PORTFOLIO OF COMPOSITIONS

COMPOSING MUSIC THROUGH MINIMAL MEANS

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ABSTRACT

This portfolio of compositions is comprised of eight works written between 2014 and 2018. The accompanying commentary addresses how particular pieces of visual art, along with links to architecture and geological forms, are used as a creative stimulus to devise the compositions presented in the portfolio.

On the surface, the artworks discussed appear elementary and embrace economy in their construction, which has a direct influence on how my compositions have been conceived. Inevitably, in taking an economical approach to devise new works, Minimalist attributes in both visual art and music are primarily acknowledged; however, rather than extending any one of the dominant strands of these Minimalist traditions, the music in this portfolio seeks to return to these forms of art and contemplate them afresh in order to respond in new ways.

As a result, my core research question focuses on how to create engaging music with maximum effect through minimal means. This question also raises a subset of concerns in regard to repetition, ritual, teleology, temporality and memory; all of which are addressed via the introduction and four subsequent chapters. These topics form the framework of discussion in the commentary and the portfolio compositions are referred to where their features highlight and challenge these concerns.

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LIST OF ACCOMPANYING MATERIALS

Nota Bene: All works are recorded on the enclosed CD except for *Fault-Klang*, which is a film and can be viewed on the enclosed DVD. Scores can be found as individually bound hard copies. Additionally, both recordings and scores are available following the links with the electronic version.

Memory Stack I-X

Composed: 2014

Instrumentation: Piano, violin and cello

Duration: ca.30 minutes

Performed: Chimera Ensemble, Sir Jack Lyons Concert Hall, University of York, 13.06.14

CD Track: Disc One: Tracks 1-10

Staten Crossing I-VIII

Composed: 2014 (Commissioned by Late Music Concert Series)

Instrumentation: Saxophone Quartet

Duration: ca.10 minutes

Performed: Delta Saxophone Quartet, Unitarian Chapel, St. Saviourgate, York, 06.09.14.

CD Track: Disc One: Track 11

String Quartet No.1, Erratic

Composed: 2015

Instrumentation: String Quartet

Duration: ca.13 minutes

Performed: Quatuor Diotima (Movements I and III) composition workshop 16.02.15; Ligeti Quartet (Movement II) composition workshop 28.02.17, University of York.

CD Track: Disc One: Track 12

Fault-Klang

Composed: 2016 (Psappha Ensemble 'Composing for Clarinet Scheme')

Instrumentation: Solo Bass Clarinet

Duration: ca.10 minutes

Performed: Dov Goldberg (Psappha Ensemble), filmed for Psappha YouTube Channel 25.03.16, St Michael's, Ancoats, Manchester.

Live performance, Dov Goldberg, as part of Psappha's concert season, St Michael's, Ancoats, Manchester, 15.02.18

Recorded and broadcast by BBC Radio 3 *Hear and Now,* 10.03.18

YouTube Video Link: https://www.youtube.com/watch?v=F1XGveF9ZXs

Twenty Mirrors I

Composed: 2016/2018

Instrumentation: Piano Duo and electronics

Duration: ca.12'30 minutes

Performed: Kate Ledger and Mark Hutchinson (University of York Piano Ensemble), Sir Jack Lyons Concert Hall, University of York, 15.06.18

CD Track: Disc One: Track 13

Twenty Mirrors II

Composed: 2016

Instrumentation: Piano Duo (prepared) and Indian elephant bells

Duration: ca.5 minutes (minimum)

Performed: Alice Masterson and Sophie Adams, Postgraduate Forum – Composers' Workshop, Sir Jack Lyons Concert Hall, University of York, 28.09.16.

CD Track: Disc One: Track 14

Lone Yellow

Composed: 2017

Instrumentation: Bass clarinet and piano

Duration: ca.10 minutes

Performed: SCAW (Sarah Watts, bass clarinet; Anthony Clare, piano), Composers' Workshop, Sir Jack Lyons Concert Hall, University of York, 13.06.17.

CD Track: Disc One: Track 15

Happy are they who dwell in your house

Composed: 2017-2018 (Lyons Celebration Award Commission)

Instrumentation: 3.3.3.3 – 3.3.3.1 – 4 percussion celeste/piano harp soprano and tenor (plus megaphones) – 16.14.12.10.8

Duration: ca.16 minutes

Performed: University of York Symphony Orchestra, John Stringer (conductor), Eleanor Pybus (soprano) and James Botcher (tenor), Sir Jack Lyons Concert Hall, University of York, 10.03.18.

Broadcast by Beethoven FM, Chile, 11.04.18.

CD Track: Disc Two: Track 1

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Many thanks go to the musicians and organizations who have given their all in supporting and performing my music including Alice Masterson and Sophie Adams, Chimera Ensemble, Delta Saxophone Quartet, Late Music Series (especially Steve Crowther and David Lancaster), Ligeti Quartet, Psappha Ensemble (especially Dov Goldberg and Tim Williams), Quatuor Diotima, SCAW and University of York Symphony Orchestra (especially James Botcher and Eleanor Pybus).

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AUTHOR'S DECLARATION

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

James Williamson

September, 2018.

INTRODUCTION

"Well, less is more, Lucrezia."[1]

However skeptical Robert Browning's *Andrea del Sarto* may have been about this formulation, the compositions presented in this portfolio embrace the attitude that less *really is* more; an attitude that stems from my lifelong passion for minimalist visual art and architecture, particularly from mid-1960s New York. What parameters might define Minimal art? In my attempt to research a definitive answer, it becomes apparent there is no definitive answer. This is primarily due to the artists associated with the movement rejecting Minimalism as a term to categorize their work and indeed pigeon-hole them together. 'There was never a manifesto, they pointed out, only differing or even opposing points of view. They regarded 'minimalism' as the catchy label of a fashion-hungry art world in search of new trends.'[2] As Donald Judd observed at the time, 'Very few artists receive attention without publicity as a new group. It's another case of simplicity of criticism and of the public...One person's work isn't considered sufficiently important historically to be considered alone.'[3] To offer some further context, Carl Andre's work *The Maze and Snares of Minimalism* was, in a way, a rebellion against the term. As James Meyer suggests, this work 'was clearly a parody of Minimal art, a Minimal burlesque [and] A tongue-in-cheek summary of Minimalist style.'[4] Meyer also describes Andre's work, suggesting that:

> This deceptively simple work consists of three open pedestals butted end to end; six more lean against them at even intervals. Completely filling the storefront gallery, Andre's work was difficult to view; the protruding pedestals afforded little room for

[1] Robert Browning and Dr Tim Cook, *The Poems of Robert Browning*, New edition edition (Ware, Hertfordshire: Wordsworth Editions, 1994), 636.

[2] James Meyer, ed., *Minimalism*, Abridged, Revised, Updated edition (London ; New York, NY: Phaidon Press, 2010), 16.

[3] Donald Judd, *Donald Judd: Complete Writings 1959-1975: Gallery Reviews · Book Reviews · Articles · Letters to the Editor · Reports · Statements · Complaints*, 01 edition (New York: Distributed Art Publishers, 2016), 197–99.

[4] Meyer, *Minimalism*, 15–16.

circulation […] other viewers blocked one's path. A seemingly benign abstract sculpture, the work was a snare, a trap.[5]

However, having said all of this, there are common themes that link the minimalist artists' work together, as suggested by Meyer:

> Primarily sculpture, Minimal art tends to consist of single or repeated geometric forms. Industrially produced or built by skilled workers following the artist's instructions, it removes any trace of emotion or intuitive decision-making…[it] does not allude to anything beyond its literal presence, or its existence in the physical world. Materials appear as materials; colour is non-referential…it is an installational art that reveals the gallery as an actual place, rendering the viewer conscious of moving through this space.[6]

In his ground-breaking essay "Specific Objects", Donald Judd states that 'It isn't necessary for a work to have a lot of things to look at, to compare, to analyze one by one, to contemplate. The thing as a whole, its quality as a whole, is what is interesting. The main things are alone and are more intense, clear and powerful.'[7]

It is from here that my journey in creating a new work begins, typically starting with a piece of visual art or sculpture, which acts as a creative stimulus or compositional starting point. Although I have specified Minimalist art as being my source, many of the works of art addressed in this commentary are not generally categorized as Minimalist. These works may be referred to as Post-Minimalist, kinetic, abstract, organic and so on. Nevertheless, taking Judd's aforementioned statements into consideration, one should perhaps be wary of creating categorical distinctions between these works as they all share aesthetic similarities. The stand-out similarity is that economy plays an important role in how these works have either been devised or how the finished product looks aesthetically.

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[5] Meyer, 14.

[6] Meyer, 15.

[7] Judd, *Donald Judd*, 187.

Therefore, my preference is perhaps more toward visual art devised through economy of means which also portrays an aesthetic that could also be perceived as minimalist.

With respect to the music in this portfolio, the sculptural works of Donald Judd ("*stacks*"; figures 1 to 3), Robert Morris ("*mirrored cubes*"; figure 4), Alexander Calder ("*mobiles*"; figure 5) and Roxy Paine ("*erratic*"; figure 6) are of primary influence. There are several aspects of these sculptures that I find fascinating. Firstly, an immediacy and visual depth stemming from their pared-down nature. Take Judd's "stacks" series as an example (figures 1 to 3). One immediately understands there are ten large singular blocks stacked on top of one another like rungs on a ladder. The viewer can take it for what it is or can stand to contemplate its purpose, its demeanor, its disposition. In contemplation, one can begin deconstructing to understand the work by noticing that the blocks are identical and the gaps between are precisely spaced to the same depth of each box; one can observe the materials used and their colours, how light reflects off the surface, how the gallery space is mirrored in the reflective plexiglass and how the shadows are cast on the gallery wall. When we begin to think holistically, we soon discover that the whole is quite literally more than the sum of all its parts i.e. the space around the work is also important, becoming its negative space. The work is no longer ten single blocks protruding from the wall.

In addition to immediacy, the aforementioned sculptures share a common theme of interactivity. Sculpture, as opposed to canvas, is three-dimensional; we can interact with sculpture by walking around it, viewing it from different perspectives. These sculptures also share the commonality of using reflective surfaces, particular Morris' mirrored cubes and Paine's erratic rock. Using reflective surfaces automatically creates an interactivity with the artwork's surroundings, creating a cause and effect scenario. Morris' work invites you to walk between the mirrored cubes, to look into them, to see how light reflects and how the movement is captured in the mirrors. Paine's *Erratic* is a huge simulation of a bolder made from a highly-polished metal. This sculpture is often placed within a social environment, such as a public park. Thus, it reflects the movement of surrounding greenery, people, traffic etc. Due to this interactivity, although they are themselves static, these works become active and so begin to address temporality through the movement of their surroundings that are subjected to them.

Figure 1 Donald Judd, "Untitled 1988"[8] Figure 2 Donald Judd, "Untitled 1988"[9] Figure 3 Donald Judd, "Untitled 1980"[10]

Figure 4 Robert Morris, "Untitled 1965,

reconstructed 1971"[11]

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[8] Personal photo, Tate Modern (London, June 2018)

[9] Personal photo, MoMA (New York, June 2014)

[10] Personal photo, SF MoMA (San Francisco, June 2016)

[11] ARS, NY and DACS, Tate Modern (London, 2018)

Figure 5 Alexander Calder, "Lone Yellow 1961"[12]

Figure 6 Roxy Paine, "Erratic" (2007) [13]

[12] SF MoMA Website (San Francisco, Accessed July 11, 2018)

[13] Roxy Paine, artists website (Accessed July 11, 2018)
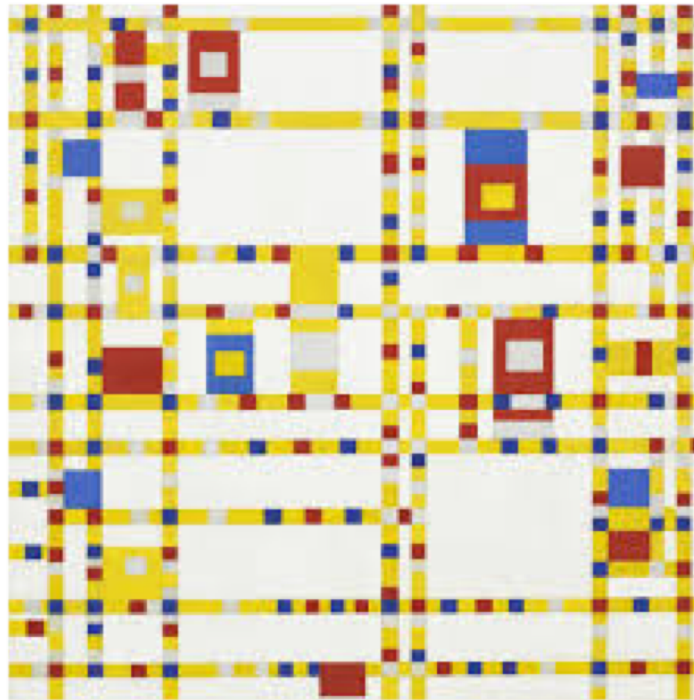
Figure 7 Piet Mondrian, "Broadway Boogie Woogie" (1942-43) [14]

Conversely, artist Alexander Calder created kinetic-sculptures, in particular his mobiles, which not only inhabit three-dimensionality, they go a step further by directly addressing concepts of temporality in visual art. Calder's mobiles move independently and 'continually redefine the space around them as they move,'[15] with the movement of each single object within the mobile dependent on the movement of the other objects, not unlike planetary orbits or the butterfly effect of chaos theory. Therefore, unlike static sculptures where the viewer moves around the sculpture, the perceiver can be static whilst the sculpture moves very slowly, creating new perspectives inherently out of the viewer's control. Having said that, the viewer is also encouraged to walk around the work. In his writings of 1943, Calder explained how viewers should interact with his mobiles, emphasizing a peaceful coexistence: 'A mobile in motion leaves

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[14] MoMA Website (New York, Accessed July 11, 2018)

[15] Gallery label, Tate Modern (July 2008)

an invisible wake behind it, or rather, each element leaves an individual wake behind its individual self…'[16]

In a similar fashion, if we consider Judd's "stacks" series, on the one hand, there are merely ten geometric blocks protruding from the wall, but on the other our understanding of these blocks changes with our perspective: one can view them from afar, up-close, or amongst other artworks, giving varying possibilities for contemplation. There is also the way in which the work responds to its surroundings or negative space, in terms of where it sits within the space and the position in which it has been placed. Again, if we consider cause and effect, the consequence of the placement can directly lead to by-products such as the way light, shade and reflection act in counterpoint. What fascinates me here is that this offers a fourth dimension. For example, not only is a Calder mobile moving independently, the viewer is too, thus providing an infinite amount of ever-changing perspectives through time. With this in mind, Calder's active sculptures are akin to the temporal art of music. However, Paul Klee came very close with his explorations of colour and pattern, leading to the achievement of his new form of 'polyphonic painting – in which movement and counter-movement could be visibly demonstrated as an allegory for the reconciliation of conflicts within a superior order.'[17] Interestingly, both Klee and Calder are not generally regarded as a minimalist artist. However, they both share my broader idea of minimal means in terms of how their works are devised and the potential of possibilities that emerge.

Although sculpture has been a primary consideration for my creative motivation, visual art on canvas has also been important – in particular the works of Piet Mondrian and Agnes Martin, who, like Klee and Calder, are also economical in their approach. Although confined by the canvas to two dimensions, their work could be described as aesthetically sculptural, in terms of Mondrian's use of striking block patterns and Martin's illusionistic 'colour plates' that pop out of the canvas. Temporality is also prominent in their works, as demonstrated in Mondrian's "Broadway Boogie Woogie" (1942-43; figure 7). Unlike many of the titles of Mondrian's other

[16] James Hall, 'Magnificent Mobiles: The Art of Alexander Calder', the Guardian, 23 October 2015, http://www.theguardian.com/artanddesign/2015/oct/23/alexander-calder-sculpture-fine-balance.

[17] Hajo Duchting, *Paul Klee: Painting Music*, Reprint edition (Munich ; London: Prestel, 2012), 88.

works (such as 'Composition A' or 'Composition with Grid 3'), the title of this work is extremely suggestive. To me, the multiple blocks of colour shimmer and reverberate, suggesting movement, music and even time passing. As described by MoMA, 'These atomized bands of stuttering chromatic pulses interrupted by light grey, create paths across the canvas suggesting the city's grid, the movement of traffic, and blinking electric lights, as well as the rhythm of jazz.'[18] In Martin's colour plates (for example "Leaf", 1965; figures 8 and 9), which were created by painstakingly drawing hundreds of very fine vertical and horizontal lines with pencil and ruler, one can feel the temporal discourse and appreciate the hours it would take to create such a work. It is almost meditative or ritualistic in nature, perhaps even sadistic.
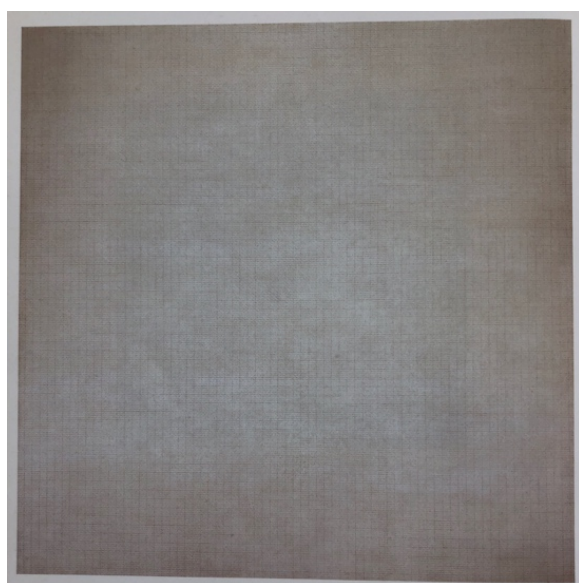
Figure 8 Agnes Martin, "Leaf" (1965)[19] *Figure 9 Agnes Martin, "Leaf" (1965) - Detail*
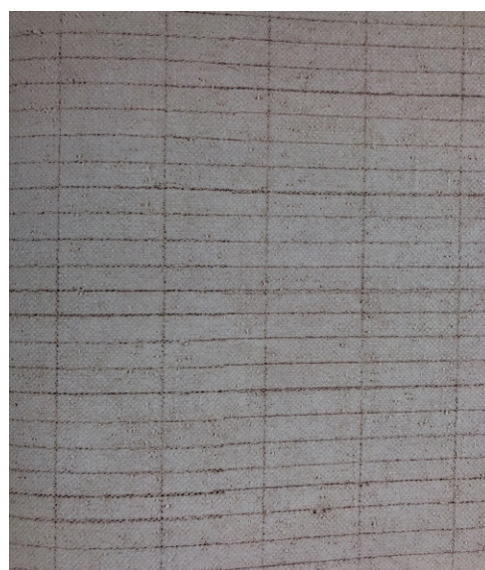
In addition to sculpture, a fascination with architecture and geological forms are significant to my compositional processes in terms of form, structure, scale, materials and temporality. In essence, geological forms can also be seen as a form of sculpture, for example rock formations are sculpted by nature. It is therefore unsurprising that many artists, including Roxy Paine, and not to mention Henry Moore and Barbara Hepworth, were so heavily influenced by natural formations and landscape. Like experiencing sculpture, we can walk around boulders and

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[18] 'Piet Mondrian. Broadway Boogie Woogie. 1942-43 | MoMA', accessed 11 September 2018, https://www.moma.org/collection/works/78682.

[19] Barbara Haskell, *Agnes Martin* (New York: Whitney Abrams, 1992), 68–69.

Visit https://www.themodern.org/collection/Leaf/1129 for clearer detail.

buildings and experience them in multiple ways. In terms of perspective, a particular revelation for me was an experience on the Staten Island ferry crossing, New York. As the ferry pulled away from the dock from Manhattan, it allowed me to view the city in a gradually changing perspective: up close I experienced the sum of its parts, from afar I experienced the whole. A particularly interesting aspect of this scenario is that I had no control over the rate in which I saw this change, which is comparable to how we experience music. However, this is unlike how we experience sculpture in a gallery (for example): as the viewer we have the power to control the temporality, the perspective, whether we view it as a whole or focus on particular features, or whether we stop viewing it altogether.

It is important to note here the movement of Minimalism in music, which developed in 1960s New York (and also California) at a similar time to that of Minimalist visual art. While the inception of Minimalism in both music and art were not intrinsically linked they do emerge from revolt against the strictly formal structures of, for example, European serialism in music and the emotionally involved in-the-moment ideals of Abstract Expressionism in visual art. Due to the plethora of writings on Minimalism in music, I will not dwell on the movement's historical context, a topic with which readers are likely to be familiar. However, it is necessary to draw upon and acknowledge some important features that indicate specific parallels between minimalist art and music. Firstly, as described by K. Robert Schwarz, the key features of Minimalist music are as follows:

> Minimalist music is based on the notion of reduction, the pairing down to a minimum of materials that a composer will use in a given work [...] practically every musical element – harmony, rhythm, dynamics, instrumentation – remains fixed for the duration of the work, or changes only very slowly. And the chief structural technique is unceasing repetition, exhilarating to some, mind-numbing to others.[20]

Given that Minimalist music was not a simple offshoot of Minimalist Art, it is worth reassessing what musical consequences might be drawn from the visual art approach. The particular considerations to how we may respond to visual art and sculpture, as set out above, can be confined to: the immediacy of a work and how it leads to contemplation, our perception of a

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[20] K. Robert Schwartz, *Minimalists*, 2008 printing edition (London: Phaidon Press, 2008), 9.

work and its interactivity, how we experience alternative perspectives and lastly our control as viewer over temporality. What interests me as a composer is how these considerations have the potential to translate directly to how we perceive and experience music. I believe specific attributes may be required in order for music to be drawn directly from minimal art. As expressed by James Meyer and Donald Judd previously, the table below (figure 10) draws upon some of their considerations of what minimal art is and what I consider to be a musical equivalent.

Minimalist Art Attributes	Musical Equivalent/Consideration
Sculptural/three-dimensionality	➢ An exploration of perspective from foreground to background, such as the creation of layers. ➢ Creating musical mobiles as a means to simulate a rotation of material.
Single or repeated geometric forms	➢ Repetition of small fragments/motifs/gestures. ➢ Develop and order blocks of material to create the overall form.
Does not elude to anything beyond its literal presence.	➢ Exploring non-teleology. ➢ A cyclical or static state whereby rhythm and harmony rotates within itself – i.e. music with a non-directed linearity.
Materials appear as materials	➢ Clear ideas, gestures and textures. ➢ Harmonic language or rhythms avoid development. ➢ Simple form and shape – 'x' is 'x' and 'y' is 'y'.
Colour is non-referential/limited	➢ Limitations of harmonic palette.
The main things are alone and intense, clear and powerful	➢ Striking and clear motifs/gestures. ➢ Limitations of motifs/gestures within the same piece so they stand-out. ➢ Use of space or silence, again so the gestures are more powerful and will stand-out.

Figure 10 Minimalist art attributes and their considered musical equivalent

Considering the suggested parallels above, I would like to suggest that our experiences of sculpture can be akin to how we experience music. While Minimalist music can be seen to share some of the principles of Minimal art, it is far from their only possible musical manifestation. I believe therefore that there is scope in returning to the founding principles of Minimal art to create something entirely new in music. If we consider the comparison table above (figure 10), I feel there are many compelling approaches to be taken from minimalist music, such as the use of repetition, process and ideas of exploring durational limits. However, both sonically and aesthetically, I see no value in simply following the minimalist music tradition; there is no point drilling for oil where there is no more oil, but we can refine the oil that has already been tapped to create new things.

Within my music, my primary concerns include how I might portray a sense of perspective, how I deal with temporality and how I interpret form, line, gesture and concept as a whole. In addition to these comparisons, we might also consider live performance: the composer and performer(s) control how we listen and what we listen to (for example, in terms of pulling a specific gesture or motif in and out of focus). More influentially, they control the duration of the work and where we are to experience this music. As expressed previously, the way in which we experience visual art is completely in our control. For example, we can choose how long to stay and experience it and which angles to view it from. If in a gallery, we may even decide to move on to another exhibition space and then come back to view the same piece again with a fresh pair of eyes. Parenthetically, recorded music is perhaps more comparable to how we experience sculpture, in our choice of where and when we listen to it and for how long. Jonathan Kramer talks about this in reference to society's nonlinear listening habits:

> Recording [...] has also made home and the car into environments just as viable for music listening as the concert hall. The removal of music from the ritualized behavior that surrounds concertgoing struck a blow to the internal ordering of the listening experience. Furthermore, radio, records, and tapes allow the listener to enter and exit a composition at will [...] the listener is not captive to that completeness.[21]

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[21] Jonathan D. Kramer, *The Time of Music* (New York : London: Macmillan USA, 1988), 45.

As we know, a continual stasis of the same rhythmic and harmonic material is perhaps typical of mainstream minimalism and is an aesthetic goal which I try to avoid in my own music. However, in considering the previous discussion of how we perceive minimalist sculpture, we know that sculpture is in a fixed position and as a viewer, we can physically change that perspective. Stasis is very interesting and a device I frequently use in my music, but what if I were to occasionally come out of stasis and move perhaps to another fixed state of stasis, and then to another, and so on? Perhaps this will at least offer variety and break from monotony? I want to change perspective in my music and therefore, allow the music to become more interesting and perhaps more realistic in terms of how we perceive sculpture. The beauty of responding to a different art form, due to the subjective nature of visual art itself, is that there is much more to consider, extract and respond to. For example, what if we take Donald Judd's idea of minimalist sculpture and consider it as "object art" instead? Again, considering some of the comparisons from the table above (figure 10), what if we respond to the object in-itself as a means to devise music? In light of this, I believe discovery is to be made in taking a musical response to minimalism in its primary form, that which is rooted in visual art, and of the 'less *is* more' principle. This attitude towards the creation of works of visual art fascinates me in its potential to translate into music. As a composer, the idea that in the application of creating a piece through the minimum of means, considering the parameters that define minimalist art, one has the potential to communicate a music that can be extremely powerful. Therefore, the compositions presented in this portfolio have been created through a retrospective viewpoint of observing minimalist visual art with twenty-first century eyes and ears, rather than following a minimalist musical lineage. With this in mind, my main goal is to find new and stimulating ways of composing and to cultivate my own musical individuality.

A consequence of this approach creates a compositional challenge which leads to my core research question: how may one create engaging music with maximum effect through minimal means? Initial considerations when responding to sculpture include devising clear gestures, limiting pitch and rhythmic materials, and issues of recycling and forms. Repetition is one of the key areas of concern as it is a direct consequence of composing through minimal means in terms of emphasizing important gestures and the development of particular structures, as outlined above. Aspects of repetition at the micro- and macro-level are implemented through the primary components of looping, variation, musical mobiles, quasi-rondo forms, collage, moment-form, and the exploration of ultra-repetition. Implementing and experimenting with these means of composing gave rise to many questions, of which several will be addressed in the subsequent chapters as I dissect my compositional processes. However, before addressing

specific pieces, I will discuss the consequences of responding to sculpture and what other concerns need to be considered. These concerns include links between repetition and teleology such as: their power and impact on the listener; intuition; music without pulse; and the musical by-products of ultra-repetition and methods of orchestration. Additionally, links between memory and temporality will also be addressed. Due to the nature of these concerns, it will become evident that they are all intrinsically linked to one another. Thus, akin to a mobile, these chapters may be read in any order. The reader may wish to read them in a space of their choosing, view it from a perspective of their choosing and the duration of each sitting can be predetermined, or not…

CHAPTER ONE

Minimal means: Repetition and Teleology

1.1 <u>Repetition</u>

'Repetition changes nothing in the object repeated, but does change something

in the mind which contemplates it.'[22]

Amongst its many attributes, repetition offers both discontinuity and continuity or in other words it depends on both stasis and change simultaneously. This is not dissimilar to how Deleuze contemplates repetition in his chapter "Repetition for itself" from *Difference and Repetition*. Deleuze quotes philosopher David Hume's problem in understanding repetition from the outset (above) and asks:

> How can repetition change something in the case of the repeated element? The rule of discontinuity or instantaneity in repetition tells us that one instance does not appear unless the other has disappeared [...] It has no in-itself. On the other hand, it does change something in the mind that contemplates it.[23]

Deleuze then discusses Hume's repetition type AB, AB, AB, A… in that:

> Each case or objective sequence AB is independent of the others. The repetition […] changes nothing in the object or the state of affairs AB. On the other hand, a change is

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[22] Gilles Deleuze, *Difference and Repetition*, 2nd Revised edition edition (London etc.: Bloomsbury Academic, 2014), 93.

[23] Deleuze, *Difference and Repetition*.

produced in the mind which contemplates: a difference, something new *in* the mind. Whenever A appears, I expect the appearance of B.[24]

These analogies are important in the contemplation of how repetition is implemented in my music, particularly in the choices and decision making of *what* fragments need to be repeated, *how* these are repeated in terms of orchestration and duration (how many reiterations) and finally when or where in relation to the placement of repetitions, specifically as to what comes before and after (thinking in terms of Hume's AB, AB, AB, A… type).

It appears that repetition, for me, is an inevitability of composing through writing music which takes its stimuli from minimal sculpture. In regard to the previous analysis of how we might contemplate Judd's "stacks", we can draw parallels to how we hear repetition in music, by reconsidering each reiteration and how they relate to one another. As Morton Feldman suggests in relation to his *Piece for Four Pianos (1957)*: 'by virtue of the repetitions it conditions one to listen.'[25] This is precisely why I am drawn towards repetition in both art and music, or more specifically extreme repetition. This notion applies to the writing-performing-listening pyramid of music making. In the act of composing, if one's desire is to repeat material, the composer should ask themselves what object is to be repeated and for how long. It also applies to the act of performing – repetition asks the performer to concentrate in the counting of repetitions (particularly if there are repeat marks) and also make each repeat as important as the next and the one that preceded it. In regard to his piece *a leaf falls on loneliness*, composer Bryn Harrison talks about the matching of sounds when it comes to performing repetition. Due to the repetitive nature and economy of the piece, from the onset it looks simple to perform as the piece sits on just one page and is repeated twenty-seven times. However, within it there are certain performance issues that arise, for example the soprano entering at the exact same pitch as the clarinet's first pitch, and the aim of executing this on every repeat.[26] It is fascinating that in a performer's training, particularly in classical music, there is almost always a striving to reach

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[24] Deleuze.

[25] B. H. Friedman, *GIVE MY REGARDS TO EIGHTH STREET: Collected Writings of Morton Feldman* (Boston, Mass: EXACT CHANGE, 2001), 215.

[26] 'CeReNeM Journal Issue 3', Issuu, accessed 25 May 2018, https://issuu.com/cerenem/docs/issue3.

perfection. Having a goal to achieve perfection on repeating the exact same material is an almost impossible feat. It does however create opportunity for by-products which a composer can tap into. At particular moments within my *String Quartet No.1, Erratic,* certain loops are in place whereby the performer strives to play the loop precisely each time (figure 11). This is of great interest to me as there are certain by-products that come to light that add an element of surprise for me as composer. I believe it helps to keep the listener's interest and equally keeps the performer engaged in thinking about the music they are performing. Paradoxically, this idea is perhaps comparable to the music of the New Complexity composers such as Brian Ferneyhough. Rather than the reduction of material, there is usually an overload of information prescribed to the performer, which again makes them think about the music they are performing.

As a further example within *String Quartet No.1, Erratic*, there are certain looping gestures, such as the first Feldmanian sustained chords of the *klangfarbenmelodie* (bars 22-25), whereby there are nuances of unwritten sounds one hears, such as the barely audible glissandi that happen as a consequence of writing a quiet music combined with the by-product of moving from one end of a string to another by asking for sudden leaps of up to two-octaves. Relevantly, in his essay *Music as a Gradual Process*, Steve Reich discusses the mysteries hidden within process music:

> These mysteries are the impersonal, unintended, psychoacoustic by-products of the intended process. These might include sub-melodies heard within repeated melodic patterns, stereophonic effects due to listener location, slight irregularities in performance, harmonics, different tones, and so on.[27]

We could consider these by-products in music as what is known as negative space in the visual arts, which is also analogous to silence in music. I find this extremely engaging as a composer and I intend to explore this further in future composition experiments.

This aspect of repetition is intriguing; the idea of an invisible notation, a compositional subtext that plays with the psychology of the performer and the listener. For example, the use of ultra-

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[27] Schwarz, K. Robert. "Steve Reich: Music as a Gradual Process Part II." *Perspectives of New Music* 20, no. 1/2 (1981): 225-86. doi:10.2307/942414, 227.

repetition in *String Quartet No.1, Erratic* (figure 11), *Fault-Klang* (figure 12), *Twenty Mirrors I* (figure 13) and *II* (figure 14) and *Staten Crossing I-VIII* (figure 15) display similar issues, particularly where I ask the performers to repeat particular bars a large number of times. What I find fascinating, is that it is almost impossible, even having a high standard of performer, that each repeat will sound exactly the same; and if it were the same, it simply would not be interesting. Lastly, it demands a greater concentration from the listener. Therefore, it is the initial considerations of the composer and the secondary interpretation of the performer(s), that will make the listener's job easier or harder. In returning to the above quote by Deleuze, it suggests that repeating a particular gesture several times enriches the perception of the gesture, allowing the listener to concentrate on the object itself in that particular moment – as one may concentrate on a particular part of a minimalist sculpture.

Figure 11 String Quartet No.1, Erratic - bars 133-139.

Figure 12 Twenty Mirrors I - bars 8 and 9.

Figure 13 Twenty Mirrors I - bars 38 and 39.

Figure 14 Staten Crossing I-VIII, Movement VII.

In furthering this idea of performance inconsistencies due to ultra-repetition, the work of visual artist Agnes Martin has been an important model for my work. As previously mentioned, Martin

creates extensive grids on canvas of very fine straight lines drawn by free hand in pencil. Due to the nature of how Martin's works are constructed, it allows for wonderfully unpredictable discrepancies. Perfection is not paramount as one would expect (in school we are taught to draw straight lines). What Martin shows is fragility within human nature; not everything is or should be perfect. In some ways, particularly in *String Quartet No.1, Erratic*, as a consequence of repeating a particular fragment several times over, there is high potential for slight variation in sound production due to performance imperfections that occur naturally.

Staten Crossing I-VIII was the first piece in which I began to focus on micro repetition, that being the looping of small fragments of material. It was through experimenting with looping I became familiar with Austrian composer Bernhard Lang who has become a very important influence on my compositional thinking. The research into Lang's music led me to Deleuze's *Difference and Repetition*. In his Darmstadt lecture of 2002, Lang said:

> The big change in my viewpoint of repetition came about through my reading of Deleuze's book Difference and Repetition. Being a student of the Schoenberg-school of sorts, repetition had been a banned thing for me for a long time, me aiming to achieve a continuous variety within my music, never saying things twice […] It was mainly Deleuze's book who woke me from my dogmatic slumber.[28]

Lang is also interested in breaking away from narrative structures, thus the loop becomes an interesting compositional tool to achieve this. In his research, Lang transcribed DJ culture-based loops as:

> a mutual process of transcribing and re-transcribing improvised repetitions and written-out repetitions' […] He was fascinated by the possibilities presented by

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[28] 'Loop_aestet.Pdf', accessed March 1 2018

http://members.chello.at/bernhard.lang/publikationen.htm

'erratic, asymmetrical loops' particularly as the result of a jump by a turntable needle or the unexpected vibration emanating from a malfunctioning CD player.[29]

In discussing his loop process, Lang also reveals that the *Differenz/Wiederholung* compositions feature:

several phenomenological types of loops' according to 'technical differentiation', amount of silence, circularity, symmetry and 'the modulation of the loop within the repetitions.[30]

Staten Crossing I-VIII shows a clear example of looping explorations. For instance, I repeat (usually a number of times) certain gestures or bars to simulate a broken record; a kind of jolting forward and stopping of the natural flow of the melodic narrative. In order to emulate a broken record effect, I created bars with a mixture of simple and compound time signatures to give an off-kilter feel, sometimes interrupted with a rest or a slap tongue technique, for example, adding a glitch effect as one would perhaps hear from the crackles and pops from an old record or from the manipulation from a DJ (figure 15).

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[29] Edward Campbell, *Music After Deleuze* (New York: Bloomsbury Academic, 2013), 61.

[30] Campbell, 63.

Figure 15 Staten Crossing I-VIII, Movement VII - Looping

An analogy to looping in this manner might be that of honing in on a singular object, imagining holding a fragment of music under a microscope for further focus and inspection – perhaps we could say it conditions one to see! As an analogy, in the book *Mr. Palomar* by Italian author Italo Calvino, the protagonist Mr. Palomar is on a quest to search for philosophical meaning behind everyday observations. This book has been an inspiration for many years, and sometimes I like to put myself in Mr. Palomar's shoes and to really observe what I have in front of me and explore its potential. *Staten Crossing I-VIII* was the catalyst for this type of repetition and is a technique used in nearly all subsequent compositions presented.

1.2 Teleology

As a consequence of repetition, looping and the desire to break away from having a continuous narrative within my music, issues of teleology have become an important consideration. In many of the pieces included in this portfolio, I became increasingly interested in a non-goal orientated music. For me, this stems directly from my interest in minimalist visual art; an art form whereby material is form and form is material. Deleuze might describe it as a form that is in itself, it has no purpose, goal or being, it just *is*. A music without goal-orientation, just as art without goal-orientation, allows one to focus our concentration on a single facet of music or gesture rather

than a multiplicity of events or meaning. In addition, what fascinates me as a composer, is to write music that breaks away from our learned listening habits and perceptions. As Kramer observes, our Western ears are habituated to listening linearly and this is an arbitrary and learned behavior. He suggests that:

> For the Balinese, for example, temporal processes are not linear, and their music is not linear: it contains rhythmic cycles, which to Western ears seems to repeat endlessly. The Balinese do not think in terms of specific durations to be filled by "meaningful" events [and these events are] not oriented toward climax.[31]

The methods used in my explorations to create a non-goal orientated music, include the use of ultra-repetition and the juxtaposition of both continuity or discontinuity, or in other words stasis and movement. Elizabeth Hellmuth Margulis discusses how non-goal orientated music (or in her words 'goal-demotion') can be promoted through repetition suggesting that:

> The very act of repeating a passage in the first place emphasizes a certain nonteleological attitude, intimating that something within the sound itself, rather than an aim toward which things are driving, should be the focus of attention. And when a passage with a certain syntactic function is repeated—a drive toward the final tonic, for example—the effect is not only to delay the musical goal but also to highlight the expressive function of the passage in question, beyond its basic syntactic role.[32]

As discussed further in chapter four, form plays a crucial role in devising music without any particular goal. Much of my music is composed in blocks, both small and large. Again, the influence of minimalist visual art, geometric shapes and architecture is prominent here. These blocks are often irregular in order to create moments of unpredictability and to attempt to

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[31] Jonathan D. Kramer, 'New Temporalities in Music', *Critical Inquiry* 7, no. 3 (1981): 539–56.

[32] Elizabeth Hellmuth Margulis, *On Repeat: How Music Plays the Mind* (New York, NY: OUP USA, 2014), 6.

bring life and energy. However, the durations of these blocks are not calculated; their lengths are often dictated by the material within them.

Chapter Two

Minimal Means: Memory and Temporality

2.1. <u>Memory</u>

> Memory affects the music-listening experience so profoundly that it would not be hyperbole to say that without memory there would be no music. As scores of theorists and philosophers have noted...music is based on repetition. Music works because we remember the tones we have just heard and are relating them to the ones that are just now being played. Those groups of tones—phrases—might come up later in the piece in a variation or transposition that tickles our memory system at the same time as it activates our emotional centers.[33]

Memory and temporality are issues for many composers, both presently and historically. Memory is a key participant in the way we respond to and perceive music. Memory might be considered as a sum of things remembered or a length of time one can remember. In my music, memory becomes a by-product in the systematic yet intuitive approach to the use of materials and development of forms. Often, in the pre-compositional stages, my music is constructed through creating small fragments and/or large blocks of repeated material. These materials are then cut and spliced in various juxtaposed permutations to create the overall form. In this way, music from the same material pool can be separated far and wide i.e. a fragment heard at the start is then repeated later in the piece. Additionally, the orchestration of these repeated fragments may be altered, but not always, through means including choices of instrumentation, pitch displacement and the augmentation or diminution of rhythm. In obscuring the repeated fragment in such ways, the fragment becomes a simulation of a distant memory within the music. An analogy to this might be how we remember childhood memories, whereby we may only remember specific pieces of a memory that make up the whole. These repeated fragments can also be viewed as musical triggers i.e. to trigger the memory of a previous fragment, which can act as a point of orientation or disorientation for the listener. In discussing the relationships between time, present and memory, Deleuze suggests succinctly that 'The present and former

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[33] Daniel J. Levitin, *This Is Your Brain On Music: Understanding a Human Obsession*, Main edition (London: Atlantic Books, 2008), 167.

present are not […] like two successive instants on the line of time; rather, the present one necessarily contains an extra dimension in which it represents the former and also represents itself. The present is treated not as the future object of a memory but as that which reflects itself at the same time as it forms the memory of the former present.'[34] He then discusses 'active synthesis' in that it 'has two correlative – albeit non-symmetrical – aspects: reproduction and reflection, remembrance and recognition, memory and understanding.'[35] He then goes on to say, 'Every conscious state requires a dimension in addition to the one of which it implies the memory. As a result, the active synthesis of memory may be regarded as the principle of representation under this double aspect: reproduction of the former present and reflection of the present present.'[36] This idea also parallels the way we might consider the effect of experiencing Robert Morris' mirrored cubes in regard to infinite repetitions of the past, former present, present present and future. Due to the nature of music built from blocks and fragments, for me, repeating fragments in this way also creates a logical discourse and cements the form as a whole, otherwise it would be a collection of ad hoc sounds strung together making it difficult for the listener to comprehend and have something to latch onto. Of course, this is not to say music cannot do this, if that is what is intended by the composer.

2.2. **Temporality**

"I am interested in how this wild beast lives in the jungle – not in the zoo."[37]

Time is fascinating; as much as we like it to control us, it is essentially uncontrollable. As a perceiver and composer of music, I have always been intrigued by how time passes. As Kramer suggests, 'The temporality of the mind is seemingly irrational. But time in our daily lives is basically ordered – by schedules, clocks, and casual relationships. It is only against this backdrop of order that the increasing discontinuities of daily life are understood as nonlinear.'[38] He goes

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[34] Deleuze, *Difference and Repetition*, 106.

[35] Ibid

[36] Ibid

[37] Feldman, *GIVE MY REGARDS TO EIGHTH STREET*, 87.

[38] Kramer, 'New Temporalities in Music', 544.

on to say that 'We live in a time-obsessed culture. One symptom is that representations in art have become closer than ever before to our internal temporal processes. Our art objectively represents time in a manner close to our internal rhythms, and it brings time closer to ourselves and to our obsession. A culture obsessed with time produces art obsessed with time.'[39] Thus, we can attempt to control time in music, and this can be achieved in so many ways through variations of tempo, harmony and mood etc. Time can also become obscured, particularly in the use of high-repetition or creating long periods of repetition. In my opinion, Feldman was a master philosopher in describing how we perceive time and a master composer in the manipulation of time in music. The quote above was Feldman's response to how he suggested Stockhausen perceived time in that 'Time was something he could handle and even parcel out, pretty much as he pleased [and that] Frankly, this approach to Time bores me. I am not a clockmaker. I am interested in getting to Time in its unstructured existence.'[40] In other words, we should avoid caging or even domesticating time in music and let time be itself; let time dictate to us, perhaps. As Bryn Harrison suggests, 'For me, time can be viewed on a moment-to-moment basis as a space in which to contain musical material.'[41]

For me, when listening to the music of Morton Feldman, clock-time becomes obsolete, leading us into the realms of subjective-time. In his notoriously lengthy *String Quartet II (1983)*, for example, Feldman creates fields of high-repetition at a cellular level through many repetitions of a singular bar, from one to the next. However, these techniques became more refined, particularly in his latter works, such as *Coptic Light (1985)* and *Palais de Mari (1986)*, whereby repeat marks are withdrawn, and the repeated fragments are fully written-out. In these works, Feldman alters his repetitions subtly on each repeat, be it a change in rhythmic duration or time signature, through to pitch replacement or displacement, creating self-similarity and even disorientation. For these reasons, Feldman's music and philosophies have become a significant influence on my own compositions. Similarly, as mentioned, the work of Bernhard Lang has become equally influential, in particular his series of *Differenz/Wiederholung* compositions.

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[39] Kramer, 'New Temporalities in Music'.

[40] Feldman, *GIVE MY REGARDS TO EIGHTH STREET*, 87.

[41] Bryn Harrison, *University of Leeds Presentation Notes* (2006)

In my music, Time is dealt with through exploring various methods such as creating musical mobiles, with the idea of artificially suspending time, as if metaphorically viewing an object from alternative perspectives. Both *Lone Yellow* and *Twenty Mirrors II* are good examples of this as they suggest a rotation of materials constantly being viewed and re-viewed. Another method is exploring a concept of magnifying time through ultra-repetition. As suggested previously in regard to looping, one can try to slow down time by lingering on a particular moment, before proceeding to the next block of material.

Chapter Three

Minimal means: Ritual, rubble and rumble

3.1 <u>Ritual: Happy are they who dwell in your house</u>

Ritual is another form directly associated with repetition and teleology. Margulis suggests that 'repetition in ritual might shed light on the role of repetition in music' and then states:

> Repetition has been understood to serve the process of goal demotion in ritual contexts. If a ritual washing, for example, involves excessively repeated gestures of wiping, gestures which are themselves repeated on the already-clean object during the next day's performance, then the fact that these gestures lack an everyday, pragmatic goal—like actual cleaning—is significantly underscored. Attention is drawn instead to the movements themselves.[42]

In reference to non-teleology, for example, this analogy also refers to the idea of focusing on one particular movement, as suggested previously. For me, ritual is fascinating in terms of something that has to be repeated in order for us to fully understand its meaning and purpose. Perhaps it allows us to meditate, reflect and rediscover in new and different ways.

Ritual is everywhere, not only in religion, but also in our own daily lives. Everyone has their own habits and routines, such as waking up and going to work etc., and amongst that they may also have their own individual quirks, all repeated on a daily basis, consciously and even subconsciously. Ritual can also describe the coming together of communities, often to celebrate the sometimes one thing we have in common. Deleuze discusses repetition in terms of the ritual of festivals and commemorations:

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[42] Margulis, *On Repeat*, 5.

> To repeat is to behave in a certain manner, but in relation to something unique or singular which has no equal or equivalent. And perhaps this repetition at the level of external conduct echoes, for its own part, a more secret vibration which animates it, a more profound, internal repetition within the singular. This is the apparent paradox of festivals: they repeat an "unrepeatable". They do not add a second and a third time to the first, but carry the first time to the "nth" power. With respect to this power, repetition interiorizes and thereby reverses itself: as Péguy says, it is not Federation Day which commemorates or represents the fall of the Bastille, but the fall of the Bastille which celebrates and repeats in advance all the Federation Days; or Monet's first water lily which repeats all the others.[43]

In music communities, there are performance rituals, such as rehearsals and perhaps the individual's superstitions and rituals they have before going on stage. There is also the ritual of an audience coming together as one to listen to and appreciate the same music, in the same way a congregation come together to worship. Needless to say, music has also been a crucial part of ritual for thousands of years, for example spiritual drumming, church bells, ceremonial bells, calls to prayer, hunting calls etc. It is understandable that ritual inspired music has made its way into the concert hall, such as Stravinsky's pagan based *The Rite of Spring*. *Rituel (in Memoriam Bruno Maderna)* by Pierre Boulez is also a prominent work that springs to mind. Boulez's score introduction is perhaps a fitting description of the meaning behind ritual:

> Perpetual alternation:

> Litany for an

> imaginary ceremonial.

> Ceremonial of remembrance – whence these

> recurrent patterns, changing in profile

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[43] Deleuze, *Difference and Repetition*, 2.

and perspective.

Ceremonial of death, ritual

of the ephemeral and the eternal:

thus the images engraved

on the musical memory –

present/absent, in uncertainty. [44]

These ideas of ritual lead to my orchestral piece *Happy are they who dwell in your house,* which is based solely on ritual. This piece was commissioned for the University of York's *Lyons Celebration Award* and is the largest work in the portfolio, which I believe encapsulates all of the techniques used in the compositions that precede it. A requirement of the award was that the new work should, in some way, be inspired by Leonard Bernstein's *Chichester Psalms*, which depicts the Psalm of David. Due to my interest in ritual, I decided that research into the significance of the Psalm would be a pertinent stimulus for creativity. The word Psalm is derived from the Greek translation, *psalmoi*, literally meaning 'instrumental music' and by extension and historical use, 'words accompanying music'. On researching the function of the Psalm itself, I discovered the term 'Ashrei', which is a text composed of various Psalms, including Psalm 145, The Psalm of David. This is said three times throughout the day in Jewish Prayer and said to guarantee a place in the World to come. In relation to Ashrei, people are happy when they are together and close to God; they are together celebrating the same cause.

Within the work, the soprano and tenor voices sing or speak verses from the Ashrei text in various permutations and fragmentations throughout. I decided not to use the whole text from the Psalm and selected a few words or verses that I felt were important to the piece; the chosen verses are set out below. The decision was made for the singers to sing in Hebrew to disconnect the majority of the audience with the words. Words in English would come with weight and the idea was that the singers would be largely part of the texture/timbre of the orchestra, rather than soloists as one may expect. However, due to the importance of

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[44] Pierre Boulez, *Rituel (im Memoriam Bruno Maderna)*, (Universal Edition, 1975)

verse three, I felt that this should be expressed in English due to the nature of the text; after all, it is the Psalm of David. This moment becomes the zenith of the piece.

(Verse 1)

Ash-rei yosh-vei vei-te-cha; Od ye-ha-l'lu-cha, Selah.

Happy are they who dwell in Your house; they are ever praising You.

(Verse 2)

Ash rie ha-am she-A-do-nai E-lo-hav.

Happy are the people whose God is Adonai.

(Verse 3)

T'hee-la-l'-D-a-veed; A-ro-mem-cha E-lo-hai ha-me-lech

Va-a-var-cha sheem-cha l'-o-lam va-ed.

(A Psalm of) Praise; of David, I will extol Thee

My God, O King; I will bless your name for ever and ever.

(Verse 5)

Ga-dol A-do-nai um-hoo-lal-m'-od

V-leeg-do-la ein che-ker.

Great is Adonai, and highly to be praised

And His greatness is unfathomable.

(Verse 7)

Ha-dor k'vod ho-de-cha;

V'deer-rei nif-l'-o-te-cha a-see-cha.

The glorious splendour of Thy majesty;

And the wonderous works, will I rehearse.

(Verse 8)

Ve-e-zuz nor-o-te-cha yo-mei-ru;

Ug-du-lat-cha a-sap-re-na.

And men shall speak of the might of your tremendous acts;

And I will tell of Thy greatness.

(Verse 9)

Ze-cher rav tuv-cha ya-bee-u

V'tzeed-kat-cha y'-ra-nei-nu.

They shall utter the fame of Thy great goodness,

And shall sing of Thy righteousness.[45]

Once I had selected the verses, I decided how these would be represented musically. Thus, the work has three primary blocks of material, all distinct in nature, such as melodic interweaving, quasi-moto perpetuo and noise. These blocks are repeated and re-shuffled, each one varying in slightly different ways such as shortening and lengthening or the way in which they are represented harmonically. This, for me, symbolizes how the Ashrei Psalm is ritualized three-times per day during the course of Jewish Prayers. The sections or blocks link to one another as a one-movement discourse, or sermon. Below (figure 16) shows the sketch of how the blocks would be juxtaposed, along with an approximate timeline as a guide from which to work. Following this, the table (figure 17) shows a breakdown of these blocks along with the verse used and a summative description of the section. As one can

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[45] 'Ashrei אַשְׁרֵי', Zemirot Database, accessed 16 September 2016, http://zemirotdatabase.org/view_song.php?id=249. Translation also as advised by Adrian Tellwright, University of York, 2 February 2017.

imagine it differs slightly from the original text as creativity conquered process, whereby new elements were added or sections became longer or shorter as required by the music.
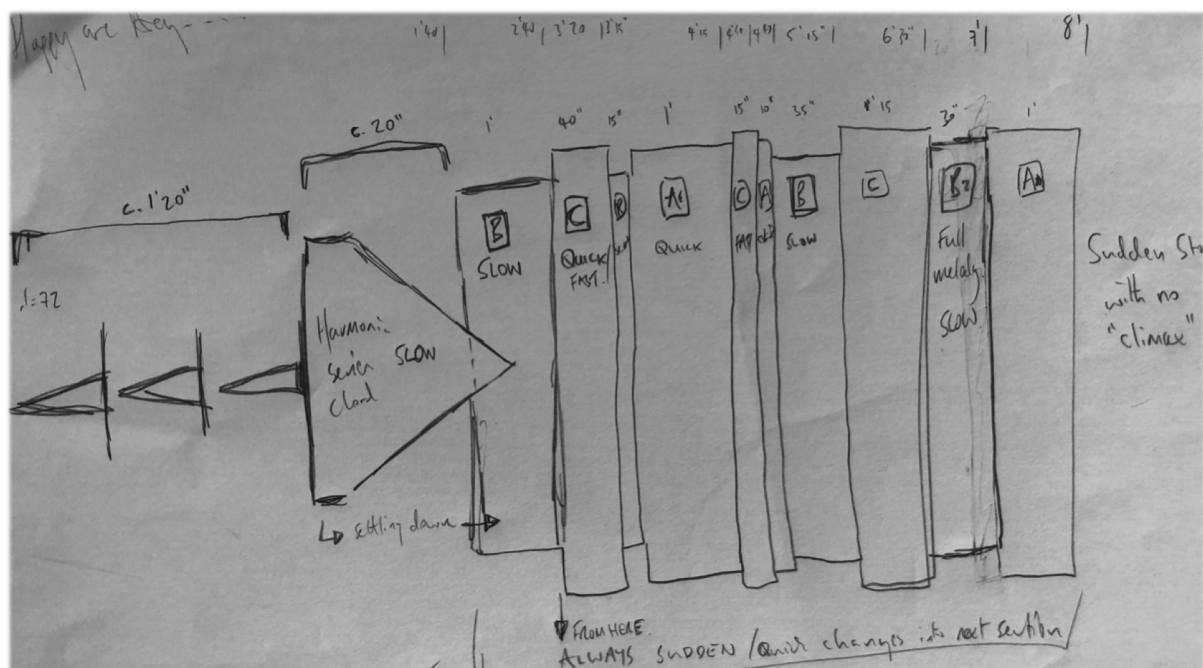
Figure 16 Happy are they who dwell in your house - timeline/structural sketch

Bars	Material Type	Psalm Text	Summative description
1-38	Intro	Verse 1. Spoken through megaphones, symbolising a call to prayer.	➤ "Ethereal; Sermonic". ➤ Shimmering light (triangles). ➤ Eb clarinet and trombones symbolising a call to prayer.
39-49	Intro (cont.)	A musical response to Verse 1. No text spoken or sung.	➤ Harmony based on natural harmonic series (Horns playing natural harmonics). ➤ Symbolising purity of Adonai (God).
50-106	B¹	No text reference.	➤ Heterophonic.

			➢ Flutes and violins building energy and momentum with falling triplet motifs. ➢ Short brass chorale into lush quasi-Romantic harmony.
107-158	C^1	Verse 8	➢ "Quasi-ritualistic chant". ➢ Rhythmic "speech" based on text emulated by the orchestra i.e. "Men shall speak…".
139-152	B^1	No text reference.	➢ "Gently flowing". ➢ Quasi-organum/ heterophony based on basic melody of bars 50-106.
153-163	B^1 (cont.)	No text reference.	➢ "Heavy; fierce; pressing forward". ➢ Simplification of melody, orchestral homophony.
164-175	B^2	Combination of verses 2 and 3	➢ "Calmato; molto espressivo; ethereal". ➢ Praise – a realization of Adonai.
176-209	A^1	Combination of verses 5, 7 and 9.	➢ "Volante". ➢ Brash out-of-tune piccolos. ➢ Multi-layered energetic textures. ➢ High-repetition ➢ Responding to the greatness, goodness and righteousness of Adonai. ➢ Powerful.

210-226	C^2	Verse 9	➢ As with 'C' previously, based on the idea of 'uttering'.
227-235	A^2	No text reference.	➢ A reprise of bars 176-209, although shorter and with a paring down of material.
236-261	C^3	Verse 8	➢ "Men shall speak…" ➢ Texture as with previous 'C' sections, but multi-layered textures. ➢ Static with breathy sounds. ➢ Interjection of Soprano melody (e.g. bar 253)
262-273	C^3 (cont.)	Verse 8	➢ "Gently Flowing" ➢ Feldmanian repeated chromatic melody ➢ (D, Eb, E nat)
274-297	D (Interlude)	Verse 3	➢ "Still; understated, with sparks of light". ➢ More Feldmanian floating string textures. ➢ A celebration of David, of whom the Psalm praises. ➢ This is the zenith moment of the piece.
298-311	Intro reprise	Verse 1 (no voices)	➢ A memory of "Ashrei yoshvei…" from the opening. ➢ Repetition.
311-end	A^3	Verse 1	➢ "Mechanical; heavy" ➢ Punchy piccolo melody, as with previous 'A' sections.

			➢ Large harmonic series chords, as a memory of the opening.

Figure 17 Happy are they who dwell in your house - Breakdown of blocks/sections

3.2 <u>Rubble: Geological forms</u>

In addition to responding to minimalist visual art, geological forms have been a significant starting point for *String Quartet No.1, Erratic* and *Fault-Klang*. As mentioned in the introduction, geological forms are not dissimilar to sculpture. Erratic rocks (erratic, meaning to wander) differ from other rocks native to any particular area, as they have been removed from their original source by glacial movement and deposited elsewhere. They are of particular interest to me as a composer in terms of creating juxtapositions of musical materials that do not seemingly follow on from one another. The string quartet is erratic in nature, with its scherzo-like quality, due to the fragmented playfulness of juxtaposed thematic materials, from quick gestures to slow moving chord changes. The main erratic event comes in the second movement with its isolative sound scape. This was realized by writing extremely high harmonics in both the second violin and viola parts with added tremolandi inflections to suggest an instability. In addition, I ask for the harmonics to be played quietly and lightly so the sound becomes unstable, allowing the fundamental to occasionally be heard - the fragile work of Agnes Martin came to mind here. These harmonics remain a constant throughout this first section. Underneath the soaring harmonic tendrils lies the main focal point of the section, which is a *molto expressivo* melodic contour, derived from the initial falling triplet fragment on which the piece is based. The idea of a simple melody was again to emulate solitude. After composing the melodic line and harmonics, I felt this section required an extra psychological component; another colour and emotional state for the ear to latch onto. Therefore, I added a falling minor seventh motif, an adaptation from an initial sketch for violin and cello. This counterpart repeats as an anchor point, to reflect the idea of abandonment with no means of escape.

This texture is abruptly interrupted by an extreme contrast of chaos lasting eight bars. The quartet hammer out *alla chitarra* four-note-chords in various rhythmic semiquaver permutations and as loud as they possibly can. This gesture portrays the pinnacle of the "erratic"

(figure 18) within the whole piece in terms of both sonority and physicality; sonority, due to all quartet members playing homophonically, which is the only time this happens throughout the whole piece (and approximately at the half way point); and physically due to the players not playing their instruments in the traditional way, thus emulating a disconnect between themselves and their instrument.

Figure 18 String Quartet No.1, Erratic, Movement 2 - 'erratic' representation

3.3 Rumble: Fault-Klang

Fault-Klang is a conceptual response to the cause of fault lines of the earth's crust. Geologically, a fault is a fracture in a volume of rock formed as a result of mass movement; the energy released in the movement is often the cause of earthquakes. However, this idea only came to fruition when the piece was near completion, for me, an earthquake is what the journey of this piece conveys and is a fitting narrative for the listener's experience. In addition, the overall shape of the piece is very similar to what we might expect to see in a typical seismometer reading as seen in figure 19; for comparison, figures 20 and 21 show my initial sketches.
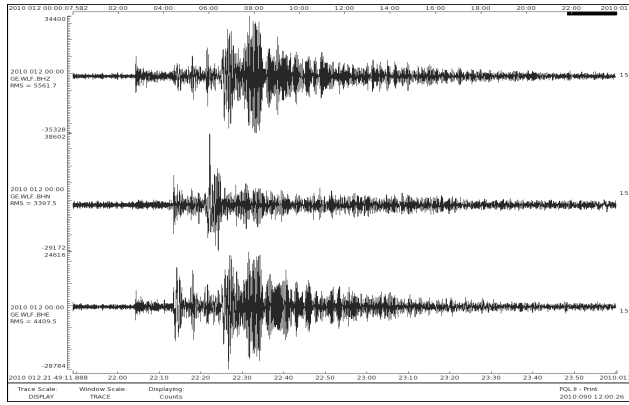
Figure 19 Seismometer reading[46]
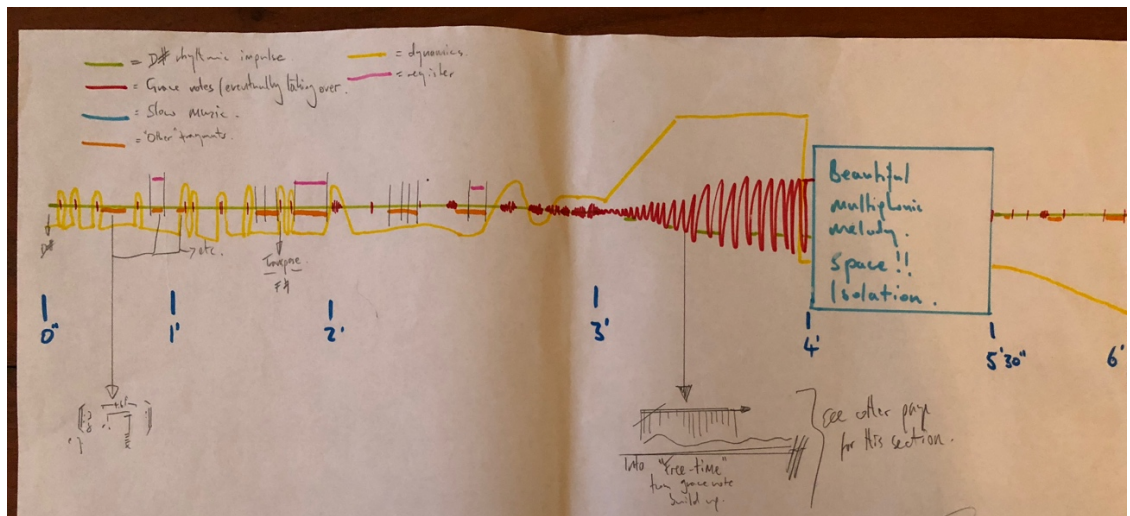
Figure 20 Fault-Klang - initial sketch showing overall shape
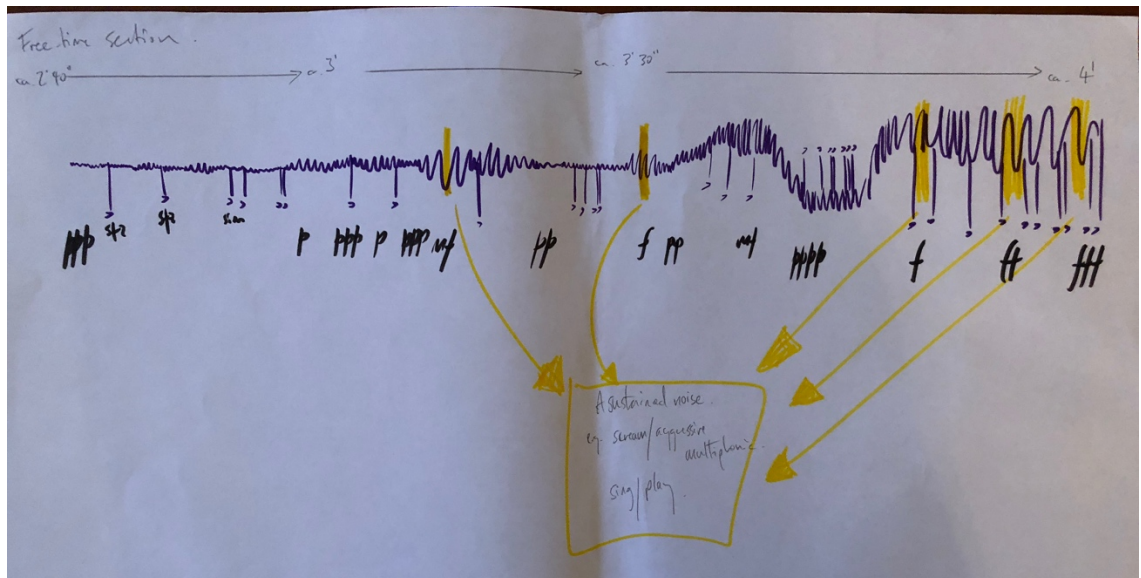
Figure 21 Fault-Klang - initial sketch detail from ca.2'40" to 4'

From the very first bar through to the end of the *moto perpetuo*, there is a constant undulation and accumulation of energies emulated by the repetition of a few juxtaposed fragments of varying degrees of activity, for example, a contrast between extremely quiet breathy sounds to the thuds of slap-tongue or the intensification of growling triplets. (figures 22 to 25)

Figure 22 Fault-Klang - fragment juxtaposition I

Figure 23 Fault-Klang - fragment juxtaposition II

Figure 24 Fault-Klang - fragment juxtaposition III

Figure 25 Fault-Klang, fragment juxtaposition IV

The *moto perpetuo* culminates with a sense of release (the main eruption) as the bass clarinet ascends to its utmost partials, which is piercingly high and cuts through the space, imagining a tinnitus in one's ears in the aftermath of a loud explosion. A silence follows before very still and fragile multiphonics are heard with the occasional loud and out of character aftershock to end the piece.

Chapter Four

Minimal means: Composing Materials

4.1 The meaning of minimal means

This chapter will address how all of my concerns directly inform my compositional materials and processes. As cited previously, minimalist music has particular preoccupations, but to quote music critic Paul Griffiths again, he simplifies these particulars into two fundamental characteristics, defining the form as 'an extreme reduction and simplicity of means, and repetition.'[47] Composer La Monte Young reduces it even further and 'defines the style succinctly and elegantly: "That which is created with a minimum of means".'[48] In considering my own music, the words 'create', 'minimum' and 'means' resonate with my own compositional processes. For example, to 'create' the initial stages of sketching numerous alternative ideas (the pre-compositional palette); minimizing my choices, usually to the strongest singular idea which has the potential to generate numerous variants (the compositional palette); and finally, the means by which I order sounds through being economical about how these sounds are developed to create the final product (the act of composing).

It goes without saying that composing minimally is not a new concept as many composers past and present, as mentioned previously, have been motivated by this methodology. Economy of means plays an important role in how I create my music and how I implement the idea of creating non goal-orientated music. The primary economical techniques used include composing with fragments, collages, moment form, using a singular melodic line as the basis for an entire work, limiting the pitch and rhythmic palette and repetition, all of which could be categorized under the recycling of material. In the subsequent sub-chapters, I will discuss how I implement economy of means in my compositional materials through dividing them into three key areas: harmonic means, rhythmic means and indeterminate means. Musical examples will be given from my own work as well as works by other composers which have had significant influence on how my technique has developed.

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[47] Paul Griffiths, *Modern Music and After* (Oxford University Press, UK, 1995), 209.

[48] Schwartz, *Minimalists*, 9.

4.2 <u>Harmonic means</u>

To paraphrase composer Hans Abrahamsen in regard to getting off the blank page, he suggested to 'close your eyes, imagine yourself in the center of a stage, in complete silence, and think about what the first sound you wish to hear will be and how to break that silence.'[49] This philosophy has stayed with me (ever since) and I always think about this when deciding how I might begin a new piece. Thus, pitch and timbre are often the fundamental starting point of my compositional process, be it a particular chord, melodic sequence, melodic fragment or gesture. Many of my compositions begin with a minimal gesture which offers scope to expand and develop, as I will demonstrate and discuss further in this chapter.

Often, my choice of pitch and its development tends not to follow any system as such. My intuitive ear plays an important part in the way, for example, melodies are constructed and brought together and how chords are stacked and juxtaposed. Occasionally, systems are used very loosely, as without having any system to follow, the process can become time consuming due to a systematic 'process' not doing the work for you, *per se*. With this mind, simple pitch cycles are sometimes employed, and limitations are set on the amount of pitches or pitch class sets I use.

4.2.1 <u>Memory Stack I-X</u>

Memory Stacks I-X is the earliest work presented in this portfolio and the most important in terms of encapsulating the central themes and techniques addressed throughout the commentary. In other words, this piece acts as the catalyst to all subsequently written works in terms of fragmentation, form, repetition and how pitch material was used to create new works. Firstly, I will discuss how pitch is treated, followed by how similar techniques were applied in other works.

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[49] Hans Abrahamsen, paraphrased quote from a personal composition lesson (Royal Academy of Music, London: ca.2008)

This piece was conceived in response to the work of Donald Judd's "stacks" series, as described previously. In reference to Meyer's description of Minimalist sculpture, in that it is typically devoid of emotion and therefore does not elude to any literal presence or existence, I feel Judd's stacks are an exemplar to this categorization and something I needed to portray within the music. Stasis through creating non goal-orientated music was an immediate consideration to emulate a sense of lacking or emptiness, therefore I decided to minimize the pitch and rhythmic materials. This in turn naturally encouraged exploring various repetitive devices throughout the work, and the recycling of materials. In terms of pitch, explorations of pitch-cycles were employed, and in doing so led to explorations of self-similarity and memory throughout the whole work. Pre-compositionally, as with most of my music, I usually begin to generate pitch material by developing a pitch series or cycle, which then has the tendency to be broken away from intuitively. Below shows the two primary pitch sets (figures 26 and 27) and the following table shows, in a concise way, how these pitches were implemented and varied (figure 28).
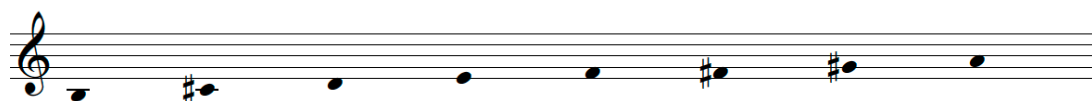
Figure 26 Memory Stack I-X - First pitch set

Figure 27 Memory Stack I-X - Second pitch set

Movement	How pitch is implemented
I	Three layers of pitch material from the above pitch sets (transitioning from first and second):
	Layer one: Violin and Cello. The pitch sets hocket between each instrument, orchestrated in luminescent harmonics.
	Layer two: Top staff of piano. Series cycle with octave displacement.
	Layer three: Middle and bottom staff of piano. One four-note chord repeated to add stability.

II	An exact palindrome of Movement One, albeit the repeat mark placement is altered.
III	Violin and cello hocket pitches from the top line of the piano part from movement one. The piano arpeggiates the four-note chord also from movement one. New quasi-chromatic dyad gesture added as a "palette cleanser" to a somewhat static sound-world.
IV	A chromatic wedge gesture is introduced by the violin, which is later echoed by the cello. The cello plays a rapid triplet-semiquaver gesture, the pitches again being from the original pitch series. The piano plays a variation of the pitch material to the right-hand from the first movement. These pitches are selected intuitively.
V	I chose to use a limited amount of pitch material for this movement. The violin uses the pitches chromatically from D natural to G natural. The cello solely uses the pitches D natural and D sharp. Again, the piano arpeggiates the four-note chord as with movement one and three.
VI	The violin and cello pitches are once again taken from the same pitch material used in movement one. The function of the way in which the harmony is constructed was to create an illusion of disorientation for the listener (as the score states '…*think M.C. Escher…*'). For example, the violin glissandos up even though the fundamental is descending; in reverse the cello glissandos down whilst the fundamental is ascending. In the piano part there is also quasi ascending and descending: the E flat and F natural (starting RH) begin in the extreme high register and descend to the middle register (finishing in the LH); the F natural and A sharp (starting LH) begin just above the middle register into the extreme register (finishing in the RH).
VII	This movement harks back to movement one where the semiquaver pattern from the piano part is orchestrated between the violin and cello. The piano plays chords in various octave displacements via a pitch set based on the four- note sustained chord from movement one, the main pitch set being D, E flat, F, F sharp.

VIII	The violin and cello play exactly the same material as movement one, albeit the repeat mark placement is altered. The piano part has also been removed.
VIIII	The cello plays the same material as the violin from movement IV. The piano plays the same material from movement one, minus the chords.
X	This movement contains a cross-pollination of fragments from all subsequent movements, acting as a summary of the whole piece.

Figure 28 Memory Stack I-X - Pitch implementation /dissemination

This condensed table of harmonic events demonstrates that very little pitch material was used. However, these limitations generated an abundance of material to sustain at least a thirty-minute work, whilst continually being interesting. It also allowed me to be very creative to see how far I could explore this harmonic material, without the need to introduce something dramatically new, which would have lost the translation between the interplay of self-similarity and memory.

4.2.2 <u>Staten Crossing I - VIII</u>

I was introduced to an orchestral piece entitled *Keilschrift* by German composer Enno Poppe. One of the prominent characteristics of this piece is the way in which Poppe creates varying repetitions on the same melody, whereby the melody expands and contracts in relative proportions and permutations, along with varying degrees of ornamentation (figure 29). This made for a boundless inspirational model to aid the development and formulation of the ideas that were being explored in writing *Staten Crossing I*-VIII, before hearing *Keilschrift*.

Figure 29 Enno Poppe, Keilschrift - heterophony/expanding and contracting melody. [50]

This technique is fundamentally based upon the development of Theme and Variations in the traditional sense, thus it is by no means a new technique, but is a tried and tested method to develop one's material effectively. As Schoenberg suggests, 'Variety within the variation requires appropriate elaboration of the motive. Additionally, elaborations are the consequences of such structural features as cadences, contrasts and subdivisions, this will result in variation within variation.'[51]

In light of the expansion and contraction of the same melodic fragment, I developed a small melodic question and answer phrase as shown in figure 30.

[50] Enno Poppe, *Keilschrift* (Berlin: Ricordi, 2006), 2. (Typeset from original score)

[51] Arnold Schoenberg, *Fundamentals of Musical Composition by Arnold Schoenberg (Paperback)* (Faber & Faber, 1999), 173.

Figure 30 Staten Crossing I-VIII - Question and answer phrase

In terms of sketching variations on this question and answer motif, I sculptured a profusion of sketches followed by choosing the most effective in terms of contrast relevant to the context of the piece. Schoenberg also makes comment on the preparation of developing variations by suggesting:

> The theme should be thoroughly explored and the best openings for variations determined. After the theme has been reduced to its essentials, a large number of sketches, which explore a variety of motives of variation, should be made… From the many partial sketches the more promising may then be selected for completion and polishing.[52]

This method of composing was also used for the majority of the other pieces in this portfolio, particularly *Memory Stacks I-X, String Quartet No.1, Lone Yellow, Fault-Klang* and *Twenty Mirrors I*. Similarly to *Memory Stacks I-X*, in using the same melodic material as the basis for each movement, further explorations of self-similarity and memory were employed. This was executed through setting the scene whereby the melody is initially heard completely in the first movement, thus acting as a palette of melodic material to be deconstructed and reconstructed throughout the piece. The table below (figure 31) highlights the key ways in which the initial melody was transformed.

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[52] Schoenberg.

Movement	Expression marking	Devices/implementation
I	*Swing it, feel the backbeat…*	Melodic question and answer phrase initiated in full. 'Question' stated by the baritone, echoed by the soprano. 'Answer' shared between the alto and tenor.
II	*Perhaps, like a broken jazz record…*	Melodic question and answer is split into rhythmically augmented and diminished fragments and remains melodically the same in terms of pitch.
III	*Sleazy*	Only the 'question' part of the phrase is heard. The soprano takes the phrase as normal; the rest of the quartet augment the line in various transpositions to create chords to accompany.
IV	*Melancholy, with some hope…*	Augmented and diminished melody line throughout the ensemble in various transpositions.
V	*Laid back, dragging dirge…*	The melody is augmented and diminished between the soprano and baritone, in various transpositions.
VI	*Groove, swing and make it dirty…*	Melody line is split between the soprano and alto. The alto pre-empts the second part of the sopranos phrase in the first instance. The alto then completes the whole melodic phrase.
VII	*Scattered, flickering, distant*	The melody is split into ten small fragments, each with their own character. Each player plays the same fragments but in different orders.
VIII	*Slow groove (feeling slightly behind the beat)*	As with Mov. VI, the melody is augmented and diminished throughout the ensemble and in various transpositions.

Figure 31 Staten Crossing I-VIII – melodic transformations.

As well as expanding, contracting and dividing the melody in various ways to aid variation, I also changed the melody through the simple means of transposition through an octatonic scale. In exploring this technique of hearing the same sounds from varying harmonic perspectives, it simulates the self-similar musical mobile effect as explored in *Memory Stacks I-X*. Again, turning harmony from the linear to the vertical was implemented through the augmentation and diminution of the main melody and layering it. Thus, the harmonic language remains in the same sound world making a cohesive environment. It was important however to think about the placement of the pitches within the linear domain, and to consider the vertical at the same time – they both inform each other.

4.2.3 String Quartet No.1, Erratic

Similarly to *Memory Stack I-X* and *Staten Crossing I-VIII*, the harmonic language for *String Quartet No.1, Erratic* stems from the initial statement in the music. In *Memory Stack I-X*, the harmonic language for the whole piece is derived from the first movement; all of the material in *Staten Crossing I-VIII* developed from the opening question and answer phrase; in *String Quartet No.1, Erratic* the harmony is developed from the first four pitches of Violin I in Movement One. The pitches within this opening gesture (a falling semitone-tone-semitone starting on A#) are repeated in the same order but again in different transpositions (see figure 32).

Figure 32 String Quartet No.1, Erratic, Movement I - Opening gesture

This quick, insect-like gesture is then juxtaposed with longer, more fluid sustained blocks of four-note chords created using the same four pitches. As mentioned in regard to *Staten Crossing I-VIII*, this technique of turning the horizontal into the vertical was a way of getting the most out of my pitch material through minimal means. In addition, the pointillistic *klangfarbenmelodie* technique was explored by splitting the four-note gesture in succession throughout the quartet (figure 33).

Figure 33 String Quartet No.1, Erratic, Movement I – Klangfarbenmelodie

Using this technique added a gradual change of colour and texture as an alternative to the now familiar opening gesture on a singular line and instrument. In addition, each chord is made up of the same four notes as the melodic gesture. This not only creates a sense of self-similarity, but more specifically it brings a sense of stasis, allowing time to stand still for a moment and to break up the flow of linearity.

Movement three exhibits energetic interactions with material from movement one, albeit heard in new ways with the addition of new material. The new material forms an answer phrase to the main falling octatonic gesture from movement one (figure 34). This form of melodic dialogue was inspired by the exploration of the question and answer phrase in *Staten Crossing I-VIII.* Once we hear the falling octatonic idea of A#, A, G and F#, which is the first four notes in the viola part, we hear the rising and falling response of F#, G#, A, E then back to F# in the cello part.

Figure 34 String Quartet No.1, Erratic, Movement III - Question and answer phrase

As the movement continues, the semiquaver 'answer' phrase develops and appears more frequently. This is then paired with violin one which repeats the notes of the question phrase in a similar fashion. Quickly following this, a burst of the falling triplet pattern for one 3/8 bar is introduced, exploring the idea of memory ensuring that the listener has not forgotten about it. This is then followed by a falling dirge of quiet and delicate glissandi, again based on the descending A#, A, G and F# fragment, but layered through various transpositions.

4.2.4 Heterophony: *Happy are they who dwell in your house*

Artist Paul Klee was heavily influenced by music, and in turn, Klee was a heavy influence on many composers including Boulez and Birtwistle. Klee was known for his 'polyphonic painting'. As Hajo Düchting writes:

> Klee applied this term from the 1930s onwards to complex compositions comprising a variety of formal elements which combine and elaborate on one another […] What he meant by 'polyphonic painting' is […] (that) the layering of very structured areas

produces a composition of 'many voices', a harmony of forms in which colour takes on a specific meaning.[53]

The work that most demonstrates Klee's understanding of polyphony in painting is his 1931 work *Polyphonic Vibrating (and repeated in complimentary form)* (figure 35). Here is it easy to see multiple layers of texture from his use of line and varieties of shading.
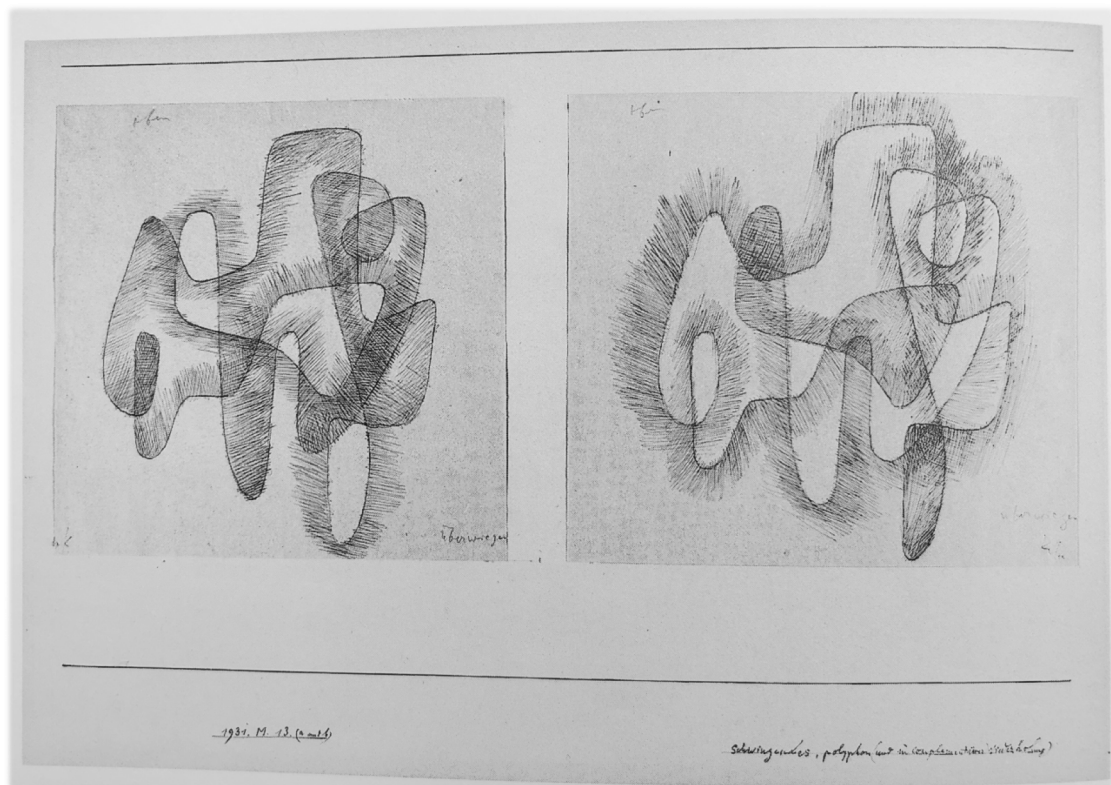
Figure 35 Paul Klee, Polyphonic Vibrating (and repeating in complimentary form) 1931[54]

What fascinates me about these two drawings, is that they both demonstrate that the line can be embellished in multiple ways to offer different perspectives by simple means of shading. Peter Vergo suggests it is 'a kind of negative-positive reversal […] It is as if, in a work or architecture, solid and void were to become interchangeable; or a Bach two-part invention, say

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[53] Duchting, *Paul Klee*, 65.

[54] Duchting, 66.

– in which two instruments or voices exchange roles.'[55] Boulez also 'acknowledged the connection linking the development of his own heterophonous lines with the visual experiments, drawings and paintings of Paul Klee.'[56] […] 'For Boulez, the important principle to be learnt from Klee is the simple notion of an original line being surrounded by a number of secondary lines, and the geometric organization of such secondary lines relative to the original line. Klee envisages a curved line, first of all on its own, secondly, decorated by complementary lines, and thirdly, circumscribing itself.'[57]

As highlighted in *Staten Crossing I*-VIII, *Happy are they who dwell in your house* (*HATWDIYH*) also makes use of heterophony as a simple means to create several layers of melody. In addition, each entry is transposed, thus creating vertical harmonies, to give a sense of perpetual motion and a change in perspective. In his large orchestral work *Tevot*, composer Thomas Ades employs this technique throughout the piece; it is particularly striking from bar 314. The example below shows the first four entries of the same melodic line in varying transpositions (figure 36).

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[55] Peter Vergo, *The Music of Painting: Music, Modernism and the Visual Arts from the Romantics to John Cage*, 01 edition (London: Phaidon Press, 2011), 246.

[56] Campbell, *Music After Deleuze*, 21.

[57] Campbell, *Music After Deleuze*.

Figure 36 Thomas Ades, Tevot, from bar 314 – heterophony.[58]

Using canon as a technique is a very effective and simple device for getting the most out of one melodic line, thus creating long strands of melody and interesting vertical harmonies. This section of *Tevot* offered a very useful model for how I might arrange the melodic content in *HATWDIYH*. The first time this appears is from bars 50 to 74 (figure 37). This technique is used throughout and returns in a similar way from bar 139-152 (figure 38).

Figure 37 HATHDIYH, bar 50+ - Transposed melodic strands/heterophony

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[58] Thomas Adès, *Tevot* (London: Faber Music, 2014), 54–55. (Typeset from original score)

Figure 38 HATWDIYH, bar 139+ - Transposed melodic strands/heterophony.

Other pieces from which I drew inspiration, include George Benjamin's *Dance Figures*. In movement VIII (figure 39), Benjamin uses a similar technique to Ades' *Tevot* and Poppe's *Keilschrift* (see previous figure 23, page 46) although perhaps more akin to Klee's use of polyphonic painting whereby the line is embellished.

Figure 39 George Benjamin, Dance Figures, Movement VIII – Heterophony.[59]

[59] George Benjamin, *Dance Figures* (London: Faber Music, 2006), 46. (Typeset from original score)

Another technique deployed was one inspired by composer Louis Andriessen, in works such as *De Staat*, whereby he expands the melodic line vertically in parallel fifths, in the style of organum perhaps (figure 40).

Figure 40 Louis Andriessen, De Staat, bars 1-8 - Opening melodic organum.[60]

This technique works in a similar way to heterophony as described before, although it deals with homophony rather polyphony. Again, this is a simple yet effective way of producing vertical harmony from one simple melodic strand. In *HATWDIYH* this technique is exploited, for example from bar 176 to 235 by three piccolos which perform a sequence of dyads with intervals of a major 3rd and augmented 5th (figure 41). Piccolo three is a quarter-tone detuned and alternatively doubles piccolos one and two to add a variance in timbre.

Figure 41 HATWDIYH, bar 76+ - Trio of piccolo flutes - sequence of dyads.

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[60] Louis Andriessen, *De Staat* (London: Boosey & Hawkes, 1976), 1.

The harmony here is also echoed throughout the orchestra in various rhythmic permutations by the violins, oboes and clarinets, as a means to add a further layer of punctuation and to vary the timbre. This block of material is then repeated again for a fleeting moment from bar 227 to 235, but without the echoes within the orchestration. Furthermore, this material then makes its final return in a slightly different way with the whole orchestra, in a punchy and cacophonous rhythmic unison from 312 – end.

In most of my music, the idea of sudden contrast is a key way in which I try to bring energy and to surprise the listener, which I will discuss further in subchapter 4.4. Therefore, in contrast to the very chaotic moments in the piece, there is a juxtaposition of very static and delicate Feldmanian passages. Feldman is an important influence on my music, particularly in terms of his distinctive harmonic language, in the way he places chords side-by-side intuitively and how he repeats the same chord over and over albeit changing the voicing by displacing octaves or through instrumentation. Chromaticism is also a feature in much of Feldman's music which I draw upon in *HATWDIYH*, thus, there are two Feldmanian passage which I would like to highlight as examples. The first is the use of chromaticism from bar 262 to 273 (figure 42), which is essentially a quartet between the soprano, alto flute, piccolo flute and harp. Each instrument gently plays the same three pitches (D natural, E flat and E natural) displaced in different octaves and in varying cyclical rhythmic permutations.

Figure 42 HATWDIYH, bars 261-265 - Feldmanian chromaticism.

The downbeat of the soprano line is punctuated by breathy sounds from the brass and violins, creating the idea that the whole orchestra acts as one breathing organism. Immediately preceding this, from bar 274 – 290, the violins and violas play between two timbrally similar

alternating triads (figure 43). This is marked 'Still; understated' and punctuated by metallophones, celeste and harp which depict 'sparks of light', as described in the score. The purpose of the punctuations in these sections is to simulate perpetual energy, time passing and unpredictability – it breaks from the staticity, making the stable unstable.

Figure 43 HATWDIYH, bars 274-278 - Feldmanian alternating string texture.

4.2.5 Recycling

In addition to my previous comment in regard to Abrahamsen's suggestion of getting off the blank page, I often find recycling material from previous pieces very useful. There are often many more avenues to be explored, particularly when experimenting with the same material, albeit for different forces. As well as providing instant material to develop a new piece, recycling also provides a platform for further explorations of musical economy, and by default my questions concerning teleology, memory and repetition are exploited. As a comparison, Judd's "stacks" series are recreated using different material types to create an entirely new work of self-similarity, even though the principle is the same. The act of borrowing and regenerating ideas from other pieces to create a new work reminds me of a recent composition seminar given by composer Arlene Sierra. Sierra talked about creating memory games within her music, in particular her piano concerto *The Art of War,* and how she borrows ideas from other pieces to get away from the blank page when starting a new piece. She used the analogy of making sourdough in that a new loaf is made from the culture from the one before that. This was a very

effective analogy and one that struck a chord personally, as it directly relates to my own compositional processes of taking elements from one composition to begin something new in another. It also applies to the way in which I use material internally within a piece of music.

For example, the main melodic gesture from *String Quartet No.1, Erratic* was taken from a fragment of the piano part in Movement II of *Memory Stacks I-X*, a fragment which inspired the harmonic soundscape of the entire piece (figures 44 and 45). *Lone Yellow*, composed three years after *Memory Stack I-X* in 2017, recycles the same pitch sequence directly from the piano part in movement two, although some pitches were altered slightly to suit a single melodic contour, rather than a line with accompaniment (figures 46 and 47).

Figure 44 Memory Stack I-X, Movement II - fragment from bar 4 (highlighted).

Figure 45 String Quartet No.1, Erratic, Movement I – Fragment (transposed) reused from Memory Stack I-X, Movement II.
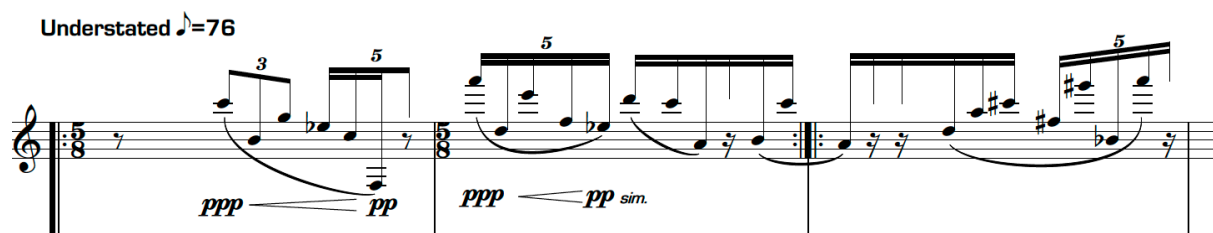
Figure 46 Memory Stack I-X, Movement III - RH piano part fragment.
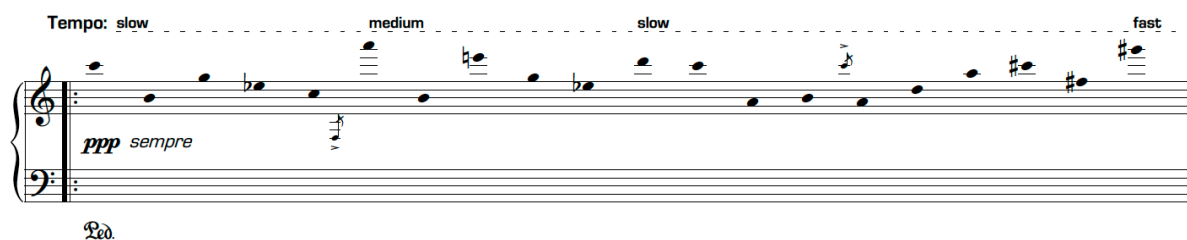
Figure 47 Lone Yellow, Movement I - piano part.

4.3 Rhythmic Means

Rhythmic choices in the majority of my compositions depend on the individual circumstance of what I am trying to achieve conceptually. However, there are particular techniques to be addressed that are regularly used to create strands of rhythmic patterns, including the use of palindromes, augmentation and diminution. These three techniques correspond to self-similarity and repetition, and are simple compositional devices.

Memory Stack I-X was the first piece in this portfolio to explore the idea of creating small rhythmic palindromes. I must acknowledge the work of composer Bryn Harrison here, a former composition teacher of mine who was a great influence on me in my early compositional career. Bryn introduced me to a technique he developed from generative number sequences as a way of creating rhythmic patterns, but more specifically those which 'always display basic properties of reflective symmetry.'[61] (for more detail see figure 48)

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[61] Bryn Harrison, *Lecture notes*, University of Huddersfield (08.12.2004)

Generative number sequences

Combining two sets of numbers (3:4);

```
1 2 3|1 2 3|1 2|3|1 2 3
1 2 3|4 1 2 3|4|1|2 3 4
   3  1  2 2  1  3
```

The resulting sequence can be translated into the following rudimentary rhythm;

(value of 1 = ♪)

Second example (4:5);

```
1 2 3 4|1|2 3 4|1 2|3 4|1 2 3|4|1 2 3 4
1 2 3 4|5|1 2 3|4 5|1 2|3 4 5|1|2 3 4 5
    4   1   3   2 2   3   1   4
```

These kinds of generative number sequences always display basic properties of reflective symmetry as they are the same forwards as they are backwards (pallindromic).

Other examples;

		Inversion.	
3:5	3 2 1 3 1 2 3		1 2 3 1 3 2 1
3:7	3 3 1 2 3 2 1 3 3		1 1 3 2 1 2 3 1 1
4:7	4 3 1 4 2 2 4 1 3 4		1 2 4 1 3 3 1 4 2 1
5:7	5 2 3 4 1 5 1 4 3 2 5		1 4 3 2 5 1 5 2 3 4 1
4:9	4 4 1 3 4 2 2 4 3 1 4 4		1 1 4 2 1 3 3 1 2 4 1 1
5:9	5 4 1 5 3 2 5 2 3 5 1 4 5		1 2 5 1 3 4 1 4 3 1 5 2 1
7:9	7 2 5 4 3 6 1 7 1 6 3 4 5 2 7		1 6 3 4 5 2 7 1 7 2 5 4 3 6 1

Figure 48 Bryn Harrison's lecture notes on generative number sequences.[62]

I had not used this technique in previous pieces, however I felt it was very fitting to the type of piece I wanted to create in terms of developing material which inhabits self-similarity in order to reflect Judd's "stacks". So, in *Memory Stack I-X* the palindromic rhythm between the violin and cello in Movement I, was constructed by taking the ratio 3:5, as set out in figure 49:

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[62] Bryn Harrison, *Lecture Notes* (Huddersfield: 2004)

$$123 \,|\, 12 \,|\, 31 \,|\, 2 \,|\, 31 \,|\, 23 \,|\, 123$$

$$123 \,|\, 45 \,|\, 12 \,|\, 3 \,|\, 45 \,|\, 12 \,|\, 345$$

3   2   2   1   2   2   3

Figure 49 Generative number sequence based on ratio 3:5

Here are 5 sets of '123' and 3 sets of '12345'. I freely divided these sequences into symmetrical formation to create a subset of numbers. This translates into a rudimentary rhythm (figure 50). I then inserted this into a 5/8 bar and used the hocket technique to displace the rhythm between the violin and cello (figure 51).
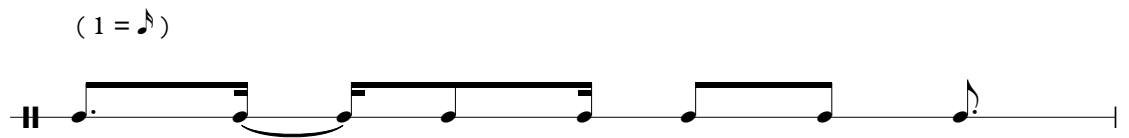
Figure 50 Memory Stack I-X - palindromic rhythm.
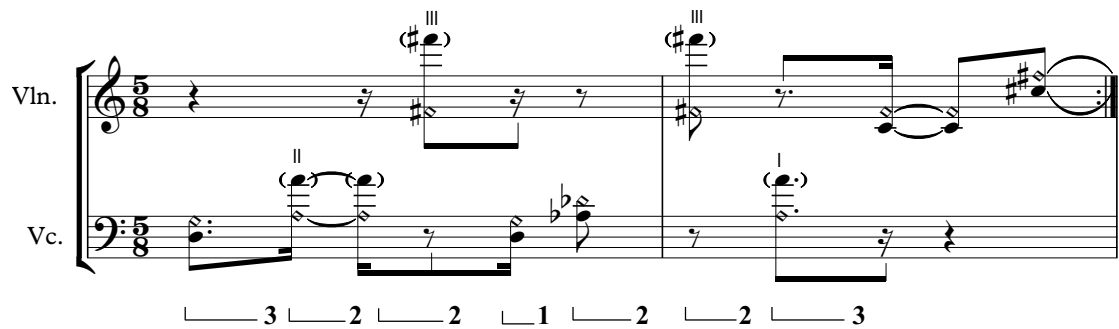
Figure 51 Memory Stack I-X, Movement I - palindrome with pitches.

In making this rhythm cyclical and by adding a sequence of pitches, my aim was to create a musical mobile effect where one hears the same sounds but from different perspectives. For me, this is perhaps similar to the way one would see Judd's "Stacks" as they are perceived from different angles in the installation space. This technique was also used in the main melodic strand of *Fault-Klang*, but rather than the idea of creating a mobile, the aim was to create a sense of unevenness with a sense of perpetual energy and tension. As can been seen in figure 50, the palindromic rhythm was based loosely on the combination of threes, twos and ones (one being the value of a semiquaver). I decided to break away from the rigidity of a strict palindrome

and use intuition to create an unpredictable rhythm. The effect is very much the same as a palindrome as it combines the same repetitive sequence of numbers (figure 52).

Figure 52 Fault-Klang - first two lines of palindromic rhythm.

4.4 **Form**

Again, if we consider Hume's AB, AB, AB, A… as discussed in chapter one, an important feature in my music is nurturing the conflict between continuity and discontinuity, or stasis and change, in that there can be something in fixed stasis that can change immediately at any given point to something entirely new; something to engage the listener. In relation to stasis in music written in the twentieth Century, Kramer writes, 'When the moment becomes the piece, discontinuity disappears in favour of total, possibly unchanging, consistency.'[63] He then discusses the lack of any phrase structure and goes on to say:

> The result is a single present stretched out into an enormous duration, a potentially infinite "now" that nonetheless feels like an instant. In music without phrases, without

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[63] Kramer, *The Time of Music*, 55.

temporal articulation, with total consistency, whatever structure is in the music exists between simultaneous layers of sound, not between successive gestures. Thus, I call the time sense invoked by such music "vertical".[64]

Kramer categorizes a vertical piece as follows:

It does not build to a climax, does not purposefully set up internal expectations, does not seek to fulfil any expectations that might arise accidentally, does not build or release tension, and does not end but simply ceases.[65]

In comparing Kramer's "vertical" characteristics to the pieces presented in this portfolio, it is evident that most are exhibited, particularly in *Memory Stacks I-X, Twenty Mirrors II* and *Lone Yellow*. Paired with my interest in nonlinearity in music, there is perhaps a logical correlation between that and visual art in the way they inform my compositional processes. Kramer also suggests that:

Listening to vertical musical time, then, can be like looking at a piece of sculpture. When we view sculpture, we determine for ourselves the pacing of our experience: we are free to walk around the piece, view it from many angles, concentrate on some details, see other details in relationship to each other, step back and view the whole, see the relationship between the piece and space in which we see it, leave the room when we wish, close our eyes and remember, and return for further viewings. […] The time spent with the sculpture is structured time, but the structure placed there mainly by us, as influenced by the piece, its environment, other spectators, and our own moods and tastes. A vertical musical composition, similarly, simply *is*: we can listen to it or ignore it; if we hear only part of the performance we have still heard the whole piece; and we can concentrate on details or on the whole. As with sculpture, there is no internal

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[64] Kramer, 55.

[65] Kramer, 55.

temporal differentiation in vertical music to obstruct our perceiving the composition as we wish.[66]

Interestingly, this relationship between vertical musical time and how we contemplate visual art is extremely relevant to much of my music, particularly in the works mentioned above. If stretched and manipulated temporally, they have the potential to lend themselves to sound-installation, which is an avenue I am keen to explore in the future. Erik Satie's *Vexations* is perhaps one of the very first extreme examples of music which exhibits the vertical time Kramer refers to; a piece to be repeated 840 times, no less, taking approximately nineteen hours from start to finish. If we consider habitual listening, historically we are programmed to listen to music teleologically. In a piece such as *Vexations* and much of Feldman's music, the linear becomes a blur and we begin to hear vertically, listening as a whole rather than in parts. For example, we are no longer piecing together the motifs to understand the overall narrative, we begin to listen holistically and even meditatively. Unlike sculpture, as described by Kramer, music is a temporal art and as a composer I have the power to manipulate time, therefore I can choose when the vertical period starts and when it ends. Therefore, the composer can essentially control how the listener perceives the piece as a whole, i.e. from which angle, which details to focus on and the duration to which they will listen to a particular moment.

The transference of form and rhythm in minimal sculpture to music has been an integral part of my compositional process. As suggested in the introduction, minimal sculpture typically consists of single or repeated geometric forms and lacking in any emotional intervention. A typical approach to minimalist visual art is to consider that 'form as material' and 'material as form'. My music is of similar ilk in that it is typically constructed of small and/or large anti-expressive blocks of juxtaposed materials, avoidant of any narrative or expressive continuity. Stravinsky's *Symphonies of Wind Instruments* and Satie's *Trois Gymnopédies* and ballet *Parade* have played an important role in my inclination towards creating this kind of music, through their comparable methods of composing with contrasting blocks. This idea is not unlike the music of Harrison Birtwistle who was particularly inspired by the work of Stravinsky and Satie. As Jonathan Cross suggests in regard to Satie's importance to Birtwistle:

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[66] Kramer, 551.

The early set of piano pieces, the *Gymnopédies* and the *Gnossiennes* […] illustrate the idea of viewing the same object from multiple perspectives. Each of the set is distinct yet in essence the same. They also have a timeless quality […] because they appear completely undirected, going around in circles or spirals, as if we can glimpse only part of some larger totality.[67]

This idea of an undirected spiral of sound perfectly describes what I am trying to achieve in much of my own music as, for me, it relates entirely to that of minimal sculpture, which often feels or could be infinite. Cross then continues to say:

The music is brought to an artificial halt; it does not end. Instances of such procedures are too numerous to mention in Birtwistle; perhaps the most obvious examples are to be found in the constant but varied returns to the same basic material in *Silbury Air* and *Endless Parade*.[68]

The blocks in my music are usually confined to just two or three types of contrasting material, which are then repeated in various permutations. For example, in *HATHDIYH*, three block types are used throughout the piece, often returning in a slightly varied way such as changes in orchestration, a reduction of the material or additions to the material.

4.4.1. Stuck together like *Papier Collé*

In addition to large blocks of material, smaller blocks are developed such as repeating a small fragment numerous times, similarly to Bernhard Lang's loops as mentioned previously. In terms of the techniques applied, I often create a page of sketches per fragment, to see how much I can vary the initial material. Once I have chosen the most effective sketches, I will physically cut

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[67] Jonathan Cross, *Harrison Birtwistle: Man, Mind, Music*, Main edition (London: Faber & Faber, 2000), 55.

[68] Cross, 55.

these fragments into chunks and begin experimenting with the placement of these fragments, considering the overall discourse, similarly to Dadaist or Cubist artists working with collage and *Papier Collé* or how Martin Arnold would edit his film reels. It is a technique I find physical and liberating as it is very hands-on, perhaps like a sculptor would work with their materials. *String Quartet No.1, Erratic, Fault-Klang* and *Twenty Mirrors I* were all constructed in this way. As an example, figure 53 shows a page of sketches from *Fault-Klang*.
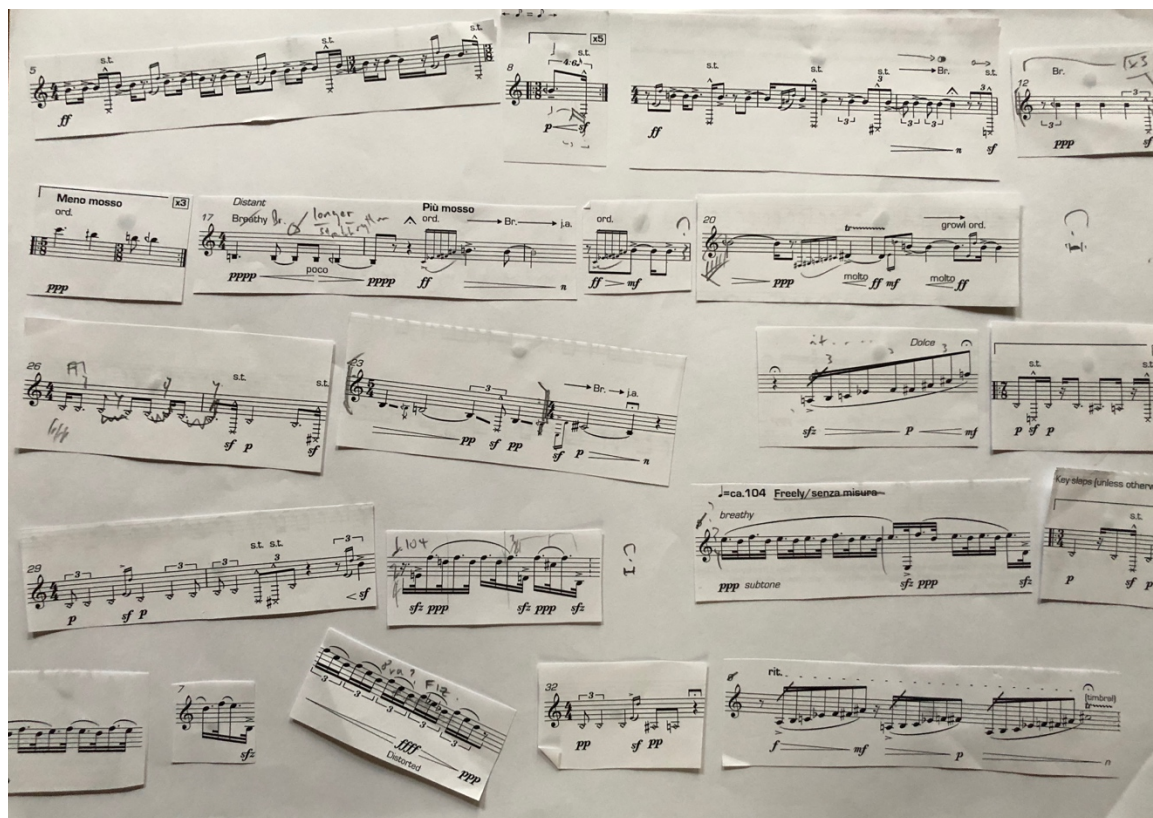
Figure 53 Fault-Klang - cut and paste sketch.

Chopping up music in this way, along with ultra-repetition, brings an unpredictable discontinuity to my music. The idea of a sudden dichotomy of materials is key to the way energy and surprise is brought upon the listener. It is perhaps comparable to a Beethoven scherzo, it can be humorous at times, although this is not my intention. One can also draw comparisons to Stockhausen who coined the term 'moment-form'. What Stockhausen said in relation to his seminal work *Kontakte*, describes my intentions succinctly:

> The musical events do not take a fixed course between a determined beginning and an inevitable ending, and the moments are not merely consequents of what precedes them and antecedents of what follows; rather the concentration on the Now – on every Now

– as if it were a vertical slice dominating over any horizontal conception of time and reaching into timelessness.[69]

4.5 Mobiles

This idea of moment-form relates directly to my interest in exploring musical mobiles and concepts around indeterminacy, which are both fundamentally linked. 'Mobile Form' or 'Open Form' can be defined as when the ordering of movements within a piece is indeterminate and can be left up to the performer. Edward Campbell discusses the role of open-form in relation to the music of Boulez in that:

> Elements of mobility continued to feature in his music, and he remained as committed as ever to ideas of difference and multiplicity. At the level of form, his pieces begin to resemble Stravinsky's sectional forms, and he commends the originality of Stravinsky's discourse, which bases musical form on the permutation and return of recognisable sections.[70]

Mobile form is also an extension of what Cross suggested in regard to Satie presenting the same sounds from different perspectives. My interest and influence in this form stems from Judd, but more specifically from the mobiles of Calder, as suggested previously. Mobiles also corresponds to the term 'self-similarity', a word applied to describe a snowflake. When magnified, the shape of the parts the snowflake is made up of is similar to the shape of the whole. This is what happens when listening to Feldman's later pieces which inhabit large timescales of ultra-repetition, for example his solo piano piece *For Bunita Marcus*; it is not until the piece has ended, after seventy-five minutes, that one understands the full breadth and depth of the piece.

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[69] Karl H. Worner, *Stockhausen: Life and Work*, trans. B. Hopkins (London: Faber & Faber, 1973), 110.

[70] Campbell, *Music After Deleuze*, 19.

Two pieces that sparked my interest in self-similarity stem from my time at the University of Huddersfield. These personally influential works were *Constellations* by Mary Bellamy and much of the work by Bryn Harrison. To paraphrase Bellamy, '*Constellations* is a series of short blocks of music, separated by silence, that are based on a sphere of materials or textures, which can be metaphorically turned around to find other textures within.'[71] In a similar vein, Harrison's *Six Symmetries*, for example, which is:

> Structured into individual, self-contained sections, blocks or panels which do not exhibit qualities of change within themselves but exist as individual 'moments' in time […] material is viewed from different angles or perspectives in which the listener is offered a multiple-directed perspective of time presented as a series of similar or comparative events, each preceded by a short pause.[72]

Perhaps another analogy might be Italo Calvino's description of the city Fedora in *Invisible Cities*, described as 'a metal building with a crystal globe in every room. Looking into each globe, you see a blue city, the model of a different Fedora […] now Fedora's museum: every inhabitant visits it, chooses the city that corresponds to his desires, contemplates it, imagining his reflection in the medusa pond […].'[73] A crystal globe that offers individually desired perspectives of the same fundamental city is a striking image, and offers an abundance of musical ideas to contemplate.

4.6 <u>Indeterminate Choices</u>

There are several types of indeterminate choices used in my compositions. There is a large-scale choice in the ordering of whole movements within a piece, such as *Memory Stack I-X* and *Lone*

[71] Mary Bellamy, "Studies in Composition" personal lecture notes, University of Huddersfield (17/11/2004).

[72] Bryn Harrison, *Cyclical Structures and the Organisation of Time, A commentary on my recent compositional work*: (Huddersfield: June 2007) http://www.brynharrison.com/BrynHarrisonThesis.pdf (accessed 08/08/18)

[73] Italo Calvino, *Invisible Cities*, trans. William Weaver, New Ed edition (London: Vintage Classics, 1997), 32–33.

Yellow; there is choice of entry placement such as in *Staten Crossing I-VIII* and *Twenty Mirrors II*; there is choice in pitch placement such as in *Lone Yellow*; and there is also Lutoslawskian aleatoricism in moments in *HATWDIYH* to create layers of complexity without the music itself being complex. The former stems from directly responding to individual blocks of Judd's "stacks", particularly *Memory Stacks I-X*. In my opinion, each block communicates to the viewer in its own right - existing on its own. Then, for example, perspective changes as one steps back from the work and another block comes into focus; one begins to see an entirely different composition, yet remaining entirely related. These works have fascinated me for many years as they connect to my ever-growing interest in creating metaphorical 'musical mobiles', whereby one hears the same sounds from different perspectives. In the performance notes, I ask for Movement I to be performed first as it is the catalyst for the subsequent movements and Movement X to be performed last, as it summarises the entire piece. Other than these instructions, the performers can predetermine the order in which movement two to nine are played. The silences can be of a length between an arbitrary ten to forty-five seconds, again predetermined prior to performance. In turn, my hope is that each performance will be slightly unpredictable each time. As with Judd's "Stacks", where the number of boxes can be reduced to fit within a gallery's floor to ceiling space to maintain the proper spacing and proportions, I also state that the silences can be cut or reduced to be flexible with concert programming.

Lone Yellow, a title taken from one of Calder's works of the same name, from 1961, is a more structurally direct response to the physically moving mobiles of Calder. The piece is for bass clarinet and piano and consists of five pages of music for each performer. The pages can be played in any order and can be 'mix-and-matched' with each other, resulting in a piece that is slightly different every time it is performed. The musical material is based on the same melodic line for both instruments but presented in different ways on each page so that one hears similar music but from slightly different perspectives. This was one way of responding to an artwork which is fixed in terms of material, albeit the perspective of the material changes as it slowly moves within the space.

Staten Crossing I-VIII explores the relationships between movements of synchronicity and indeterminacy. In this piece there are four movements of independent strands which are movements I, II, V and VII, and four movements of synchronicity which are movements III, IV, VI and VIII. There are two reasons behind this approach. The first is how the city infrastructure is perceived and how I assimilate both the stasis of the buildings and the free-flowing movement

of life between them, not dissimilar to the later works of artist Piet Mondrian, such as his *Broadway Boogie Woogie (1942-43)* (see Figure 7). The second reason is the intention for each performer to be spacialised around the performance and audience space, bearing in mind the constraints and practicalities of certain venues where this instruction may not be possible. The performance notes stipulate that two players are to be at the front and two preferably behind the audience. This was to achieve a sense of physical and audible space in order to emulate the structures, sights and sounds of New York, giving the impression that the audience is enclosed within New York's grid system.

CONCLUSION: IS LESS MORE?

It is evident that the visual art, particularly those approaches to sculpture and painting characterized by their economy of means, has played a crucial role in the development of all of the works presented in the portfolio. Over the course of writing this portfolio, the way in which I contemplate my own compositional processes and procedures has been significantly changed by a consideration of the work of particular artists and composers. I have intentionally avoided using this commentary to present a deep analysis of the harmonic and rhythmic structures of my music as I do not believe it would assist a reader in gaining a further understanding of my music. Instead, I have sought to provide a thorough insight into the creative stimuli behind my music, which I regard far more useful as a means to contextualize and understand my processes. This commentary also illustrates how the majority of pieces were conceived as direct responses to particular works of visual art, rather than just borrowing visual art as a convenient inspirational starting point. These direct responses were achieved through contemplating the immediacy of a particular work, followed by gaining a holistic understanding through research, experimentation and experiencing many of the works in person. In turn, this allowed me to discover new ways in which to devise my music. In other words, rather than follow the ubiquitous formalities of the Minimalist music tradition, the primary goal was to achieve a new direction and style through responding directly to the original source – Minimalist art (in the broad sense in which I describe it in the introduction) – to create something new and distinctive. In addition to responding to visual art, ideas surrounding ritual *(Happy are they who dwell in your house)*, architecture *(Staten Crossing -VIII)* and geology *(Fault-Klang)* were explored, areas which are closely related to the important minimalist concerns of form and repetition.

In the course of responding to specific extra-musical sources further areas of investigation were uncovered. Questions of teleology arose, including how we perceive linearity as an aspect of history and how we can break from this perceived tradition to create non goal-orientated music. This linked directly to questions concerning temporality and memory, as all of these considerations are intrinsically linked to one another through repetition.

For me, these areas of questioning have dramatically fostered my development in forging a unique compositional style, particularly if we compare the first piece in the portfolio, *Memory*

Stack I-X, which acted as the catalyst to the other subsequent pieces, and the last piece, *Happy are they who dwell in your house,* which synthesizes a combination of elements from all the pieces in the portfolio. Each work is in many ways an extension of the one which preceded it, each one focusing on a particular feature such as repetition at a macro level to ultra-repetition on a micro level and how this changes our temporal and teleological perceptions.

Minimalist sculptures have been a provider of many thought-provoking elements that offer near-endless scope for me to respond to musically: I have barely scratched the surface of possibilities in this regard. There is also much more to discover going forward in terms of creating a non-teleological music and further limiting the materials in my compositional palette. Whatever journey my music takes from here, this portfolio will provide an abundance of possible corridors to take, doors to open and rooms to explore. As touched upon in the last chapter, I feel particularly drawn to ideas around Cubism as another art-ism to respond to. Although a slight regression historically (some fifty-years earlier), I feel Cubism has a close relation to the mobile sculptures of Calder in terms of fragmentation, movement and the simultaneous viewing of the same image from different perspectives. Following the cut and paste collage techniques used to compose *Fault-Klang, Twenty Mirrors I, Twenty Mirrors II* and *String Quartet No.1, Erratic* as a means to create the overall form, I also feel it would be beneficial to look more closely at Dadaist artists and their approaches.

At the very heart of my research is my infatuation with repetitive forms; indeed, I envisage broadening my explorations of ultra-repetition and taking this to further extremes. Therefore, I feel it necessary to look beyond twentieth-century art-isms, to research and acknowledge what is current (and continue to do so) in both art and music. Consequently, Postminimalism appears to be a natural progression and an area for further research. Like Minimalism, Postminimalist music can be categorized as having particular characteristics. As described by Kyle Gann, who coined the term 'postminimalism', describes it as 'a tonal, steady-pulsing kind of music that avoids defining itself through a controlling process, such as Reich's phase shifting or Glass's additive rhythm. Instead repetition becomes a background grid on which a large variety of material can be plotted.'[74] In addition, 'Postminimalists tend also to be plugged-in composers.

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[74] Alex Ross, *The Rest Is Noise: Listening to the Twentieth Century* (London: Harper Perennial, 2009), 568.

Each new technological advance – digital sampling the MIDI interface for computers and synthesizers, computer music software, interactive Internet linkups – mandates a change in technique.'[75] While I envisage a continual study of the music of Feldman *et al* as compositional models, I feel it is important also to embrace and experiment with technology such as the recent music of Bernhard Lang and his DJ loop transcriptions, and to research the experimental *Wandelweiser Group* and *Bang on a Can* whose aesthetic nuances, although very different from each other, I find appealing and relevant to my work.

Like many Postminimalist composers who incorporate and embrace technology in search of something sonically "new", some visual artists have also turned to technology and sound to create interdisciplinary pieces. Looking prospectively, to explore alternative avenues compositionally, I believe that much of my music has the potential to lend itself to installational practices that veer away from music written specifically for the concert hall. The recent body of works from New York composer/visual artist Tristan Perich, including his *Microtonal Wall (2011)* and *Surface Image (2013)*, are perhaps interesting models to observe. The *Microtonal Wall* consists of '1,500 speakers, each producing a different 1-bit microtone. Across *Microtonal Wall's* twenty-five-foot length, the tones emitted by the speakers rise in pitch from left to right. [...] One is enveloped in the wash created by 1,500 pitches across four octaves reaching the ear simultaneously, which can sound like the ocean or a swarm of bees – "white noise". [...] Drawing close to specific speakers or clusters of tones illuminates the chromatic complexity within the white haze. [...] *Microtonal Wall* is both a work of art and, in some sense an instrument played by the body without touch'.[76] The simplicity of the concept and the complexity of the result is fascinating and beautifully effective. Thus, I feel this is perhaps an area to explore and branch out to in the search of taking the idea of reduction in my music to the next level, along with sound-art installational practices.

Ultimately, and despite Browning's *Andrea del Sarto* and his tortured skepticism, applying the mantra of 'less is more' has been an incredibly liberating experience. Like Minimalist sculpture, material is form and form is material. My music is not developed or controlled through endless amounts of pitch and rhythmic labyrinths. Beginning with a simple fragment or gesture source,

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[75] Ross, 568.

[76] Patrick Coleman et al., *The Art of Music* (San Diego: Yale University Press, 2015), 287–89.

which in turn can generate the rest of the materials needed for a piece, is incredibly exciting – all a sculptor needs is one quality piece of oak or marble from which to create something new and interesting. That said, I would not define my music as Minimalist (or Postminimalist, or post-postminimalist or anything of this nature). While the materials I use are often bare and limited, the end result is intended to deliver a completely different aesthetic both visually and sonically. While reduction is already a key ingredient in my music, going forward I feel reduction in my music can be taken much, much further. As Tristan Perich says in relation to his own artistic output, 'What's important to me is simplicity, whittling down, not emulating. I make. I don't describe.'[77] If we return to how we experience Judd's 'stacks', there is much more to his rung of protruding boxes of plexiglass than meets the eye. Judd's work, as with most of the sculptural works illustrated in this commentary, are apparently simple yet surprisingly complex. They demand a degree of contemplation; they command our attention; and we lend our ears.

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[77] 'Tristan Perich by Michèle Gerber Klein - BOMB Magazine', accessed 4 February 2019, https://bombmagazine.org/articles/tristan-perich/.

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