., 47.

the conventional art media are no longer adequate as media to be messages in themselves.'[14]

Yves-Alain Bois and Rosalind Krauss's 1998 essay 'A User's Guide to Entropy' similarly associated 'entropic dissolution' with the 'anti-visualist' approaches of artists such as Smithson, whose works contested the optically motivated evaluations of modernism. They write that for Smithson, the concept of entropy was:

> less a condition of boundaries surmounted within a visualist space mastered by a transcendental subject than a function of a structural blindness brought on by a kind of simulacral riddle that perplexingly has no place in space at all.[15]

Bois and Krauss's and Lippard and Chandler's essays each establish 'entropy' within art historical discourses as a force of visual and material transformation: a means of countering a Greenbergian modernism that valued the optical mastery of the viewing subject and the immediate aesthetic 'presence' of the artwork.

This chapter moves away from the art historical discourses of entropic 'dematerialization' by looking more closely at the *temporal* implications of Smithson's specific approach to entropy.[16] It is worth noting that land artworks such as the much-celebrated *Spiral Jetty* (1970) (Fig. 4.2) are not simply geographically or materially removed from the hermetic white-walled spaces of the museum, but they are also temporally detached from the institutional emphasis on history and preservation. In both his artworks and art criticism, Smithson engaged a variety of different expressions of entropy that expressly challenge the chronological strictures of art historical modernism.

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[14] Ibid., 49.

[15] Yve Alain Bois and Rosalind E. Krauss, *Formless: A User's Guide* (Cambridge, Mass.: MIT Press, 1997), 42.

[16] Bois and Krauss do write that Smithson's interest in entropy was 'temporal rather than spatial,' but this route of inquiry is not thoroughly pursued in their essay. See ibid., 41.

Like Prigogine, Smithson's entropic investigations embraced temporal dynamism against its mechanistic reduction. While his understanding of the concept is somewhat complex, I suggest that Smithson's entropy is an entropy-as-dynamism: it is fundamentally concerned with time as feature of change, rather than a tool of measurement. But unlike Prigogine, Smithson is not wholly invested in the irreversibility of time. He refuses to settle on a singular model of time, or a concrete understanding of entropy that might suggest a transcendent unitary system. For Smithson, 'entropy' is a dynamic, pluralist and ambivalent force of time that puts pressure on the 'timeless' evaluations of modernism and the traditional institutional structures of the museum. Unlike the scientific discourses parsed here, entropy is not discussed in Smithson's criticism as a single, cohesive physical law, but appears as a multifaceted 'problem of time': an aggregate of multiple durations each with variable social, historical and political motivations. In this respect, Smithson's entropy is crucial to understanding the multiplicity of time in contemporary art. While Lev Manovich's 'database aesthetics' may offer a framework for understanding a multiplicitous aggregation of digitalised 'information,' Smithson's works suggest that this 'accumulation' of times might also be at play in different media and modalities.

A number of prominent artists have more recently engaged Smithson's interest in entropic time cycles that exist beyond the confines the gallery. Artists such as Darren Almond, Nicholas Mangan, Laura Almarcegui and Olafur Eliasson have been interested in geological formations, urban sites of degeneration, weather systems, biological growth, diurnal and environmental cycles. Like Smithson, these artists do not simply 'document' or 'visualise' natural timescales, rather their works attend to the complex relationship between the human subject and the time of the physical world.

In this respect, one might ask why this chapter insists on discussing Smithson's work, specifically *Spiral Jetty*—a seminal land artwork that has attracted a great deal of art historical discussion. Smithson is important here because he engages a particularly difficult and complex understanding of entropy-as-dynamism that implicates all artworks that seek to engage 'autonomous' timescales outside of the institution. On the one hand, Smithson's entropy is both a dynamic and pluralistic force: it entails a continual cycle of degeneration and exchange of energy that expressly contests the singularity of modernity. But on the other hand, it is also engages a primordial time that resists anthropocentric privilege and potentially transcends significant difference as the continuous tendency towards chaos that both inert rock and sentient human are subject to. It is this tension between multiple immanent timescales and a more singular primordial dynamism that lies at the temporal heart of Smithson's work. Like Fried's infamous criticism of the endlessness of durations of minimalist sculpture, Smithson's entropy remains a key point of reference for any study of time and contemporary art. Entropy remains a compelling temporal concept because it encompasses a number of complexities that only arise when time is thought of as dynamic instead of measurable.

Deep time and the *Spiral Jetty*

What is perhaps the most important feature of Smithson's engagement with the concept of entropy is its 'actualisation': his land artworks entail and instantiate entropic processes. Works such as *Spiral Jetty* are expressly 'composed' of durations—geological sedimentations, weather systems and various biological cycles—that change, transform and disperse energy at different speeds. Smithson's pivotal land artwork is a rocky pathway whose spiralling form reaches out into Utah's Great Salt Lake. Since its

construction at the beginning of the 1970s, the jetty has undergone a number of changes brought by its environment. The high salinity of the lake waters means that the jetty's rocks have gradually become encrusted with white salt crystals and sometimes these surrounding waters take on a vibrant red hue. For a large part of the 1970s and 1980s, the jetty was actually submerged by the lake levels that continue to rise and fall throughout the year. From saline accumulations to geological sedimentations, Smithson was particularly drawn to both microscopic and macroscopic organic processes that 'advertised' time as an accretive and non-linear force of nature. Bois and Krauss write that Smithson:

> liked the geological metaphor, the idea of a spatial site ravaged by billions of years of upheaval that results in the stratifications of the geological 'clock' appearing to have been submitted to the mercy of a gigantic cocktail shaker.[17]

Smithson's interest in sedimentary timescales holds some affinity with the eighteenth-century Scottish naturalist James Hutton's geological understanding of 'deep time.' Hutton's famous observation was that various geological sites in Scotland exhibited what he called an 'unconformity' where several different ages of rock or systems of erosion and sedimentation could be seen to converge. These observations were radical in the nineteenth century because they suggested that the geological 'record' could not always be interpreted as a linear, chronological 'build-up' of sedimentation. But most significantly, the multitude of these variable geological processes also implied that the earth existed well before the epochs described by scriptural calculations. Hutton's famous temporal statement was that 'we find no vestige

[17] Ibid.

of a beginning—no prospect of an end.'[18] In this respect, the history of humanity is seen to 'shrink' against the immense vastness of a timescale that belongs to the earth. In his insightful critique of deep time, the social anthropologist Richard Irvine suggests that Hutton does not simply establish 'time' beyond the limited biblical calendar, but also established a new relationship between 'man' and 'earth.' He writes that,

> We therefore see that the mountains, subject to a process of decay on a timescale the vastness of which dwarfs human history, are themselves the products of materials that suggest that this enormously slow process of wear and decay has happened before. We are *confronted* with a repeated, lengthy cycle of decay and renewal.[19]

Smithson's *Spiral Jetty* is undoubtedly shaped by this geological description of the relationship between human time and the deep time of the earth.[20] Most notably, his work occasions an encounter between the immediate embodied experience of the viewing subject and the long and short timescales associated with the Great Lakes environment. The circular navigation of the spiral itself generates its own repetitive duration that is set against other, 'non-human' time-cycles such as the accretions of salt crystals that are crunched underfoot and the geological sedimentations of the landscape. Speaking of his relationship to the site itself, Smithson stated,

> As I looked to the site, it reverberated out to the horizons only to suggest an immobile cyclone while flickering light made the entire landscape appear to quake. From the gyrating space emerged the possibility of the *Spiral Jetty*. No

[18] John Hutton, 'Theory of the Earth; Or an Investigation of the Laws Observable in the Composition, Dissolution, and Restoration of Land upon the Globe,' *Transactions of the Royal Society of Edinburgh* 1 (1778), 304.

[19] My emphasis, Richard Irvine, 'Deep Time: An Anthropological Problem,' *Social Anthropology* 22, no. 2 (2014), 163.

[20] One might protest that Smithson's work does not uphold Hutton's particular brand of what is known as 'uniformitarianism': the idea that a set of basic physical laws and geological processes have always acted on the earth with the same intensity. Smithson's multifarious engagement with the concept of entropy might suggest a concern for more aberrant and irregular biological timescales.

> idea, no concepts, no systems, no structures, no abstractions could hold themselves together in the actuality of that phenomenological evidence. It is the human-centred phenomenological experience.[21]

This dynamic dialogue between the immanent times of embodied experience and the vast, cyclical timescales of 'nature' is reflected in the naturalist John Playfair's account of Hutton's 'unconformities'. Crucially, Playfair attends to the 'dizzying' phenomenological experience of encountering timescales that stretch beyond the horizons of the human mind. He wrote:

> We felt ourselves necessarily carried back to the time when the schistus on which we stood was yet at the bottom of the sea, and when the sandstone before us was only beginning to be deposited, in the shape of sand or mud, from the waters of a superincumbent ocean. An epocha still more remote presented itself, when even the most ancient of these rocks, instead of standing upright in vertical beds lay in horizontal planes at the bottom of the sea and was not yet disturbed by that immeasurable force which has burst asunder the solid pavement of the globe. Revolutions still more remote appeared in the distance of this extraordinary perspective. The mind seemed to grow giddy by looking so far into the abyss of time.[22]

As Irvine observes, the great difficulty with Hutton's unconformity and Playfair's dizzying description of the abyss of time, is that it overlooks the time of Others: the non-European societies whose narratives and histories have also laid claim to earthly timescales.[23] It seems that the geological interest in deep time might risk the presumption of an absolute and universal frame of reference. At the close of Chapter

[21] Robert Smithson, from an unpublished text, quoted in Krauss, *Passages in Modern Sculpture*, 282.
[22] John Playfair, *Transactions of the Royal Society of Edinburgh*, Vol. 5 (Edinburgh: Neill & Co. for J. Dickson, 1788), 72-3.
[23] Irvine cites the work of the Persian polymath Ibn Sina (often Latinised as Avicenna; c. 980–1037) who observed and recorded a history of uplift and erosion in the Amur Darya Valley. See Irvine, 157-172 and 162.

Eight, I discussed Johan Fabian's description of the anthropological gaze that denies the 'Other' the 'co-eval' enjoyment of the present time of the observer. While not exactly analogous to Fabian's anthropological analyses, it might be argued that the valorisation of deep time may, in fact, presuppose a more fundamental primordial, universal time that is indifferent to historical inequities of human social structures. The art historian Jennifer L. Robert's cautious suspicion is that Smithson's engagement of entropy was a 'need to pre-figure a transcendent, eternal condition beyond the limitations of…history.'[24]

Nonetheless, as Roberts observes, Smithson's own understanding of historical time was not entirely transparent. It is not clear that he posited deep time as an absolute frame of reference. Smithson's remarkably complex, conflicting, erroneous and ambivalent engagement with the concept of entropy complicates the simple valorisation of a primordial timescale.[25] One might suggest that, for Smithson, entropy is a 'problem of time,' not a temporal answer to historical modernity. In this respect, entropic time offers a multi-faceted 'quasi-cipher' for a radically different form of temporality in art—one that pushed against the mechanistic chronologies that underscored Greenberg's modernism and its reliance on G. W. F. Hegel's modelling of progressive historical time.

In his *Artforum* essay 'Entropy and the New Monuments,' Smithson discusses entropy as the universal movement towards a state of equilibrium. His suggests that the minimalist sculptures of Donald Judd, Robert Morris, Sol LeWitt, Dan Flavin offer a

[24] Jennifer L. Roberts, *Mirror-Travels: Robert Smithson and History* (New Haven: Yale University Press, 2004), 9.

[25] This ambivalence is evident in an interview with Alison Sky where Smithson states that 'geology has its entropy too, where everything is gradually wearing down. Now there may be a point where the earth's surface will collapse and break apart, so that the irreversible process will be in a sense metamorphosized, it is evolutionary, but it's not evolutionary in terms of any idealism…It may be that human beings are just different from dinosaurs rather than better. In other words there just might be a different situation. There's this need to try to transcend one's condition. I'm not a transcendentalist, so I just see things going towards a… well it's very hard to predict anything; anyway all predictions tend to be wrong.' Smithson quoted in Robert Smithson and Alison Sky, 'Entropy Made Visible,' in *Robert Smithson, the Collected Writings*, ed. Jack D. Flam (Berkeley: University of California Press, 1996), 303-4.

'visible analog' of the eventual dispersal of energy in the universe. He writes: 'in the future the whole universe will burn out and be transformed into an all-encompassing sameness.'[26] This eventual equilibrium was seen to offer an apt metaphor for minimalism's simple, repetitive and homogenous arrangements of objects: 'the flat surface, the banal, the empty, the cool, bland after blank; in other words, that infinitesimal condition known as entropy.'[27] Crucially, these 'new monuments' were not in the service of marking great epochs of history or human development, but instead of:

> causing us to remember the past like the old monuments, the new monuments seem to cause us to forget the future. Instead of being made of natural materials, such as marble, granite, or other kinds of rock, the new monuments are made of artificial materials, plastic, chrome, and electric light. They are not built for the ages, but rather against the ages. They are involved in a systematic reduction of time down to fractions of seconds, rather than in representing the long spaces of centuries. Both past and future are placed into an objective present. This kind of time has little or no space; it is stationary and without movement, it is going nowhere, it is anti-Newtonian, as well as being instant, and is against the wheels of the time-clocks.[28]

Of course, in his own earth artworks Smithson very much embraced processes of decay and the deep time of geological formations. In these works, entropy *is* the universal force of decomposition that all material properties, including the seemingly timeless modernist art object, would be eventually subject to. This seemingly contradictory engagement with entropy should not be dismissed as simple conceptual ambivalence. For the purposes of this study, Smithson's concern for entropy can be analogously likened to William Kentridge and Peter Galison's engagement with Einstein's special theory of relativity—a subject that was discussed in Chapter Eight.

[26] Smithson, 'Entropy and the New Monuments,' in *Robert Smithson, the Collected Writings*, 11.
[27] Ibid., 13.
[28] Ibid., 11.

Kentridge's installation the *Refusal of Time* approached special relativity as a figure of temporal uncertainty that worked to 'destabilise' uniform understandings of time. Similarly, Smithson adopts entropy as a rubric of time whose intrinsic dynamism pushes against the trenchant modelling of modernity.

Entropic histories

Ultimately, Jennifer L. Robert's significant scholarly survey of Smithson's work and criticism settles on an important conclusion: that Smithson's engagement of historical time was ambivalently drawn between a potentially transcendent temporal unity and a pluralistic entropic dispersal.[29] As Gary Shapiro similarly observes, it is the Hegelian model of history that Smithson's entropy is set against: the progressive chronological 'advances' of modernity are rendered incommensurate with the cyclical, fluctuating and non-linear temporalities of entropy.[30] Smithson's insistence on entropic decomposition challenged the reductionist biological model of history, but it also sited this model in a vaster, universal timescape. Shapiro writes that in Smithson's work, 'The surfaces of time are personal, geological, and cosmic; among them the trajectories traced by the art history that was invented in the nineteenth century are minor glitches or blips.'[31] For Smithson, historical time was not an empty container of events and

[29] Ibid., 9.

[30] This is the subject of Shapiro's important chapter 'Time and Its Surfaces' in *Earthwards: Robert Smithson and Art After Babel* (Berkeley: University of California Press, 1995), 21-58. It must also be noted that Pamela M. Lee offers a similar account of Smithson's entropy, arguing that his interest in the subject was also informed by the cybernetic, systems theory and non-linear communications systems (discussed in previous chapter). She writes: 'Smithson linked together what might seem disparate to us: the way a system of communication inevitably breaks down over time. However, the system Smithson describes is the system of objects—art objects in particular—and the way they are communicated over history. And what deteriorates with that system is the methodological armature that once supported it: the virtual article of faith that art historical time is progressive and organic.' See Lee, *Chronophobia*, 249 and 255

[31] Ibid., 39.

epochs, but an accretive structure; a 'material residue'[32] that was itself subject to processes of sedimentation and decomposition.

In this respect, Smithson was also highly influenced by the pre-Columbian art historian George Kubler's influential work *The Shape of Time* (1962). Kubler's scholarship drew on anthropology and linguistics, presenting what might be awkwardly described as a 'proto-post-structural' or 'pluralist' understanding of art history. He rejected a linear understanding of history as a rational and successive sequence of styles and periods, warning against evaluating the art object in terms of this unitary historical model. What compelled Kubler was the concomitant existence of different durations, speeds of development and epochal cycles. He wrote:

> historic time seems to be composed of many envelopes, in addition to being mere flow from future to past through present. These envelopes, which all have different contours in the sense that they are durations defined by their contents, can be grouped easily by large and small families of shapes.[33]

Spiral Jetty might be thought of in this respect as a nesting or intercalation of different temporal cycles: bringing together the relatively fleeting times of human experience and the elongated primordial times of the physical world. Or perhaps, one might think of Smithson's work as a Hutton 'unconformity': a clashing of different durations that disrupt the authoritatively linear historical 'record.' Shapiro writes that the minimalist artists, of which group Smithson was often considered a member, were concerned with 'actual, experienced time rather than an ideological time that is constructed through the grand narratives of art history.'[34] As I have discussed extensively throughout this thesis, minimalist works foregrounded the durations of

[32] Roberts, *Mirror-Travels*, 5.
[33] George Kubler, *The Shape of Time; Remarks on the History of Things* (New Haven: Yale University Press, 1962), 99.
[34] Shapiro, *Earthwards*, 39.

their reception—this immanent time of experience and encounter resisted the transcendent historical modelling of modernity. Shapiro suggests that Smithson supplemented the minimalist concern for immanent time with his own interest in the deep time of geological formations and ephemeral biological processes.[35]

For the purposes of this study, *Spiral Jetty* stages a crucial phenomenological encounter between the individual experience of time and the dizzying possibility of deep, geological times. Much like the materially accumulative works that were discussed in the last chapter, works such as *Spiral Jetty* function as an aggregate of different, sometimes conflicting, durations and timescales. The immanent time of experience is brought into spiralling proximity with the deep times of geological sedimentation and the liquidinous times of the lake. On the one hand, the work *is* 'monumental' in the traditional 'Hegelian' sense: it is a large-scale, ambitious and 'heroic' demarcation of the natural landscape. But on the other hand, the *Spiral Jetty* is an anti-monument: a 'flat' memorial that rejects horizontal domination and is made not of indestructible materials, but of ephemeral and dynamic properties. While Smithson was interested in these biological processes and geological timescales, he was no environmentalist, but nor was he a rampant industrialist—his work treads a fine environmental line that does not respect the easy separation of 'man' and 'nature.'[36] While his 'monument' does not rise out of the ground, unlike truly ephemeral works such as Ana Mendieta's earth-body performances or Richard Long's walks, *Spiral Jetty* it is only *relatively* permanent. It has the temporality of a tattoo: a semi-permanent scar on a network of living 'skin-tissue' that is the deep time of geological sedimentation. Smithson's work remains compelling because it recognises that these motivations have

[35] Ibid.
[36] Ibid., 41

different pulses that are described by different understandings of 'time': time as geological striation, time as a entropic force of degeneration, time as embodied experience, and time as historical model.

Icebergs and the Anthropocene

In 2000, the atmospheric chemist Paul Crutzen and biologist Eugene Stoermer proposed the existence of a new epoch in the earth's history: the 'Anthropocene,' they argued, could be traced to the end of the eighteenth century where the activity of the earth's human inhabitants had begun to inextricably shape its geological and biological composition. [37] This designation was intended to supplement the 'Holocene' era that describes the period of warming that occurred after the last ice age, approximately 11,700 years ago. Crutzen and Stoermer's 'Anthropocene' sought to describe precisely how humankind has changed the natural environment through the production of carbon dioxide and methane—a transition that they said could be accurately dated through the analysis of air-trapped in polar ice. Irvine writes that the geological designation of the era of the Anthropocene holds important consequences for anthropological descriptions of humanity. He writes that:

> Part of the challenge for socio-cultural anthropology's engagement with global climate change is the recognition that these processes cannot be understood on a purely human level; in understanding humans as geological agents, we need to

[37] Crutzen and Stoermer's arguments where initially presented in the newsletter of the International Geosphere-Biosphere Programme and have since been discussed by Crutzen in a number of journal papers, the first of which I cite here: Paul J. Crutzen, 'Geology of Mankind,' *Nature* 415, no. 6867 (2002), 23.

> locate anthropic activity not only in social terms, but as part of a wider system of relations within a physical and biological environment.[38]

While this designation has not been widely adopted in the scientific community, the Anthropocene has been compelling for some scientists, including a number of thinkers and artists, who have sought to reformulate the relationship between the human subject and the earth. Crutzen and Stoermer's geological concept is important to this chapter's discussion of Robert Smithson's land art because it explicitly frames these environmental arguments in terms of *time* rather than space. Far from establishing a human-centred understanding of the world, the Anthropocene sets out to juxtapose the human epoch against the deeper timescales of the earth. Although the human material exploitation of natural resources is certainly important, the key geological observation here is one of temporal epochs: the human era shrinks in comparison to the vastness of the earth's timescale, but its environmental effect is said to be disproportionality greater. One might suggest that Smithson's *Spiral Jetty* engages a similar temporal logic by contrasting the phenomenological durations of the individual subject with the 'dizzying' expanses of geological time where no *human* concepts, systems, structures, or abstractions 'could hold themselves together' in facing such vast temporal horizons.

In this respect, the Anthropocene flips the tables on human-privilege, and thereby presents an interesting challenge to contemporary art practices that, as I discussed in Part Three of this thesis, have been oriented toward the experience of a viewing subject. The following chapter will discuss the recent work of a group of philosophers that appeal to the deep timescales of the earth to 'speculate' about

[38] Irvine, *Deep Time*, 168.

ontological structures that exist beyond the confines of human thought. As the theorist Jane Bennett writes:

> In the long and slow time of evolution…mineral material appears as the mover and shaker, the active power, and the human beings, with their much-lauded capacity for self-directed action, appear as its product.[39]

Olafur Eliasson's *Your waste of time (*2006) (Fig. 4.3) emphasises the temporal *asynchrony* of human phenomenology and biological timescales. Discussed briefly in Chapter Eight, this work involves the collection and exhibition of free-floating 'iceberg' chunks of the Icelandic glacier Vatnajökull, parts of which are approximately 800 years old. These chunks have been shown in galleries in Berlin and New York where room temperatures are kept at below freezing in order to sustain their solid constitution. Eliasson ships these icebergs across the globe in refrigerated shipping containers usually used to transport chilled food, meat and water. Like Smithson's *Spiral Jetty*, this work stages an encounter between a warm human body and a much colder and much *older* biological system, in this case, a chunk of ice. It is the particular temporalities of this work that amplify the encounter: the ice has endured over centuries, but its presence in temperate urban environments is tenuous—melting or contamination is an always-impending possibility. This turns a number of tacitly held temporal assumptions on their head: the enduring thing is not a solid material object or a hard mineral mined from the ground, but an ancient piece of fragile and ephemeral ice.

Hans Haacke's *Condensation Cube* (1963-1965) (Fig. 4.4) is significant here in as much as this work articulates the central tension of *Your waste of time:* the viewing body is shown to influence its environment and the aesthetic components of the work

[39] Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham N.C.: Duke University Press, 2010), 11.

itself, even if these systems and processes are 'invisible' to human eyes. In this respect, time must be considered as a crucial aesthetic dimension—and Eliasson's frozen 'sculptures' almost dramatise this point by making the room uncomfortable for human occupation, thereby sustaining the structure and the very characteristic of the ice. These chunks of iceberg are themselves intriguing crystallised, fragmented and glistening forms, but their aesthetic appreciation is fraught with the ethics of human encounter. The individual viewing-body could cause this ice to melt, as much as 'our' collective production of carbon dioxide and methane *is* causing polar icecaps to disintegrate at an ever increasing pace.

Much like Smithson's entropic systems that 'spiral' outward to contest the deterministic historical modelling of time, Eliasson's confrontation between warm and cold times engages the political concerns of the Anthropocene. The embodied consumption patterns of metropolitan subjects—specifically the widespread use of refrigeration to serve international food markets—is contributing to the widespread environmental decline that, according to Crutzen and Stoermer, is the defining feature of this epoch. While its titular address of the viewer makes this clear, *Your Waste of Time* also makes this brittle temporality blatantly *sensorial*: the environmental impact of the human viewer is actualised in the frosty, cold physical presence of fragile chunks of ice.

Figure 4.3: Olafur Eliasson, *Your waste of time*, 2006.

Figure 4.4: Hans Haacke, *Condensation Cube*, 1963-65.

CHAPTER FOURTEEN

Non-Human Times

Introduction: The speculative time of art?

'Speculative realism' is the name given to a diverse group of recent philosophical movements that are loosely concerned with investigating a world of properties, materials and events outside of human thought. A number of contemporary theorists have been associated with this movement including Graham Harman, Jane Bennett, Quentin Meillassoux, Patricia Clough, Iain Hamilton Grant, Levi Bryant, Ian Bogost, Steven Shaviro, Reza Negarestani and Ray Brassier.[1] These thinkers present a series of distinct philosophies that are not formally unified, but share a common opposition to what is known as 'correlationism': the idea that human thought and the physical world are inherently related; that one cannot be considered without the other. Meillassoux's important work *After Finitude* (2006) argues that all 'post-critical' philosophies that developed in the wake of Kantian transcendentalism are beset by an inescapable correspondence between humanity and the properties of a world that is external to it.[2]

The speculative realist complaint is that the 'correlation' supports an anthropocentric understanding of the world: it elevates human conscious experience

[1] These theorists do not subscribe to a cohesive philosophical position and may have their own reasons to be justifiably omitted here. Nonetheless their works have variously shaped contemporary speculative arguments and have influenced self-described 'speculative' thinkers such as Timothy Morton from whose book I draw this list. See, Morton's *Hyperobjects: Philosophy and Ecology After the End of the World* (Minneapolis: University of Minnesota Press, 2013), 9.

[2] Quentin Meillassoux, *After Finitude: An Essay on the Necessity of Contingency* (London; New York: Continuum, 2008).

above other objects, systems and properties by positing the subject as the locus of all thought—the point around which everything else must dance. While Meillassoux's philosophy attempts to establish a radical mathematical 'facticity' that is *regardless* of human existence, a number of speculative realists do not wholly reject the 'human perspective' in conceiving non-anthropocentric networks of equitable relationships between human and object. This 'Object Orientated Ontology' (OOO) is variously associated with the work of Graham Harman, Jane Bennett and Ian Bogost.

Speculative realism thus offers a variety of philosophical pathways that establish the existence of a world not simply beyond, but independent of the limitations of human experience. Of particular interest to this thesis, is how the concept of time becomes a force of resisting a human-centred understanding of the world. Contrary to phenomenology's insistence on the immanent embodied experience of time, Meillassoux's philosophy actually positions time in opposition to human thought. In *After Finitude*, the 'deep' ancestral time of fossilisation is the means by which the non-human is constituted. Alternatively, the OOO wing of speculative realism establishes time as the 'inaccessible' dimension by which the object withdraws from human use, apprehension and understanding. While Parts Two and Three of this thesis discussed time as scientific measure, a function of capitalism or an attribute of human experience, this chapter describes a time that resists anthropocentric conscription and refuses to service humanity.

As I suggested in the preceding chapter, speculative realism poses an interesting challenge to the phenomenological experience of the contemporary art object. While Robert Smithson's *Spiral Jetty* 'stages' an encounter between the immanent embodied experiences of a viewing subject and the biological 'non-human' durations of salt and sedimentation, some strands of speculative realism would seek to move beyond this

focus on a human subject who is always posited at the centre of Smithson's spiral. Like all of the artworks hitherto discussed in this thesis, *Spiral Jetty* is orientated toward one or many human subjects who experience an aesthetic interplay of sensations and concepts. It is the *centrality* of the human experience of aesthetics that is at stake here. The theorist N. Katherine Hayles offers an important survey of this issue in her recent essay 'Speculative Aesthetics and Object-Oriented Inquiry (OOI).'[3] She writes,

> aesthetics has at its centre human perception. Indeed, this idea is embedded even in the etymology of the term, which derives from the Greek *aisthetikos*, meaning "esthetic, sensitive, sentient," in turn derived from *aisthanomai*, meaning "I perceive, feel, sense." To this premise, speculative realism issues a strong challenge.[4]

Nonetheless, as Hayles's essay also explains, the show is not *necessarily* over for art and speculation. Smithson was expressly drawn to the ancient sedimentations of Utah's prehistoric pluvial lake precisely because these entropic timescales exceeded the durations of human time: his work engaged biological systems that, like Henri Bergson's cube of sugar, 'withdraw' from human experience. A number of more recent artworks have similarly established geological, biological or technological systems that exist, or will come to exist, autonomously beyond both the reach of individual aesthetic experience and the collective institutional structures of the museum. This chapter discusses works by Olafur Eliasson, Marcus Coates and Trevor Paglen that engage different biological, geological and technological systems of time. While the OOO wing of speculative realism may offer a more fruitful means of discussing the art object, it is Meillassoux's radical anti-correlationism that explicitly attends to the philosophical

[3] N. Katherine Hayles, 'Speculative Aesthetics and Object-Oriented Inquiry (OOI),' *Speculations: A Journal of Speculative Realism*, no. 5 (2014): 158-179.
[4] Ibid., 158.

consequences of time. In this respect, the question that guides this chapter is not 'what can art say about speculative realism?' but 'what can speculative realism say about the time of art?' Is it possible to countenance a time within the frameworks of aesthetics that is not '*for us*' but *'for itself'?*

The correlation

For the philosopher Graham Harman, Meillassoux's 'correlationism' presents a diagnosis of the long-standing dispute between realism and idealism in Western philosophy.[5] The argument follows that if the philosopher can neither gain direct access to 'things-in-themselves'—as the realist would have it—or retreat to the idealist representations of the mind, then what she is left with is a correlation of the two: the primordially sticky relationship between the human subject and the worldly objects of its perception.[6] Meillassoux's central thesis is that the correlation has become *the* 'grammatical principle' of all modern philosophies, thereby establishing an anthropocentric bind where it is impossible to conceive of a world without 'our thought', or a thought without 'our world.' For Meillassoux, the two major philosophies of the twentieth century have sought to reconfigure the correlation through either a phenomenological concern for human consciousness, or an analytic interest in human language.[7] His problem is not the existence of human thought, *per se*, but the premise that modern philosophy cannot conceive of any form of *absolute* knowledge outside of it. In essence, Meillassoux suggests that the correlation traps philosophical thought within an anthropocentric perspective. He writes that it locks us to 'our

[5] Graham Harman, *Quentin Meillassoux: Philosophy in the Making* (Edinburgh: Edinburgh University Press, 2011), 6-7.
[6] Ibid., 6.
[7] Meillassoux , *After Finitude*, 15.

representations—conscious, linguistic, historical ones—without any means of access to an external reality independent of our specific point of view.'[8]

It follows, that Meillassoux's philosophical aim is to maintain the existence of an absolute world beyond human thought, without falling prey to a naïve or dogmatic realism. What is of particular importance to this study is the role that time takes as a philosophical broker of this 'non-human' existence. Time, for Meillassoux, suggests the primal existence of a world both prior to and after humanity's 'finite' duration. In this respect, time gives us—the human subject—pause to speculate about the world in our absence, or the world before the very existence of our consciousness. This 'speculative realism' has been embraced by a number of contemporary thinkers eager to challenge human exceptionalism in positing the existence of a 'great outdoors' that, most importantly, remains indifferent to our being in it, that is said to exist '… regardless of whether we are thinking of it or not…with the legitimate feeling of being on foreign territory—of being entirely elsewhere.'[9]

Ancestrality: time beyond thought

The key to Meillassoux's arguments is the existence of temporal 'evidence' of a world prior to human conscious experience. His important concept of 'ancestrality' is founded on the premise that modern scientific techniques such as carbon dating can accurately attribute ancient fossilised objects to a time before the emergence of *homo habilis.* These 'arche-fossils' are the 'spanner in the works' for correlationism. While the mention of ancient fossils annealed in stone might bring to mind Playfair's description of encountering the geological 'unconformity' of Scottish rock formations where the

[8] Meillassoux, *Time Without Becoming*, 20.
[9] Meillassoux , *After Finitude*, 17.

mind was said to grow 'giddy by looking so far into the abyss of time.' This human-centred experience of deep time is precisely *not* what Meillassoux's ancestrality is concerned with. Rather, he is interested in how science can make cold, hard factual 'ancestral statements' about the age of certain entities.[10] The technological development of dating techniques is crucial for Meillassoux because it allows scientists to make precise statements about the timeline of a world that exceeds humanity's lifespan: the universe originated 13.5 billion years ago, life on earth emerged 10 billion years ago, and *homo habilis* developed 1.5 billion years after that. For Meillassoux, these 'ancestral statements' confirm the existence of a time that antedates the durations of human experience.

One might protest that this catalogue of ancient dates implies a human-centred perspective whereby the world is said to originate 13.5 billion years ago, *for us*. Most significantly, Meillassoux answers this objection by hitching his philosophical wagon to the fundamental 'accuracy' of science, more specifically the basic adherence of a mathematical structure beyond human thought. The problem for Meillassoux is that correlationist philosophies seek to draw this mathematically articulated time back into the phenomenological folds of experience. In this respect, the 'schism of modernity' is the persistent 'retrojection' of the ancient time before thought with the immanent time of the present. Meillassoux writes:

> This is the ultimate expression of the schism: the deep meaning of the pre-human past consists in its being retrojected on the basis of a human present that is itself historically situated. While science, through its rigorous mathematization of nature, uncovered a time wherein humanity could come into existence or be abolished while that time remained unaffected, philosophical time has sought to demote the time of science to the level of a 'vulgar', 'derivative', or 'standardized'

[10] Meillassoux, *Time Without Becoming*, 13.

form of originary correlational temporality, being-in-the-world, or the relation to a supposedly primordial historicality.[11]

Thus it follows that Meillassoux's ancestral time cannot be situated within or even 'with' the human subject—it must be something that exists 'outside' the subject's experiential horizon. Crucially, the arche-fossil ensures this externality by introducing what Meillassoux calls a 'temporal discrepancy' between 'thinking and being.'[12] It seems that for Meillassoux, time cannot be the seat of 'my' conscious engagement with the world—as Husserlian phenomenology would have it—because the unity of my thinking is contested by the dusty evidence of a thing that pre-dates my own consciousness. In the last chapter of *After Finitude*, Meillassoux expands this temporal discrepancy to include predictive 'dia-chronic' statements that suggest the end of human life, including hypotheses regarding meteoric, geological and climactic events.[13] Here, Meillassoux describes a set of non-human 'existences' that emerge from both the past and the future to put pressure on human privilege—on an anthropocentric favour that has often been premised on an authentic access to an incontrovertible 'now moment' in time. Meillassoux's fossil-time offers evidence of things beyond not simply the 'now moment' or even the 'specious present' of human experience, but the fundamental finitude of human consciousness itself.

At this point, it might be tempting to ask how Meillassoux's concern for an independent human 'reality' is different from a naïve philosophical realism that posits a direct, unmediated access to a solid material world—to the all-consuming wilderness of the 'great outdoors,' for instance. While Meillassoux does execute a rather nifty rearrangement of the traditional opposition between idealism and realism, what

[11] Meillassoux , *After Finitude*, 198.
[12] Ibid.,182.
[13] Ibid.,182.

remains particularly compelling for this study is his idea that a specific form of radically contingent time confirms the *absolute* existence of a world beyond human thought. He writes that while science can make mathematical statements about a world that is independent of human thought, what is key to this independence is their contingency. According to Meillassoux, any scientific hypothesis is only as good as the next one—they may be replaced or supplanted at any moment and no one can say with any certainty that these statements will *always* hold true for times past and future.[14] This emphasis on temporal contingency is important: what remains 'absolute,' according to Meillassoux, is what might be inelegantly described as the 'certainty of uncertainty.' The concept of a 'hyper-chaos' is introduced here to describe this radical contingency—a vertiginously difficult subject, for which it is worth quoting Meillassoux at length:

> If we look through the aperture which we have opened up onto the absolute, what we see there is a rather menacing power—something insensible, and capable of destroying both things and worlds, of bringing forth monstrous absurdities, yet also of never doing anything, of realizing every dream, but also every nightmare, of engendering random and frenetic transformations, or conversely, of producing a universe that remains motionless down to its ultimate recesses, like a cloud bearing the fiercest storms, then the eeriest bright spells, if only for an interval of disquieting calm…We see something akin to Time, but a Time that is inconceivable for physics, since it is capable of destroying, without cause or reason, every physical law, just as it is inconceivable for metaphysics, since it is capable of destroying every determinate entity, even a god, even God. This is not a Heraclitean time, since it is not the eternal law of becoming, but rather the eternal and lawless possible becoming of every law. It is a Time

[14] Meillassoux, *Time Without Becoming*, 18. In this respect, one might note that Meillassoux's interest in scientific 'statements' contests the constancy of Hutton's geological uniformitarianism.

capable of destroying even becoming itself by bringing forth, perhaps forever, fixity, stasis, and death.[15]

This puts Meillassoux, by his own admission, in opposition to Heraclitus and the metaphysical philosophers of becoming, including Deleuze and, by extension, Bergson. For Meillassoux, Heraclitus is a 'terrible fixist' because he believes that becoming must itself adhere to a continual state of becoming: processes must always proceed; the laws of continual transformation must remain unchanging.[16] Meillassoux's time is, in fact, a time without becoming, a time that is absolute in its contingency. With the radical concept of hyper-chaos, Meillassoux refuses all philosophies of becoming and aligns himself instead with what is described as the '*peut-être*' or the philosophy of the 'may-be'[17]—in other words, the philosophy of *speculation*. In Meillassoux's thought, what exists 'outside' human experience—what comprises the absolute world—is a form of radical chaos whose contingency is both persistent and fragile.

Ancestral moss

Meillassoux's insistence on the importance of a mathematically prescribed time beyond human thought is undoubtedly problematic for art, not simply because it divests phenomenological experience, but because it restrains temporal dynamism: processes of change, becoming and transformation that the previous chapters have shown to be significant features of time's adherence in contemporary art practices. But what compels me here is that a number of artists have been expressly interested in 'ancestral statements' as evidence of times that are not bound to human thought and experience.

[15] Ibid., 105-6.
[16] Ibid., 25.
[17] Ibid., 11.

As I discussed in the previous chapter, Smithson's *Spiral Jetty* and Eliasson's iceberg works stage a *reciprocal* encounter between an embodied human subject and an expressly non-human timescale: like Haacke's *Condensation Cube*, the viewer's phenomenological observations shape the physical composition of the work itself. Eliasson's icebergs underscore this reciprocal encounter through their artificially frozen existence in a normally tepid gallery space. But a number of works also persist beyond this human-oriented encounter by insisting on timescales and durations—both deep and short—that are not contained by the viewing experience.

Comprised of hundreds of living reindeer mosses found in the Arctic Circle, Olafur Eliasson's *Moss Wall* (1994) (Fig. 4.5 and 4.5a) embraces the intrinsic mutability of biological life-forms. The reindeer mosses (*Cladonia rangiferina*) of northern Scandinavia live for hundreds of years and have notoriously slow rates of growth. Mounted on the wall of a given exhibition space by way of a wire-mesh structure, Eliasson's accumulated mosses appear like an undulating 'carpet' of living herbaceous matter. While the lichen is given to drying out, shrinking and fading when it is stored, when the installation is watered the moss changes colour and begins to emit a particularly pungent odour. This musky smell reminds viewers that they are indeed contemplating a living thing whose dynamic 'liveness' is nonetheless 'invisible' to human eyes. The viewer cannot 'watch' the multitude of changes, colourations and biological processes that obtain in the mosses sluggish growth. Unlike Eliasson's iceberg works that emphasise the fragile physical encounter between humid human durations and frigid artic temperatures, the incremental timescales of these clumps of moss seem somewhat indifferent to the viewing experience. As much as Eliasson's work is made 'for us,' and becomes lush and watered in 'our' presence, it also refuses to reveal itself entirely: through dry and wet, the moss's lifespan simply continues to incrementally

expand. In this respect, time is the thing that draws the artwork away from the phenomenal reaches of the viewer's experience—a 'withdrawal' that is crucial to charting a path between art practices and the non-human temporalities of speculative realism.

Figure 4.5 and 4.5a: Olafur Eliasson, *Moss wall,* 1994. Above: Moderna Museet Stockholm, 2015.

The durations of 'withdrawal'

While the 'Object Orientated Ontology' branch of speculative realism—referred to hereafter as OOO—does not explicitly attend to these issues of time, its emphasis on the relational networking of objects maybe more useful in considering aesthetics than Meillassoux's radical anti-correlationism. Graham Harman's philosophy emphasises a 'flat-ontological' structure where all objects exist in a 'mesh' of entangled relationships that do not discriminate between a thinking human subject and inanimate material things.[18] Within this flat ontology there is no room for human exceptionalism or anthropocentricity: it follows that, regardless of a viewing subject's experience, the moss of Eliasson's work will always remain obstinately moss-like. As the OOO philosopher Timothy Morton observes, in Harman's world there exists no critical difference between a 'person and a pincushion.'[19]

Crucially, Harman argues that this flat ontological arrangement is not the result of a 'human failure' to impose upon objects in demanding unsullied access, but is due instead to an intrinsic propensity for all objects, human or otherwise, to recoil from one another. Jane Bennett's more relational understanding of objects makes this clear. Her rather ebullient description of a bunch of urban detritus does not simply reject the appeal of these things to the human subject, but also acknowledges that they refrain from anthropocentric inquiry:

> When the materiality of the glove, the rat, the pollen, the bottle cap, and the stick started to shimmer and spark, it was in part because of the contingent tableau that they formed with each other, with the street, with the weather that morning,

[18] The central concepts of Harman's OOO thesis are argued in Graham Harman, *Tool-Being: Heidegger and the Metaphysics of Objects* (New York: Open Court, 2002). This work of Heideggerian 'tool-analysis' does not employ the OOO terminology, but as Hayles notes, Harman has retrospectively adopted the this designation. See Hayles, 'Speculative Aesthetics,' 158.

[19] Morton, *Hyperobjects*, 14.

> with me. For had the sun not glinted on the black glove, I might not have seen the rat; had the rat not been there, I might not have noted the bottle cap, and so on. But they were all there just as they were, and so I caught a glimpse of an energetic vitality inside each of these things, things that I generally conceived as inert. In this assemblage, objects appeared as things, that is, as vivid entities not entirely reducible to the contexts in which (human) subjects set them, never entirely exhausted by their semiotics.[20]

Returning to Harman, part of 'being' an object is precisely its withdrawal from human inquiry: a facet of the object must always remain unknowable, thereby refusing anthropocentric utility. In this respect, the OOO position turns the tables on the speculative realism described by Meillassoux: it is not the human subject that cannot access the object, it is the object's own disposition towards withdrawal that remains important.

The difficulty for this study is that Harman's description of the flat ontology of objects lacks a temporal sophistication. Katherine N. Hayles writes that for Harman the object simply withdraws *infinitely,*[21] in which case the latter might as well be describing a withdrawal to a 'timeless' plane that makes no distinction between asynchronous speeds, tempos or rhythms.[22] Drawn from her scientific work with different materials, Hayles's more compelling argument is that objects actively withstand human endeavours in a 'continually transforming and morphing resistance that leads to expanding and deepening knowledge.'[23] This temporal gloss on Hayles's arguments is

[20] Bennett, *Vibrant Matter*, 5.
[21] Hayles, 'Speculative Aesthetics,' 169.
[22] This terminology may require some clarification: Harman's concept of 'withdrawal' suggests that parts of the 'inanimate' object will always remain unknown both to other such objects and to human experience—this is the focus of his Heideggerian tool-analysis. Taking a slightly different approach, Hayles proposes that objects and materials might actively refuse human inquiry. Meillassoux's more radical position might be that 'refusal' and 'withdrawal' still posits a human focus through an implicit centring—for instance, a resistance 'to' the human and withdrawal 'from' the human. This example may offer a small insight into the marked divergences within this loosely associated philosophical grouping.
[23] Ibid.

my own, but it is also suggested by Eliasson's mosses that recoil *in time* in a way that escapes the human viewer's phenomenal experience. Most importantly, the durations of the moss do not observe a singular, undifferentiated and unbiased timescale that stretches into a Newtonian 'infinity,' but obtain different rhythms and speeds of transformation.

This resistance of objects to human inquiry is important for Hayles because it suggests an avenue by which aesthetics might contribute to the non-humanism of OOO philosophies. While Hayles writes that 'aesthetics has at its centre human perception,' her central thesis is that art can make the human subject realise her or his own anthropocentric limitations.[24] Hayles's essay discusses Vilém Flusser's literary treatise on the vampire squid in which 'Vampyroteuthis' is self-reflexively constructed as 'the human inverted, as in a mirror' which is used to underscore 'the ways in which he encounters the world, and to use these discoveries to reveal the Vampyroteuthis hidden or repressed within human culture.'[25]

Rather than follow Hayles's vampyrical analysis here, I turn to Marcus Coates's multi-screen video work *Dawn Chorus* (2007) (Fig. 4.6) because it articulates precisely how this inversion of the human can occur through non-human patterns of time and duration. Coates's compelling work is a chorus of bird song sung by humans. Each of its nineteen video screens is devoted to a single person who appears to sing, with strange and stunning exactness, like a bird. *Dawn Chorus* began with Coates making a series of twenty-four-track synchronous recordings of morning birdsong in a forest in Northumberland. While this simultaneous capture of individual birdsong presented a feat of naturalist recording in itself, Coates then asked for a feat of human acquisition.

[24] Ibid., 158.
[25] Ibid.,161-2.

Each birdsong track was slowed down by a factor of twenty so that a human participant could perceive and learn its individual tones, eventually performing this song in their own everyday 'habitat.' A doctor's office, a bathtub and various domestic and work locales are the backdrop for each recital. Coates explains:

> Interestingly, a bird song at normal speed could contain 4 or 5 notes but slowed down it could reveal up to 40 notes offering a different level of complexity to the listener. We then slowed the songs 20 times and asked singers to sing along with it whilst we were filming and then speed up the film 20 times. This was a very demanding task. We also had to choose our singers according to the original range presented by the birds. So for a Robin we had to choose a young person that was able to go very high and very low. The robin really takes big breaths and does not breath for a long while so the person singing its song has to do the same.[26]

Like Hayles's vampire squid, Coates's work presents a rather uncanny 'anthropomorphisation' of birdsong that works to reveal the 'human perspective' as fundamentally *un*exceptional. The selection of participants according to their vocal range suggests that the subject does not simply 'master' the birdsong, as one might master the vicissitudes of nature, but that this participation is itself shaped by non-human conditions. *Dawn Chorus* refuses the absolute frame of 'human reference' by feeding this perspective through the rapid sonic melodies of a bird. This explicates Hayles's approach to OOO philosophies whereby the human perspective is not simply vanquished, so much as it is made to acknowledge its contra-exceptional existence in a world of obstinately resistant things (and animals). She writes that Flusser's description of the vampire squid projects 'the human imagination into the nonhuman other and

[26] Marcus Coates quoted in Giovanni Aloi, 'Marcus Coates: Becoming Animal,' *Antennae* Winter, no. 4 (2007), 20.

thus, far from trying to escape anthropomorphism, revels in it, although in a complex fashion that both reinforces and undermines it simultaneously.'[27]

In this respect, *Dawn Chorus* recalls a vibrant field of scholarship concerning the relationship between the animal and the human, specifically Gilles Deleuze and Félix Guattari's concept of 'becoming animal.'[28] I do not pursue this subject here in favour of this chapter's central concern for non-human temporalities. Coates's work achieves its significant challenge to the human/viewer privilege through time conceived as a multiple, asynchronous and dynamic force of becoming. He explains that each human singer needed to perform their individual birdsong for two hours that was then accelerated and reduced to approximately eight minutes. This lengthy time of recital meant its singing became 'instinctive' in as much as each individual singer could not 'mentally sustain a conscious interpretation' of the song or their activities.[29] Coates has suggested that:

> Perhaps this is why some of the singers felt it was the closest they would get to knowing what it is like to be a song thrush or blackbird. They had been taking the same breaths and making the same sounds but on a different scale…The entire project created a fountain of speculation—whether the speed at which we engage with our surroundings could be the measure of our relative consciousness (to other species).[30]

The particular speed at which 'we' live our human lives is revealed in the accelerated birdsong recording where each singer appears to move like a bird, adopting the seemingly uncanny avian tics, twitches through their rapid facial movements. The realisation of the human-viewer is that other things, animals and objects do actually *live*

[27] Hayles, 'Speculative Aesthetics,' 160.
[28] This subject is insightfully tackled by Giovanni Aloi in 'Different Becomings,' *Art and Research* 4, no. 1 (Summer 2011), accessed 23 March 2015, http://www.artandresearch.org.uk/v4n1/aloi.php.
[29] Coates quoted in Aloi, *Becoming Animal*, 34.
[30] Ibid., 34-5.

at different speeds and rhythms of duration. Just as Eliasson's mosses may assume an achingly slow timescale, Coates's birds appear to live at much more precipitous speeds. But the point here is that the values associated with these speeds—whether they appear fast or slow—are only given through relative comparison: the bird enjoys a faster pace of life compared to 'our' sluggish existence. Where Einstein's special theory of relativity effectively discovered that it is only the speed of light that is fixed; every other tempo, velocity and rate of change exists in a mutable and transitive timescape. The insight of speculative philosophies is that these relative durations do not simply put pressure on the Newtonian master timescale, but that they refuse to award the human subject a *unique* perspective on time itself.[31]

Figure 4.6: Marcus Coates, *Dawn Chorus*, 2007.

[31] Morton suggests that special relativity 'guarantees that real objects will be forever withdrawn from any object that tries to access them, including those objects themselves.' Following these arguments, in the Einsteinian universe, time and space are the 'emergent properties' of objects, and not their transcendent 'containers.' In this respect, special relativity does not simply loosen the 'fixity' of human perspective, it contests the very primacy of this perspective itself. Morton rather evocatively writes: 'Power is on the side of the object apprehended, not on the side of the apprehending thing (whether it's us or a pencil or a reverse thruster).' See Morton's further discussion of Einsteinian relativity, *Hyperobjects*, 61-3.

Finitude now: The Last Pictures

Trevor Paglen's ambitious project *The Last Pictures* (2012) (Fig. 4.7) is concerned with the multi-faceted 'temporal problem' of the relationship between human perspective and time(s). In 2012, a brass disc etched with one hundred photographic images taken during the last century was attached to the anti-earth deck of the television satellite EchoStar XVI and launched into the earth's orbit.[32] The satellite is built to last approximately fifteen years, at which point it will enter a 'graveyard' orbit, lose power and cease to project television images back to earth. The EchoStar XVI is then predicted to join around eight hundred spacecraft that, since the first communications satellite launch in 1963, continue to maintain their geosynchronous orbit of the earth at an altitude of 36,000 kilometres. At this distance from the blue planet, the satellite orbits will never decay, meaning that this 'space junk' is set to outlive human existence on earth itself. Paglen's brass disc has thus been designed to last in this environment for billions of years. A rather momentous gesture, these 'last' pictures will potentially endure beyond the collective generational lifespans of the human species.

With respect to this 'deep time' endurance, Paglen's disc might be thought of as a 'fossil' for the future. But because these images will outlast the correlation, this work actually functions to ossify the human perspective. *The Last Pictures* effectively projects 'our' fixed frame of reference into space; lodging this fossilised perspective in a

[32] The astronomer Carl Sagan famously organised a similar project in 1977 whereby a gold-plated copper phonograph record was stowed on each of the Voyager spacecrafts launched by the United States in that year. The 'Voyager Golden Records' included an encoded video signal with greetings in fifty-five different languages, a collection of images and 'world music.' As Paglen suggests, the Sagan's record sustained a heroic human universalism, but also provoked a certain scrutiny of the structure of human perspective itself. He states: 'The images are a cross between The Family of Man and *National Geographic*, which is actually the source for most of them. When you look at the Golden Record's contents, it looks a lot like a kind of 'it's a small world' multicultural utopia. No images of war, poverty, inequality, environmental destruction. You can imagine the obvious critiques.' Trevor Paglen quoted in Nato Thompson, 'The Last Pictures: Interview with Trevor Paglen,' *e-flux journal* 37 (September 2012), 3.

geosynchronous orbit that is indifferent to its contents. Paglen's work obliges the recognition of the correlation as a 'construction' and not an innate universal condition, but also obliges its viewers to 'speculate' about perspectives that are fundamentally alien to it. Paglen remarks:

> A lot of people have described the project as a "time capsule" or a "message for the future," which is one way to think about it. But I often think about the project as an exquisitely human construction, containing traces of stories, emotions, impressions, and ideas. The object then goes into space, and the pictures—little bits of congealed humanity—then orbit the earth forever, and the pictures will watch the earth transform, evolve, and ultimately end. In this scenario, the pictures aren't representations or messages so much as little traces of humanity that will watch the earth when we are gone.[33]

Importantly, this dualism of 'congealed humanity' and speculative non-human perspectives accommodates multiple registers of time. Like Smithson and Holt, Paglen's project appeals to the 'universality' of a deeper non-human timescale that flattens any intrinsic anthropocentrism. Nonetheless, this idealistic singularity is always fractured. Paglen observes that the disc's enduring existence within the 'deep time of the cosmos' is off-set by the EchoStar XVI itself as 'an instrument of speed, transmitting hundreds of thousands of images per minute, all at the speed of light.'[34] What Paglen's work makes clear is that 'deep time' is not a fixed, universal continuum, but a malleable evaluation of time that shifts according to 'perspective.' In the end, after the finitude of the human frame of reference, the deep time of earth is rendered meaningless against Einstein's discovery: the enduring constancy of the speed of light.

[33] Paglen quoted in ibid., 6.

[34] Paglen, *The Last Pictures* (New York; Berkeley: Creative Time Books; University of California Press, 2012), 11.

Figure 4.7: Trevor Paglen, *The Last Pictures*, 2012.

Conclusion

In the months before I began this study of time and art, I spent some weeks away from my computer walking in the Himalayas. Not the high-octane, adventurous Everest trails, but the quieter Annapurna circuit that borders with Tibet: at that time of year, an arid landscape, tree-bare, without the rhododendrons of spring or the avalanches of winter. A few days into the trek I found myself at the bottom of a small gully, waiting for my friend, next to a half-frozen river. I was bored, impatient and began cracking the iced-over stream with point of my walking stick, breaking through to the pebbles beneath. In this somewhat childish moment of irritability I noticed a set of patterns: striations in stone, a sequence of geometries, lines and repetitions. I found an ammonite—a mollusc from the Jurassic age about 140 million years old. Lifting it from the riverbed, fossil in palm, time seemed to split open. Up until this point in the walk, I had been focused on the spatial magnitudes of the journey: the height, altitude and distance of the mountain range. But with stone in hand, a vast expanse of time opened up before me. A time that was equal to the greatness of the mountain; a mountain that had once been a sea; waters that had once held a shell-less creature, now hardened in stone. And, of course, I had simply become a speck; a body; a set of patterns, human striations, in a vast, dusty history of time and space.

For some, this experience of time might seem particularly captivating: it suggests the existence of a temporal dimension that is not simply measured and quantified, but *instantiated* in the weight of a stone held in the hand—a fossilised creature whose own time vastly precedes the durations of the human body. My discovery of an ammonite has the wondrous, dizzying qualities of John Playfair's encounter of James Hutton's

geological 'unconformities': suddenly, the material durations of the earth compel a remarkably different way of looking at the world. Time is not certified by biblical events or familial lineages, nor is it contracted into the tick of the clock or the timestamps of emails, messages and the scheduling of multiplicitous digital lives. This time is out of joint.

But my own experience of the ammonite is far from the primary insights of this study of time and art. The ammonite simply presents *one* way to look at time, amongst many others. Contemporary art is unique, compelling and challenging because it instantiates, solicits, generates and manifests many different times and durations. If we were to think of time as a singular chronology—an ideal cultivated by thinkers from Gotthold Lessing to Clement Greenberg—then art fractures this specious universality, crystallising different, conflicting, divergent, sympathetic and harmonious timescales. This study has discussed how the multiple media and modalities of art practices since the late 1950s have each engaged temporal durations in different ways: time *is* a montage of cinematic clocks, a choir of human birdsong, melting icebergs, hand-rendered calculations, calendrical observations, scrolling animations, white marble and milk, an online platform, a collection of stuff, a disc of photographs sent into space. These works suggest that while time is not the preserve of a single medium or modality, it is also sensitive to the variable temporalities of media. The sedimentary salt crystals accumulating on Robert Smithson's *Spiral Jetty* are far removed from the simple *san serif* dates of On Kawara's *Today Series*.

The significance of this diversity, this multiplicity of times, is not simply that it offers an alternative to the bedside alarm or the constant stream of emails, but that it resists modernity's systematic standardisation of 'The Time.' The polychronous

timescapes of contemporary art put pressure on the singular gearing of modernity; they resist the blanket universality of chronology and its regulation of 'messy' human experiences. I must acknowledge Christine Ross's scholarship here that describes a 'temporal turn' in contemporary art where a number of recent artists have developed aesthetic strategies that contest, suspend and thwart the relentless forward momentum of modernity. My own arguments are less interested in describing a particular periodic 'turn' in recent art history, so much as they seek to describe the manifestly diverse adherence of time within these practices. It is my suggestion that contemporary art continues to contribute to a particularly pressing temporal dialogue between the rigid homogenisation of time and the proliferation of different durations.

Although it makes a still somewhat unorthodox appearance within art historical literature, Albert Einstein's special theory of relativity offers an important theoretical framework for exploring the temporal dialogue of the 'one and the many.' The proliferation of multiple perspectives within the Einsteinian universe, and their equivalent validity, has been compelling for many artists as a theoretical means of challenging the traditional fixity of phenomenological relations between art and viewer—between aesthetic composition and the process of viewership itself. While critics such as Michael Fried might have mourned the 'graceful' simplicity of an instantaneous aesthetic impression, artists such as Daniel Crooks and Tomás Saraceno render uncertain the hitherto sturdy and reliable physical structures of the Enlightenment. What William Kentridge and Lisa Reihana realise is that this phenomenological uncertainty is inflected by histories of socio-political inequity, specifically the history of colonisation *through* time as a force of regulation and cultural imperialism. Time is more than a measure, a slice or a foliation of the spacetime continuum. The performative works of Mierle Laderman Ukeles and Faith Wilding

reveal the fallacy of a timescale that means the 'same thing,' and is experienced in the exactly the same way, by each and every viewing subject. Time is certainly not equally 'distributed' within the socio-political sphere.

Against the theoretical modelling of time, the abiding concern of this study has been art's capacity to make time *immanent*; to resist its conceptual abstraction by embracing temporal durations, processes and systems, both human and non-human. The philosophical tradition of phenomenology has been an important through-thread here as a means of describing the crucial interrelations of time, viewer and artwork. The accumulative installations of Song Dong and Daniel Malone propose a complex phenomenological aesthetics where time is drawn between the sedimentary act of collecting, and the overwhelming, potentially disorientating, experience of navigating a multiplicity of things: buttons, aging fruit, machines, utensils and consumerist packaging. These works require a careful consideration both of the memorial architectures of human experience, and the durations that obtain within different material objects. Henri Bergson's philosophy of *durée* has been especially important in this respect because it provides a framework, not simply for thinking about multiple times, but for considering time as a *rhythm*: a duration that maintains its own qualitative distinctions, flows and fluctuations. Too little scholarship has focused on the art historical importance of material ephemerality, transience and fragility in contemporary art—and this thesis makes only the smallest of contributions.

But the ephemeral dynamism of time has also been significant in works that challenge the viewing subject's central position within these discourses. One of the guiding principles of this thesis has been that time emerges *with* the encounter of an artwork—an aesthetic experience that Rosalind Krauss has described as 'passage.' But

works such as Trevor Paglen's *The Last Pictures* purposefully reach beyond this phenomenological inscription of human experience. More radical than Paglen's futuristically 'fossilised' human perspectives, Quentin Meillassoux's philosophical dismantling of phenomenology's anthropocentric tether posits ancestral time as the key to an absolute non-human temporality. In certain respects, this 'human disinterest' tallies with Einstein's own theoretical description of multiple temporal perspectives: the special theory of relativity is fundamentally indifferent to the 'dizzying' experience of the human subject whose own perspective is just as relevant as that of a pot plant or a computer. While this study has magnified the possibilities of multiple asynchronous and heterogeneous timelines, it should not be taken for granted that the human subject—*the viewer of art*—can actually achieve a prevailing experience of *all* these manifold timescales.

While the recent movement in speculative philosophy might be particularly compelling, the last chapter of this thesis also points out that it may not be a perfect theoretical match for the varying timescapes of contemporary art. At the conclusion of this survey of various philosophical inscriptions of time, my suggestion is that art resists the easy explication of different temporal models. Whether it be entropy's multiple interpretations, or Husserl's 'internal time consciousness,' contemporary artworks do not exemplify a greater philosophical, scientific or theoretical model. The artworks discussed here do not treat time as fixed 'thing': a dimension whose significance is transparent, containable and transferable. Rather, art invites and instantiates time as a dynamic and fluctuating phenomenon: a proliferation of multiple timelines, divergent durations, and aberrant timescapes. Most importantly, this works in opposition to the Enlightened determinism of modernity that has treated time as singular prototype that objectively transcends difference for the purposes of analysis, profit, prediction and

regulation. Time is out of joint, yes. But only if one holds onto the idea that is was fixed in the first place. Contemporary art truly operates beyond this rigid mechanism, beyond the joint, in an expanded field of multiple temporal possibilities.

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