Folio of Compositions

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PhD

Music

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Abstract

The ten works presented here were composed between early 2012 and early 2015. They chart a process of experimentation, development and clarification with regards to my personal approach to composition and share a broad set of musical ideas.

The works are diverse in terms of forces, aesthetics and sound-worlds, but are unified by the application of musical dialectics that can be metaphorically traced back to the investigation of human perception, an interest which ultimately derives from my experiences as a performer of notated and improvised music.

This investigation is represented practically, descriptively, and metaphorically in various ways across the folio. This is not a scientific study: my own curiosity about the conscious and unconscious processes which shape one's perception of the world provided a starting point for the construction of a set of musical relationships. These formative dialectics may provoke a listener to think about perceptual phenomena, or they may have an entirely different effect.

Table of Contents

List of Figures

List of Works and Chronology of Composition

This folio comprises ten scores, one audio CD and this commentary.

Title	**Dates of Composition** **(ordered by completion)**	**Duration**
as if they were flowers with spinning blossoms	November 2012	4’
String Quartet (2012-13)	May 2012 – Feb. 2013	15’
Linear A	Jan. – March 2013	7’
Insect-Wood-Growth	May – June 2013	5’
Nucleation Grooves	May 2013 – March 2014	7’
a(e)ria(l)s	Feb. – April 2014	8’
and there will come soft rains	Dec. 2012 – May 2014	12’ (variable)
Music for Miniature Landscapes	June 2014	8’
Dawn/Cascade	Jan. – June 2014	17’
Hölderlin-Fragment	Dec. 2014 – Jan. 2015	6’

Total Duration of Works: c. 90 minutes

Recordings

Notes on Recordings

All but two (*as if they were flowers with spinning blossoms* and *Hölderlin-Fragment*) of these works have been performed or workshopped, and recorded.

A selection of these recordings is presented as part of this folio. Recordings not provided here are available from the composer at desmond.r.clarke@gmail.com.

All recordings included with this folio are used with the permission of all rights-holders.

Contents of CD

1. *and there will come soft rains* – Performed by **Will Ozard** (clarinet) and **Desmond Clarke** (electronics)
2. *Music for Miniature Landscapes* – Performed by **Quartetto Aperion**
3. *Insect-Wood-Growth* – Performed by the **Eurydice Quartet**
4. *Linear A* – Performed by **Jane Chapman** (harpsichord) and **Desmond Clarke** (electronics)
5. *Dawn/Cascade* – Performed by Members of the **University of York Chamber Orchestra and Choir** cond. **Dr. John Stringer**

Acknowledgements

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There are many people who have supported and advised me throughout the process of working on this folio. First of all I must thank my supervisor, Dr. Martin Suckling, for all of the guidance he has offered and all of the patience he has shown over the last four years.

The Music Department at the University of York is a singularly fertile environment for young people making new music. I would not have begun, let alone finished, this folio without the truly inspiring enthusiasm demonstrated by the department's staff and students throughout my higher education, and they all deserve far more appreciation than can be expressed here.

I would like to thank all of the musicians I have worked with over the last few years for performing and recording these works, and for their understanding of sometimes challenging rehearsal processes. They include but are by no means limited to Jane Chapman; Quartetto Aperion; the Kreutzer, Diotima, Ligeti and Eurydice string quartets; Dr. John Stringer; Will Ozard; Ensemble Intercontemporain; and of course the Chimera Ensemble, who have been such an important part of my musical development over the past eight years.

I must also thank several close friends – in addition to some who have been named already – whose support and insight has been consistently invaluable: Leo Birtwhisle, Azlee Babar, Teresa Winter, Max Hampshire, Bethan Vincent, Martin Scheuregger, Mark Hutchinson, Chris Leedham, Benjamin Gait and Thomas Lavan, amongst many others.

Finally I would like to thank my family for their unwavering support and enthusiasm for what may have seemed like a peculiar choice of discipline!

Author's Declaration

All of the work contained in this folio is my own. Where other people's work is quoted or referenced in this commentary, it is clearly indicated.

This material has not been accepted for any degree, nor is it being submitted to any other university or for any other degree.

Collaborations:

and there will come soft rains represents a collaboration with clarinettist Will Ozard. I would like to acknowledge Will's substantial creative contributions to both the recorded realisation and the alternative versions of the work included in the score.

Commentary

1 – The Scope of This Commentary

This commentary explores and expands upon the musical and conceptual characteristics unifying this folio of compositions. These shared characteristics, however, are not always the fundamental focus of the individual works. Each work functions on its own terms which impinge to a greater or lesser extent on the ideas contained in this commentary.

While I believe these broad ideas unify the works in a meaningful way, they should provide context, or a starting point, for the comprehension of the individual works via scores and recordings, rather than an exhaustive deconstruction.

2 – Starting Points

2.1 – Context

This folio of works represents the end-point of a period of study at the University of York encompassing my undergraduate degree, beginning in 2007; MA, in 2010; and continuing in 2011 with this PhD. The most powerful musical influence on me during this time has been my experience as a performer of contemporary music. This takes the form of several strands of practice: performing traditionally notated western art music as an oboist, usually in an ensemble of student performers; free improvisation with collectives of other players, often on the oboe, but also utilising the viola, double bass, flute and some home-made instruments; and experimental electronic music, usually improvised as a group and utilising novel combinations of hardware and software. A brief discussion of each of these strands will provide a useful context for understanding the works presented in the folio.

As an oboist my primary context for the performance of contemporary art music has been with the University of York's Chimera Ensemble. I have been involved in dozens if not hundreds of performances of works from the last few decades, including a host of pieces by students at the university. Some of the performances that stick in my mind as formative experiences include those of: *Partiels* by Gérard Grisey, *Grabstein for Stefan* by György Kurtág, *Thallein* and *Échange* by Iannis Xenakis, *Lonely Child* and *Greeting Music* by Claude Vivier, *Cortege* by Harrison Birtwistle, *Le Lac* by Tristan Murail, *Spiri* by Franco Donatoni, *A Red Glow in the Sky* by Leo Birtwhistle; *Infinito Nero* by Salvatore Sciarrino and *Al di là del bianco* by Clara Iannotta as a conductor; as well as Luciano Berio's *Sinfonia* and Olivier Messiaen's *Turangalîla-Symphonie* with the university orchestra.

Several of these works are mentioned as specific influences upon individual pieces later in this commentary, however, the combined influence of this body of performances has

been to provide me with a literacy in the techniques and aesthetics of British and European ensemble music of the last few decades, to a degree which my academic study alone cannot compare. Much of the notated music in this folio is a direct response to the works I have performed or encountered in this context.

My experiences as an improviser have been much less public. While I have taken part in numerous live improvised or partially improvised performances, perhaps inevitably my most influential improvisational experiences have taken place in exploratory, casual or rehearsal settings. The influence of these experiences on my understanding of the practice of music has been at least two-pronged. From a conceptual point of view the process of learning to improvise with new partners – observing the unpredictable effects of one's decisions, becoming familiar with each other's habits and prejudices, and synthesising a completely new mutual understanding – is one of the most educational and thought-provoking musical experiences I have ever encountered. From an instrumental perspective, creating music which is liberated from the yoke of notation with its proportional, reductive shorthand was another mind-expanding encounter.

The rich sonic environments and peculiar structural outcomes (paradoxically often simultaneously opaque and naive) of free improvisation definitely inform my compositional choices. However, improvisation's most significant impact on my musical thinking is the idea that responding to or trying to direct a situation over which one has only limited influence can have far more fascinating and challenging outcomes than creating something *ex nihilo*.

My experiences of electronic music led to further development of this idea. A large proportion of my experiences regarding electronic music have involved using programming environments to build tools, or 'instruments', to be used in a live

performance context. This extra act of creativity – the conception and design of the instrument or interface – sets improvised electronic performance somewhere between free instrumental improvisation and composition; improvisatory decisions are still made in the moment, but a substantial amount of planning has to have taken place beforehand to establish the parameters within which those decisions can be made. While musicians, especially improvisers, must always be familiar with the possibilities of their instruments, the process in this context has more in common with 'pre-composition', where materials are prepared to support and channel the creative process, than the many years traditionally spent learning to play an instrument.

During roughly 2010-2014 I collaborated extensively with fellow students Leo Birtwhistle, Azlee Babar, Max Hampshire and Teresa Winter in a series of experiments, recordings and performances during which we developed a performance practice embodying this two-fold creative process.

Using a combination of analogue and digital signal processing equipment we created long, complex and extremely unpredictable feedback loops. Essentially we built all of our various tools into one interconnected instrument, which would create sound through zero-input feedback. Changing simple parameters on any of the equipment could have extremely far-reaching and unexpected consequences within the feedback loop, and each 'piece' or performance would involve us learning how to interact effectively with the feedback system in its current incarnation. Aside from being sonically fascinating (and tremendous fun) this reinforced my fascination with the improvised interaction between a performer and a responsive but unpredictable musical situation, though in this context the 'situation' is a single (though extremely complex) object, rather than another performer.

The music which resulted from these performances has an undeniable organic quality: audible structures will slip and move through the sound while we as performers guided them as best we could. The music is fascinating both because of its surprising but intuitable aural qualities, and because it clearly comes from an interaction between intentionality and an only partially-understood system. To me this was extremely satisfying to play and to listen to, which I believe in some degree is because it is a microcosm of a general human experience: existing in a complex world where one is compelled to act and make choices, but never fully knows the context and implications of those actions.

The works in this folio represent my compositional, rather than improvisational, responses to these ideas, though at times the line does become blurred. To a greater or lesser extent, all of the works try to harness the tension between a subjective viewpoint and an independent, 'inhuman' system, within the scope of fairly conventional contemporary instrumental and vocal practice. On a practical level this tension is extremely compositionally fertile – presenting oneself with an unfamiliar situation can provoke interesting new responses – but it also forces one to consider the nature and motivation of one's own reactions, and thereby gain some new insight, musical or otherwise.

2.2 – Practical Application

While these works all embody a dichotomy between intentionality and systematisation in some way, the form this embodiment takes varies wildly. Towards the end of my period of study, during the compilation of these works into a folio, it became clear that there were several groups of works which shared key characteristics. In response to this I have structured the commentary according to three broad categories, however, it is important to stress that the individual works were not conceived with this categorisation in mind.

I will now outline the common aspects of each group of works in more depth. The pieces comprising the first set are all concerned with the construction of musical systems in which the relationship between the performer(s) and their musical environment is examined in real-time, either by engaging them with material and processes which take them outside of their conventional roles, or placing them in situations where their own actions, intentional or not, control the musical pressures they are subject to. This allows the audience, and the musicians, to observe the ambiguities and possible contradictions within a performer's apparent intentionality. This grouping comes closest to the improvisational spaces which first prompted this line of thinking.

Group two is characterised by the pre-compositional use of mathematically or statistically generated material and structures. This forces me as a composer to find a way to respond to and find meaning in forms and structures that do not arise from taste – or at least are more removed from them it a 'stream of consciousness' style of composition – creating music which is a functional synthesis of the intentional and unintentional. This synthesis acts as a metaphor for the ambiguous, blurred space where our inner lives meet the external world, and provides the most literal application of the composition-as-response premise outlined above.

Three: the use of a freely composed metaphorical language to represent dichotomies or structures as I personally interpret them, often using a philosophical or poetic, rather than technical, principle as a starting point. This is the least 'experimental' and most conventional approach, but it engages with other musical and poetic responses to human/non-human dualities, or lack thereof.

It is of course inevitable that trying to apply theoretical categories to actual musical works is often a messy and approximate business, and I do not pretend that there is an unambiguous relationship between these broad theoretical principles and the notes on the page. By dividing the folio into these three categories I hope to better distinguish between the ways I approach the process of composition and to make clearer the underlying principles of this folio and how each individual work approaches and is influenced by them, however tangentially.

3 – Performative Restrictions: Othering the Self

This section deals with three works: *and there will come soft rains*, for one or more improvising musicians; *as if they were flowers with spinning blossoms*, for B-flat trumpet and tenor trombone; and *Music for Miniature Landscapes*, for guitar quartet.

Broadly speaking, the focus of this group of works is on situations where the relationship between the musician, work, and audience creates spaces where the properties of intentionality and perception can be examined in real time.

and there will come soft rains

and there will come soft rains, as detailed in the score, exists in four possible performance configurations: A, B, C and D, with C fitting into this section's theoretical context most unambiguously. While all involve improvising musicians they range in prescriptiveness from extremely free (A) to almost fully choreographed (D). These multiple versions arose from the process of working on the piece and the desire to preserve both the open nature of the original idea and the singular sonic characteristics of the realisation devised for the first performance.

The original idea is fairly well captured in *and there will come soft rains (C)*, which details a process intended to deconstruct and expand a traditional improvisation. My own experiences of free improvisation have been extremely fertile in terms of accessing novel and exciting material but often suffer from (admittedly sometimes enlightening) limitations borne of familiar spaces and timidity regarding form. By systematising one parameter within an improvisational space – in this case dynamic intensity mediated by density – I hope to force a change of state in which the pressures on the performer

change from one set of parameters to another. As an example, the playing of pontillistic sounds within an ensemble to form a melodic, expressive line or texture can be forced by a gradual increase in density to become a continuous field where secondary aspects of one's playing, for example timbre or characteristic of attack, become the inevitable focus of the sound, and therefore of the player's decision-making process.

If this process is repeated indefinitely, the player cannot help but be exposed to an unfamiliar space: this is fundamentally an exercise in overcoming the pressures of taste and familiarity and in understanding the context of one's choices within a larger network of possibilities. A work that acts in a similar way is Stockhausen's *Spiral*, a complex improvisational scheme for solo performer. The piece includes the 'Spiral Symbol', which indicates that the instrument be used by the player in a way they have never done so before, and to incorporate this new technique into every subsequent performance of *Spiral.* In this way Stockhausen forces the player to continually redefine their relationship with their instrument, and therefore be confronted with unfamiliar creative possibilities. This is the spirit of *and there will come soft rains (A)*, which simply instructs the player(s) to continue modulating a single parameter until it is impossible to continue doing so, at which point a new parameter is chosen and the process continues. This very straightforward instruction allows the player to both explore the limits of the possibility of the instrument or sonic environment and to expand the conceptual scope of their expressive freedom.

and there will come soft rains (C) was the first version to be realised in practice, and it incorporates not only the constant pressure of the form-scheme but also a non-human improvisational partner in the form of a computer constantly resampling and replaying the solo clarinet, (mostly) outside of the control of the two performing musicians.

The replaying of the samples is controlled by the physical movements of the clarinettist, achieved in my realisation by a webcam and image analysis in the pure-data programming environment. While this input (movement) can be controlled by the player there is also a substantial if not greater component of unconscious movement – fingers, breath, movement of the arms and torso – involved in performance which is 'sonified' by this process.

The most striking application of this comes at the end of the work, where the smallest movements of the clarinettist can trigger cascades of sound that are relatively overwhelming, considering the delicacy of the texture at this point. This forces the performer to 'perform' in a way that is probably unfamiliar: through contrived physical stillness. This point in the work is the most unambiguous example of the 'othering of the self' (the subtitle of this chapter) as performers become very aware of their inability to completely control their own actions. Will Ozard, the clarinettist, told me when we were working on this piece that in the final section often he would accidentally trigger samples and be forced to respond to them: the duality of his intentionality and his physical existence became a pressure on his actions. This allows the focus of the work to shift depending on spur-of-the-moment improvisatory decisions or unintentional actions. The most important factor, however, is that performers cannot control the way in which their actions affect the musical context: the musical environment is responsive but unpredictable, forcing performers to respond to their past actions both as they view them, as in any improvisation, but also filtered through an unpredictable, changeable 'partner': the computer. This creates an environment in which unintentional, unintended or superfluous characteristics of player actions can put pressure on their subsequent choices: the self becomes the other.

Unlike *as there will come soft rains*, *as if they were flowers with spinning blossoms* is notated from start to finish. The notation, however, is a non-standard tablature that is extremely precise in some respects, extremely vague in others, giving the two performers, trumpet and trombone, a great deal of freedom in realising many aspects of the piece.

The use of tablature rather than conventional notation puts the focus of the piece squarely on the interaction of the performers with their instruments. I use this tablature to instruct the performers what configuration their instrument should be in (valves depressed, position of slide etc.) and what pitch (or noise) should be achieved. Often these instructions are contradictory, unrelated, or impossible. These apparent contradictions force the player to make creative decisions about how to interpret the notation, within – or perhaps expanding – the scope of their own technique.

In attempting to 'achieve the impossible', being forced to do contradictory things, and even being asked to play without conventional information about what they should be doing, the player's relationships with their instruments, as mediated by their technique, is examined. I believe this piece would sound musically engaging, varied and possibly even quite beautiful, but that most interesting part to listeners would be hearing the break-down of conventional playing techniques and the insight this provides into the relationships between the players, their techniques and their instruments, as mediated by the score.

For example, the glissando for the trombone at the top of page six is not only extremely virtuosic in terms of contour but also incompatible in conventional terms with the equally complex slide manoeuvre taking place simultaneously. In this case the contour of the

indicated pitch will probably correspond to lip pressure, and the resulting sound will be filtered through the instrument, itself in motion. This is likely to produce a fairly incoherent gesture, probably with a general downward trajectory. This however is an extreme case; consider by way of contrast the second system of page 9 – a repeating oscillating glissando covering a large range of the (now static) instrument – which would produce an altogether more coherent sounding result, an ascending and descending harmonic series on B-flat, most likely. In both of these cases the instrument and the player act as filters for the pitch contour, revealing their own natures in the process. In this sense there are no 'impossible' demands put on the player; rather, the sounds resulting from the indicated actions will define a multidimensional space of possibilities and relationships unique to the player/instrument combination.

It is difficult to avoid comparison of this aspect of the work to Richard Barrett's *Earth* for trombone and percussion. At one point in Barrett's piece the trombone part breaks into two staves, one for register as determined by what harmonic should be played, the other for slide position. The passage definitely engenders some of the dissective qualities I am trying to apply here, but it is marked 'wildly incoherent, hopelessly enclosed'. In this work I am not trying to depict failed communication or hopelessness but rather to examine directly the processes of expression, communication and interpretation.

To try to dissuade any narrative reading of the work I have atomised the form. There is very strong small-scale coherence – each event and group of events has a clear identity and trajectory – but I have tried to avoid larger structures with any formal direction. I hope the larger identity of the work as an experience can come across as an investigation of the relationships explained above, rather than as a process relating to material or trajectory. As I was writing the piece I considered allowing the players to place the pages,

or sections of the piece, in any order; but I decided against this, as I did not want the players to exercise any editorial decisions which would mitigate the lack of formal focus.

Music for Miniature Landscapes

This work, for guitar quartet, is an exploration of perceptual responses to parametric transformations, in a way related to *and there will come soft rains*, but fully notated rather than improvised.

Music for Miniature Landscapes allows probabilistic fields to evolve with minimal intervention after the initial decisions that go into their construction. Structurally the work is divided into six sections, letters A-F. Sections B, C, D and F comprise entirely algorithmically generated material; A and E have slightly more 'compositional' input. I will give a brief technical description of the techniques used to compile each section and explore their contribution to the whole.

The 'fields' which make up the various parts of the piece all work in the same way but use different parameters to create varied textures and harmonies. Each field comprises a set of pitches and a density parameter, given in demisemiquavers, which can either modulate or remain static; this determines the maximum possible duration interval between events. For example, a field might contain all of the chromatic pitches between C4 and B4 and have a note-length parameter which increases from 8 to 32 demisemiquavers over the course of 30 crotchet beats (240 demisemiquavers), resulting in a decrease in density. The algorithm which generates this material runs independently for each guitar. This means that for any of the four voices a note at the beginning of the passage will have a duration of between 1 and 8 demisemiquavers, and at the end a duration between 1 and

32. Within the bounds given – C4-B4, 1-8 demisemiquavers – values are selected entirely randomly. Figures 1 and 2 show one possible realisation of this distribution.

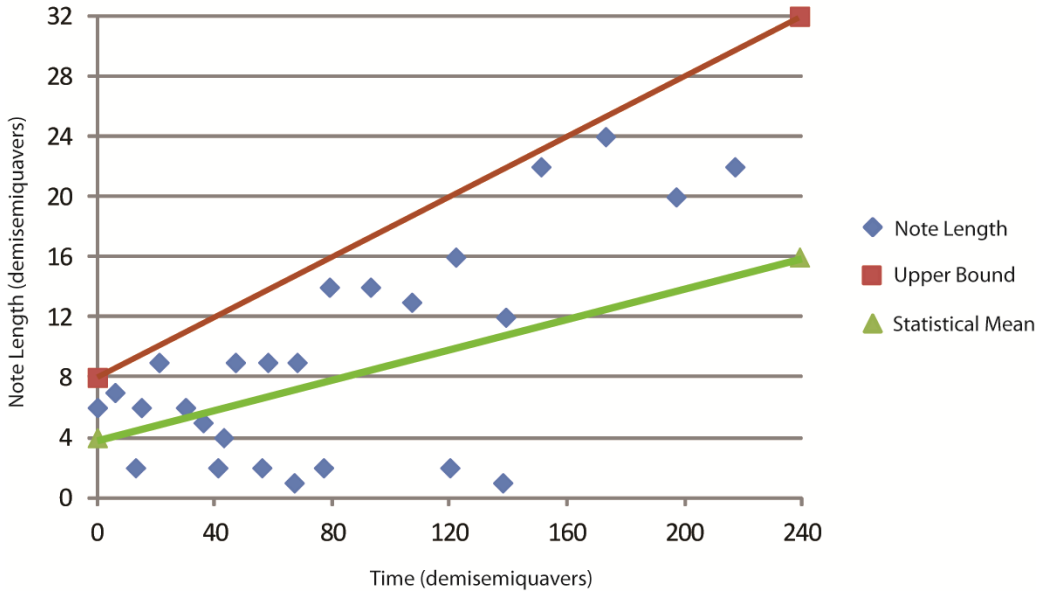

Figure 1: graphical realisation of a statistical transformation analogous to those in *Music for Miniature Landscapes*

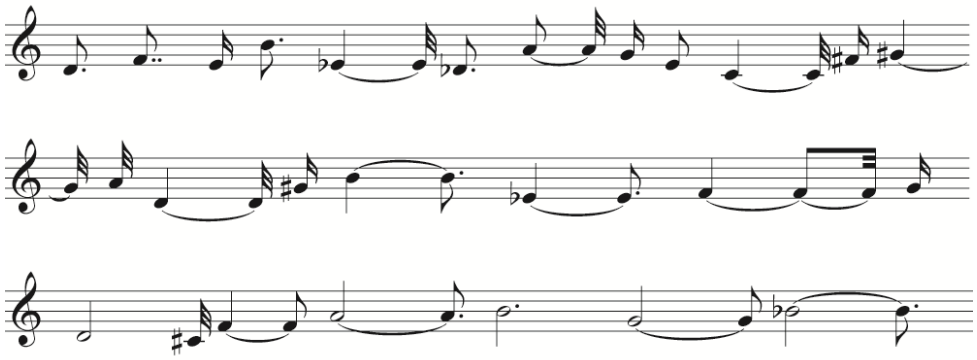

Figure 2: pitched realisation of the data in figure 1 within the chromatic range C4-B4

Each section uses a slightly different application of these generative principles; I will give a short summary of each to provide a guide to the algorithmic skeleton of the work.

Section B comprises an unchanging harmonic field – shown in figure 3 – that slowly decreases in density over sixteen bars. The field itself is a superimposition of three harmonic regions: guitars one and four play pitches from a very slightly altered harmonic series of a low E; guitar two plays a full chromatic aggregate between E2 and E5; and

guitar three plays another chromatic aggregate, this one tuned down a quarter tone, between E3 and B5. The effect of the decreasing density is that the aural impression of the music gradually transforms from a dense, roughly flat, granulated sound-space into a single melodic line spread across the four players via four-part polyphony. Perceptual transformations of this nature figure repeatedly over the course of the work.

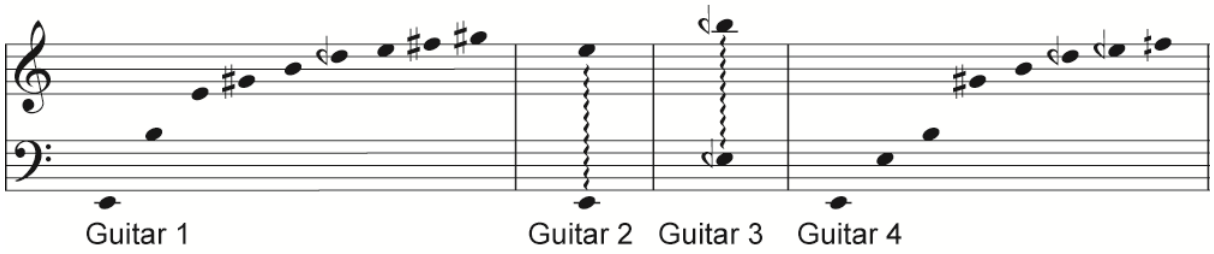

Figure 3: harmonic Profile of Section B from *Music for Miniature Landscapes* (concert pitch)

Section D undergoes a similar process: aside from the quasi-canonic entries the density profile is identical to that of section B. The perceptual effect is slightly different in this case however due to the changed harmonic field, which simply includes every practically performable natural harmonic on each guitar. Due to the altered tunings this creates a rich harmonic space – though still roughly centred on E – shown in figure 4.

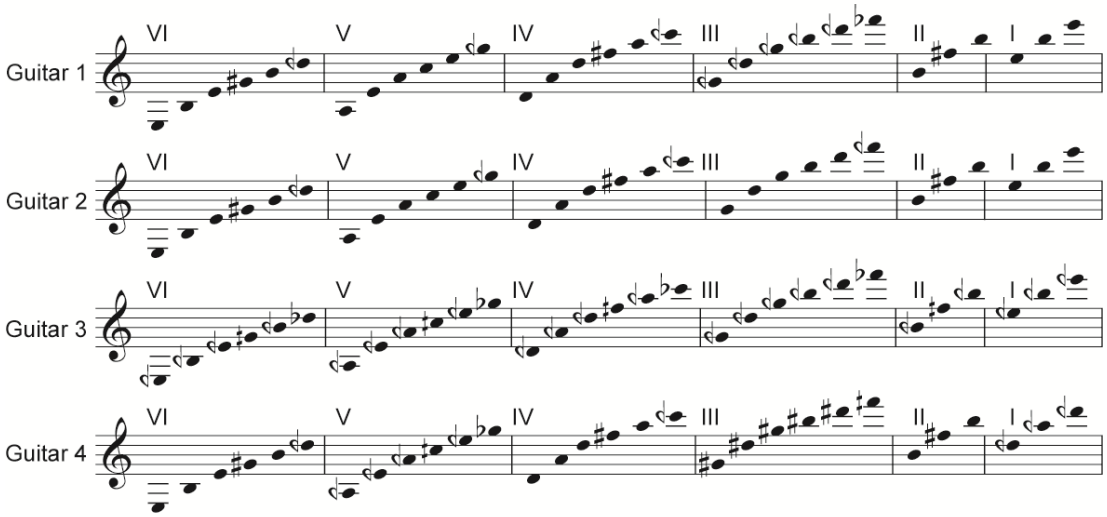

Figure 4: harmonic profile of Section D from *Music for Miniature Landscapes* (concert pitch)

Sections C and F are to an extent mirror images of each other. In section C guitars one and four are each assigned a five-note chord from the harmonic series over E. The notes of these chords are re-articulated according to a simple additive formula: the delay between the articulation of guitar one's pitches increases by a demisemiquaver each time, guitar four's by a triplet semiquaver. The remaining two guitars play from a chromatically saturated field between C3 and B-flat4, guitar three transposed down a quarter-tone, as before (guitar three's first note – C-quarter-sharp5 – which lies outside of this range, is effectively the final note of section B).

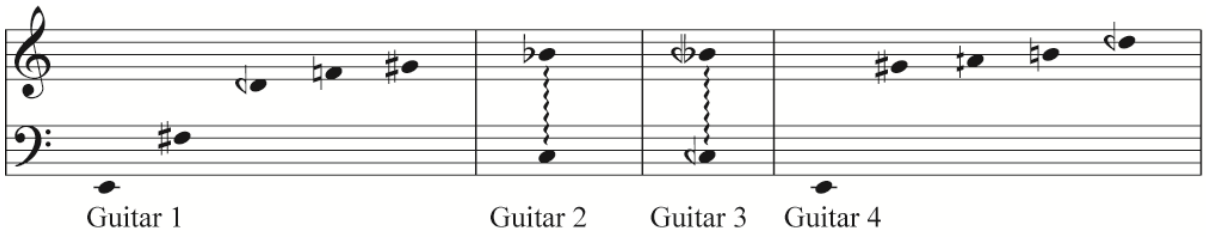

Figure 5: harmonic Profile of Section C from *Music for Miniature Landscapes* (concert pitch)

The articulation of the five-note chords in guitars one and four eventually become so overlapped that they are perceptually indistinguishable from the randomly generated rhythms of guitars two and three. The aural effect of this process is a transformation similar to those in sections B and D, but rather than from a flat space to a melody the transformation is from a clearly separated melody-and-accompaniment texture to a flat space. Section F simply reverses this process, so that the clearly demarcated arpeggiated chords from the start of section C emerge from the texture, rather than disappearing into it.

The two remaining sections provide context for these processes. Section E is the only fully composed passage, and it contrasts the very gentle, slow processes of the rest of the piece with directed, violent gestures. I did this to highlight the qualities of the rest of the

music by juxtaposing it with conventionally composed material and to open the piece to a much wider space, however briefly.

Section A, by contrast, is constructed from fragments taken from the rest of the work – for example guitar three plays material from section D. I wanted the opening of the piece to be fundamentally disordered, and not exhibit any of the clearer progressions of the later sections, so that they would be heard as emerging from an already complex sonic environment rather than defining a closed space. Fundamentally, this is because the work tries to capture the fact that many if not all of the structures and relationships we can access through our senses are contextualised by larger processes which we can only perceive statistically: Brownian motion, noise, natural variation, the sound of wind or water, and so on.[1]

The long parametric transformations that characterise the work cause material to move between states: texture to melody, coherent to incoherent. However, these states differ only in terms of the magnitude of individual variables and do not exhibit any boundaries or transitions: any state changes, then, are phenomena which are imposed 'from the outside' by the listener, as are the details of exactly what they are and when they occur.

[1] One is reminded of John Cage's observation that even in an anechoic chamber he could still hear his own nerves firing, and the blood pumping in his head.

4 – Compositional Restrictions: Microcosms

While the performative, real-time deconstruction of a player's decisions discussed in the previous chapter appears to be the most quasi-scientific approach explored in this commentary (it is certainly the closest point to traditional 'experimental' music), it is also the vaguest and least clearly defined. The recontextualisation of the basic idea – pressure on a decision-making process by an arbitrary external force – that is applied during the composition process rather than the performance is potentially less ambiguous as the realisation of the relationships is fixed and exists as an object, rather than as an event. This inevitably brings its own ambiguities, not least that everything in a piece is 'composed', so distinctions must be made between types of composition representing different modes of behaviours or identities – stochastic versus stream-of-consciousness for example – that are less easily distinguished than the relationship between performer and score, or between two performers.

In the works discussed in this section I limit my compositional choices, sometimes drastically, in response to mathematical, statistical or stochastic processes. This allows me to create a tension between generated and composed skeins of the music and to create relationships similar to those explored in the previous chapter, but embedded within the fabric of a fully written-out piece. The intention behind this, as I discussed in the introduction, is to create a synthesis between composed and generated material as a metaphor for the tension between intentionality and unconscious and external pressures which characterise human experience.

The three works discussed in this chapter are all for small chamber ensemble. There are two string quartets, *String Quartet (2012-13)* and *Insect-Wood-Growth*, and a work for mixed sextet – the 'Pierrot Plus' ensemble – *Nucleation Grooves*.

String Quartet (2012-13)

String Quartet (2012-13) is one the earliest works in this folio, and as such it is the source of many subsequent ideas. It is also a slightly awkward and not necessarily fully successful piece; however, the issues it presents are dealt with in subsequent works, making it a useful starting point for the discussion of this group of pieces. The explanation of the work I give below is rather technical; however, it contains the germs of many ideas which are developed throughout the folio and so may be useful in understanding their development.

The work is in three movements that articulate a progression from fully generated to fully composed music. The first movement is based upon computer-generated data sets, the second on metaphorical, quasi-physical rules, and the third on more conventionally referential and symbolic progressions in response to the material that came before.

The material of the first movement is derived from a simplified mathematical model of the gravitational fields produced by fixed masses, through which the trajectory of massless particles is then traced. The particles begin the simulation with very slightly different velocities. This means their trajectories will initially be very similar, but the slight differences are amplified by their gravitational interaction with the masses, and eventually they bear no discernable relationship at all.[2] If a point moves too close to a mass it is 'captured' and removed from the simulation.

The figure below shows a visual realisation of one of these models (though **not** the one actually used in the work) and traces the trajectories of the particles through the field.

[2] In this way the simulation is a simple example of a chaotic system, where small variations in the initial state yield wildly diverging outcomes, and where, due to rounding errors, the initial state becomes irretrievable after a certain number of iterations.

The particles start at point A, and their paths diverge as they move through the gravitational fields of the fixed masses (black circles). As they pass the mass at point B their trajectories become scattered, with the pink and blue particles being captured at point C. The remaining two, red and green, diverge even further. Red is captured by the mass at B, and green loops around several more times before being captured by the mass towards the top of the image.

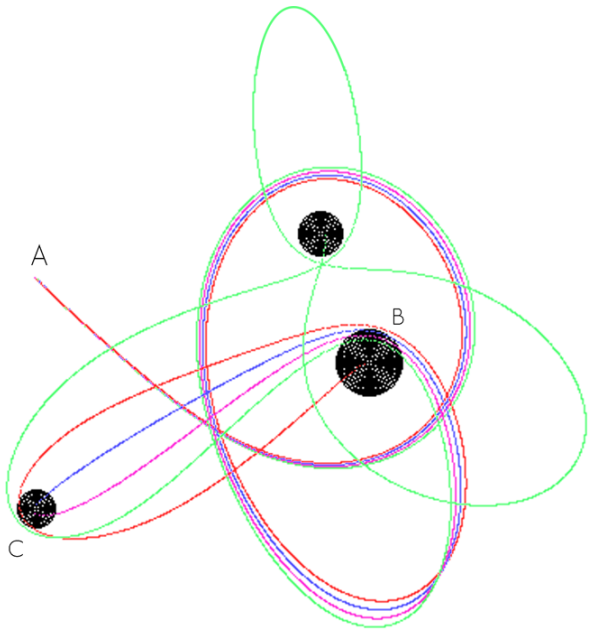

Figure 6: graphical realisation of a set of simulated trajectories through a static gravitational field

The data generated by a different run of this program was used to create the parametric graphs in figures 7 and 8. Figure 7 shows the position of the particles relative to an arbitrary point, figure 8 their velocities. I then mapped this data onto the musical parameters of pitch and dynamic respectively. Each graph has four lines, corresponding to the four simulated particles, one for each instrument (only three lines are clearly visible in the 'position' graph as the fourth is 'captured' early on and until that point is obscured by the other three). The scaling for this mapping was determined by the compass of each instrument: for the position graph the lowest point of the lowest path was assumed to be

the bottom note of the cello (C2), with the bottom note of the next lowest path assumed to be the bottom note of the viola (C3). Using this scaling both upper paths fell within the violin compass and so no further calculation was required: the starting pitch within this scaling was extremely close to middle C (C4), in a striking coincidence. The set consisted of 3355 data points for the longest path (the viola); I arbitrarily scaled this to 20 points per crotchet, for a total of 43 bars and one quaver in 4/4, lasting just under three minutes at crotchet equals 60.

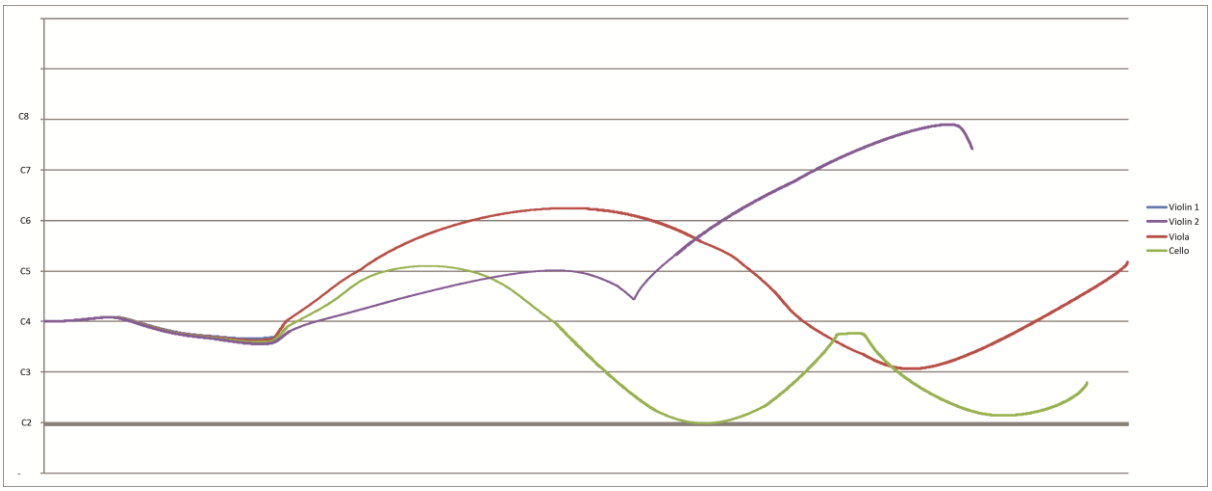

Figure 7: *String Quartet (2012-13)* first movement: position (pitch) data, bars 1-43

The dynamic scheme of the passage used a similar mapping. However, the performed dynamic of a note is a much more approximate and relative value than its pitch and for this reason the dynamic map is applied less precisely than its counterpart: contour and relative position and trajectory were the guiding principles, rather than absolute value.

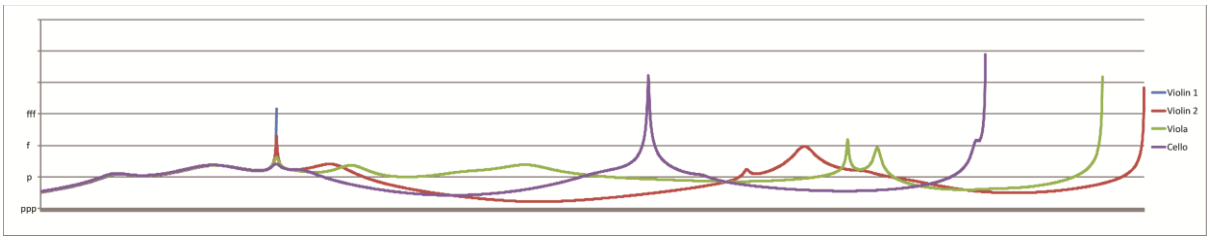

Figure 8: *String Quartet (2012-13)* first movement velocity (dynamic) data, bars 1-43

The form that this mapping generated had some striking features – the first interaction is a clear and dramatic moment, and due to the pitch scaling the three remaining particles all reach the vicinity of an F# in bar 31, a moment I capitalised upon. However, for the most part the material consisted mostly of very slow, texturally unvaried glissandi. While leaving it in its raw state would certainly have been a bold compositional gesture, I chose to augment the sonified data with another set of rules which would allow a consistent but more varied interpretation of the material.

This second, less rigorous, layer of systematisation had three guidelines. One: when a particle was 'captured' by a mass and left the simulation, the instrument it corresponded to became an agent of free composition. Two: when an instrument found itself subject to a very shallow gradient for a substantial amount of time, the free composition from non-simulation parts could 'bleed' into the static part. Three: when the paths of two particles crossed (the instruments reached a unison) they could execute a glissando-based figure, a microcosm of the larger simulation. I used these principles to preserve the structural identity of the data set while mitigating its less interesting qualities, in essence applying a set of taste criteria to the material.

I will briefly give examples of this second set of principles in practice. The first nine bars are unaffected, as all the particles are still being simulated. At bar ten, all four particles interact closely with a mass, as can be seen in the spike in dynamic (velocity). At this point particle 1 (violin 1) is captured and leaves the simulation.

The 'free composition' that the first violin then plays is a response to and referential of the large-scale oscillatory figures in the simulation, with the 'centre of gravity' of bars 10-21 as the B-flat that also marks the point, in the simulated space, of the mass which captured it. This relationship between micro- and macro-structure can be seen by

comparing the extract in figure 9 to the parametric data in figures 7 and 8. The second principle is demonstrated in bars 12-17, when the second violin, which would according to the data set have been executing an octave glissando over 28 seconds, instead is co-opted by the material of the first violin.

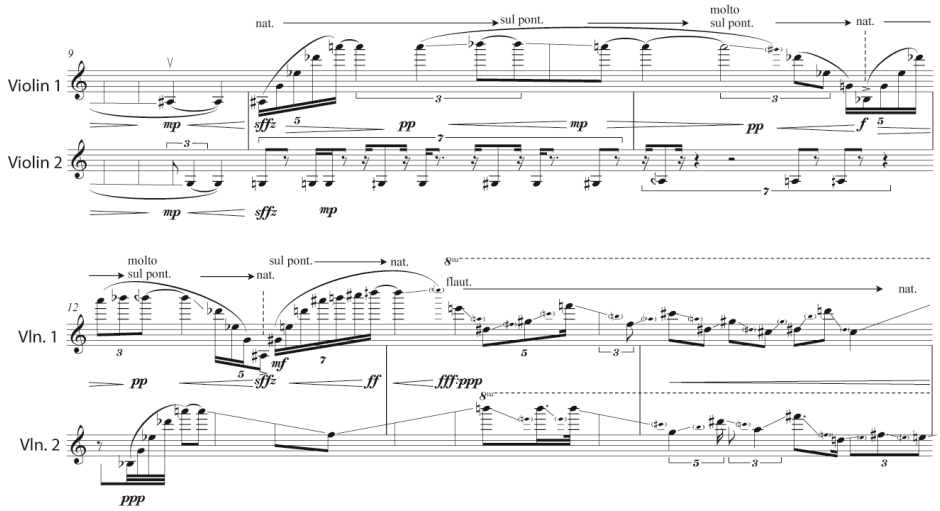

Figure 9: *String Quartet (2012-13)* first movement, violins 1 and 2, bars 9-14

At bar 19 the cello and second violin reach a unison, and in accordance with the third principle execute a glissando gesture together, shown in figure 10.

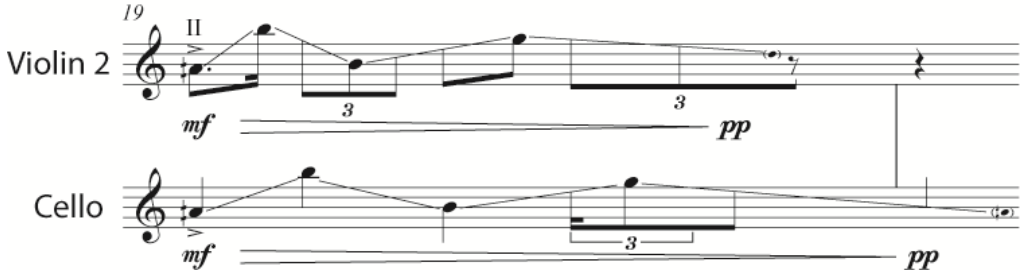

Figure 10: S*tring Quartet (2012-13)* first movement, violin 2 and Cello, Bars 19-20.1

By the end of the first section, the pressures of the 'composed' material are such that the simulation data is relegated to a secondary role: the dynamic data is only very freely applied after bar 31, as is the pitch data after bar 36, to the extent that the capture of the cello particle is not even recorded – its final statement is the lowest point of its final arc.

The music then moves towards a point of articulation, almost a cadence, at the point at which the viola particle is captured in bar 43. This transformation from fully generated to mostly composed music mirrors the structure of the quartet as a whole.

The second, shorter, part of the first movement also features a particle simulation, generated in the same way, but this time corresponding to only one parameter: finger position on the A-string. The data set can be seen in figure 11. It has very different properties to the first, most obviously that almost half of the duration is taken up by only one particle. This particle exhibited more stable behaviour than any in the first set, taking 7397 data points to finally be captured by a mass.

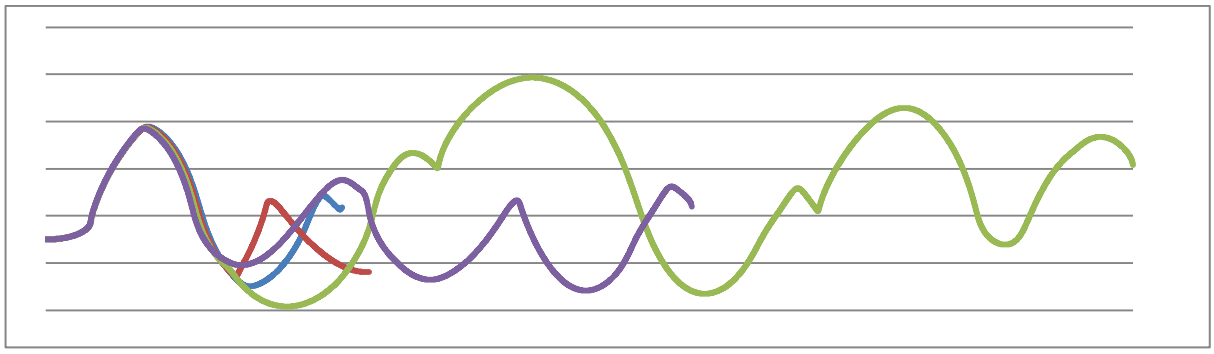

Figure 11: S*tring Quartet (2012-13)* first movement, position (finger position) data, bars, 44-57

During the performance of this second data set, the instruments that have left the simulation develop much more sustained, less chaotic material, which becomes a coda to the generated material and a textural modulation into the second movement in bars 58-66.

This material is a recontextualisation of the figurations imitating the looping arcs of the particles from the first section. Whereas the original melodic fragments imitated the contour of the data set, the material of the second half is attracted towards consonance, much in the same way as the particles are attracted towards the masses. The ‘closest

approach', as it were, is at the start of bar 62, where we almost hear a chord taken (roughly) from the harmonic series of C – C, G, E, F# – except that the G is fractionally too late to be heard as a true verticality.

The material of the second movement recontextualises this idea again: it becomes attracted to itself. The music passes through regions of self-imitative material that collapse when they generate a new 'idea'. For example, the fortissimo pizzicato in bar 12 is related to the much quieter pizzicato in bar five, but overwhelms the sustained, un-pitched material that has dominated thus far, causing a transition into a new state. Some regions are more self-reinforcing than others; the long crescendo in bars 35-58 is the most extreme example of this. Within this passage, the figurations in the second violin and viola are microcosms of the more general process: the self-imitation continues at a smaller scale. The collapse and re-generation of these processes are the principles underlying the whole movement and lead to a wide-ranging and unpredictable, though organic and self-similar, form.

On a practical note the passage mentioned above, bars 35-58, uses a decoupled notational system in which each hand is notated independently; this was an attempt to notate material derived from instrumental improvisations which took place during the compositional process. While I have achieved a relatively accurate transcription of my own playing, in retrospect I do not believe this system is the most effective way of capturing my intent: with enough practice a player could re-recreate my spontaneous improvisation, but one wonders whether a system which either enables their own freedom or captures the underlying trajectories of the passage would be better than one which simply recreates the surface. Similar notational and improvisatory ideas are explored in *and there will come soft rains,* and *as if they were flowers with spinning*

blossoms, in which they are applied much more efficiently. This passage did however provide seed material for much simpler parametrically decoupled passages in *Nucleation Grooves* and *Dawn Cascade*, which proved much more effective, probably due to their relatively straightforward realisations.

The third movement, by contrast, uses no consistent underlying principle, and is composed purely in response to the preceding material. It is much more episodic, more cadential, and more rhetorical than the previous two. Rather than the processes that led to the realisation of the first two movements, the movement deals with the surface-level, musical relationships between the different material types that comprise the piece. The oscillatory motifs of the first movement are filtered through the shorter phrase lengths and unpredictable trajectory of the second to create a summative statement which recurs throughout the movement (heard first at the very beginning). The episodic nature of the movement also engenders a feeling of interruption, which in this case dissipates rather than accrues structural momentum. The work finishes with a final statement of the oscillatory motif, for the first time in a stable, fixed state. The oscillations gradually wind down towards a static point – a process impossible in the original simulation.

While I believe this piece does occupy a distinct and interesting space, I feel that it is not an unqualified success. Despite the linkages and references between sections I feel the second movement does not fit completely comfortably with the first and third and that in general some of the ideas and materials, which in another context could be striking and interesting, are distracting and harmful to the comprehension of the work as a whole. I believe this is because in trying to create something diverse and wide-reaching I have tried to cram too much into the piece at the expense of focussing on, and developing to their full potential, individual compositional ideas, with the work as a whole ending up

slightly incoherent because of it. This greatly affected the conception of subsequent works, in which I focus much greater attention – sometimes to the point of exclusivity – on the consistent and clear application of a very small set of ideas and principles.

Nucleation Grooves

This work takes the most effective aspects of the compositional process of *String Quartet (2012-13)* and attempts to avoid the weaknesses discussed above. As in *SQ* the work comprises several stacked compositional processes moving from pre-determined to completely free; however, in this work the processes are fully superimposed, rather than sequential. Interaction between them therefore takes place in real time, rather than referentially. The pre-determined aspects of this work are guiding compositional principles, allowing certain possibilities and disallowing others, rather than a fixed set of material, as in the pre-composition of *SQ*.

The title, *Nucleation Grooves*, is a reference to the physical process of nucleation, in which an imperfection in a material acts as a physical catalyst for a state change. The most familiar example of this is the bubbles that form on the inside of bottles or glasses containing carbonated drinks. Invisible imperfections in the glass or plastic provide sites for the saturated carbon dioxide to escape from solution through effervescence. This process metaphorically impacts the piece in several ways.

The regular periodicity of bubbles from individual nucleation sites, and the effect of many of these sites all generating slightly different frequencies of events, is a visual phenomenon which, to me, has interesting musical implications. I have represented this by the superimposition of several layers of rhythmic pulses, distantly related through

whole-number ratios; for example, four layers of pulses with periods of 11, 14, 16 and 17 semiquavers.

The idea of a point, imperfection, or intersection allowing the realisation, or nucleation, of a latent possibility also is represented by the way I use free composition in relation to the pulse strata: whenever an interesting or striking rhythmic event occurs through the superimposition of the different periods, I use this as the starting point – or nucleation site – for a fragment, melody, or gesture.

Figure 12 shows an example of this process. The violin in this extract is responsible for two periods, one at 16 semiquavers (or 8 alternating with the flute) on a C-sharp and one at 18 on an A-quarter-sharp.[3] They coincide in bar 33, where I omit the A. The effect of this is that in bar 34 the A now sounds like an addition, and the bar becomes a descending melodic fragment. I respond to this by giving another fragment to the piano and clarinet in bar 35, and by raising the violin note a tone to B-quarter-sharp. These additions trigger a cascade of arpeggios and melodic fragments which expand and contract over the next several bars before evaporating.

As in *String Quartet (2012-13)* this freely composed material has the ability to override the source material: in some places in the work – for example figure E – the rhythmic backdrop is almost completely excised, but throughout the majority of the sections enough is preserved to retain the fundamental nature of the relationship between periodicity and free composition.

[3] In the final score (shown on the next page) the regularity of these pulses is slightly adjusted, in response to the first set of responses.

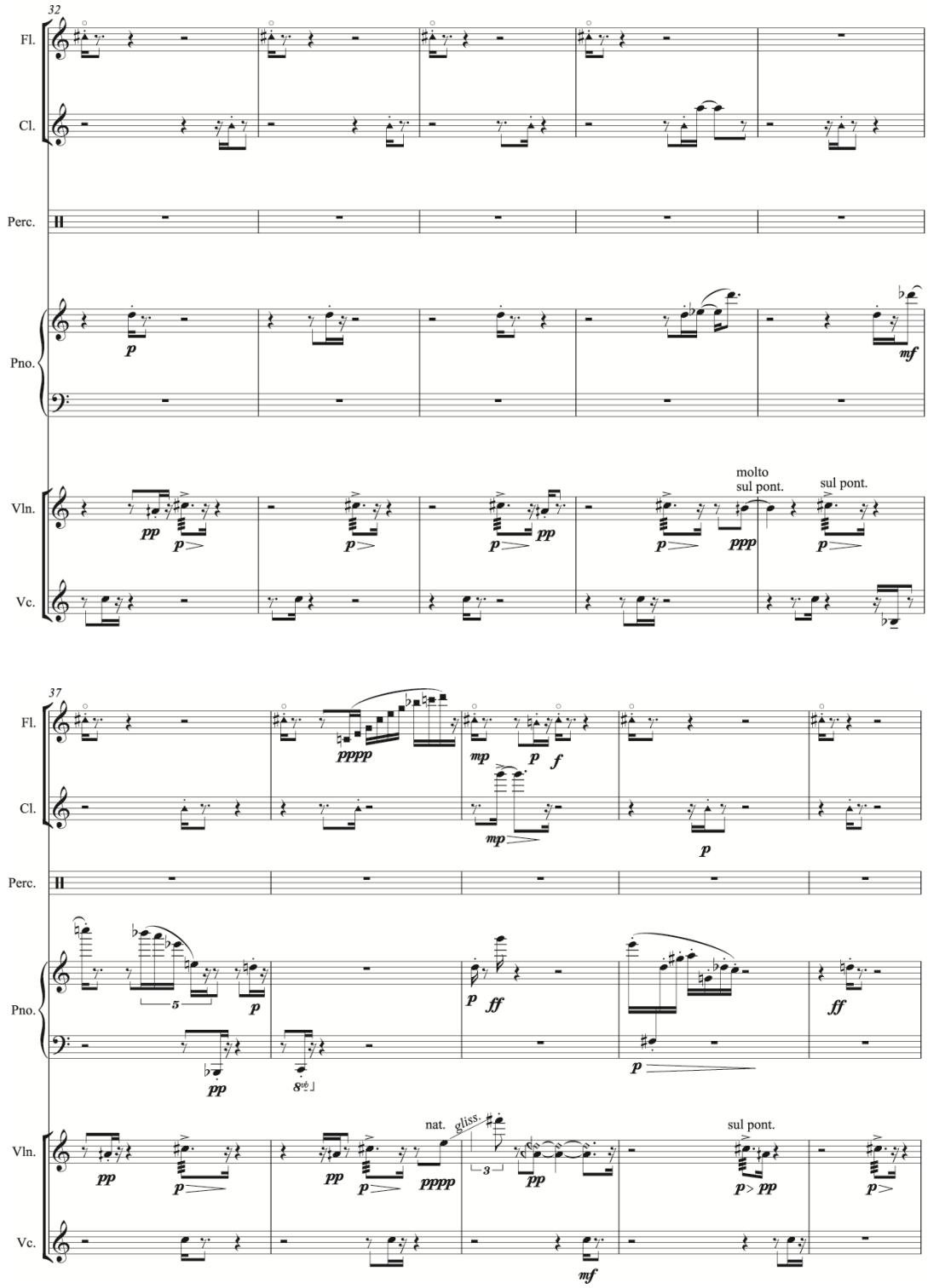

Figure 12: *Nucleation Grooves* bars 32-41

There is one more articulation of the nucleation metaphor which underlies the structural processes of the work: the tempo of each section is a multiple of 30 beats per minute, and each section is related to the others by a metric modulation represented by an increase of 30 beats per minute. This produces the series 90 – 120 – 150 – 180. When the

tempo reaches 180 it falls back to 90, or in one case, 60, as 90 and 60 are both factors of 180. These points of tempo articulation are the nucleation points for the formation of a new series of rhythmic values and often for new free material as well.

The groups of rhythmic values defining each section are chosen at the point of articulation with the previous section. In this way they are not systematic, but they become systematic as they inform the composition of the material to come. The piece was composed sequentially from beginning to end (broadly speaking) and so a decision about how a structural articulation would work becomes the context in which the next section was composed. I did not allow myself to go back and retrospectively alter the decision of what values to use, but since I did allow myself to excise parts of the texture there is a compromise between pre-determined and free composition in the rhythmic identity of each section.

This system is undermined at one point in the work. At letter G the music transitions into a violin solo; this, while technically consistent with the principles underlying the previous material, marks a significant departure in terms of texture and material. This then leads into a section at letter H which, rather than being governed by the periodicity of previous sections, is organised around increasing prime number multiples of eight semiquavers (minims): 1, 2, 3, 5, 7, 11 and so on. This allows longer, more melodic, phrases to develop, based upon earlier melodic fragments. In sections I and J these melodies are worked into the periodic material in a climactic synthesis.

The different groups of periodicities used throughout the work can be seen in figures 13 and 14. The values in figure 14 have been shown in semiquavers at crotchet = 90 to demonstrate their actual durational relationships.

Section:	Opening	A	B	C	D	E1	E2	F	G	H	I	J
Tempo:	90	120	150	150	90	120	120	150	60	90	120	90
Duration in Seconds	26.7	40	32	11.2	26.7	46	14	22.4	72	77.3	38	29.3
Bar:	1	11	31	51	58	68	91	98	112	130	159	178
Periods: (semiquavers)	16 10 6	16 15 13 10 9	19 18 17 16 15 8	9 8 7	16 10 7 6	20 18 17	20 16 14 8	16 10 8 7	1	N/A	16 15 14 10 9	16 10 7
Periods: (semiquavers c=90)	16 10 6	12 11.3 9.75 7.5 6.75	11.4 10.8 10.2 9.6 9 4.8	5.4 4.8 4.2	16 10 7 6	15 13.5 12.8	15 12 10.5 6	9.6 6 4.8 4.2	1.5	N/A	12 11.3 10.5 7.5 6.75	16 10 7

Figure 13: *Nucleation Grooves:* rhythmic data

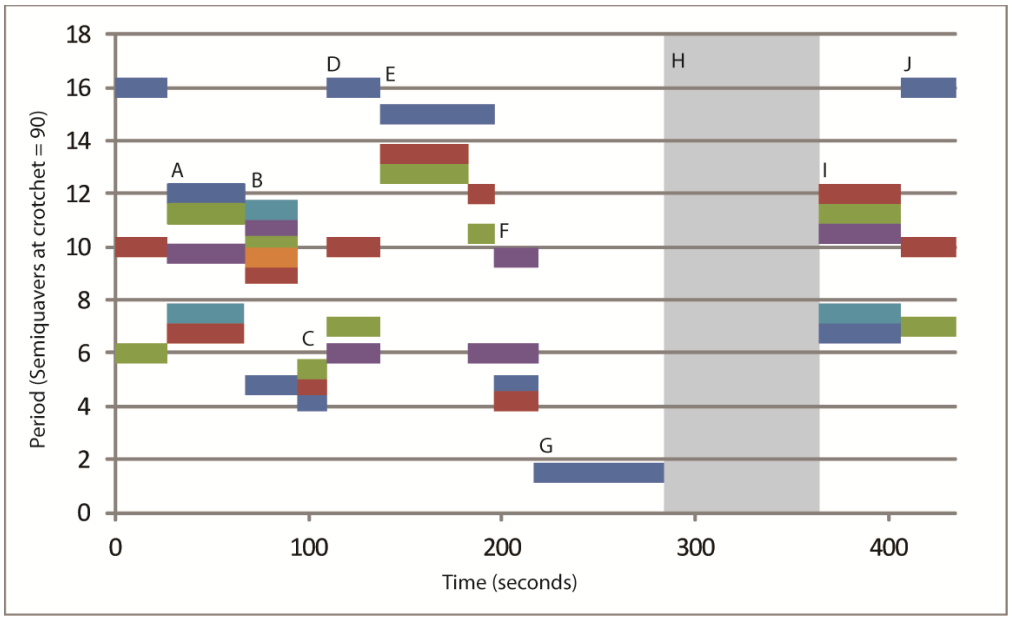

Figure 14: *Nucleation Grooves:* rhythmic data plotted against time

Figure 14 shows some of the larger-scale structures within the work. In terms of duration the piece can be divided roughly in half around the start of section G. The first half, from the opening to the end of section F, undergoes two slow accelerations – the beginning until the end of C, and D to the end of F – in terms of the periods used, even when taking into account the changing tempo. This acceleration is balanced by other compositional elements: the density decreases substantially from A to the end of B, and in C the fast,

filigreed arpeggios are contextualised by a much slower line happening beneath them. Figures D through F are altogether freer, and the rhythmic strata are less intact than in the surrounding sections.

The second half of the work is dominated by the contrasts between the sections and by the development of the melodic fragments of the first half into lines with much more character and direction.

I feel this work is a lot more focussed – and more elegant – than *String Quartet (2012-13)*, though that focus came at the expense of a certain unpredictability, of opening into a large space. The next work I will discuss falls into something of a happy middle ground, though not without its own complications.

Insect-Wood-Growth

A substantial part of my compositional output prior to this PhD was sets of miniatures, a form which I came to appreciate through the study of the Hungarian composer György Kurtág. I find their immediacy, coupled with their potential for elegant, closed forms, very seductive. This piece owes a particular debt to one of Kurtág's string quartets, *Officium Breve,* op. 28*,* which is a beautifully balanced symbiosis of microstructure and overall poetic form. As in the Kurtág quartet, the structure of this work bridges the gap between the miniature and the conventional longer piece.

The work is divided into ten continuous movements, two of which, 1 and 7, are divided into A and B sections. These ten movements are clearly grouped into three regions: movements 1-5, movement 6, and movements 7-10. Not every movement is clearly distinct from the ones preceding and following it; for example, movements 1, 2 and 3 all

belong to a very similar sound world. However, other movements are very sharply juxtaposed; for example there are well-defined boundaries between movements 3 and 4, 5 and 6, and every boundary between 7 and 10.

The different scales on which the work operates are linked by relative proportion. The form as a whole is divided into three, the parts of which are divided into between one and five movements, of which some are then further divided. This structural self-similarity is important as it helps bind together a very materially diverse work. By allowing a single movement – 6 – to make up a third of the piece I protect against the sensation that the work is merely a progression of miniatures: the single-movement second part is equivalent in duration to the groups of movements which surround it, providing a sort of temporal bridge between the two extremes of scale. The musical objective here was to allow the listener to apprehend each movement as its own form while maintaining a clear sense of direction and progression within the piece.

Personally I find the listening experience of this work very satisfying: it seems formally unified yet maximally diverse at the same time. I consider this a vast improvement over the slightly incoherent form of *String Quartet (2012-13)*.

In terms of material the work is a dialogue between generated probabalistic events and composed structures. The three sections of the work each have different approaches to this relationship.

The first three movements are all based upon randomly generated layers of unpitched sounds. Each movement has slightly different rules for how these processes are organised, but the principle remains the same. For example the generative principles for the noise-layer in movement 1 are:

1: randomly select a bar length in quavers.[4]

2: randomly select the number of sound-events that will occur in the bar from between three and ten.

3: randomly select what those events will be – there are 32 possible events: damped pizzicato or damped bow tap on each of the 16 strings of the quartet – and in what order they will occur.

4: manually distribute the events within the bar in the order indicated.

The choice of manually rather than randomly distributing the events once generated was to avoid any sense of a 'grid' via the creation of tuplet rhythms. I originally wrote an algorithm to choose tuplets and rhythms for each part, but struggled to make the result both musically satisfying and idiomatically practical.

Once a layer had been generated I then composed another layer of music in response to it. As the amount of composed material increased so did the compositional pressure it applied until, at movement four, the whole texture is composed rather than generated. The whole section (movements 1-5) undergoes the same process that occurrs within the individual movements (1, 2 and 3): a gradual transition from generated to composed material.

The second section – movement 6 – undergoes a similar process, but within a harmonic framework responding to the already-composed first section. Each of the four instruments is assigned a pitch from a harmonic series over B-flat – B-flat, D, A-three-quarter-flat, and E. The articulation of these pitches is governed by a semi-random

[4] In bar 11, the 3/16, was generated as a 1/8 bar but was lengthened to fit in all of its events.

process[5]: a note can be sounded at any possible instant (quantified to demi-semi-quavers), but the probability of an attack decreases steadily throughout the movement. For the first three bars a disproportionately high rate of re-articulation is represented by bow-pressure sounds; this drops off to the ricochet bowing in bars four to six. By the seventh bar of the movement (bar 38) the re-articulation is entirely statistical.

The decrease in density created by the lower probability of articulation continues until bar 43, when I begin to slowly and freely introduce other pitches, creating melodic figurations using the static harmonic space of the B-flat series as a starting point. By the last four bars of the movement (50-53) the original four pitches are only articulated about once a bar, with the rest of the material freely composed. These density profiles are diagrammatically represented in figure 15. This is a parallel trajectory – statistical to choice-based – to the first section but within a single organic unit rather than a series of separated structures.

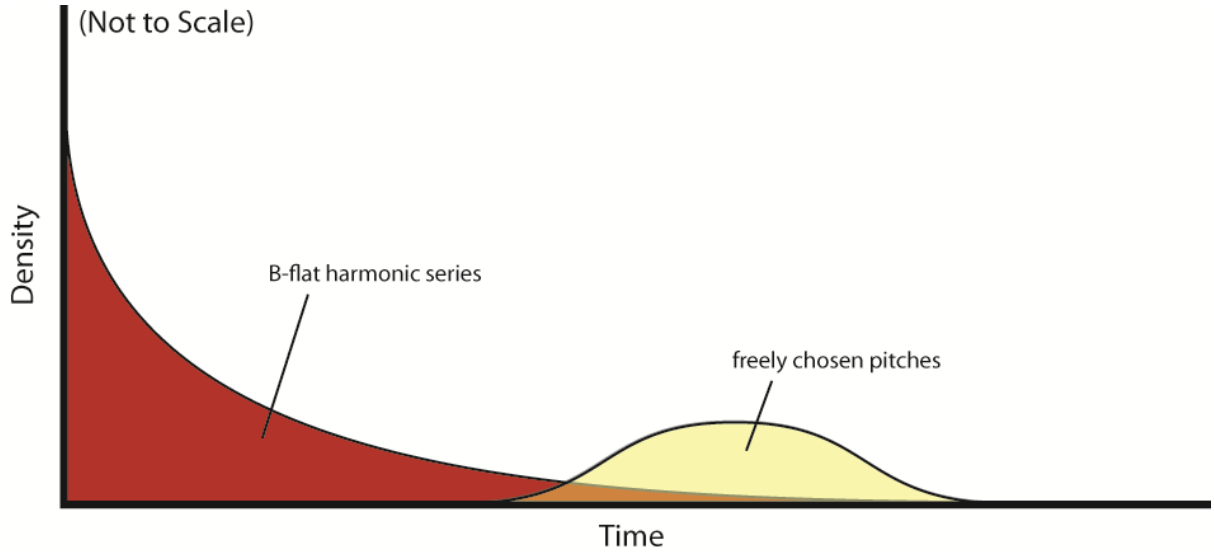

Figure 15: density profile of *Insect-Wood-Growth*, 6th movement (not to scale)

[5] Very similar to the one used in *Music for Miniature Landscapes*, described in the previous chapter.

The relationship is modified in the third section: generated material supports composed structures: for example in movement 7b the violin and viola parts use the same rhythmic distribution as the first movement, but in a clearly 'accompanying' role. Throughout this section, intuitive choices are prioritised over generative processes. The compositional responses that were prompted by the generated material of sections one and two now realise their own uninhibited identity.

In movement 9 for example, an algorithm was used to generate durations and dynamic profiles within a harmony I chose myself: the notes C, D, E, F#, and G(!). While this is similar in principle to the algorithm that governs movement 6, I created several realisations of the process and selected the one I felt worked best: my selection criteria – my taste, in other words – are now the guiding principle, though still contextualised by a predetermined process.

On the whole, then, the trajectory of the work mirrors the trajectory of its components – the slow emergence, and eventual primacy, of through-composed material out of statistically generated fields. This shift from generated to composed material is shared with *String Quartet (2012-13)* (and, to an extent, *Nucleation Grooves*) but is, I believe, executed in a much more sophisticated and musically satisfying way.

5 – Compositional Responses: Poetic Interpretations

This final group of works have many of the same conceptual preoccupations as those already discussed. Within the compositional process, however, experimental, explorative aspects are sidelined in favour of applying, expressively, the metaphorical relationships developed in previous works. The duality between composed and generated material, and its metaphorical parallel with the self and the other, is preserved; however in these works generated material is used freely rather than restrictively, as a metaphorical or rhetorical device rather than as a starting point.

Two of the works in this grouping are texted. Both texts, by Robert Desnos and Friedrich Hölderlin, address the relationship of man to nature. In setting them I have tried to draw out the poetic metaphors they use to define this relationship as I see them, and realise these metaphors as musical devices.

There are four works discussed in this section all for radically different ensembles: *Linear A* for harpsichord and fixed media; *Hölderlin-Fragment*, for SSAATB choir; *a(e)ria(l)s* for mixed quintet; and *Dawn/Cascade*, for double SSATB choir, percussion, harps, winds and keyboards.

Linear A

In contrast to the works in the previous section *Linear A* was composed entirely intuitively, using no systematisation whatsoever. It is an imagined image of a Baroque harpsichord piece that has been corrupted and decayed by the passage of time, until only hints of its original character remain. The sound of the harpsichord itself has mutated,

bleeding outside of its normal confines into a more expansive but less coherent and intelligible world of noises, tones and clicks.

The work is divided, roughly, into three 'panels': bars 1-30, 31-51, and 52-66. Each one treats the imaginary source material in a different way, and they relate to each other through a sequential ebbing away of energy in a structural manifestation of the imaginary decay process. The third panel is almost static: the music has been reduced to a suspended sonority and the ghost of a falling phrase.

The piece is indebted to Baroque music in another sense: it can be seen as an aria, but one in which the harpsichord is liberated from its traditionally subservient role and allowed to become the expressive solo voice. The fantastic and out-of-focus sounds of the electronics sometimes suggest to me, somewhat whimsically, that the piece could be the dream of a sleeping harpsichord: a fantasy of becoming the human voice, rather than the wooden continuo.

a(e)ria(l)s

This work was composed while I was working on the much longer and more substantial *Dawn/Cascade*, and in many ways it is a study for some of the structural and harmonic techniques I use in that piece.

The guiding compositional principle of the work was that it would be harmonically unified by a single process, but that that process would never be explicitly stated. The process in question is a transformation of the harmonic series according to a simple rule to create a sequence of chords and scales. These resources are then used to construct melodies and counterpoint within a rich harmonic space.

The rule used to generate the chords upon which the work is based is as follows: take a continuous section of a harmonic series, for example harmonics 6, 7, 8, 9 and 10, justified to a quarter tone; increment the partials by one, (to 7, 8 9, 10 and 11) and decrease the pitch of the fundamental by a quarter-tone. Using this process I generated the series of nine chords shown in figure 16; the first uses partials 4, 5, 6, 7 and 8 over a fundamental of D quarter-flat, and the last partials 12, 13, 14, 15 and 16 over a fundamental of F quarter-flat. These chords, in various incarnations, underpin the majority of the work; however, they rarely occur 'in order' and never more than a few at a time.

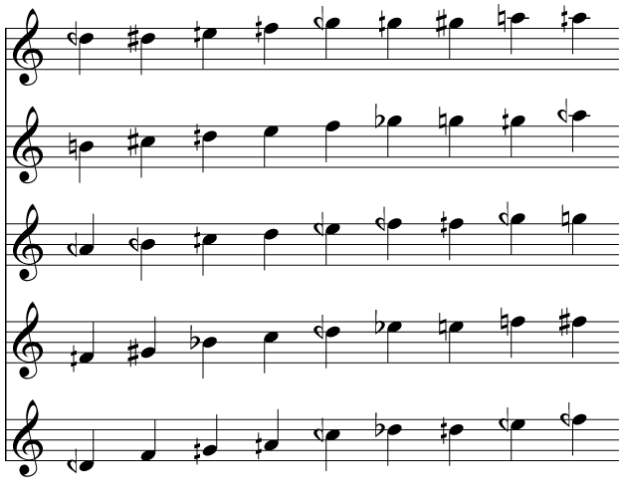

Figure 16: a*(e)ria(l)s* harmonic precomposition

I used a similar device to generate a set of scales for the construction of melodies and figurations. I took four-note sections of harmonic series, justified the intervals to quarter-tones and stacked the resulting tetrachords to create scales. I created seven scales using this technique (shown in figure 17 starting on C): the first uses the intervals between partials 5, 6, 7, 8 and 9, the last partials 11, 12, 13, 14 and 15. The other melodic rule I allowed myself was that any pitch could be telescoped into a harmonic series or expanded into a cluster.

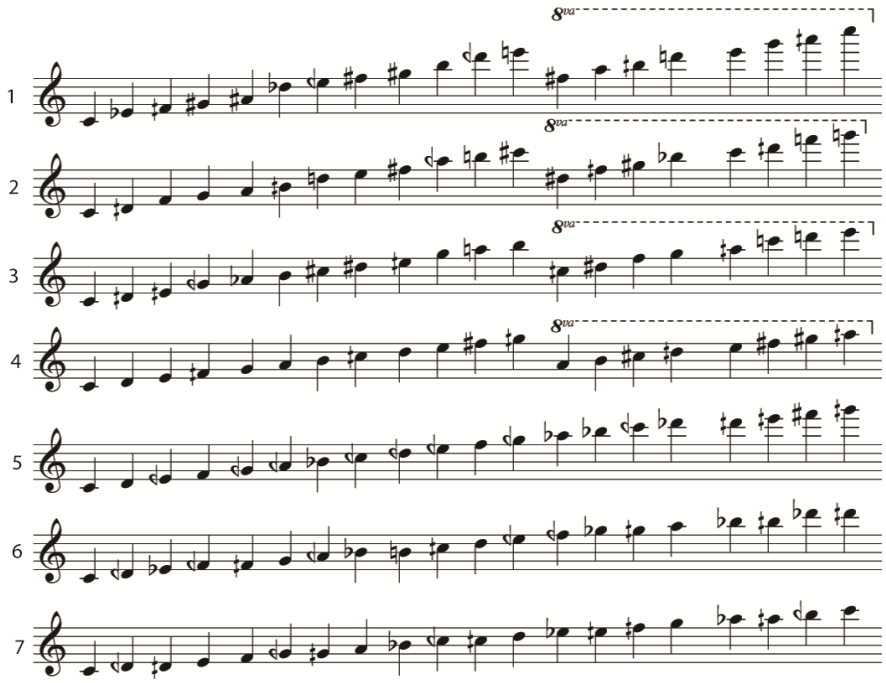

Figure 17: *a(e)ria(l)s* scalic precomposition

An example of the application of these scales within the piece is shown in figure 18: this example is particularly clear because the 'key note' at this point is C, and so direct comparison with the prime form scales is more straightforward. Individual scales are transposed, rather than extended, to fit the compass of individual instruments, and octave displacements are kept to a minimum. There are a few exceptions to this, for example the trombone line in bar 12 includes an A an octave below where it should sit in the scale, and the clarinet plays an A-quarter-sharp that is two octaves lower than it should be. The first of these examples is based purely on melodic grounds, the latter is voiced to conform to a harmonic series over C; the clarinet's E-flat in bar 14 is also something of a rogue. These examples go to show that while these scales operate as melodic starting points, they are often transformed by their environment and by the pressures of voice leading, vertical harmony and taste.

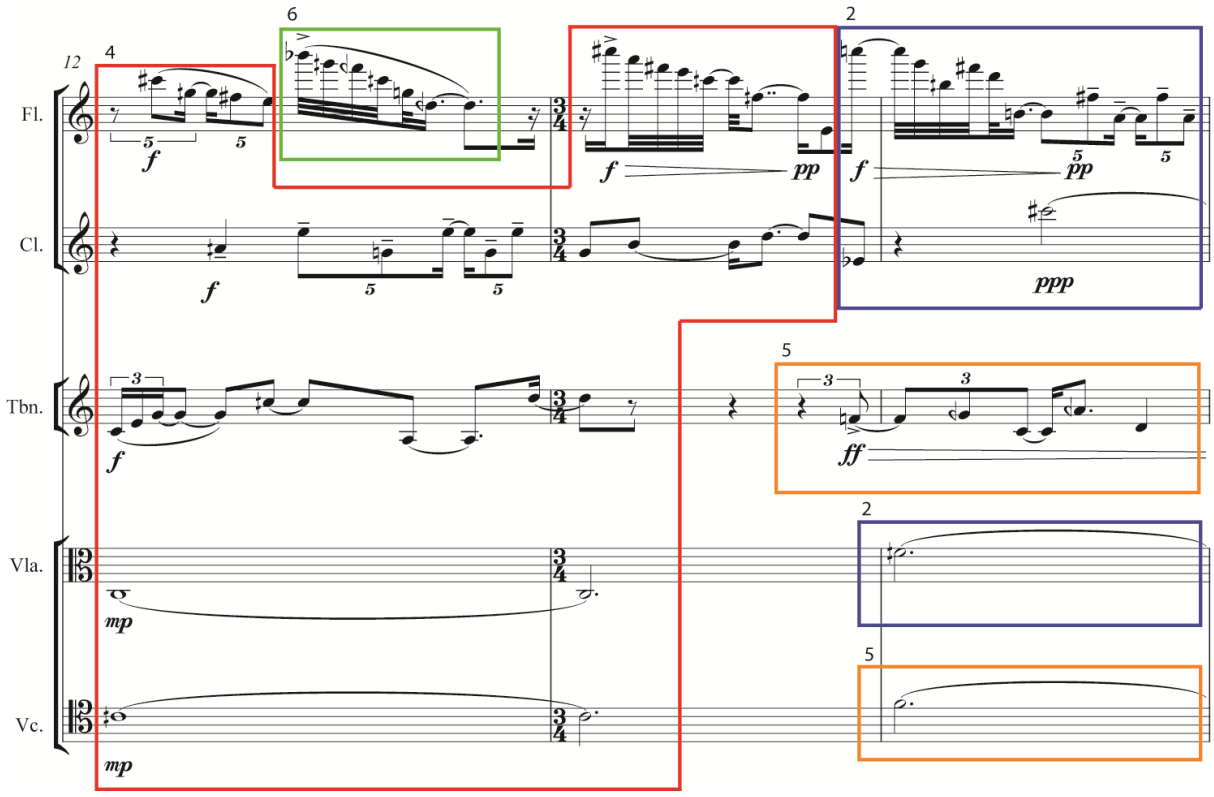

Figure 18: scale usage in *a(e)ria(l)s*, bars 12-14

It is perhaps slightly misleading to label the quarter-tone-augmented octaves in the viola and cello as being part of a scale or scales, since although the specified pitches can be found in the scales indicated and do not imply any significant changes to the prevailing harmony, I conceived of them as a primarily coloristic, rather than harmonic device, and they can be considered 'expansion into a cluster' of a single pitch rather than two pitches forming a harmony.

These musical resources give the work its characteristic microtonal, yet often highly consonant sound-world. The distinctive spacing of the harmonic scaffold meant that I could be very free and improvisatory with the rest of the compositional process without compromising the work's aural identity. In fact in retrospect I feel I could have been a lot freer than I was, and could have expanded the work into a much more diverse sound-world. While it was never my intention to explicitly state the source materials in their raw forms, I feel that such a moment could have provided a striking gesture around which the

piece could coalesce – like figure E in *Music for Miniature Landscapes* – that is perhaps otherwise lacking.

Dawn/Cascade

By some way the most substantial work in this folio, *Dawn/Cascade* was written in response to a commission from the University of York music department: the Lyons Celebration Award. As a requirement of the commission the piece had to draw at least a little inspiration from Leonard Bernstein's *Chichester Psalms*; I took the brilliance of Bernstein's orchestration as a starting point, particularly the metallic percussion and harps of the second movement.

The piece is fully through-composed – there are no generative pressures at work here – but in crafting some of the textures I did use statistical distributions of events in a similar way to M*usic for Miniature Landscapes* or *Insect-Wood-Growth.* However, in *Dawn/Cascade* these are purely tools used in creating the desired sound-world, rather than formative influences.

Despite not being a French speaker I had wanted to set Robert Desnos' *La Cascade* for some time prior to receiving this commission, after reading it in translation, and this seemed like the perfect opportunity. The poem was written in occupied France, and dedicated to the resistance[6]; it was published 'semi-legally' in 1944. It is a complex patriotic statement, an analysis by Katharine Conley explores the political, allegorical and sensual references it encompasses:

[6] Conley, Against the Grain: tracing Desnos's *Contrée* in Pétain's France, 145.

> [T]he poets of the resistance were, of course, defending French literature against the ascendancy of German culture. 'Cascade' ... is located on a coast: a natural frontier which highlights the perimeters of the *contrée* [country] in question and the dangerous activities situated along its borders.
>
> Against a backdrop of fog and night sky one person is wounded while that person's companion watches in stunned silence. The shock of the arrow, like a comet or a cascade, combines swiftness with natural beauty and with violence. The two anonymous individuals are alone and vulnerable because they are away from their camp, and yet they are supported by the knowledge that they belong, as did Desnos, to a fraternity united in opposition and danger, which shared passwords. But what exceeds the danger, and the impact of the flesh wound – the comet-like shock of the arrow – is the sensual beauty of the landscape itself.[7]

In *Dawn/Cascade t*he nationalistic and patriotic inflections of the text become references and hommages to French twentieth-century music; these include nods to the music of Claude Vivier (*Lonely Child, Greeting Music*) in the first verse, Gérard Grisey (*Transitoires)* in the second and third and Olivier Messiaen (*Turangalîla-Symphonie, Oiseaux exotiques*) in the fourth.

The work also owes a debt to Tristan Murail's *Le Lac*, both in the way that it tries to engender a 'sounding landscape' in a non-programmatic way and in its musical material, specifically the dense pointillistic writing for strings, harp and percussion which underpins much of the work. Murail writes of the piece: '[t]his is not an attempt to describe the lake, it is not programme music. What is mainly retained from the natural model before

[7] Ibid., 144-146.

me is the play on permanence and impermanence, movement and mood swings, the logic of the unexpected, and the order and simplicity that nestle within the breast of the chaotic and complex.'[8] In a similar way, at least in my interpretation, I have tried to represent the textures and sensations of the landscape evoked in the poem – wind, sea, blood, honeysuckle, reeds – as abstracted structures that retain their relationship with each other while avoiding literalism. Of course the subjective human experience that Desnos's voice provides distinguishes it significantly from the 'pure', quasi-scientific naturalism of *Le Lac*.

The work is divided, roughly, into four sections corresponding to the four stanzas of the poem. As in the text the general progression is one of illumination, from the star- or surf-flecked texture of the opening lines to a point of saturation at the beginning of the fourth stanza – the moment of sunrise – before slowly evaporating as dawn becomes day.

In parallel to the linear progression from night to day, the work also has a roughly symmetrical structure, articulated by four climactic moments of harmonic coalescence: bars 56-66, 153-161, 163-193 and 245-268. The middle two of these surround the point of reflection, and the transformation at that point – from a sustained, torturously pressurised chord to a spacious, crystalline and rhythmic re-articulation – tries to capture the two ways time is presented in the poem: as the unfolding process of dawn, but also as a suspended, expanded simultaneity.

I will give a brief explanation of each section in terms of harmony, form and melodic material. Much of the work is inflected by the hommages to French music mentioned above, harmonies based on the harmonic series feature heavily, as does spectrally enriched modality. In general the harmonies become richer over the course of the piece:

[8] Tristan Murail, 'Le Lac', Online.

the setting of the first stanza of the poem (from the opening to figure I) consists of narrow bands of pitches which occasionally open out. When this happens the intervals between notes are stretched, rather than filled in; at bar 62, the dramatic climax of the first stanza, the harmonies are resonant but still fairly spare, albeit decorated with percussion and keyboards (Figure 19).

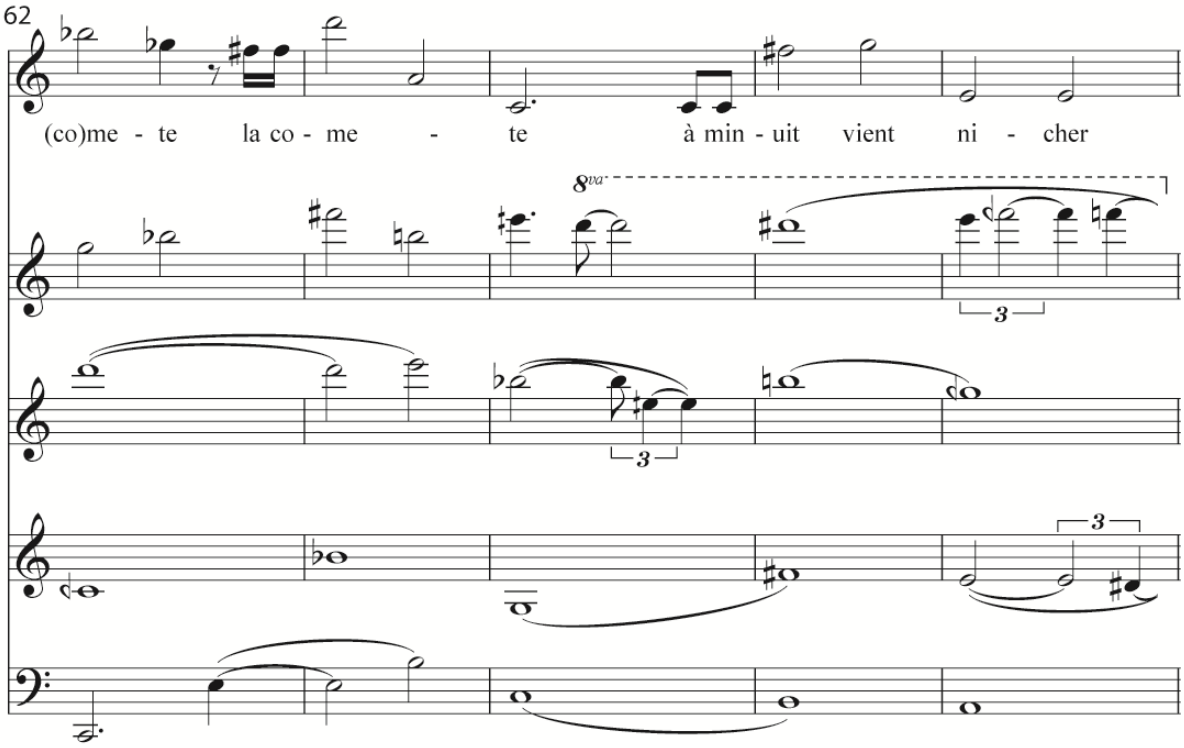

Figure 19: *Dawn/Cascade*: melody and harmony in bars 62-66

The setting of the first stanza relies mostly on these narrow pitch bands, coupled with pontillistic accompaniment from percussion and harps which could be reminiscent of either stars or surf, both of which feature in the text. The slow, almost-regular cycles of surf on a beach are alluded to in several contexts in this first section: the opening, arcing gesture, repeated three times; the slow pulsing phrases of the soprano and clarinets at figure C; and the lapping waves in the winds in figures F and G.

The second stanza, dealing with more dynamic, vibrant and violent images, develops the narrow pitch bands – with the addition of octave interjections and turbulent vocalisation

from the choir – into a dense, coiling mass. There is an increase of energy and dissonance until figure M, at which point a more consonant and wider spaced, though still highly charged, harmony emerges from attacked, percussive unisons. This is again subject to an increase of energy until a passage of sustained high intensity at bar 153, which is abruptly and violently cut off at bar 162.

The passage beginning at figure P (bar 166) is similar in harmonic profile to figure M, but filtered through a rhythmic re-articulation which is at odds with the slow arcs, glissandi and layered lines which have characterised the music thus far; it is directly inspired by a passage from Grisey's *Transitoires*, figure 51 in the score, about two thirds of the way though the work. The contrast between these two passages is the most striking point of articulation in the piece, and is the point of structural reflection mentioned above.

The third stanza, beginning at figure R, is much more diverse both in terms of pacing and material than any of the previous sections, and is somewhat calmer. This is in some sense a representation of the malleable, transient, fragrant and mysterious images of the text: surf, honeysuckle, fire and shadows. The melodic fragments and figurations that develop throughout this section become the seed material for the climactic point of the work: figure W. This passage at the beginning of the fourth stanza mirrors the climax of the first: resonant harmony and a melodic line with huge intervallic leaps. This time, however, the widely spaced harmonies are saturated with augmentations, shown in figure 20.

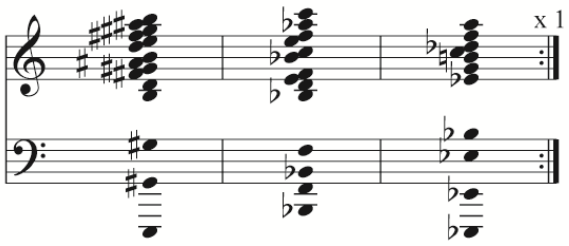

Figure 20: harmonic reduction of figure W of *Dawn/Cascade*

The melody – shown in figure 21 – that winds through this passage is almost torturously slow and vastly extended in both duration and register; this is a response to the accumulation of energy which, while not continuous, has built up over the course of the work thus far. In fact all of the musical voids that to some degree dominated the first verse are filled with energy, both harmonic and melodic: the darkness has been filled with sunlight. This whole passage draws some inspiration from the climactic melodies in the eighth movement of Messiaen's *Turangalîla-Symphonie*, also shown in figure 21.

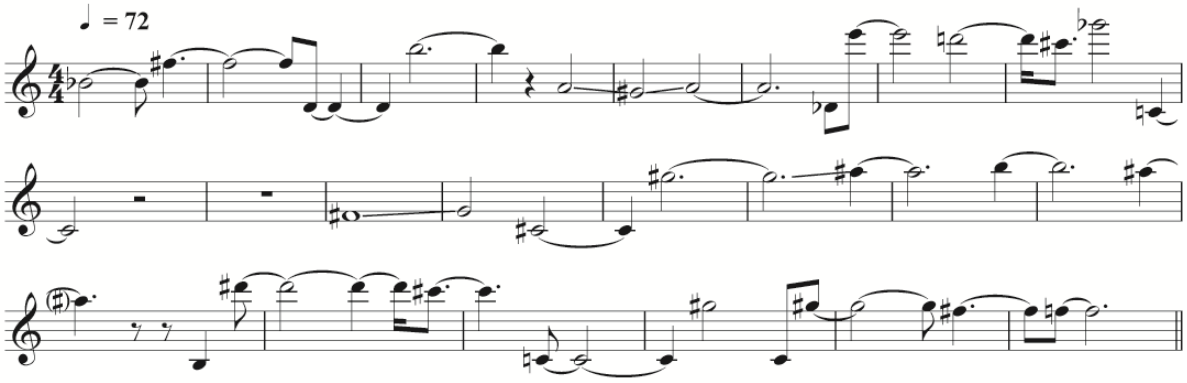

Figure 21a: wind melody at figure W (bars 246-268) of *Dawn/Cascade*

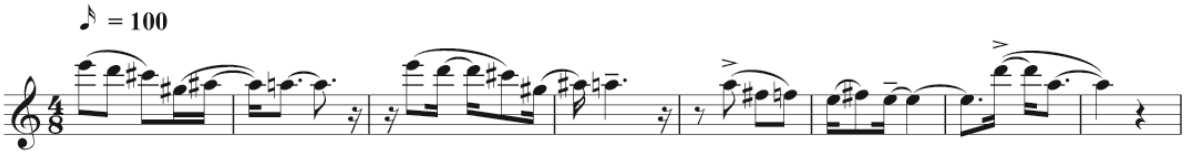

Figure 21b: melodic material from movement eight (figure 27) of *Turangalîla-Symphonie*

The final part of the work, following the climactic figure W, retains the harmonic saturation of the previous section, but has exhausted its structural momentum. The passage consists of fragments of choral writing within an open, blurred harmonic space. If the opening of the work was star-like points and droplets of surf, this is a foggy morning. As the fragments of choral writing become less present the texture becomes dominated

by the winds, who are imitating birdsong. This material does not undergo any real development or imply any progression; rather it acts as an interesting but essentially static sound world wherein the music comes to rest. The work ends through evaporation rather than climax, with the dawn having completed its trajectory.

Hölderlin-Fragment

The text of this next, and last, work also addresses the relationship of the individual to nature; but in contrast to *La Cascade* draws a clear distinction between human and non-human. The protagonist of the poem describes feelings of alienation from the human world contrasted with a sense of belonging to a larger, natural existence.

The poem is addressed to an un-named 'you', and ends with the line 'in the arms of the gods I became a man', or more literally, 'I grew up in the arms of the gods'. For Hölderlin the classical divinities, so well represented in the European poetry of his time and earlier, were manifestations of the world, crystallisations of its unknowability, and the source of all life.[9] The poem is addressed to them as the representatives of the sublime: incomprehensible yet paradoxically more relatable than the world of men.

In Hölderlin's poem there is a sharp contrast between human and non-human. However, as the protagonist is unquestionably human, I feel the relationship is more complicated than it first appears. My own reading of the poem carries an undertone of alienation and isolation: the protagonist disavows the human world, but cannot truly escape it.

[9] Internet Encyclopedia of Philosophy, Friedrich Hölderlin, Online.

As with *a(e)ria(l)s* the sense of musical identity of the work stems from the use of similar processes to create diverse materials; however in this work there are two opposed sources of process, corresponding to the polarised human and natural worlds of the poem. The 'human' material includes regular rhythms – for example canons and cadences – and nods to common practice harmony. The contrasting material representing the non-human world derives from continuous rather than quantised sound – for example glissandi – and the harmonic series. Examples of these two material types are shown in figures 22 and 23.

The relationship between these is explored in various ways throughout the work. For example the opening passage – 'for I knew you better than I ever knew men' – is dominated by glissandi and held pitches creating a series of passing, transient sonorities. The first 28 bars of the work become slowly more rhythmicised and regular – humanised, as it were – until disintegrating into a sudden cluster at the words 'the words of mankind I never understood'.

The two poles reach a sort of unity, a quasi-stable duality, in the final sections of the work. In the penultimate passage – 'the euphony of the rustling grove' – the non-periodic 'natural' material becomes a series of statistically generated rhythms accompanying a more speech-like, homophonic intonation of the text, shown in figure 24. The final bars (65 – 70) provide a different possible co-existence: pitches bleed into chords related to the harmonic series and the speech rhythm of the words is stretched almost, but not quite – in contrast to the beginning of the work – to the breaking point, to meet the demands of the unfolding progression.

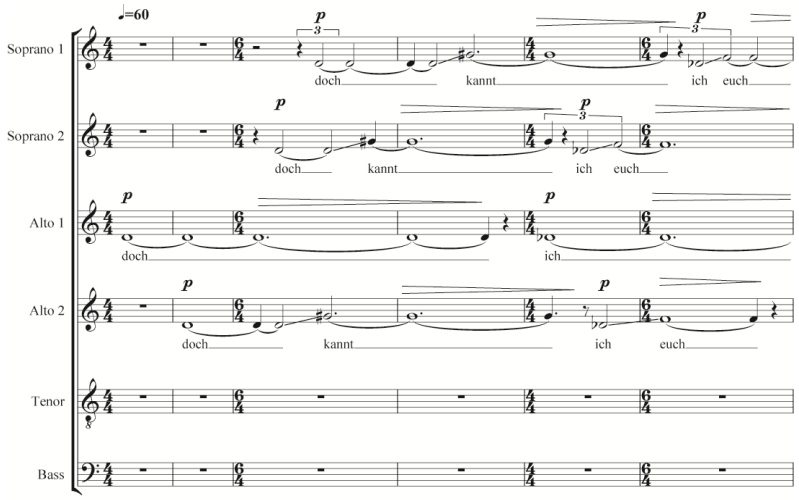

Figure 22: 'non-human' material from *Hölderlin-Fragment*: bars 1-6

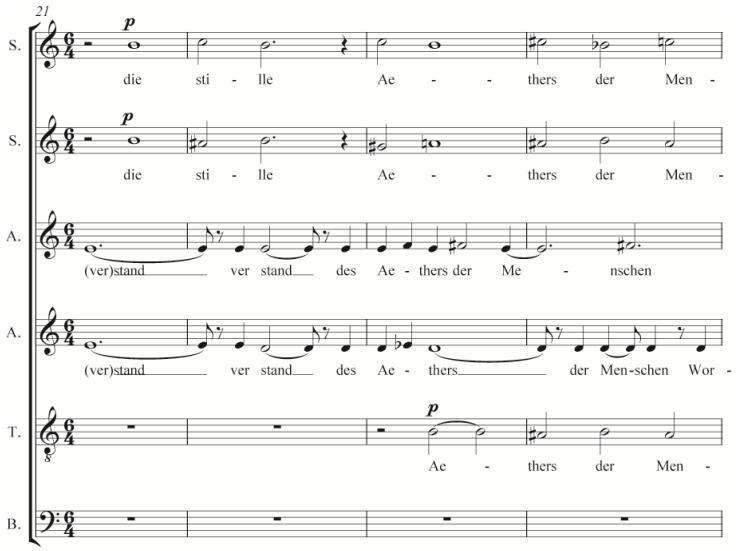

Figure 23: 'human' material from *Hölderlin-Fragment*: bars 21-24

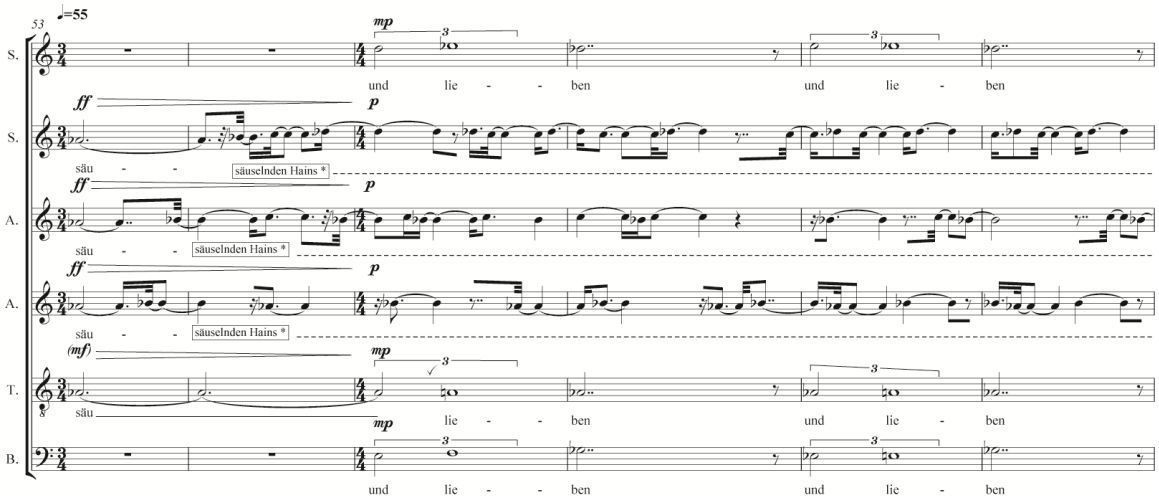

Figure 24: synthesis of 'human' and 'non-human' material. *Hölderlin-Fragment*: bars 53-58

6 – Conclusions

The last three and a half years have been immensely rewarding for me. I have developed enormously as a composer and as a musician in general. The opportunity to spend so long working on my practice has been genuinely invaluable and I feel I have matured greatly as an artist.

The trajectory from *String Quartet (2012-13)* to *Dawn/Cascade* (as the two most substantial works in the folio) consisted of a dissection, evaluation and re-synthesis of many techniques, and the development of a much more sophisticated engagement with musical material and form. Not every work in this folio is an unqualified success; however, I have, if anything learnt more from the inadequacies of works than from their successes.

The final grouping of works in this folio seems to suggest a move towards more metaphorical, "expressive", and – it could be argued – conservative idioms; however, I do not feel this is indicative of a deeper change in my thinking, and fully intend to continue working within and exploring musical systems which engage only tangentially or not at all with traditional forms and modes of expression.

There are many interesting avenues and possibilities that this work has suggested that I have yet to explore. The most pressing to my mind are the synthesis of fully and partially notated material, with a view to combining the expressive strengths of each group of works; and the exploration of more sophisticated statistical techniques. Another avenue of development is in the construction of less linear forms: I feel *Insect-Wood-Growth* has by far the most interesting form of any piece in this folio, and I intend to develop further its ideas of simultaneous temporal layers, juxtaposition and transformation.

I have tried to engage with and respond to the traditions and contemporary innovations of Western art music – and Western art in a more general sense – in a very personal yet systematic way, and I hope that in light of that this folio can be considered as valuable research within the field of composition.

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