COMPOSITION PORTFOLIO

COMMENTARY

by

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Submitted in partial fulfilment of the
requirements for the degree of

Doctor of Philosophy

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DECLARATION

I declare that the fourteen musical compositions and the accompanying commentary that constitute this submission are my own work and that, to the best of my knowledge and belief, they contain no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of the University of London or other institution of higher education.

Signature .....

Name.....

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ABSTRACT

This thesis consists of a portfolio of fourteen compositions, an accompanying commentary and recordings of the works on CD and DVD. The portfolio comprises one electronic composition, which is presented on the DVD, and thirteen printed scores spanning chamber, orchestral and vocal music, music written for young people and amateurs, and music created in collaboration with artists from different disciplines including text, film and dance.

Through the works presented in the portfolio I have explored approaches to the construction of melody and harmony, the design and function of musical structure and form, and the variety of instrumental colour and timbre that can be achieved through the creative application of instrumentation. I consider these three areas to be fundamental compositional elements in my own work and areas for further exploration and expansion.

The commentary comprises a broad discussion of the creative processes undertaken and how the portfolio relates to some movements and developments in current contemporary art music. The portfolio is contextualized with references to practitioners who have influenced my compositional output. These practitioners include Per Nørgård, in particular his approach to melody and harmony through his discovery of the infinity series, and Magnus Lindberg, in particular his method of creating structural tempo relationships. Reference is also made to composers whose music elevates timbre to the same level of compositional significance as rhythm, melody, harmony and form, particularly composers of the so-called spectral movement such as Gérard Grisey.

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ACKNOWLEDGMENTS

I would firstly like to thank my supervisor Philip Cashian for his support and advice throughout the five years spent on this portfolio. I would also like to express my gratitude to my previous composition teachers Richard Steinitz and Julian Anderson for their guidance and teaching during my undergraduate and postgraduate degrees respectively.

I am grateful for the commitment and enthusiasm of the many talented musicians and ensembles that have performed the pieces presented here. I am also thankful to the organisations that had the confidence to offer the commissions and residencies that have been integral to the successful completion of many of the works included in the portfolio. I am also indebted to the many artists with whom I have collaborated on various projects – notably Helen Cooper, librettist of *mabinogion: the song of rhiannon*, Martin Lawrance, choreographer of *stealing poison* and Max Hattler who created the animation for *drift*.

I would finally like to extend my appreciation to my loving partner and family for their unwavering support and to my friends, particularly the members of the Camberwell Composers' Collective, for their good cheer throughout the five years spent on this project.

CONTEXTUALISING THE PORTFOLIO

The notion of compositional style has been something that I have often struggled with. I find the inspiration to write music, as many composers do I imagine, in a diverse range of stimuli ranging from purely musical concerns to extra-musical influences. When meeting an acquaintance for the first time and exchanging details about our respective professions I am customarily faced with the question 'so, what kind of music do you write?' This is a natural question for a person to ask a composer that they have just met, but one that I have always had some difficulty in answering. The question also comes up in a professional context of course, for example during radio interviews or pre-concert talks, although it is usually a little more focussed and directed to the piece in hand. One of the most enjoyable aspects of writing this commentary has been facing this very question and contemplating possible answers.

My compositional career began during my undergraduate degree at Huddersfield University under the guidance of Richard Steinitz. During these formative years I was exposed to an enormously diverse range of musical thought under the international spotlight of the Huddersfield Contemporary Music Festival. For the first time I experienced music by composers that I had never heard before: Iannis Xenakis, George Crumb, Errollyn Wallen and György Ligeti to name but a few. Whilst I had always had a keen interest in the limited range of contemporary music that I had managed to discover during my school years, Huddersfield opened up a new world to me and created a desire to really pursue composition as a lifelong vocation. During the first year at Huddersfield all music students studied composition and were fortunate enough to have a performance of a work given by the Layfield String Quartet at the end of the academic year. This experience, in

the early summer of 1998, was a turning point for me and I opted to take composition as a joint first study alongside my performance work.

After Huddersfield I was accepted into the Royal College of Music to study with Julian Anderson. He has been a very influential figure in my musical development; his open-minded and wide-ranging approach to many genres of contemporary music allowed me to further explore my compositional palette and take risks with the ideas that I was developing at the time. During my studies with Julian I developed and expanded my control over harmonic parameters and explored various aesthetic concepts in the works of seminal composers such as Bach, Stravinsky and Boulez. Julian's expertise in the area of the French spectral movement was particularly illuminating and helped me to greatly increase my understanding of practical orchestration and inventive timbral control. [1]

My greatest compositional need when I arrived at the RCM concerned the structure of my music – how should I begin to map out the landscape of a new work? How are structural decisions to be made? Is it still relevant at the beginning of the 21st century to talk about a compositional structure based upon harmony? Julian took these issues on board and provided a variety of exemplar techniques, methods and approaches to the structuring of musical time. It was with Julian that I developed a deep affinity with the compositional techniques of Per Nørgård and with traditional musics from various parts of the world.

Alongside my formal studies at the RCM I supplemented my training with summer courses at Dartington and Aldeburgh. These experiences gave me the opportunity to work with a diverse range of composers and to explore new approaches to my own work including the incorporation of technology

1 The music of the spectral movement refers to a musical composition practice where compositional decisions are often informed by the analysis of sound spectra. This particular style of composition originated in France in the early 1970s. For an excellent introduction to spectral music see Anderson, Julian, 'A Provisional History of Spectral Music' *Contemporary Music Review*, 19 no. 2 (2000), 7–22

and film, and collaborations with artists from different disciplines. Whilst a student I also set up the Camberwell Composers' Collective, with fellow composers Anna Meredith and Emily Hall, with the intention to bring our own music to new audiences in innovative ways. As well as performing ourselves we have collaborated with some extraordinary musicians including Huw Watkins, Zoë Martlew, Sarah Nicolls, Corrado Canonici and Oliver Coates. We began to explore the visual impact of our performances and started to incorporate film, animation and live drawing into our concerts. Together with our regular gigs in Camberwell, we have continued to perform at venues and festivals nationwide.

Some time after graduating from the RCM I began my doctoral studies at Royal Holloway with Philip Cashian and was appointed the first Composer-in-Residence at Handel House Museum. Through my Handel House appointment and various other schemes I have worked as a workshop leader and animateur alongside my compositional work. These experiences have been an important aspect of my professional life and have helped to shape my compositional development in the area of music in the community. As a youngster I was introduced to contemporary classical music not at school but through community based dance programmes, which I participated in through various youth initiatives in Manchester and the North West. My dance training introduced me to the music of Stravinsky, Berio, Peter Maxwell Davies and Simon Holt and my teachers encouraged me to become involved in contemporary arts as a career and helped me to access training and support that I might not otherwise have found. Had it not been for these projects my career may have taken a very different path and for this reason community work is now an important and continuing part of my professional life. With that in mind the portfolio includes works written for children, amateurs and youth dance taken from various projects that I have been involved in during my studies.

Throughout the time spent at Royal Holloway the influence of my studies with Julian Anderson combined with new ideas from Philip Cashian have led me to develop what I consider to be my own distinctive compositional voice. I do not know what direction this will take in the future but for now I feel that I have developed techniques that allow me to write flexibly within a variety of media, but with an overriding sense of musical architecture, drama and harmonic development.

The compositions presented in this thesis were composed between 2004 and 2008 and range from chamber music to orchestral scores, vocal music to electronic composition, music written for amateurs to music created during collaborative projects with other artists including writers, filmmakers and choreographers. The works in the portfolio fall into three broad categories: orchestral music, chamber music and community and collaborative projects. They are listed here for reference.

ORCHESTRAL MUSIC

tirlun (2008) *
orchestra
c. 9 mins

the dawn halts (2007) *
chamber orchestra
c. 8 mins

sudden light (2005) *
orchestra
c. 20 mins

CHAMBER MUSIC

cruithne (2007) *
flute, clarinet, saxophone, bassoon, percussion, violin and double bass
c. 8 mins

black yew, white cloud (2007)
string quartet
c. 11 mins

four haiku (2006) *
mezzo-soprano and percussion
c. 5 mins

hoist (2006) *
percussion and film
c. 4 mins

kakamega (2006)
trumpet, percussion, accordion, viola and double bass
c. 5 mins

calm on the seas, and silver sleep (2006) *
violin, horn and harp
c. 10 mins

COMMUNITY MUSIC and COLLABORATIONS

mabinogion: the song of rhiannon (2008)
opera for young people
c. 75 mins

fractus (2008) *
flute, oboe, clarinet, bassoon, percussion, 2 violins, viola and violoncello
c. 7 mins

stealing poison (2007) *
clarinet, violin and piano
c. 15 mins

drift (2007) *
electronics and film
c. 4 mins

when the sun begins to fling (2007) *
flexible ensemble
c. 8 mins

The portfolio also contains a CD and a DVD that hold recordings of all the works marked with an asterisk. All of the works presented have been performed in public and all available recordings have been provided. Unfortunately at the time of submission there were no recordings available for *mabinogion: the song of rhiannon*, *black yew white cloud* or *kakamega*.

CD track listing
1. *tirlun* BBC National Orchestra of Wales, Jonathan Mann
2. *the dawn halts* BBC National Orchestra of Wales, Grant Llewellyn
3. *sudden light* BBC Symphony Orchestra, Jac van Steen
4. *cruithne* Philharmonia Orchestra, Jac van Steen
5. *four haiku* Polly May and Nacho Mollins
6. *calm on the seas, and silver sleep* John Stobart Trio
7. *fractus* students of RCM Junior Department
8. *when the sun begins to fling* CoMA London

DVD contents
- *stealing poison*
  Stuart King, David Alberman, Rolf Hind and the Richard Alston Dance Company
- *drift*
  animation by Max Hattler
- *hoist*
  Christoph Biehl and Elspeth Brooke

Part 1

APPROACHES TO THE CONSTRUCTION OF MELODY AND HARMONY

One of my primary compositional concerns during my doctoral studies has been the exploration of different approaches to the construction of pitch material, both in vertical and horizontal terms. I have developed techniques that make use of both precompositional generative methods and instinctive harmonic construction. I enjoy using methods, processes and procedures in the early stages of a new work to help create raw material that can be used in the piece. However, I am a great believer in the primacy of the ear and take pleasure in the experience, during the middle and latter stages of the composition process, when material generated from processes becomes malleable; unrefined pitch material, including chords and melodic fragments, can be transformed and altered to create the sound and music that I want to hear. The notion of balancing precompositional generative methods with intuitive design has been a predominant area of exploration during my doctoral studies.

My methods of pitch construction draw on a variety of influences. Firstly it is important to mention that the musical techniques of Per Nørgård's (b. 1932) compositional work have had a very significant effect upon my development in this area; specifically in the creation of melodic pitch material for many of the larger-scale works presented in the portfolio including *sudden light* (2005), *the dawn halts* (2007) and *stealing poison* (2007). Nørgård's career followed a familiar pattern of initial conservatism followed by a breakthrough into mainstream modernism. However in the 1960s his aesthetic turned away from the musical preoccupation of central European composers towards an area that was considered quite unusual at the time – the listener's perception of music. He began to investigate what is now termed psychoacoustics by researching problems of a musical, aesthetic and existential nature. He explored how listeners perceive music and how specific collections of sounds affected their experience. He went on to

investigate how these factors could relate to the act of composition itself, which led him to develop a family of compositional techniques based upon principles of infinity and structural hierarchy.

I have explored aspects of Nørgård's compositional techniques through careful study of his music and a very influential seminar with Nørgård himself at Huddersfield in 2004. Nørgård's discovery of the melodic infinity series in 1959 led to the development of a method for producing pitch material based upon the endlessly self-similar patterns of fractal geometry. The infinity series is constructed from a sequence of numbers and, as a result, the use of it in composition work is related to serial techniques. However as the infinity series is used only to create a sequence of pitches, but not to control rhythmic and dynamic aspects, its use is somewhat set aside from the central European mainstream serialism that was prevalent at the time. The infinity series provided inspiration for some of Nørgård's works during the 1960s but it was not until *Voyage into the Golden Screen* (1968) and the Second Symphony (1970) that the series provided the pitch structures for an entire work. Further innovations in the realms of rhythm and harmony in the early 1970s led to the development of a unified set of infinity techniques that were first integrated in the Third Symphony (1972-75).

The melodic infinity series exhibits a number of fascinating characteristics that one might describe today as fractal – a mathematical concept that did not appear until the 1980s. The hierarchical principle of the infinity series is based upon the idea that a layer of pitch material can be infinitely linked to other layers of pitch material that are derived from itself. These different layers unfold in different proportional durations. However no single layer of material is of higher importance than another in terms of pitch content, but rather each layer is at once a converging point for lower layers whilst forming part of a context that converges at some higher level.

The construction of a melodic infinity series is simple and elegantly beautiful. It is developed on the basis of a scale – often chromatic but it could in fact

be any scale. In my own music I have explored methods of developing series based upon scales built using intervals of thirds, fourths and fifths in order to create varied harmonic and melodic fields. The melodic infinity series is an infinite pitch row that contains an endless number of self-repeating layered patterns, which are extruded from a tiny starting melodic fragment. I shall illustrate how to construct a simple infinity series in order to further illuminate my own work in the area.

The starting point is a cell consisting of two or more notes. The cell is the kernel of the whole structure and each is at the same time the root of its own half-layer, in the case of a two-note starting cell.

Figure1 the opening cell of a simple infinity series

The interval between the two notes is projected twice: first it is inverted in the upper system, then non-inverted in the lower system. This produces two new notes.

Figure 2 the first four pitches of the series

The next interval to be used lies between the second and third note. This interval is to be extruded in a corresponding manner: that is inverted in the upper system and non-inverted in the lower system. This produces a further two new notes and so the series grows exponentially.

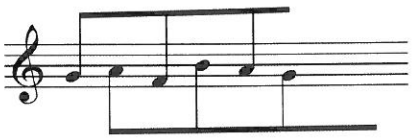

Figure 3 the first six pitches of the series

This system produces a series of pitches that contains some remarkable qualities. For example with a two-note starting cell it would be found in the series produced that every fourth note starting from the first pitch produces a melody *identical* to the original row. This is also true for every sixteenth note, sixty-fourth note, two-hundred-and-fifty-sixth note, and so on. It would also be found that every second note from the first pitch (or every eighth, thirty-second, etc.) produces the *inversion* of the series. Moreover, every second note starting from the second pitch will produce the original series in a transposed version.

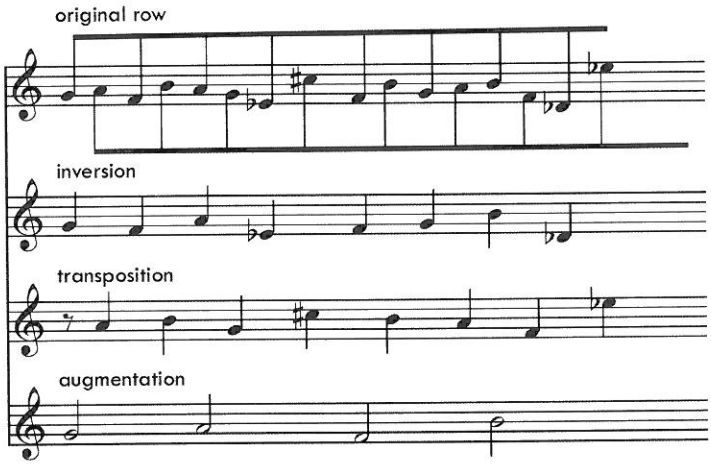

Figure 4 some permutations of the original row

In fact, any selection of notes that are chosen at regular intervals will produce new layers of pitch material that all relate to the original series in some way.

As a row of pitches on its own the melodic infinity series is merely a numerical pattern expressed as musical notes. However the features inherent in the melodic infinity series allow it to be used as an abstract mechanism through which to establish relationships between large and small elements within the totality of a work. The compositional implications of this can be very striking indeed, offering much interest to the composer.

Nørgård felt that if these infinite, hierarchical relationships could be created in series of pitches then perhaps they could also be applied to other compositional elements including rhythm and harmony. In many ways the ordinary Western proportional rhythmic system can already be thought of as being both infinite and hierarchical: notes can be doubled or halved (tripled or divided into three in the case of compound durations) to move up or down the respective layers of proportional durations. However this mere doubling and halving of durational systems does not match the fascinating patterns and wave-like movements of the melodic infinity series. Instead Nørgård turned to the properties of the golden section to devise his infinite rhythmic series by subdividing the value of a note into golden proportions. For example, in Nørgård's music if a semibreve is to be divided into two parts then the resulting notes will often have the proportions 3:5, which can be expressed in the durational system of Western notation as a dotted crotchet and a quaver tied with a minim. Larger divisions will result in more complex rhythms. For example a semibreve divided into the proportions 3:5:8:5 would result in various groupings of twenty-one durational units to be played in a sixteen-semiquaver space.

For the harmonic aspect Nørgård developed a system using the overtone series that met the requirements of infinity and hierarchy inherent in his melodic infinity series. The overtone series can be thought of as containing new and infinite series based upon each one of its partials. For example, if every third pitch from the third partial were to be selected, i.e. the fifth (3, 6, 9 etc), each fifth pitch from the fifth partial, i.e. the third (5, 10, 15 etc) or each seventh pitch from the seventh partial, i.e. the seventh (7, 14, 21 etc) then new, infinite harmonic series begin to arise.

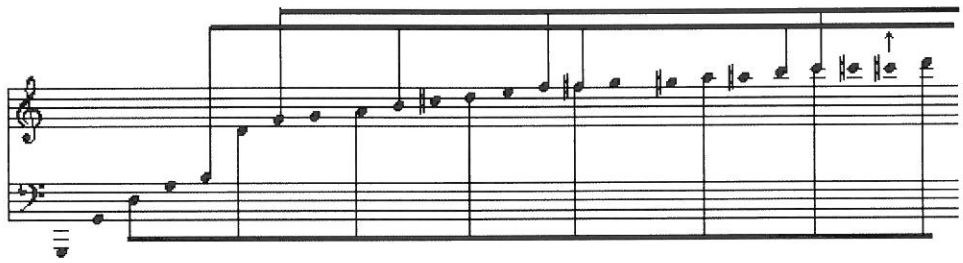

Figure 5 an example of Nørgård's infinite harmonic spectrum

I have found these three approaches fascinating areas of study and, after an encouraging seminar with Nørgård himself in late 2004, I began to explore different ways of developing the infinity principle to create patterns of pitch material within my own compositional practice. The infinity series that I created for *sudden light* (2005) takes as its starting point a four-note cell rather than a two-note cell. I created the generative cell from a version of the all-interval tetrachord using the pitches E, B flat, F and A flat. The cell is the kernel of the whole structure of the series whilst each note is at the same time the root of its own quarter-layer:

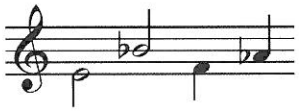

Figure 6 the opening cell of the infinity series used in *sudden light* (2005) based upon the all-interval tetrachord

The interval between the first two notes is now projected four times – rather than twice as in the series generate from a two-note starting cell. First, the interval is non-inverted in the first lower system, and then inverted in the first upper system; then it is non-inverted in the second lower system before finally being inverted in the second upper system. This produces four new notes:

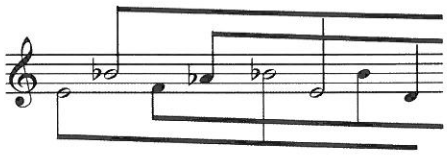

Figure 7 the first eight pitches of the series

The next interval to be used still lies between the second and third note as in the series created from a two-note cell; this interval is to be extruded in a corresponding manner, that is to say inverted in the upper systems and non-inverted in the lower systems. This produces a further four new notes and so the series grows exponentially:

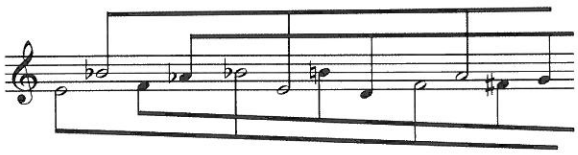

Figure 8 the first twelve pitches of the series

In a similar manner to the earlier example of a two-note cell series, this system produces a series of pitches that contains layers of pitch material that relate to the original series in some way. These layers include examples of inversion, transposition and augmentation that are produced by focussing on any selection of notes chosen at regular intervals:

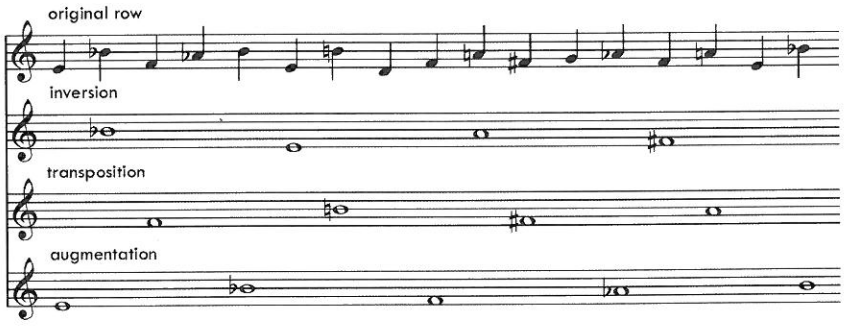

Figure 9 some permutations of the original row

A further exploration of the use of different generative cells to produce infinity series is illustrated in *stealing poison* (2007), a trio for clarinet, violin and piano created in collaboration with the choreographer Martin Lawrance. During the early creative stages of the work I constructed a melodic infinity series based upon a three-note starting cell, rather than a two-note cell. This decision was influenced by Martin, the choreographer, who wanted to explore the significance of the number 3 throughout the work in the choreographic material; I felt that to create a unity of inspiration between the music and dance I too would explore this idea within the precompositional material. The cell was constructed from two prime intervals – a tritone and a major third – which allowed me to create vertical, harmonic material from an essentially linear pitch stimulus:

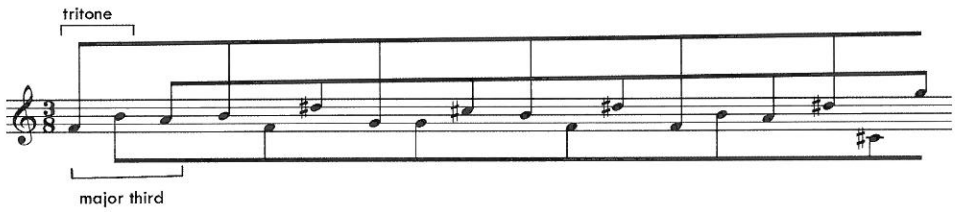

Figure 10 the beginning of the infinity series used in *stealing poison* (2007) using a three-note cell as a starting point constructed from a tritone and a major third

In the fast central section of *stealing poison* (bar 90 onwards) the infinity series begins to generate different layers of pitch material that unfold at different temporal rates in the clarinet, violin and piano. The following example illustrates how the surface level material is drawn from the infinity series, which acts as a cantus firmus throughout the central section:

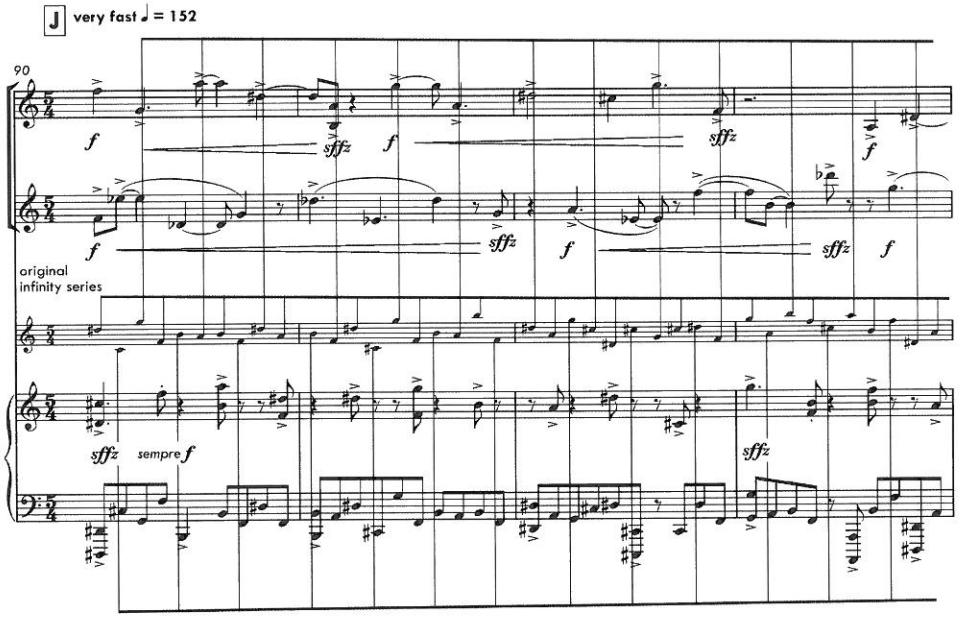

Figure 11 passage from *stealing poison* (2007) illustrating how the surface material relates to the generative infinity series

Aside from Nørgård's infinity techniques another salient area of influence has been the music of the so-called French spectralists. One particular composer whose music has influenced my approach towards the construction of pitch material, particularly in the realm of harmony, is Gérard Grisey (1946-1998) who sought to understand the most fundamental building blocks of music by exploring through his composition work the physical, internal workings of the very nature of sound itself. Grisey explored fully the implications of a single pitch played on a particular instrument. At the very beginning of Grisey's work for 18 musicians, *Partiels* (1975), which is part of the larger cycle of works entitled *Les espaces acoustiques*, a single trombone note is played loudly and then immediately followed by a shimmering verticality of pitches from the ensemble that creates a synthesis of the trombone's initial pitch; an orchestration of the partials within the single note.

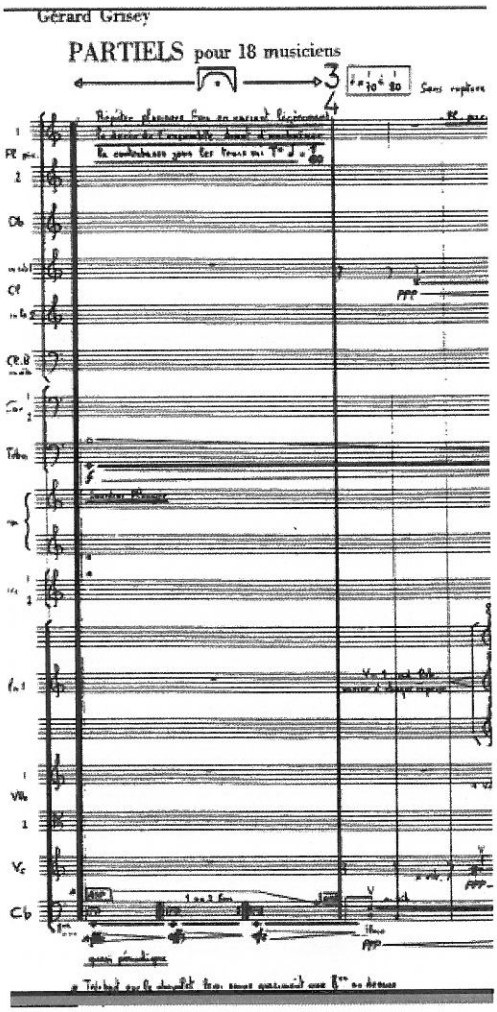

Figure 12 the opening bars of Grisey's *Partiels* (1975), reproduced with the publisher's permission

The ideas developed by the spectral school of composers have had a great influence upon my harmonic writing and has stimulated a strong interest in using the many different aspects of various overtone series as a basis for creating harmonic material. In my own composition work I am interested in the tension between the simultaneous sounding of pitches that create acoustical consonance and those that create dissonance. The range of sonorities from extreme consonance to extreme dissonance is very smooth and in order to truly have a grasp over harmonic writing I feel it is

important to be able to control this range and understand when and how the boundless array of harmonic colours available might be employed. Of course music may explore the harmonic tension created by the total *absence* of consonance, as in Dror Feiler's (b. 1951) recent UK premiere of *MÜLL* (2008), which seeks to *be*, rather than depict, the refuse and debris of civilisation through the use of total dissonance, or conversely, the total absence of dissonance in some parts of the music of Arvo Pärt (b. 1935).

In my trio for violin, horn and harp, *calm on the seas and silver sleep* (2005), I created a simple harmonic progression that moves incrementally from extreme consonance to dissonance, and then back again to consonance; this progression forms the backbone of the entire work running throughout the piece as a sort of cantus firmus whilst also being the source of most of the harmonic and melodic material. The structural plan is simple – the music moves from an opening texture of unison pitches woven into a rhythmic pattern to a period of busy dissonance in the middle section, before gradually moving towards a closing texture of repeated unison pitches again, an augmented fourth above the opening material. The piece moves gradually from absolute consonance to harsh dissonance and back again exploring ideas of stasis, tension and release.

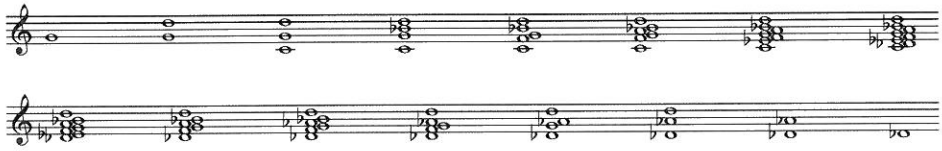

Figure 13 original harmonic progression moving from consonance to dissonance and back again to consonance used in *calm on the seas, and silver sleep* (2005)

I try to maintain a clear control of the degrees of consonance and dissonance I employ within my pitch material but my particular tastes often lean towards crunchy, rich six or seven-note chords, which have been on occasion described by listeners as being influenced third stream music, or a synthesis of contemporary classical music and jazz. This has not been a conscious decision on my part although my background in jazz improvisation

and performance does seem to suggest perhaps an unconscious leaning towards that concept. [2]

I have also been interested in exploring how harmonic pitch sets that we may perceive with our Western ears to be dissonant can actually be considered acoustically consonant when illuminated against a fundamental pitch that *contains* the dissonant pitch set within its harmonic spectrum. This is an area explored in my work for chamber orchestra, *the dawn halts* (2007), for which I created chords containing differing degrees of dissonance and then analysed their pitch content in order to identify the closest overtone series that they might belong to.

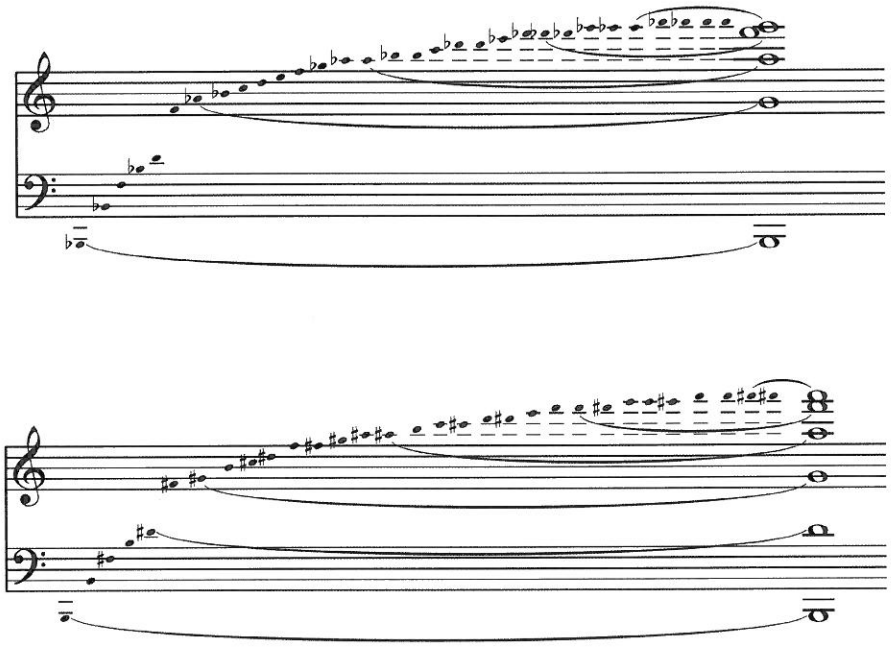

Figure 14a harmonic pitch material derived from the overtone series

I then introduced the fundamental pitch of that harmonic series underneath the chord to illuminate the dissonant pitch set above in the context of the

[2] Third stream music is a concept developed by the composer Gunther Schuller (b.1925) to describe a musical genre that synthesises various elements of classical art music and jazz. For a detailed discussion of third stream music see Schuller, Gunther *Musings: The Musical Words of Gunther Schuller* (Oxford: Oxford University Press, 1986)

overtone series. This has the effect of changing the aural perception from that of dissonance to one of a strange consonance.

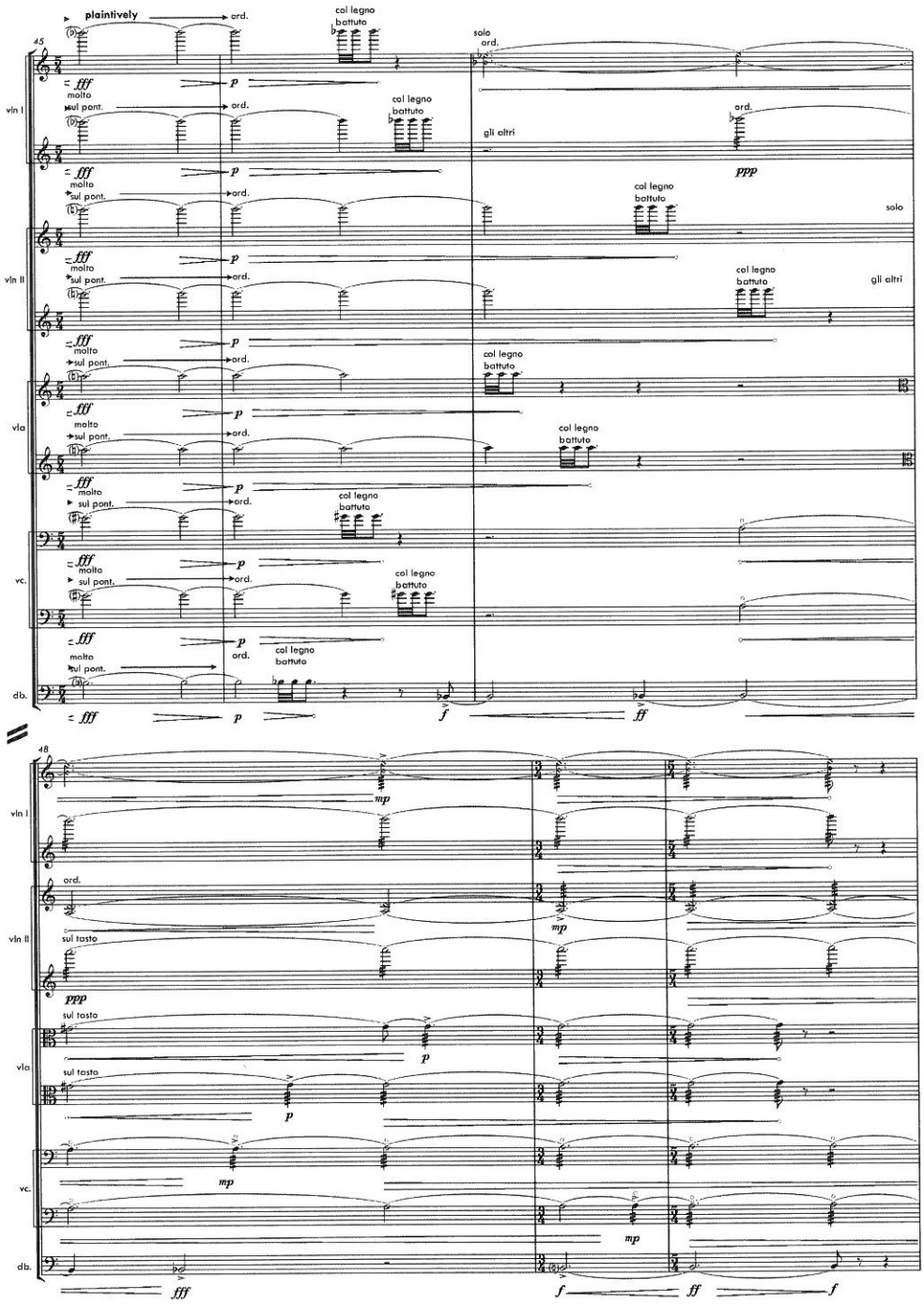

Figure 14b the corresponding passage in *the dawn halts*

The intervallic relationships within a chord are of great importance in my music, particularly between the perceived bass and the uppermost pitch. A very dissonant chord where all the notes are perceived to be part of the overriding tonality or overtone series of the music at that point will produce the impression of apparent consonance compared to a chord that is not perceived to contain notes of the overriding tonality, even if there are fewer notes. The example above demonstrates this technique being used in *the dawn halts* (2007).

A final influence in the area of pitch material that I feel is important to mention has been my experience teaching common practice harmony and counterpoint at the Royal College of Music Junior Department between 2004 and 2008. After my own engagement with common practice harmony during my A-level studies I felt a great sense of relief on arriving at Huddersfield; I felt able to break free from the constraints of the seemingly rigid rules and procedures laid down in harmony text books and to create a freer, more flexible harmonic palette. However, after having returned to careful study of common practice harmony for my teaching duties, and my experiences of engaging with 18th century music during my residency at Handel House Museum, I have rediscovered the idea that many techniques from music of the past can be assimilated into a 21st century style. I have found increasingly that there is much to learn from careful study of the principles of common practice harmony and counterpoint; not in the sense of early twentieth-century neo-classicism but rather in broader terms concerned with aspects of voice leading, note doubling, and chord spacing. Absorbing and then reinterpreting techniques from the past has allowed me to greatly extend my own command of vertical harmonic construction.

Some examples of how I have explored these concerns in my own music, particularly in my orchestral writing, include the consequences of particular sonorities being reinforced within a chord or the effect that octave displacement can have within a vertical pitch structure. The spacing and register of pitches within a vertical structure are incredibly important considerations and profoundly influence the resultant sound. The difference

between the complexities and richness of bass pitches with the pale, crystalline sounds of the higher registers is just as important as the intervallic relationships within a chord.

The varied ways in which one chord might progress to the next is another important area for consideration. Once a chord has been created the next step might be to make another one and so the harmonic progression begins. It is in this area that my interest in 18th century part writing techniques might be applied to more contemporary musical language. For example, to return to *Partiels* (1975), the beautiful sonic effects created by Grisey would have remained just that, effects, if he had not had the ability to bring them to musical life by setting them into a harmonic structure whereby the complex sonorities of one pitch set progress smoothly and elegantly to the next creating a mesmeric work of intense harmonic beauty.

Harmonic structure across the entire length of a piece has been a very important area of consideration in many of the works presented in the portfolio. In the earlier works, such as *sudden light* (2005) I found that in the precompositional stages I was creating very detailed harmonic structural plans. The plan for *sudden light* included every single chord from the beginning of the piece right through to the final bars created using two precompositional systems – the first based on the infinity series and the second on the harmonic overtone series. In *sudden light* (2005) the series functions as a sort of complex *cantus firmus* that runs throughout the entire piece with ever-repeating patterns unfolding on different durational layers. In the following figure a basic outline of the infinity series, and two augmented versions of it, shows how the infinity series material acts as both a structural device, in terms of providing a bass line and sustained background harmonic material and, at the surface level, the source of the melodic material of the music. The foreground material, freely composed using the infinity series as a starting point, is played by the oboes and cor anglais whilst the trumpet and violas play the sustained augmented version of the series over the bass line material, which is played by the harps, piano and lower strings.

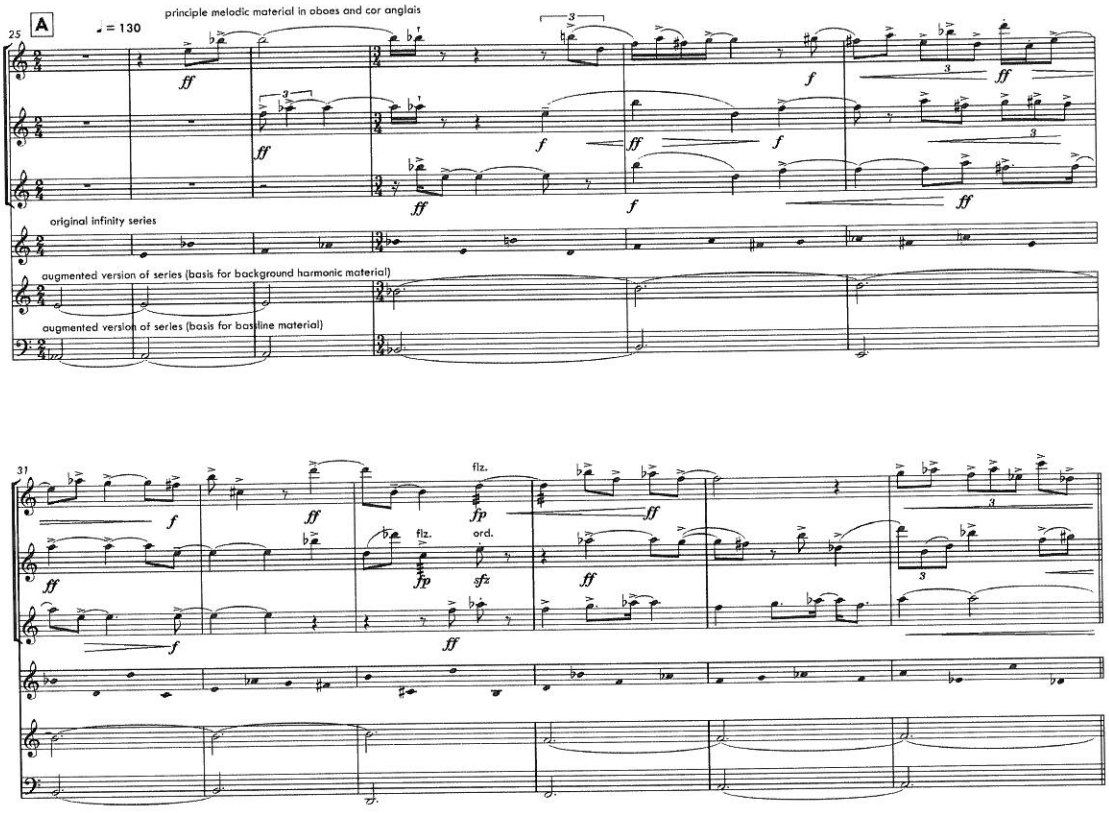

Figure 15 a reduction of bars 25-36 from *sudden light* (2005) illustrating how the infinity series is used at the surface level

In the following example the two augmented versions of the infinity series are shown for the whole first main section (bars 25 – 156), which begins after the initial introduction section (bars 1 – 24). This material provided two layers – the bass material and the background harmonic material – and is passed between many different instruments within the orchestra to create a kaleidoscopic variety of timbral colour. The series in its original, non-augmented form was used to create the foreground melodic material at the surface level; each rehearsal letter corresponds to the beginning of some new melodic material presented by a new group of instruments. For example rehearsal letter A features the oboes (as in the example above), letter B the clarinets, letter C the bassoons and violas, letter D the flutes, letter E the trombones, letter F the tuba, letter G pizzicato strings, letter H the trumpets and harps and letters I and J the strings. Letters K and L

feature a layering of material across the orchestra that builds towards the new tempo section at letter M (bar 157).

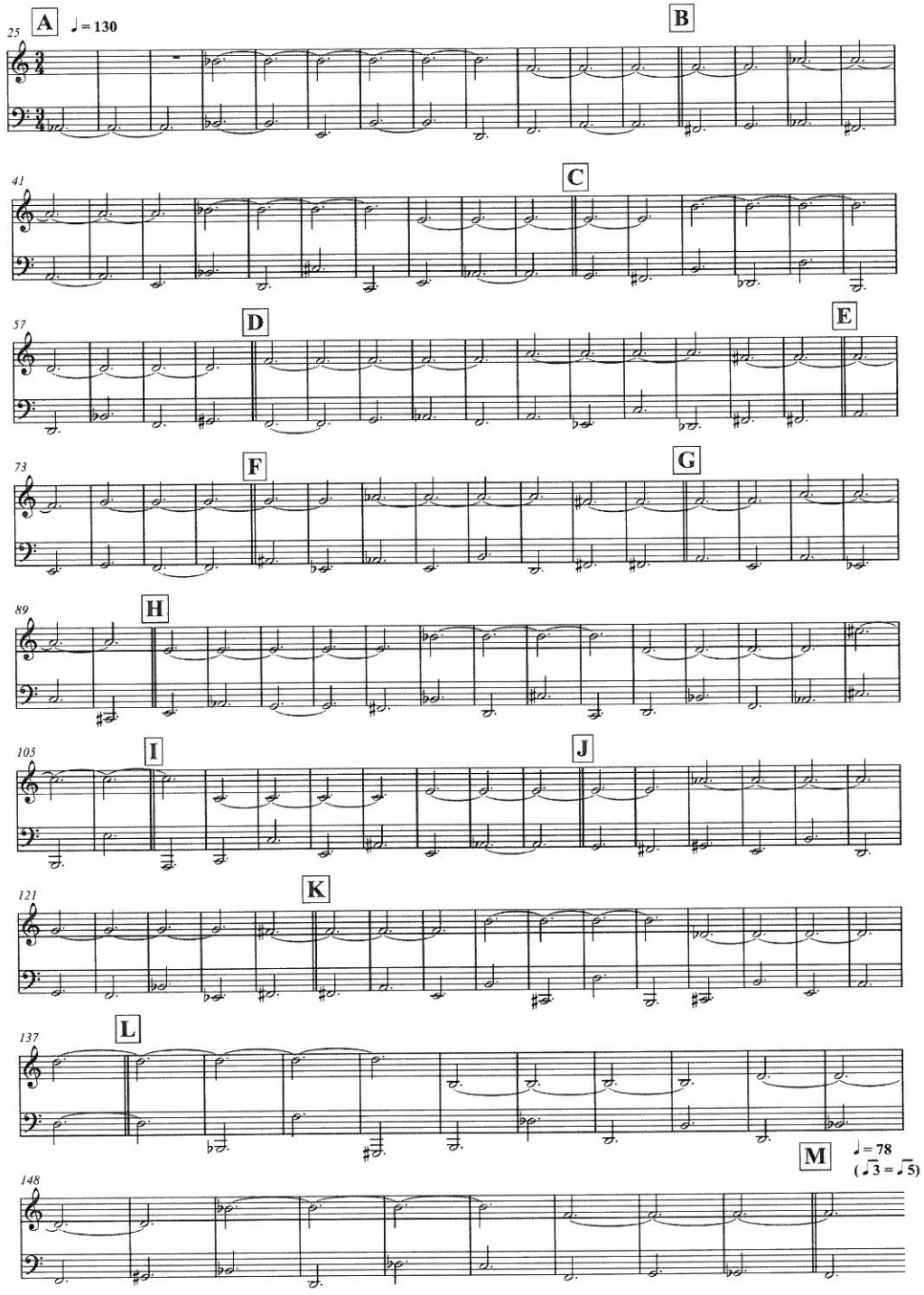

Figure 16 sketch material showing different layers of the pitch structure of the first section (figure A to figure M) of *sudden light* (2005)

The infinity row provided the fundamental notes upon which were built vertical pitch sets drawn from the prime numbered partials of the overtone series. These pitch sets were used to create chords that often incorporated microtonal inflections, particularly within the strings.

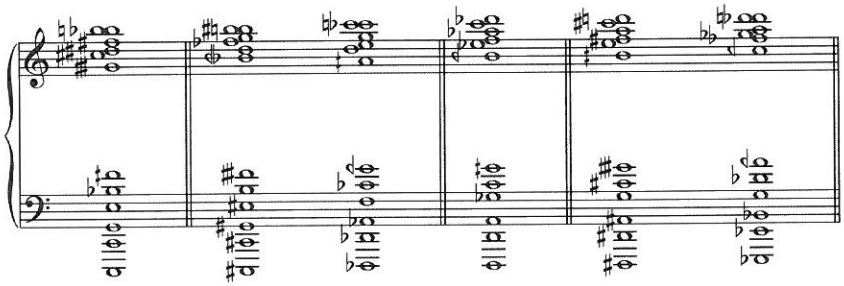

Figure 17a some examples of chords derived from the overtone series including microtonal adjustments used in *sudden light* (2005)

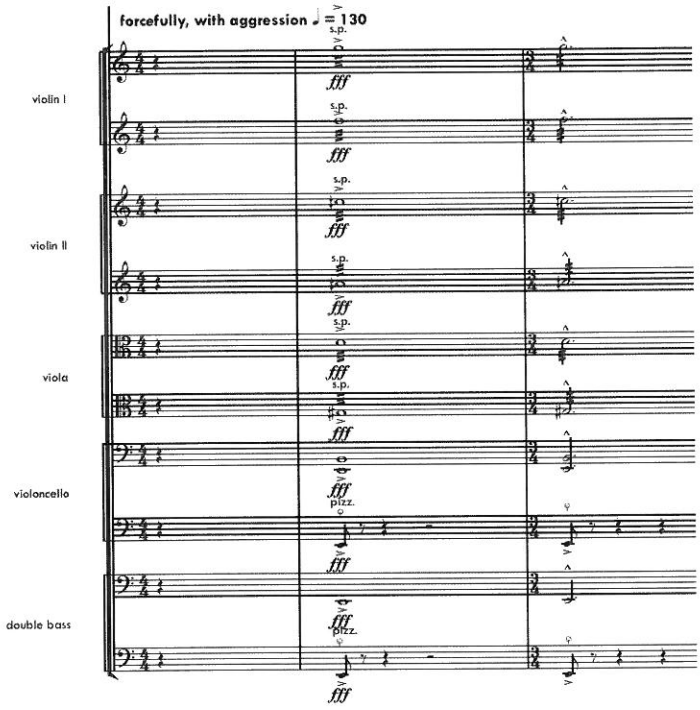

Figure 17b opening bars of *sudden light* (2005) illustrating chord voicing in the strings making use of microtonal inflections

The results from combining the two different generative principles of the infinity series and the overtone series were very pleasing to me at the time

of composing *sudden light*. However, I now find the techniques that I used a little constraining and not a method that I could continue to use in each new work. As I have composed more music I have found that I prefer a more flexible, intuitive approach to creating material. Although I still make use of infinity rows and harmony derived from the overtone series I am much freer in my application of these generative procedures.

In *cruithne* (2007), a chamber work for seven players, the pitch material used is drawn from pre-existing Welsh folk material. I freely transformed the folk material using intuitive methods before assembling it into a formal structure and then applying a series of further transformations. In many ways *cruithne* was a study for the larger work *tirlun* (2008), which is perhaps the most complex work presented in the portfolio in terms of horizontal pitch construction. It is a single movement work for orchestra constructed from two principal layers of material; the first is another infinity series, again based on a three-note starting cell, whereas the second layer is drawn from the same Welsh folk sources as *cruithne*. The two different sets of pitch material were initially simply layered upon each other creating a cacophonous polyphony; to unify these two very different types of material I constructed a harmonic scheme that I superimposed upon the time structure of the entire piece. I then bent and shaped the two conflicting layers of pitch material so that they both fitted into the overall harmonic scheme thereby completely transforming them from their original sources into something quite different.

tirlun (2007) is the most recent work in the portfolio; it amalgamates many of the ideas and techniques that I have formulated throughout the last four years and attempts to reconcile them into a cohesive whole. On a different, extra-musical level the Welsh word *tirlun* refers both to landscape and to people's relationships with their surroundings; places where people feel that they belong or even to linguistic dialects that connect people to their different environments. Land and language are two strands that tie people to places, creating an interlinked quilt of landscapes where people have lived their lives. Using the very complex meaning of this word as a stimulus

for the compositional process I chose to unite the two very different horizontal pitch techniques in the music with a singular, vertical, harmonic dimension thereby creating a strange and dense landscape of lines that undulate and change at very different rates as the music unfolds. The various super-strata of the infinity series are also present and create slower moving lines that run throughout the work at a higher hierarchical level. However, unlike the works of Nørgård, and my earlier works, these lines are not exact pitch augmentations of the original row but rather they change and bend as the harmonic scheme unfolds. The analogy that comes close to what I was attempting to achieve in *tirlun* is that of the concept of time inevitably creating layers of history as it unfolds, in the same way that massive objects can bend light as it travels through space thereby changing the course of its own history.

My concern throughout my doctoral studies has been to create instinctive, multifaceted harmony underpinning linear phrases with a real sense of purpose and direction. I have sought to do this by combining aspects of precompositional control over the structure and development of harmonic vocabulary whilst allowing myself the freedom to instinctively manipulate pitch material in order for my music to move flexibly and easily from one point to another. In my music I have found that the link between enharmony and perceived forward movement is a strong one – the idea that the change in function of unchanging pitches can help to move forward a harmonic progression, to give a sense of movement and development. This idea again relates back to compositional techniques of the tonal era although it can easily be adapted for use in a contemporary language.

By exploring the three influences of Nørgård, French spectralism and common practice harmony and counterpoint I have sought to develop an original and authentic approach to creating pitch material. As I write more music I have begun to notice recurring trends in my compositional process and it has come to light that I often use chords as the starting point for a new composition before any other material is created. By developing a distinctive harmonic soundworld for a new piece, or set of pieces, I find that

I can really connect with the physical aspect of the raw musical material in much the same way as I imagine a sculptor might feel the need to develop a sense of truth-to-material when working in a particular medium, such as clay or stone, before setting off on a new work. In my compositions harmony is often the defining element of structural considerations, as will be discussed in Part II, but I also enjoy the sheer physicality of using harmony during the composition process in terms of its sound, its resonance, and, its sensuality.

Part 2

THE DESIGN AND FUNCTION OF MUSICAL STRUCTURE AND FORM

Structure and form have been amongst the most significant compositional concerns throughout my doctoral studies. During my Master's degree I spent a great deal of energy dealing with concepts of musical time in each one of my pieces; attempting to forge musical structures through which to articulate my musical material had become an almost impossibly difficult pursuit. However, through much practice and guidance from Julian Anderson, and an incredibly influential lesson on structure and form with Magnus Lindberg, I began to feel more comfortable with creating and controlling original musical structures whilst allowing myself a greater degree of flexibility. I began to allow myself to break free from the constraints of any devices or patterns that I might have set up, in order to allow the musical form to breathe and take shape. My very recent work *mabinogion: the song of rhiannon* (2008), a youth opera lasting some eighty minutes, was a real joy to structure despite the overwhelming length. I began with a very simple plan drawn from the idea of a cantus firmus, which I developed from a Welsh folk song; this formed the harmonic plan on a macro-level and gave me a framework in which to create the various dramatic scenes. It also allowed me the freedom to be flexible and explore different, smaller-scale forms and structures on the micro level within each scene of the opera.

At the beginning of a new work I enjoy improvising with harmonic material in order to establish a soundworld for the work. After the initial stages of improvisation I may find myself experimenting with small pieces of pitch or rhythmic material but normally it is the formal structure that becomes the most pressing preoccupation. I often begin by drawing a very rough idea of how I imagine the piece might sound in real time through a graphic representation. I try to discover where I feel the main sectional divides might be, rough tempi and metric relationships, how they relate to each other and what kind of musical material might fit in. Of course there are

gaps at this stage where perhaps I don't know how a particular section might turn out, but, on the whole, I try to create an overview of the entire piece, from the very beginning to the final bars, by imagining it unfolding in real time.

In my concerto for orchestra, *sudden light* (2005), structure was at the forefront of my mind during the composition process. The work falls into three broad sections, the first two of which, beginning at bars 25 and 263 respectively) can be thought of as roughly following the classical principle of exposition and development. On closer listening though the structure is more like an exposition of thematic ideas in the first section followed by a reordering, juxtaposing and re-conceiving in the second section rather than a true development. The final section (beginning at bar 384) is in some ways unrelated to the preceding two sections in that it introduces new material in an almost fugal texture. The harmony of this section is however based upon the four chords that open the entire work. In the final bars material from the opening is superimposed upon the final passage of the last section resulting in a total collapse of harmony and form with a desperate, lurching race to the finish.

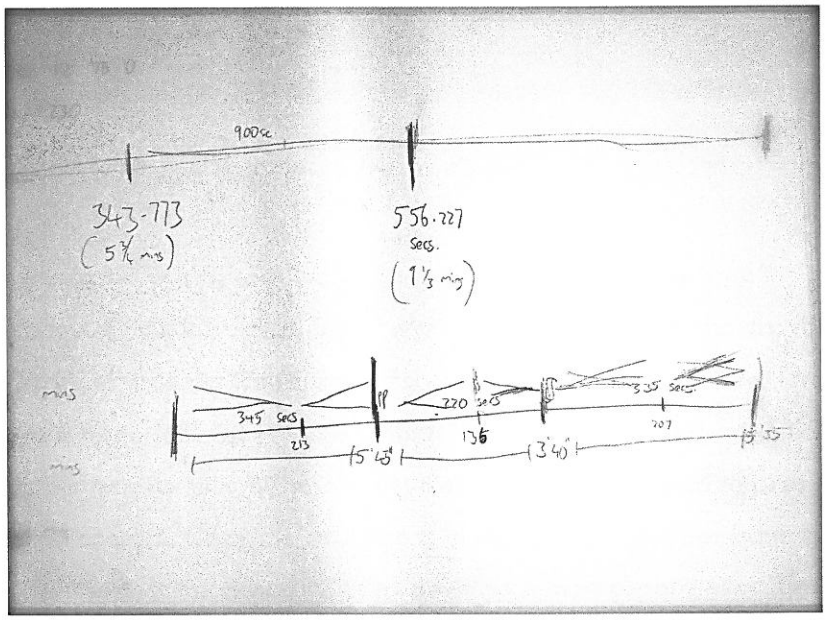

Figure 18 detail from initial structural sketches for *sudden light* (2005)

On a deep structural level, *sudden light* draws heavily upon the principle of the golden section. The three broad sections relate in terms of the golden ratio, as do the subsections within each main section. The harmonic form and structure is derived entirely from an enormous infinity series that runs the entire length of the work. The series this time is created from a four-note all-interval cell presented in the opening bars of the whole piece as discussed in Part I. The exception to this is the final section (bars 384-495), which consists of a working out, superimposition, and juxtaposition of four overtone series, built upon the opening four pitches, before a tiny recapitulation occurs in the closing bars.

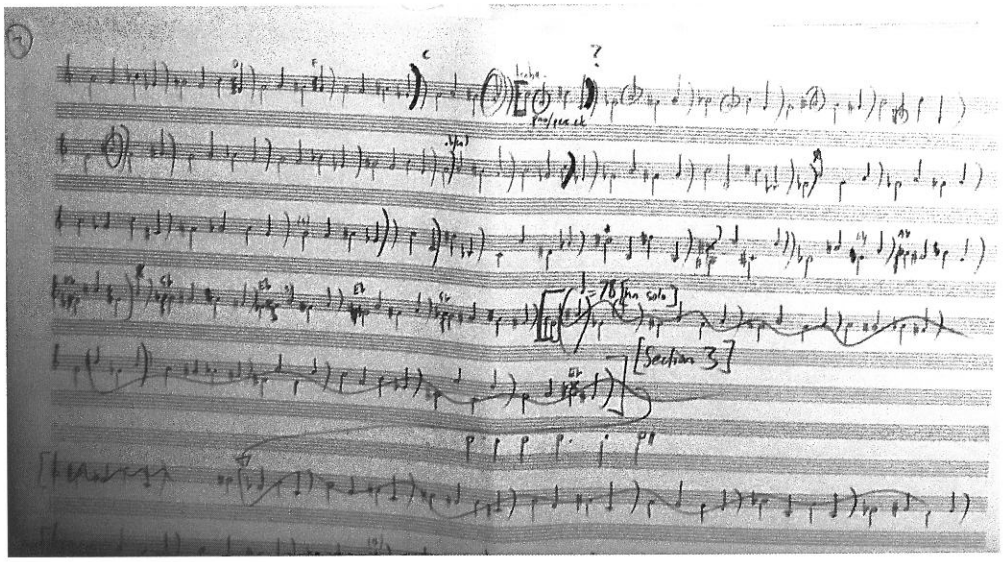

Figure 19 detail from harmonic structure sketches for *sudden light* (2005)

During these initial explorations of large-scale structure and form I simultaneously begin to experiment with material – rhythms, chords, riffs – which I then start to attach to the different sections of the structure. I think about how material might relate, or not, to other types of material, how it might grow and change or how it might simply be juxtaposed to present an interesting context. Once the structure is in place and the ideas have begun to grow I find that the piece starts to develop almost organically. The small details grow into longer passages, which fit into the structure, and then I

work out how to join them up, how to create a musical logic that comes close to my original, imaginary realisation.

During the compositional process of creating a new work I always endeavour to develop the material against the background of a harmonic plan, which, as discussed in Part I, is for me an integral part of the structural design of a new piece. In my music I seek to develop a sense of abstract narration based on the Stravinskian idea that musical material can transform and combine with other material throughout a musical discourse to create a structural logic all of its own. The idea that an interval or small pitch set can be the kernel of an entire large-scale work is extremely appealing to me and is something that I have explored in many works, particularly, as mentioned above, in *sudden light* where a version of the all-interval tetrachord provided the seed for the entire harmonic structural design stretching over nearly twenty minutes of orchestral music.

In this sense, all the musical events of a composition, the most diverse and the most consistent, can issue from the same basic source providing a sense of unity and coherence in perhaps the same way that using a family of closely related key signatures provided a coherent structure for music of the common practice era. I expect that some contemporary composers may find this view unhelpful or even anachronistic, however, for me, I find it incredibly liberating. Many of my recent compositions began with various sketches at the precompositional level developed from tiny ideas; these ideas help to bind the work together by creating structures that allow development and sustained growth across an entire form.

I have always been interested in mathematics and physics; my armchair study of these disciplines have led me to develop ideas about the relationships between complexity and simplicity which were further explored through the study of Magnus Lindberg's (b. 1958) approach to musical structure. During what has since proved to be a very influential individual lesson with Lindberg in the course of my studies at the RCM he illuminated how his own approach to form creates intricately woven tempo

structures that provide a glistening architecture for his large-scale works into which the music can be assembled. He used his own orchestral work *Cantigas* (1997-1999) as a model and explained how the work is made up of eight distinct tempo regions that, drawing upon aspects of the music of Stravinsky, are related by the following metric relations:

1 ♩. = 63 | 2 ♩ = 84 | 3 ♩ = 105 | 4&5 ♩ = 126 | 6 ♩ = 168 | 7 ♩ = 126 | 8 ♩. = 84

3:4 4:5 5:6 (6:7) 7:8 4:3 3:2

Figure 20 tempo plan for Lindberg's *Cantigas* (1997-1999)

I have further explored the potential of tempo-based structures and the intricacies of metric modulation techniques by incorporating these approaches into my own music. I find that tempo structures rooted in tangible relationships between different musical strata have added to my palette of structural techniques of juxtaposition and interpolation. In my work *fractus* (2008) for young dancers and musicians, I developed a structure in collaboration with the choreographer Martin Lawrance that was inspired by Lindberg's approach and by the subject matter of fractals, which I find at once beautifully chaotic and alarmingly straightforward.

1 ♩ = 48 | 2 ♩ = 57 | 3 ♩ = 76 | 4 ♩ = 76 | 5 ♩ = 102 | 6 ♩ = 120

5:6 6:8 = 6:8 6:7

Figure 21 tempo plan for *fractus* (2008)

Together, Martin and I explored different aspects of mathematical self-similarity by observing objects in the natural world possessing fractal properties, such as clouds, mountain ranges, lightning bolts and snowflakes. We sought to express through movement, harmony, gesture and rhythm these initial stimuli for the work in a way that could easily be realised by the young performers we were writing for. In the final version of *fractus* it

will be noted that the work begins at tempo ♩ = 57 rather than the original planned ♩ = 48. This was done for purely practical reasons to facilitate a stronger sense of regular tempo for the young performers at the beginning of the work.

The structure of *cruithne* (2007) is based upon an abstruse idea but one that I think creates an interesting structure. The piece was commissioned by the Royal Philharmonic Society for the Philharmonia Orchestra's *Music of Today* series and the brief for the commission was that the work had to draw its influence in some way from music of a folk tradition. I explored different possibilities, listening to example of folk music from various cultures but I soon realised that the only way to make the music relevant for myself was to examine the folk music of my own background. My research into Welsh folk culture took me back rather a long way in time to an early Celtic people called the Cruithne, who were descended from the Priteni, the first Celtic group to inhabit the British Isles in around 500BC. After discovering these semi-mythical people I also found that Cruithne is the name given to an asteroid currently in orbit around the Sun. Due to its unusual orbit relative to that of the Earth it appears to reverse its orbit and move backwards and forwards along a kidney bean shaped path. It is often referred to as Earth's second moon although it is not a satellite of the Earth. These two stimuli – ancient Celtic people and modern astronomy – resulted in the juxtaposition of pitch material drawn from five Welsh folk melodies with astronomical data about the asteroid Cruithne's relationship to the Earth, which created much of the structural pitch material for the piece.

This twofold stimulus is further explored through the use of the physical performing space. The ensemble is to be split into two main groups for the performance with the first group comprising the violin, clarinet and bassoon seated on the left hand side of the performance space and the second group comprising the flute, saxophone and double bass seated on the right; the percussionist should be positioned in the middle towards the back of the performance space.

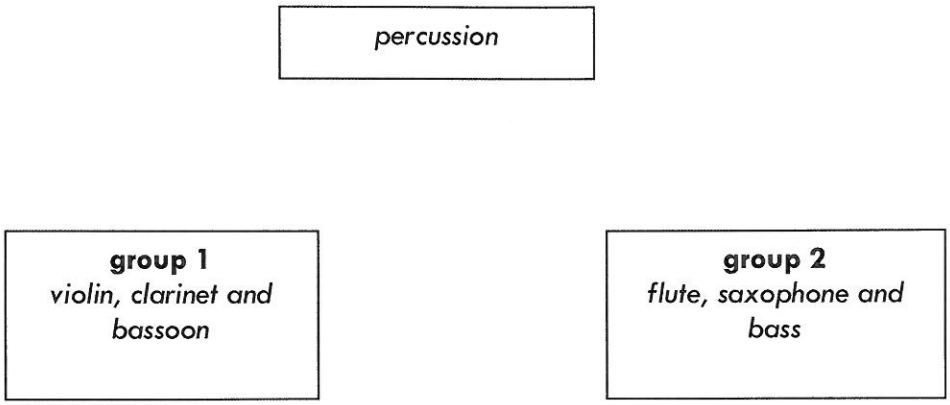

Figure 22 diagram representing the layout of the performance space for *cruithne* (2007)

The structure of *stealing poison* (2007) is drawn almost exclusively from collaboration with the choreographer Martin Lawrance who provided the initial stimulus for the work. The commission brief was to explore any aspect of allusion in Shakespearean literature that we wished to engage with. Martin's initial idea drew on the scenes that included the three witches in *Macbeth*. The process of developing structure and material was very much a two-way process – we exchanged musical and choreographic ideas in the initial stages, which was an influential experience in the creation of the raw material. Martin worked closely with the score to create a deep sense of cohesion between movement and music whilst I used elements of the choreographic structure to create musical counterparts. At times the two elements complemented each other but at others the music contrasts starkly with the movement creating a complex web of polyphony not only within the music itself but also *between* the choreography and the music on a deeper, choreomusical level.

Magic potions, spells, witchcraft and trickery became our preliminary stimuli and *stealing poison* was quickly imbued with the dark imagery associated with the witches in *Macbeth*. As the creative process progressed references

from other Shakespeare plays, including *A Midsummer Night's Dream* and *The Tempest* began to influence the material. Concepts of confusion and conjuring were combined with Shakespeare's quirky literary imagery and unusual phrasing to create spiky and edgy material for both dancers and musicians.

We also drew upon notions relating to number and problem-solving, which play an important role in *stealing poison*, particularly the numbers three and thirteen which both have many associations with the supernatural. One of Martin's initial ideas was to create a dance phrase with thirteen distinct gestural movements. I decided to mirror this idea in the opening section of the music by creating a musical phrase with thirteen sonic objects including single pitches, chords, timbral effects and tiny rhythmic cells. The phrases were then structured in such a way that each choreographic gesture or sonic object would be added one-at-a-time through a simple repeating pattern: 1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7 etc. in the following rhythmic plan:

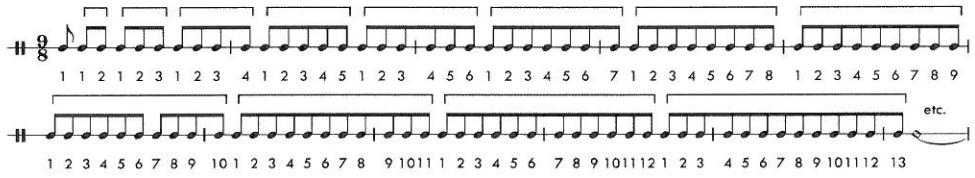

Figure 23a rhythmic representation of opening material from *stealing poison (2007)*

This initial idea became the basic plan for the opening material of *stealing poison*. However, Martin and I both interpreted it in our own ways in order to avoid any sense of trivial relationships between the two layers of sound and movement; we subverted the plan and made individual changes to suit our own creative inclinations. This resulted in a very tightly related choreomusical structure in the opening material with both movement and sound being built from the same structural principles; the dance phrase building gesture by gesture into a complex phrase of thirteen motifs and

the music building swiftly from a repeated chord to a full phrase incorporating thirteen fragments of pitch, rhythm and timbral material.

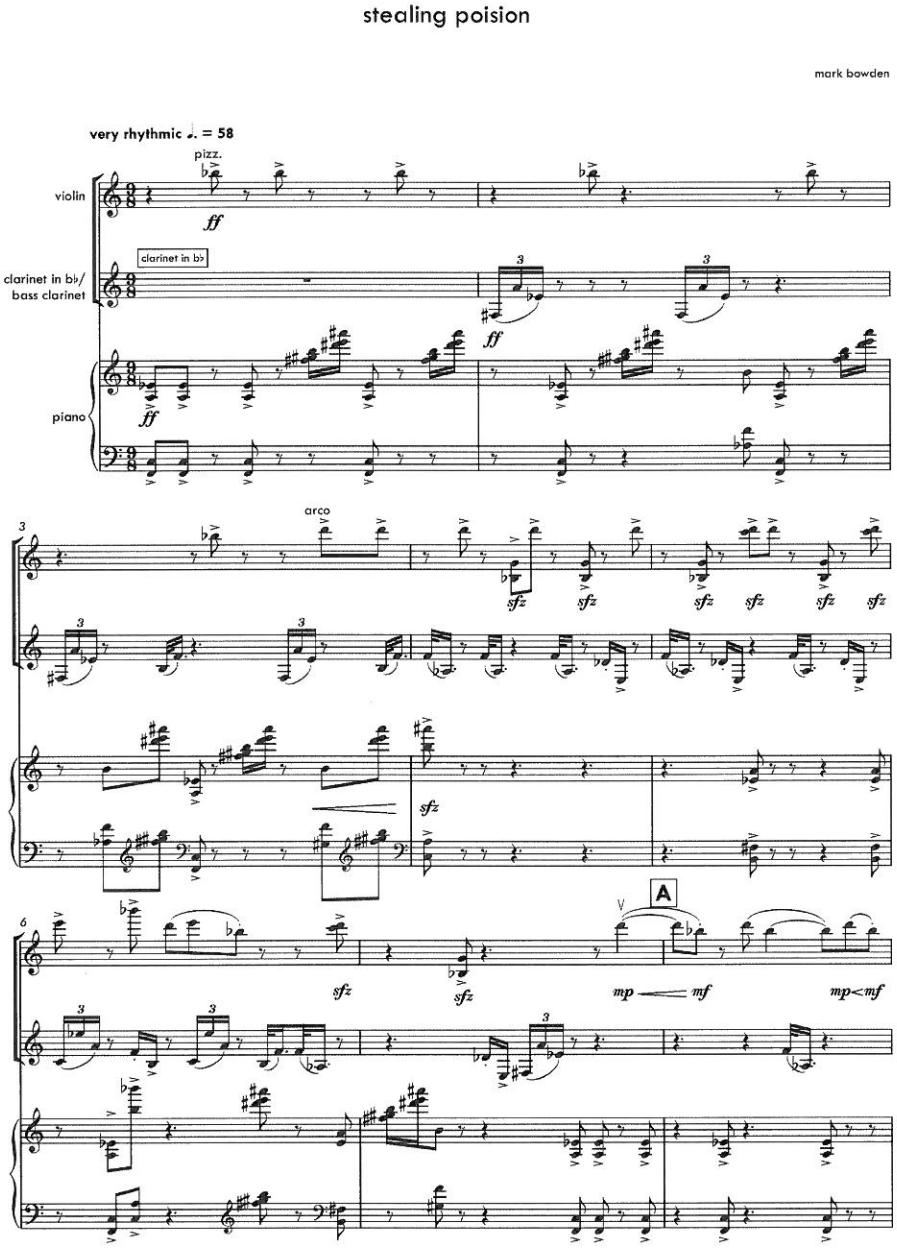

Figure 23b corresponding passage from the score of *stealing poison* (2007)

black yew, white cloud (2005) is a string quartet in three movements. The title of the quartet is taken from a line in Sylvia Plath's poem *Little Fugue* (1962) and refers to the many musical polarities at play in the composition.

The three different movements employ a variety of structural ideas and reflect the fact that the work was created from pitch material drawn from several very different sources. The opening movement for example makes use of a single melodic line, freely composed although using all twelve pitches of the chromatic scale. The line begins as a monophonic texture passed between the four different voices and decorated by timbral pizzicato effects. This line splinters and breaks apart to create more layers of texture that, once superimposed upon each other, create harmony and counterpoint as the movement develops.

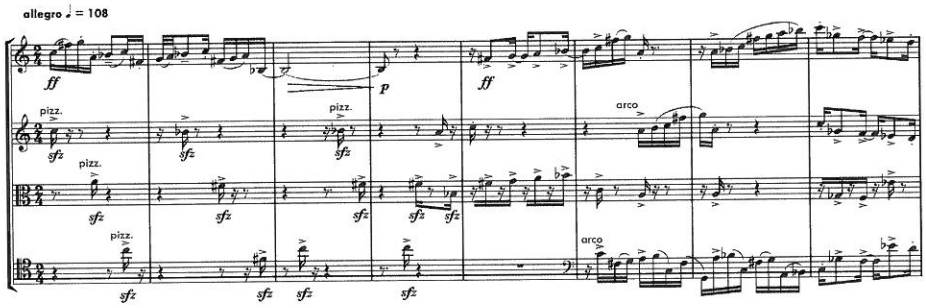

Figure 24 opening bars of *black yew, white cloud* (2005)

At bar 38 a new idea is introduced – a melody based on the various intervals of a fifth. Again this line is passed between the four instruments against a background texture of harmonic material built upon chords containing various permutations of intervals of the fifth. At bar 73 a third melodic idea is introduced. It begins in the cello and is then treated in a contrapuntal texture being imitated by the viola two beats later, then by the second violin a further two beats later and finally by the first violin one beat later. The melodic techniques in *black yew, white cloud* are very traditional in many ways, drawing upon elements of fugal contrapuntal techniques and ideas drawn from serial methods. However, there is no process-driven system in the approach to this movement, these ideas were simply starting points in order to create material that could be used and manipulated to create a satisfying whole.

The second movement, a transition between the first and second, draws its material almost exclusively from the closing bars of the first movement through a simple system of chord rotations that progress at different rhythmic rates within a timbral soundworld of very quiet and high tremolos and glissandi.

II

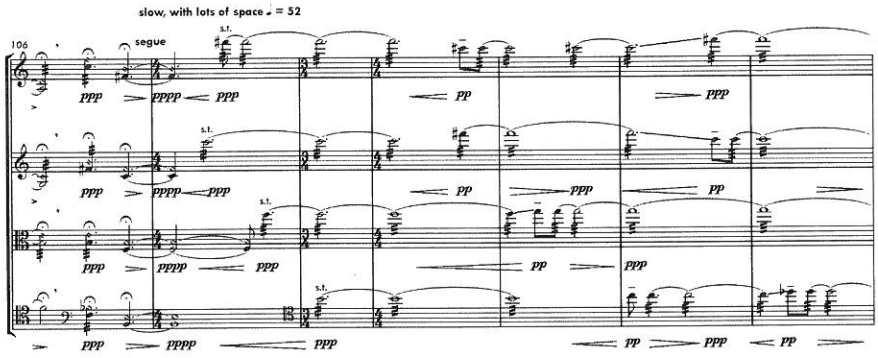

Figure 25 final two chords of movement 1 leading into the opening bars of movement 2 in *black yew, white cloud* (2005)

The third movement is constructed in a very different way from the first; it was composed before the previous two movements and originally stood as a standalone piece. It was commissioned by Handel House Museum, the brief being to create a work in response to an artefact in the museum's collection. The artefact was a fragment of an autograph score, in Mozart's hand, of a contrapuntal treatment for string quartet using a melody taken from Handel's *Keyboard Suite No. 2 HWV 427* (c. 1720). The museum asked me to complete the fragment of the quartet, in the style of Mozart arranging Handel, and then to compose a response to the music using my own musical language. The completion was done in a musicological fashion, reconstructing how I imagined Mozart may have continued with his four-part treatment of the original melody and can be heard in the museum as part of its permanent display.

My own response however, took rather a different form. The original opening melody of the Mozart/Handel score used seven notes:

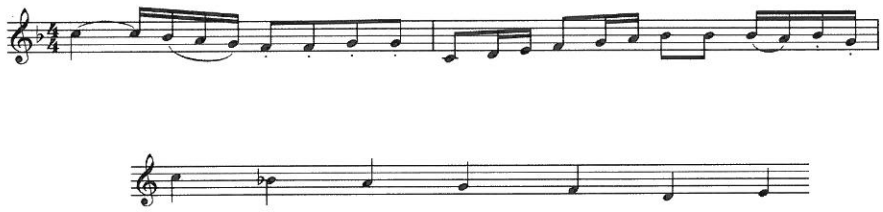

Figure 26 opening violin melody of Mozart/Handel fugue containing seven pitches

I decided to use the five 'missing' notes from the melody as the basis for my own composition:

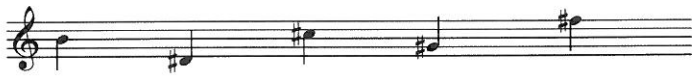

Figure 27 the five 'missing' pitches from the Mozart/Handel theme

Again I returned to the principles of Nørgård's infinity series and created my most complex infinity-series to date based upon a five-note generative cell using these five 'missing' pitches. This of course resulted in a line that made use of all twelve chromatic pitches in many different octaves but the starting point remained the five-note pitch cell and, for me, created a satisfying relationship to the original autograph score. I primarily constructed the pitch material in a horizontal, linear fashion exploring the contrapuntal elements in the Mozartian completion and combining them with the infinity series created from the five-note cell.

I used my completed Mozartian quartet as the structural model for my own work, although I augmented the durations of the score and changed the ordering of the fugal voices. This gave me a very clear, pre-determined form in which to structure the musical ideas. The final movement brings the whole work to a close in a frenzy of angular polyphony that I eventually interspersed with references to the quiet, tremolos of the central movement.

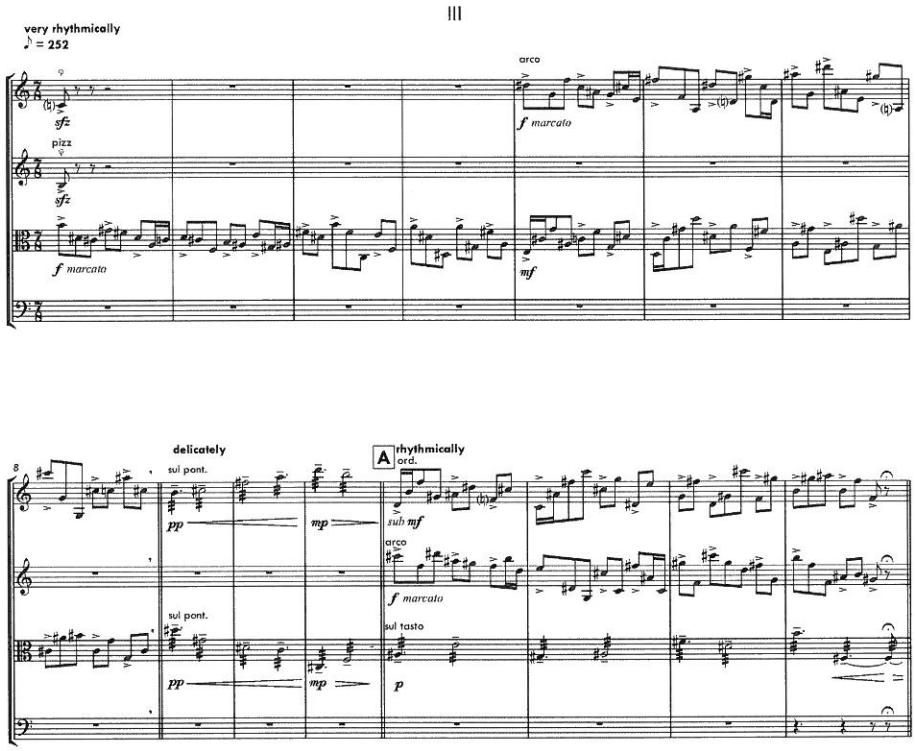

Figure 28 the opening passage of the third movement of *black yew, white cloud* (2005) employing the fugal texture of the Mozart/Handel fugue with the infinity series derived from the five-note cell

The structure of *the dawn halts* (2007) whilst being influenced by a melodic infinity series also draws heavily upon the poem *Light breaks where no sun shines* (1966) by Dylan Thomas. The structure of the music is connected to the technical structure of the poem in a formal sense but also in terms of the atmosphere of the poem and its relationship to the music. This work was a first foray into the possibilities of using literature as a starting point for a work without sung text.

The most recent work in the portfolio, *tirlun* (2008), has, perhaps, the strangest structure of all the works presented. As discussed in Part I, I created an overall plan for the work based on the layering of two distinct types of material; the first layer is a reworking of the Welsh folk material explored in *cruithne*, which in my mind represented the communities that occupied the landscapes I was imagining during the composition, whilst the second layer is another extrapolation of the infinity series, based on a

three-note cell. At first I superimposed these two distinct ideas upon each other before working through the piece, carefully changing and crafting the material so that both layers shared the same harmonic scheme. Following this I created a structural plan based on tempi relationships and then carved the music into the shapes that I wanted it to be; it was a strange process – rather like grafting one part of a plant onto another.

This technique has proved to be quite exhilarating. I have enjoyed developing a malleable approach and the sense that nothing is really ever set until the piece feels finished. It has taken me a long time to reach this point but I feel that now the next phase of my compositional work will draw much more heavily on this method of structural technique. In the same ways that I have discussed feeling a sense of liberation breaking free of processes and methods used during the construction of pitch material I feel a similar sense of freedom creating and then tearing down structural plans for the sake of that abstruse sense of musical logic that a composer feels about her or his own work. It does not matter if you have set up the most beautiful plan or logical structure – if, in the end, it does not feel right then, certainly in my music, the primacy of the ear has the final say over all structural matters.

Part 3

TIMBRE AS MUSICAL MATERIAL

Alongside my interest in harmony and formal structure a third significant preoccupation in my compositional work is the concept of timbre, and more specifically, how timbre can be used to trigger ideas for the invention of musical material. Instruments themselves, the sounds they make, the ways in which they are played and, very importantly, the particular musicians who play them, can all act as a starting point for creating raw compositional material in my working method. Despite my interests in the rarefied areas of pitch construction and esoteric structural design I am always concerned with the practical aspects of my music and how it will translate into musical performance. More often than not I prefer to compose straight into full score, rather than composing into short score and then orchestrating later. This reflects my interest in thinking of musical sound as being made up not only from pitch, dynamic and duration but also from instrumental colour. This process is not always without problems, particularly in the area of dance and opera collaboration.

The way that the commission process for my youth opera *mabinogion: the song of rhiannon* (2008) was set up required the delivery of a piano score a full five months ahead of the orchestral score; the company being used to the idea that the composer would prepare the vocal score for rehearsal purposes then orchestrate the music afterwards, which is of course a sensible arrangement in many respects. However I could not compose a seventy-five minute stretch of music, which was to be conceived as orchestral music supporting young voices, as a piano score and so found that I had to compose the full orchestral music first and then prepare the piano score afterwards. This effectively shortened the time I had to write the work by five months, which did make the composing process rather difficult and somewhat rushed, however it did give me a nice break at the end of the process! There is a serious point here – one way of approaching the

construction of musical material is to regard it as being based only on pitch, which can then be orchestrated in many different ways. However, in my compositional process the material is very much tied to the instruments that I imagine will eventually play it. In that sense I think of the actual colour or sound of the note as I compose it rather than just the abstract concepts of pitch and duration. Instruments themselves and the ways in which they can be played inspire specific material – lines, chords, texture and dynamics even. I think this way of imagining sound comes from my love of the orchestra and the many possibilities it presents.

Having said this I do feel that the actual invention of musical material can be independent of timbre on a very basic level; when invention is too restricted to timbre this can cause the form to become rigid and inflexible. For example, I may compose a line for three oboes and craft it accordingly to suit the sonorities and timbres of that particular grouping, however I will also consider how this material might return in another form; not merely in terms of transforming the timbre but how the existing material for three oboes may actually be totally reinterpreted as new material for divisi basses or two harps, for example. I enjoy allowing material to change and transform, to take on different timbral shades and I always aim for my material to be able to change texture, speed, dynamic and rhythmic figuration throughout the course of a work. Musical material may be presented as a homophonic statement during its initial hearing but then may be later fragmented into heterophony or polyphony even, it can change function from foreground to background, from principal line to secondary accompaniment – the possibilities are countless. In *mabinogion: the song of rhiannon* (2008) I composed a timbral motif designed to represent the sound of a rumble of thunder. This sound is an integral part of the story and signals key moments in the narrative; it returns throughout the opera in different guises.

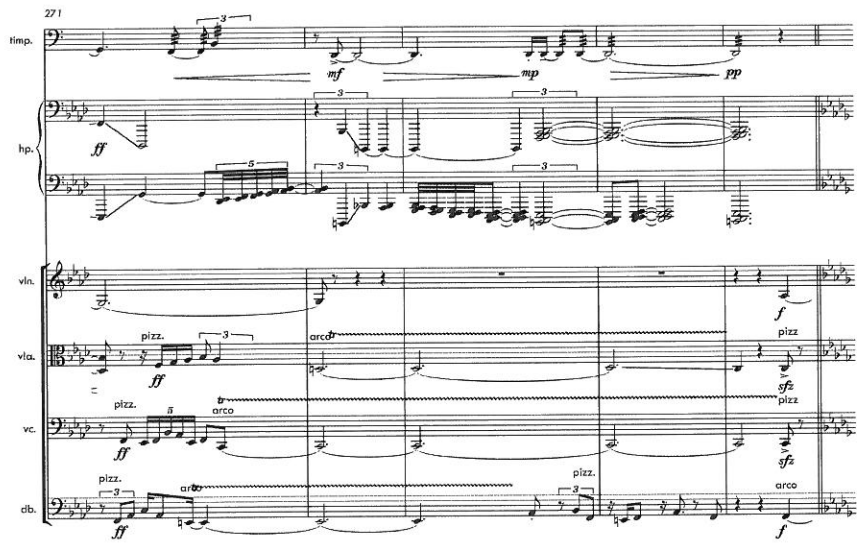

Figure 29 extract from *mabinogion: the song of rhiannon* (2008) illustrating a timbral motif that recurs throughout the opera in different guises

The timbres explored in *sudden light* (2005), *the dawn halts* (2007) and *tirlun* (2008) are very much influenced by the ideas of spectralism and by the music of Nørgård, being constructed as they are from concepts relating to the overtone series. It has struck me though that quite often music that contains material drawn heavily from the overtone series, particularly music of the spectral school, is often very slow moving, monolithic and meditative in mood. Of course the sheer beauty of experiencing the striking aural sounds of this music lends itself very much to that kind of atmosphere but in my own music I wanted to experiment with the possibility of moving away from that soundworld to create a work that was not only fast in terms of the surface detail but was also constructed upon a swift-paced harmonic foundation underpinning the music in order to create spectral harmony that might be fast, punchy and exciting.

In *cruithne* (2007) I continued exploring my interest in timbre and colour although in this work I felt much freer to take what I needed from the overtone series whilst also allowing a crunchier harmonic palette to emerge. After its premiere *cruithne* was described by one critic as seeming to be

influenced by third stream music; this surprised me at the time, as that certainly wasn't my intention, although now, as I listen back to the material, I do find that there are elements of the soundworlds of jazz, added-note harmony and tertian relationships within the general sonority of that work. How this came to be I'm not entirely sure but the music was inspired by folk melodies, which are imbedded into the texture. They themselves are derived from various modal languages and, despite being transformed beyond all recognition, may have allowed the harmonic material to become flavoured with tertian sonorities. Many aspects of *cruithne* found their way into *mabinogion: song of rhiannon* (2008) giving it a certain folk-like modality also. This happily suited the subject matter of the opera and provided a practical language for the young voices to latch onto during the learning process.

Perhaps the most striking exploration of timbre in the portfolio is my short electronic work *drift* (2007) created in collaboration with the animator Max Hattler. This piece came about as a result of a Camberwell Composers' Collective residency at the Britten-Pears school in Aldeburgh. We invited a group of filmmakers, animators and artists to take part in our residency with the intention of creating a series of short musical-visual works. The visual aspect of *drift* is based upon a very simple idea – it considers how images of the human body can be perceived as landscapes through very close-up photographic images of skin and hair. Using real photography in extreme close-up Max created a foreign yet familiar world, removed from reality, yet sometimes almost too close for comfort. The music similarly takes a close-up view of its source material – a series of clarinet breath tones, harp chords and viola harmonics, which I recorded during the residency.

The tension of the close-up visual imagery of the animation is mirrored in the music. Using *Logic* software I exploded the original recorded samples into a multitude of tiny sonic elements before reconstructing them into a tight structural design based upon golden section proportions.

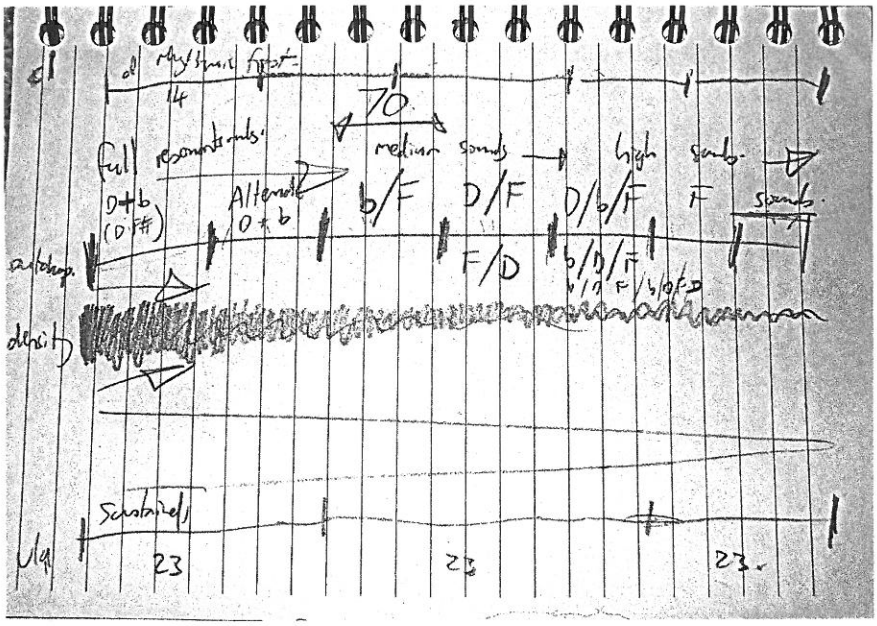

Figure 30a detail showing the structural and timbral design from initial sketches for *drift* (2007)

Visually, Max created an oblique narrative that focussed on a single hair. We see the hair growing, and then breaking free from the skin it belongs to before finally floating through the landscape to eventual freedom. This all occurs against the backdrop of the strange landscape created through close-up photography whilst the music creates its own abstract narrative. Three different layers of sound unfold concurrently, one based upon the clarinet sounds, another on the harp and the final on the viola. These three layers are constructed in different ways, with overlapping structural relationships that create an evolving wave of harp and viola sounds interspersed with breathy and granulated electronic frequencies.

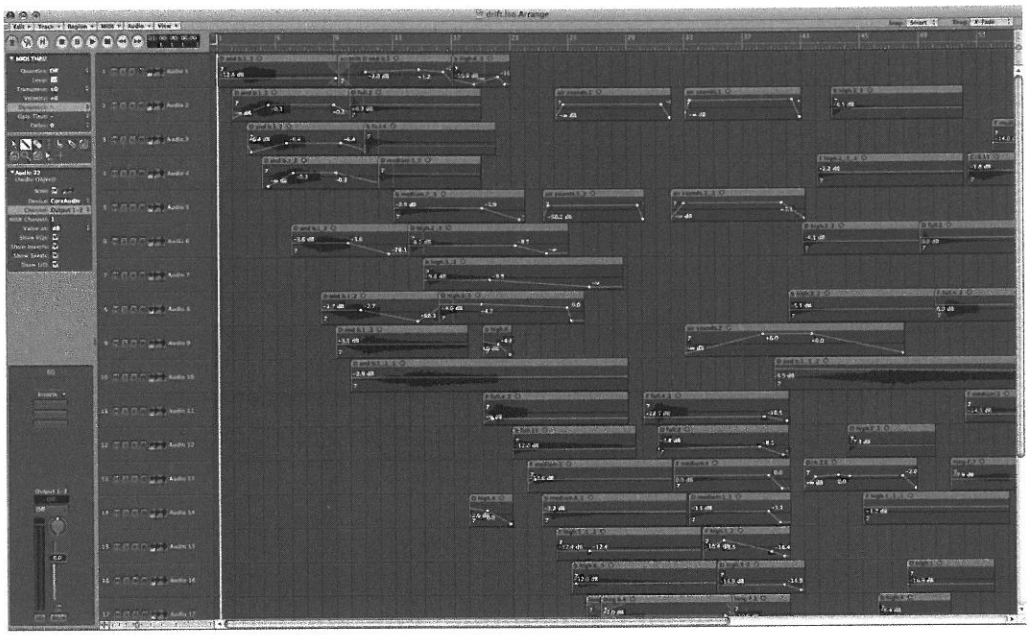

Figure 30b screen shot of the various samples used in *drift* (2007) illustrating the layering of the various recorded sounds and the electronic timbral effects used

In *stealing poison* (2007) timbre became a point of reference and creative common ground, during the collaborative process in the studio, between the choreographer, Martin Lawrance, and myself. Whilst Martin had some working knowledge of notated music we found that using adjectives to describe qualities of sound and movement were far more useful to us during the studio sessions. Martin would talk about needing heavy, dark and rich colours to act as a counterpoint against, for example, a sharp bright solo by one of the dancers; or, conversely, I might ask for a soft, lyrical flowing dance phrase to contrast with a spiky, angular section that I was working on. We found that the timbral languages of dance and music had much in common and provided a fruitful way for us to communicate our thoughts and ideas. There was much cross fertilisation of material as the musical colours were influenced by the abstract unfolding of the movement material and vice versa.

calm on the seas, and silver sleep (2005), as discussed in Part I, is a study in consonance and dissonance. The timbral quality of the three instruments provided much inspiration for the music – unusual sonorities of the various bowed and plucked strings against the multifaceted tone colours of the horn afforded boundless opportunities for colouristic considerations. As the piece progresses from consonance to dissonance and back again, the timbral qualities of the violin, horn and harp became instrumental in creating structural interest. For example in harmonic terms the opening few bars consist entirely of one note; with the absence of pitch variation all musical interest is derived from the various rhythmical and timbral patterning of colours layered upon each other.

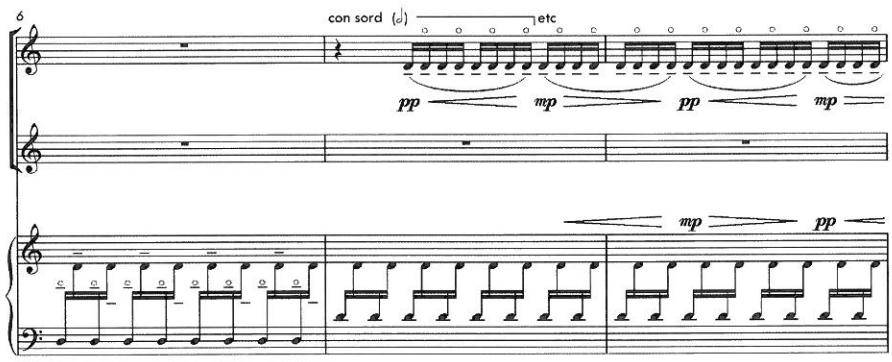

Figure 31 excerpt from *calm on the seas and silver sleep* (2005) illustrating timbral variation of a single note

In b*lack yew, white cloud* (2007) I explored the timbral possibilities of various string colours in the three movements, not in the sense of exploring various extended techniques but rather in terms of experimenting with scoring, bowing techniques, voicing of chords and counterpoint to create a tapestry of different timbral effects. In *the dawn halts* (2007) timbre is of prime importance, both in terms of material and in terms of formal structure. The piece makes much use of the infinity series discussed earlier but the harmony is derived from dissonant chords created from the upper partials of the harmonic series. These dissonant chords are illuminated against their fundamentals in the central chorale section, which has the effect of changing the colour of the chords into something quite different; the harsh intervallic

relationships seem to open up as the listener's ear experiences the dissonance as belonging to only a small part of the totality of the harmonic spectrum.

In *the dawn halts* I also explored the various timbral possibilities of a string section divided unequally. The first and second violins, violas and cellos each are split into two unequal parts comprising a solo line for one player and a tutti line for the rest of the section. This timbral experiment allowed me to explore various ideas of the solitary voice pitched against a larger mass. I experimented with slight variations of material between the two parts within each section to create a trembling heterophony.

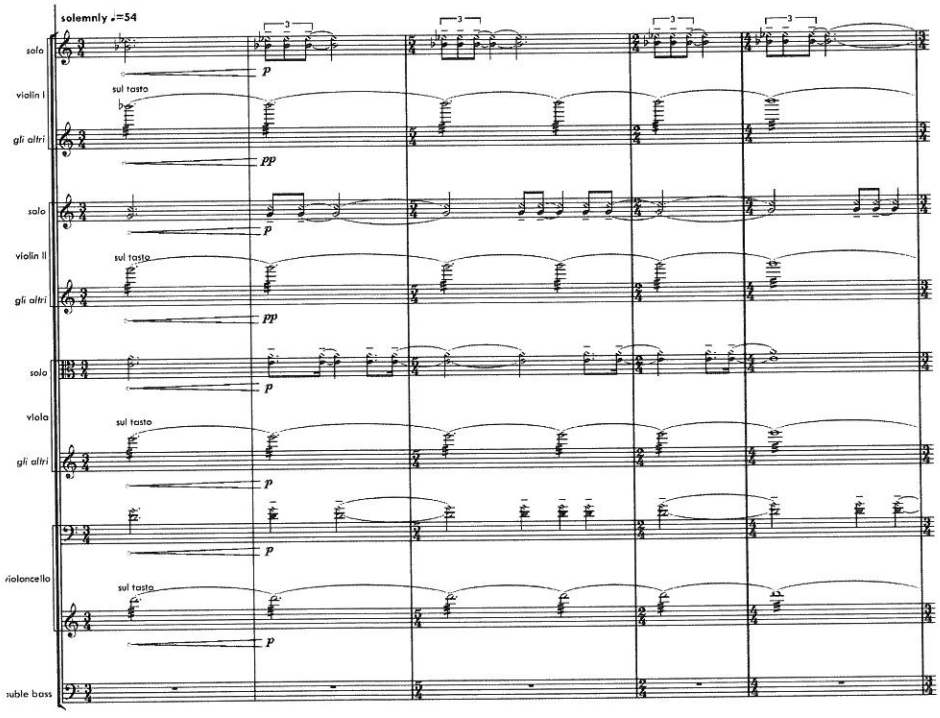

Figure 32 opening bars of *the dawn halts* (2007) demonstrating the unequal division of the string section into solo and tutti parts

In *tirlun* (2008) I explored the various sonorities of differing orchestral blocks of sound, which has the effect of giving the piece a monolithic character in many ways. This was an intentional decision drawn from the initial stimulus idea given by the commissioner – to be inspired by the

monumental landscapes, both natural and manmade, of south Wales. I made use of some unusual orchestral sonorities with the use of bamboo wind chimes for example towards the end of the work, however the main timbral interest is produced from the busy polyphonic textures representing the complex web of relationships between the landscapes of south Wales, the people that live there and the differing dialects and languages.

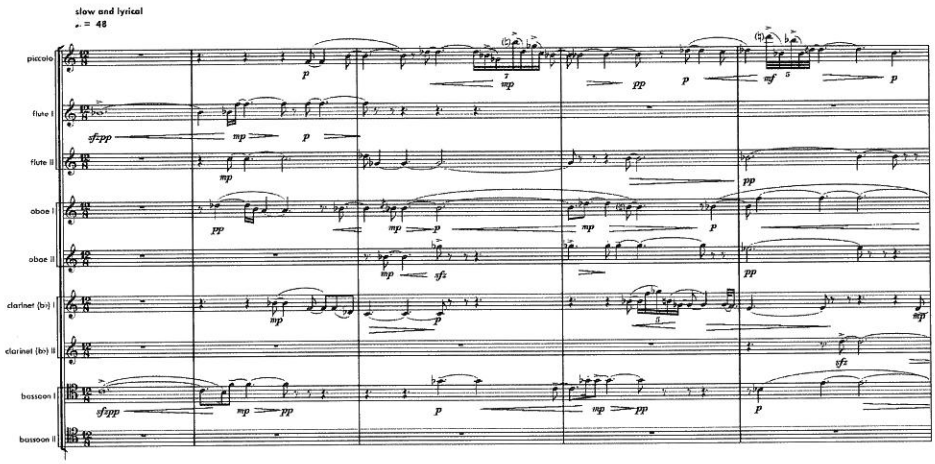

Figure 33 woodwind detail from *tirlun* (2008) illustrating busy polyphony used to create a specific timbral quality

four haiku (2005) is a setting of haiku poems from the British Library's collection on the theme of the seasons and explores various vocal timbres of a mezzo-soprano pitched against two timbrally distinct percussive voices. The first being a metal sonority, in the form of the vibraphone, which provides pitched material that is both struck and bowed, and the second being wood and skin sonorities in the form of a set of drums ranging from bass drum to high toms and a set of five temple-blocks. The very opening of the work cements the idea that the piece is very much a duo, a combining of the different timbres of voice and percussion, as the mezzo-soprano is required to bow the vibraphone. Aside from the symbolic nature of this gesture the instruction for the mezzo-soprano to begin by playing the vibraphone also serves a dual practical purpose; it enables the percussionist to begin the work playing the music written for drums and temple-blocks

whilst giving the mezzo-soprano her first note, which is performed as a soft hum throughout the first section of the opening song.

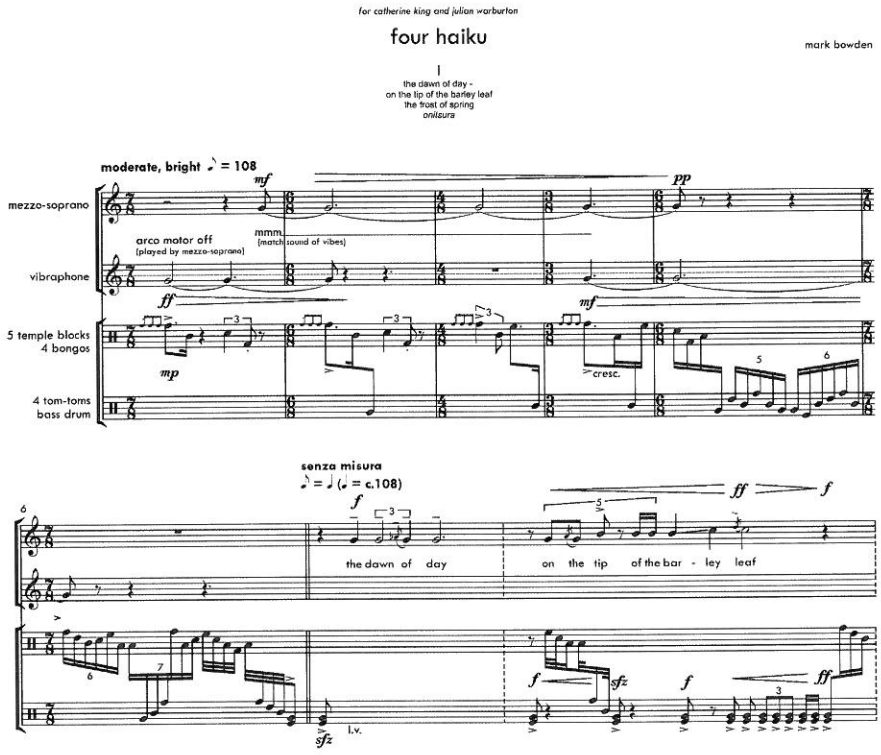

Figure 34 opening bars of *four haiku* (2005) showing the instruction for the mezzo-soprano to bow the vibraphone whilst the percussionist performs on the drums and temple-blocks

The other songs in *four haiku* explore, through the various timbres of metal, wood, skin, and voice, the imagery inherent in the simple but beautiful poems. For example, the drama and energy of the image of a person being struck by lightening in the third poem is reflected in the violent cross-rhythms of the drums' music that cuts across the rapid melismatic lines of the mezzo-soprano.

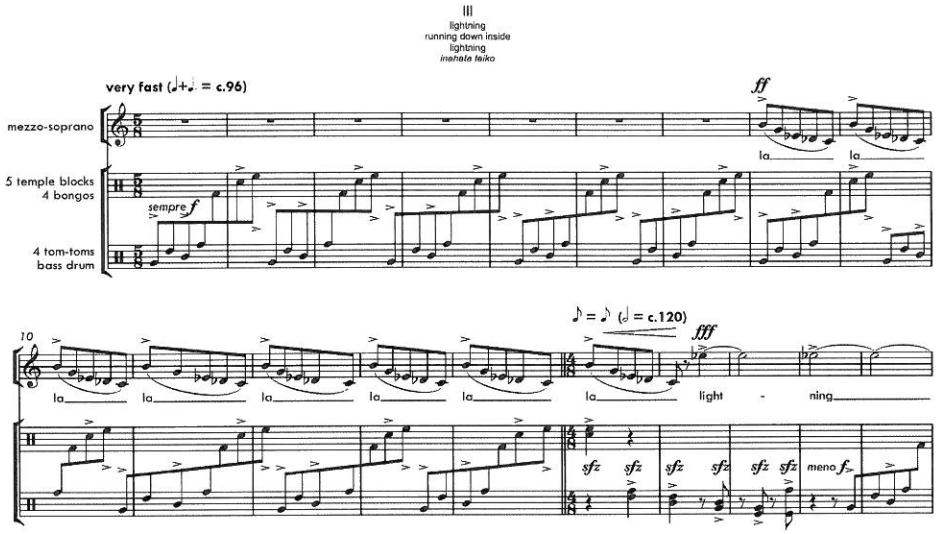

Figure 35 detail from the third song of *four haiku* (2005) showing the different timbres of the drums against the vocal sonority

In *kakamega* (2006) I further explored the idea of using timbre as a means of representative expression by attempting to depict the sounds of a rainforest through inventive application of instrumentation. Written for a very unusual combination of instruments comprising trumpet, woodblocks, viola, double bass and accordion the work is a study in realising the sounds that I experienced on a field trip to the Kakamega Rainforest Reserve in Kenya. The trumpet is often connected to melodic fragments that I heard being produced by various birds within the forest, whereas the two string instruments, alongside the woodblocks, are representative of the various insect and amphibian choruses that form an ever-present backdrop to life in the rainforest. The accordion attempts to unify these elements and provide a harmonic basis upon which the music of the other instruments is pinned; it is also used to create textural duets with the other instruments, particularly the trumpet, by sometimes sharing their material.

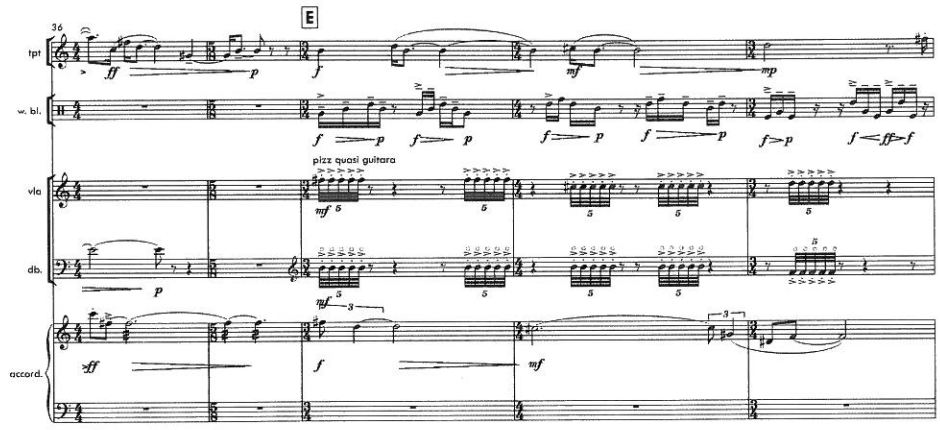

Figure 36 detail from *kakamega* (2006) showing a variety of timbral colours used to depict the sounds of a rainforest

In my composition work I feel that timbre can *inspire* the invention of material but does not necessarily *define* it. If this is the case then the actual musical identity of the material must lie in the intervallic and rhythmic content. My studies of common practice harmony, counterpoint and of post-serialist techniques have furnished me with many procedures that I have assimilated into my own 21st century language, particularly in the area of intervallic construction of material where the internal architecture of music allows for growth and development. This can lead to the invention of seemingly hugely disparate pieces of material within a single work that are actually unified by intervallic concepts as discussed in Part I. In *tirlun* (2008) these various generative processes intersect to create a more fluid, idiosyncratic approach to composition; the different strands of pitch generation drawn from the principle of the infinity series as well as pre-existing folk material combine with a complex structural plan and a free, intuitive approach to harmonic construction that incorporates the various generative principles into its structure. This is not simply a melting pot of abstract concepts but rather a method of creating coherence and unity; the surface detail of music may seem busy, chaotic, and sometimes impenetrable on first hearing but underneath, like the chemical construction of the sea, the material is held together by fundamental building blocks that allow for combination, integration and transformation within the context of

a deep, structural unity. Timbre therefore can lead to the invention of material that, unified by its intervallic construction, communicates across the form to create music that has structural integrity woven into its very texture.

Part 4

MUSIC AS A COLLABORATIVE ART FORM

The previous three parts of the commentary have dealt with the broad areas of compositional concern I have explored through my doctoral studies, namely pitch, form and timbre, using some specific references to the various works presented in the portfolio. In this final part I would like to reflect on some of the practical aspects of my experiences collaborating with other musicians and with artists from other disciplines.

During my career I have been fortunate enough to have worked with some extraordinary composers and performers, particularly through the Camberwell Composers' Collective, the group that I set up with fellow composers as a space in which to experiment with new ideas and collaborate with performers of the highest calibre. Alongside these regular and fruitful collaborations I have also been fortunate enough to be able to work with playwrights and poets, filmmakers, animators and visual artists, and, perhaps most importantly in my work, choreographers and dancers. Dance is my second passion after music; as a youngster I was closely involved in dance through community programmes in my local area. I studied contemporary and street dance primarily but also ballet and classical Indian dance. Today I continue to dance for my own enjoyment at Rambert Dance Company. This lifelong involvement has motivated me to seek out and develop processes of music and dance collaboration.

I have collaborated with choreographers several times before and during my doctoral studies. During my Master's degree my dissertation explored the subject of music and dance collaboration which resulted in a new work for Christina Gonzalez' *Physical Sound, Moving Pictures,* premièred at the Bonnie Bird Theatre at the Laban Centre in 2001. During the final year of my undergraduate degree I set up a project between musicians at Huddersfield University and dancers at the Northern School of

Contemporary Dance in Leeds. This project resulted in the *Yin Yang Dance Project* premièred at the Yorkshire Dance Centre in 2000. As a student at the RCM I performed in a joint production at the Bath Festival with the London Contemporary Dance School of Stravinsky's *Les Noces* and in January 2003 I took part in the 8th Choreographers and Composers Exchange at the South Bank Centre studying with choreographer Mark Baldwin and musician Mark Stephenson. Most recently I have worked with the Richard Alston Dance Company and Sadler's Wells to create two new works with the choreographer Martin Lawrance.

I have developed a philosophy of music and dance during my experience working in both fields; I believe that the two art forms essentially sprang from a common source, a physiological motor impulse framed within the context of ritual performance perhaps, in which neither dance nor music was the focal element but rather part of an experience to be aestheticised as a totality. Music and dance are two different sides of the same basic human desire to express creative ideas that unfold in time. These ideas may at times be narrative, particularly in the context of some dance, but are very often abstract. That abstraction may be present in the sound, the movement or, in many cases, both for they are inextricably linked. Those who have been close to dancers when they are performing will know that dance is far from a silent art form, the sounds of impact, breath and vibration are very much part of dance performance whilst in order to create a sound a musician must very often begin with a movement of the body.

stealing poison (2007) has been the most satisfying collaborative experience in my career to date. The commission from the Richard Alston Dance Company was to compose a new piece for clarinet, violin and piano in close collaboration with a choreographer using the concept of allusion in Shakespearean literature as a starting point. The process began with the creation of a partnership comprising the choreographer Martin Lawrance, a dancer and emerging choreographer from within the company, and myself. At our first meeting Martin already had developed some ideas about how we might proceed. He had been reading Shakespeare's *Macbeth* and was

particularly interested in the three witches. Martin was drawn to the dark atmosphere of these sections and the significance played by the number three in the play and in wider Elizabethan society. As we continued our discussions, aspects of *The Tempest*, particularly the character of Caliban, and *A Midsummer Night's Dream* also began to enter the creative discussions. Our shared interested in numbers and patterns resulted in the number thirteen becoming another significant source of inspiration, the implications of which were discussed in more detail in Part I.

After many long discussions and sessions spent together improvising in the studio we began to forge an abstract structure based upon these ideas. The ambience of the Shakespearean supernatural characters and the two numbers we had focused on began to suggest sound and movement material and the beginnings of a formal structure. Following this period of private discussion and creativity came an extremely public and concentrated period of work in the dance studio. Very unusually we were given the opportunity to spend three solid weeks working side-by-side every day with the dancers and musicians on hand to create all of the musical and chorographical material in the same space and at the same time. It was a very intense experience; Martin might demand a certain musical colour or rhythmic pattern or I might insist that a dance phrase was extended in order to allow me to finish a musical segment.

The work was created as a totality, with both the movement and music larger than the sum of their respective parts. The performers themselves had an important influence upon the development of the piece, as we were able to try ideas almost immediately on the dancers and the musicians who then in turn offered suggestions and ideas. This luxurious method of working made for a very fruitful and enjoyable collaboration.

Figure 37 Martin and myself working in the Richard Alston studios with a dancer

Martin and I were fortunate enough to have a second commission; this time from Sadler's Wells, which resulted in *fractus* (2008), a work created for young musicians and dancers to perform. This second collaboration took a similar path to *stealing poison* during the beginning stages but had none of the concentrated working process in the studio associated with the earlier collaboration. Due to the practical constraints of the project, once Martin and I had developed an artistic plan and a structure we worked separately creating our own material and never actually working together on the piece at the same time. Sometimes I would work with the dancers and musicians alone or they might work with Martin – and sometimes the performers would work with only the rehearsal directors that were employed to teach the movement work to the young dancers.

When the time came for all the young performers to work together we found that the two parts of the piece, sound and movement, simply fitted together as if we had been working closely together throughout the whole process. The reasons for this, I believe, lie in the fact that we were able to make such a precise and detailed structural plan at the beginning of the process; we felt comfortable working like this because of our previous extremely intense working relationship creating *stealing poison* and our knowledge of each other's working processes.

Aside from music and dance collaboration I have also engaged with multimedia work. h*oist* (2006) was one of my first experiments in this area.

hoist is a small-scale piece and in many ways a sketch for larger ideas. I composed it during the New Music New Media residency at the Britten-Pears school in 2006 where I studied with the composer Michel van der Aa. The title refers to the idea of raising something up, a signal or to bring something out of nothing. The idea behind the work is very simple; it is a straightforward duet with two closely related rhythmic patterns that are performed by a live performer and a pre-recorded film part with electronics.

Both the live part and the pre-recorded part are performed using the same sound source. I was inspired by the resonances created by the stones on the beach at Aldeburgh, which was just outside my front door during the residency, and decided to create my own instrument – a simple mounting of five different sized pebbles on two bricks with some space underneath them to create small resonating acoustic chambers, the stones are struck by two smaller stones which act as the percussionist's beaters. The first part was recorded onto film using good quality sound recording equipment. I developed this part by introducing some electronics to the raw material including simple reverb, time stretching, in order to create longer sounds, and, at the end of the piece the reversal of a time stretched pebble strike to create a more complex final gesture. The second live part is performed alongside the recorded first part also with a little reverb in order to match the sound of the recorded pebbles. A final element of the work involved collaborating with dancer/composer Elspeth Brookes to create a dance element in the piece. We filmed two simple dance gestures that had five different levels of intensity and then interpolated the images into the film. In the final performance there was also a live dance element reflecting the material used in the film.

drift (2007), as discussed in Part III, was created in collaboration with the filmmaker Max Hattler. This was another happy experience created with the luxury of time and proximity. Through my residency at the Britten-Pears School in Aldeburgh Max and I were able to work closely together for a solid period of time creating the work from scratch through to completion.

Max had the initial idea to use close-up imagery to create an otherworldly landscape, which I then reflected in the music. Film collaboration is an important aspect of my work within the Camberwell Composers' Collective and an area that I would like to further expand on in the future.

Another important area of my compositional work has been in the area of writing music for children and amateurs. In 2007 I was commissioned by the Handel House Museum and the Spitalfields Festival to write a new work for the group Contemporary Music for Amateurs, known simply as CoMA. The resulting work, *when the sun begins to fling* (2007), took as its starting point the oratorio *L'Allegro, il Penseroso ed il Moderato* (c.1740) by Handel. The oratorio is a setting of two poems by Milton. In the first poem Milton evokes the delights of the country and the excitement of the city in order to banish melancholic feelings whilst the second poem seeks to drive out 'vain, deluding joys' by welcoming quiet contemplation and the pleasures of the mind. The piece draws upon one particular section of recitative from the oratorio, *And when the Sun begins to fling*, from which all the harmonic and rhythmic material is derived.

The music is scored for a mixed ensemble that is to be divided into two groups. The first is a group of soloists and the second is a tutti group including the piano and percussion. The scoring is intentionally flexible and can be interpreted in a variety of ways. The soloist group should be divided into three parts, with each part being played by one confident player. The ensemble group is divided into four roughly equal parts. In addition there are two separate parts for piano and percussion. The percussion part should ideally be played on a mixture of metal, wood and drum instruments. The metal instruments should consist of a variety of found instruments including brake drums, anvils, metal bars, pipes, tin cans or saucepan lids, whilst the wooden instruments should consist of a variety of orchestral wooden or plastic instruments, including woodblocks, claves and temple-blocks; the drums should consist of a mixture of instruments ranging from high dry sounds to deep resonant sounds.

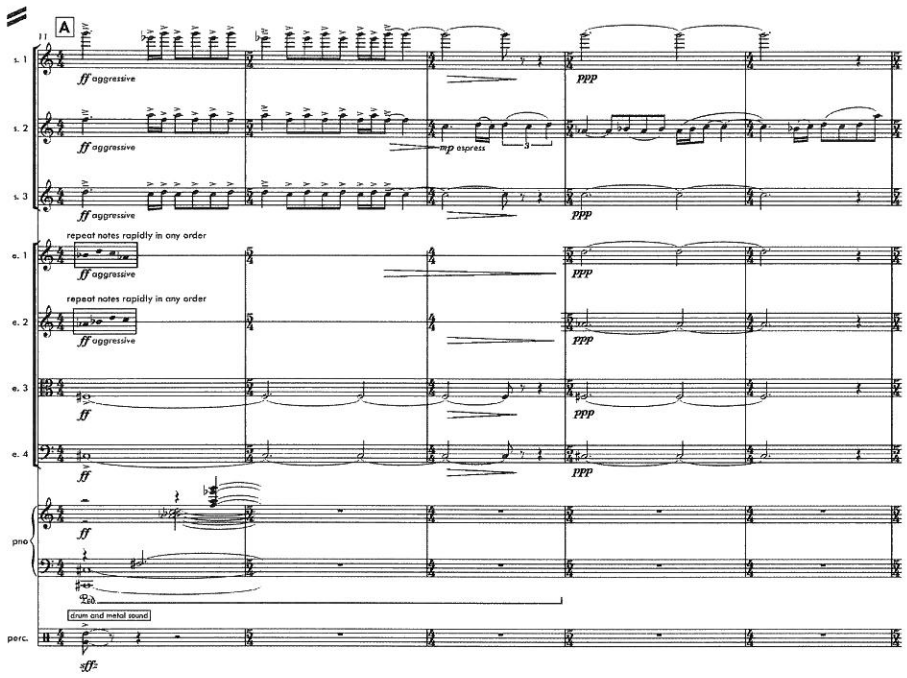

Figure 38 example of aleatoric devices employed in the score of *when the sun begins to fling* (2007)

The notation of *when the sun begins to fling* employs a mixture of standard notation and aleatoric devices. In the score are boxes containing pitches that are to be performed rapidly, in any order, for the duration of the single line stave.

When playing cross-headed notes the individual players are to improvise the pitches themselves by following the general pitch outline indicated on the three-line staves. The indeterminate pitches notated on the stave are relative to the players' own instruments with the central line indicating the central register on whichever particular instrument is playing that part. There is an instruction in the score telling the players that they should seek to use chromatic patterns and intervals rather than diatonic scales or arpeggios. Where chords are indicated in a single part the players are to choose their own pitches from the chord; the conductor should ensure that all pitches are covered within each chord and that no single pitch stands out. It is desirable to change the orchestration of repeated chords so that a variety of timbres are heard throughout these passages.

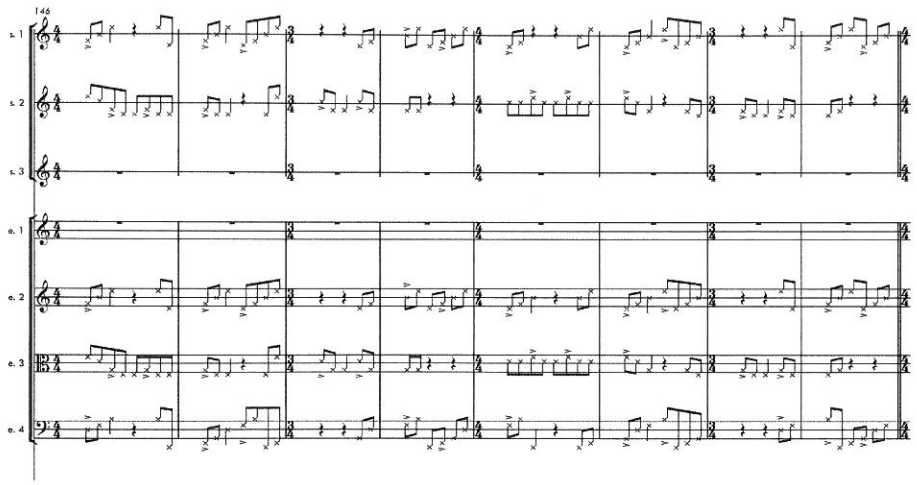

Figure 39 example of notation indicating general pitch outline to be improvised by the performers in *when the sun begins to fling* (2007)

The tempo of the crotchet remains constant throughout the piece although some of the time signatures use minim beats thus slowing the general pulse down to half the original speed. When going into and coming out of these sections the conductor may choose to use a gradual *rallentando* or *accellerando* respectively to make the transition smoother. Articulation is of great importance throughout the whole work, especially the accented notes in the final section.

The portfolio contains some works written specifically for young people including a youth opera, *mabinogion: the song of rhiannon* (2008). The opera constitutes the largest collaborative project, and indeed the largest work that I have created during my doctoral studies. It was commissioned by the W11 Opera Trust for a group of young people to perform alongside a professional team of directors, designers and musicians. The company approached me and asked to pitch some initial ideas to the board; I put together three different possible ideas for a new work and presented them to the commissioning team. Once the commissioners decided that they would like me to write a work for them I set about finding a librettist with whom to work. I had first met Helen Cooper at the Aldeburgh Opera Residency at the Britten-Pears School in 2005 and had really

enjoyed working with her so I approached Helen and asked her if she was interested – she immediately agreed.

We were asked during a radio interview about the process of creating *mabinogion: the song of rhiannon*, specifically what does it take to write an opera, and what comes first: the libretto or the music? To begin with, we both agreed, you need a good idea. Our opera might have been a story about Jimmy Hendrix, or a tale about a parrot in Richmond Park as these were amongst my initial ideas presented to the commissioning board, which also included *The Mabinogion,* a wonderful collection of mediaeval Welsh folk tales. Helen and I debated which ideas to develop and eventually decided that we could both draw our inspiration from the Welsh mythological stories as they had resonances for both us as we had both heard and experienced the tales as children. We went to see one of the illuminated mediaeval manuscripts of *The Mabinogion* to gain a feel for the text before eventually deciding to work from a recent English translation by Sioned Davies, which, unlike the earlier anglicised versions we had read, provided a purer, more pagan rendition of the original stories.[3]

The Mabinogion is not widely known outside Wales, perhaps because the text is often a bare sequence of events filled with difficult Welsh names. In times past, it had been left to the mediaeval storyteller to embellish, decorate and dramatise the events which is what we endeavoured to do with our operatic treatment. Together we spent six months selecting which elements of *The Mabinogion* to use and set them out into a dramatic structure. Then it was Helen's task to produce the libretto, thinking not only of the meaning of the words but also the rhythm of speech. Finally I spent a year composing the music trying to ensure that the vocal parts were kept within the range of the young voices that would eventually perform the work, whilst creating a vivid orchestral accompaniment.

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[3] Sioned Davies is Professor of Welsh at Cardiff University. Her virtuoso translation conveys the stirring rhythm of the original text. Davies, Sioned, *The Mabinogion* (Oxford: Oxford World's Classics, 2007)

One of the biggest challenges working on the opera was creating enough roles for some eighty performers, including ten leading parts. Another hurdle was to write a continuous piece of music lasting some seventy-five minutes built around the dramatic structure of the libretto. I found it a very different experience from writing abstract instrumental music; the idea of trying to convey a dramatic story including all of the elements that are in the subtext, but not explicitly communicated through the libretto, such as mood, emotion and character. As a starting point I based much of the musical material on Welsh folk singing traditions but did not quote directly from them. I returned to some of the material used in *cruithne* (2007) to see if I could find a language, a soundworld, for the opera to inhabit. Eventually I decided that I would have to attempt to combine aspects of my abstract, instrumental compositional principles with a modal language rooted in folk traditions that would allow young musicians, some as young as six-years-old, to learn from memory the complex lines whilst also allowing me to express myself musically in a way that felt true to my own ideas.

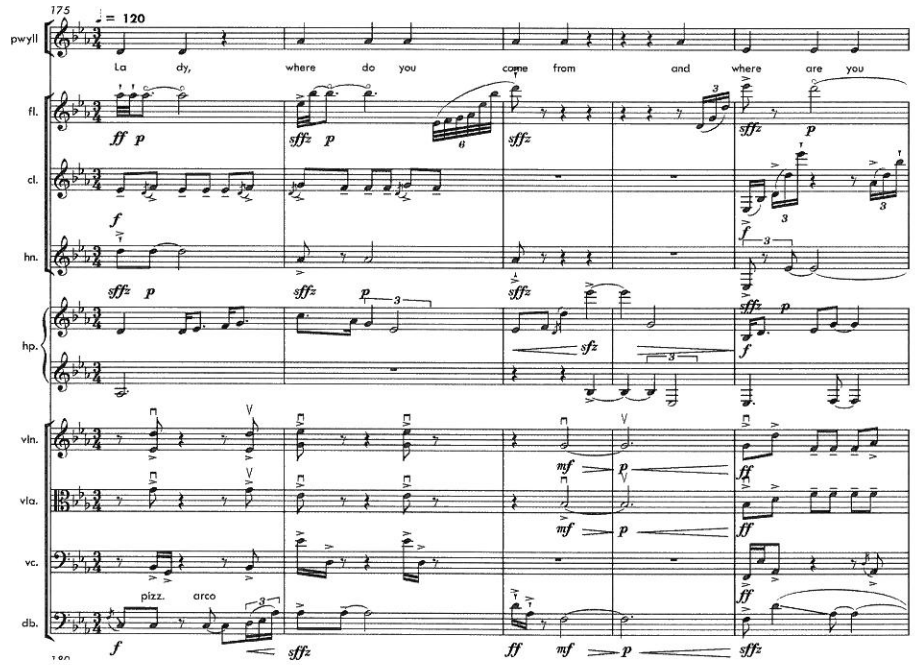

Figure 40 an example of the combination of simple, modal vocal lines with more complex harmonic material in the accompaniment in *mabinogion: the song of rhiannon* (2008)

I made use of the idea of using a structural cantus firmus, first explored in *sudden light,* to create the large scale harmonic structural plan for *mabinogion: song of rhiannon.* However, this time rather than using a pitch series built upon an abstract musical concept, such as the infinity series, I used an existing Welsh folksong to create the cantus firmus. Each note of the original melody acts as a pitch centre for each scene (or large section in the case of the longer scenes) of the opera. The idea of pitch centre is used loosely and in different ways throughout the opera. Sometimes the pitch centre acts as a drone, sometimes as the basis for an actual modal key signature or sometimes as a looser, more abstract concept of a home note to allow the singers to root themselves, particularly when singing recitative. I found when working with the company that the presence of a pitch centre helped the young singers enormously during the complex learning process of such a long vocal work.

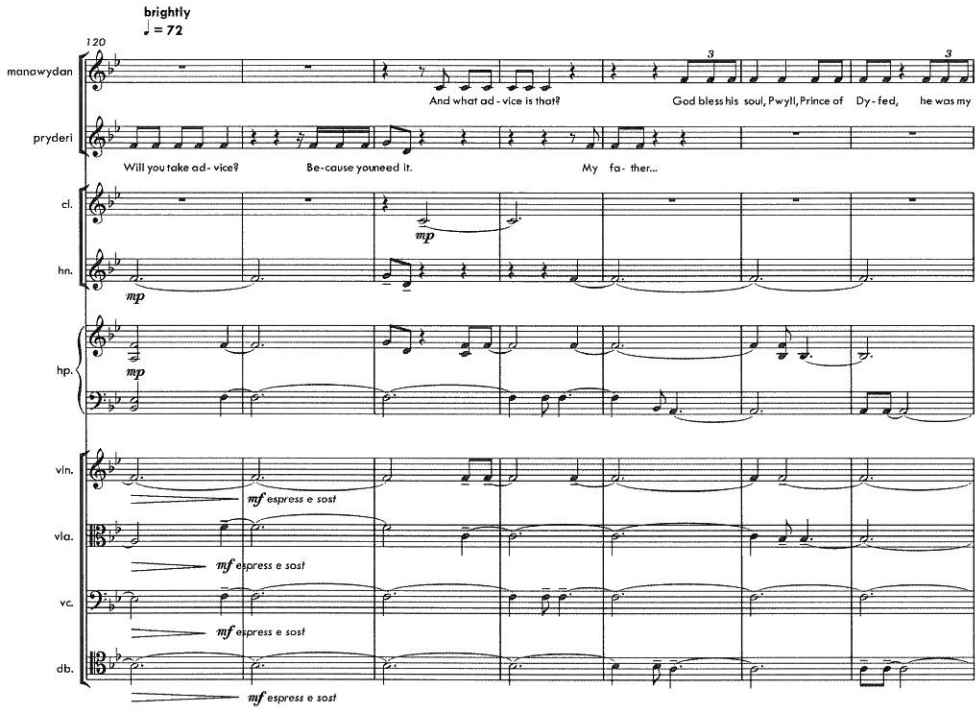

Figure 41 example of sustained pitch centres used to support young singers in recitative passage from *mabinogion: song of rhiannon* (2008)

Writing *mabinogion: the song of rhiannon* was an enormous undertaking; through working on it I have learnt a great deal about musical structure, pitch, timbre, drama and the practicalities of writing for young performers. It was a very happy collaboration, so much so that as I write Helen and I are already busy with our next musical collaboration, an oratorio to mark the 250th anniversary of the death of George Frideric Handel for the London Handel Festival; the first work that I will write after my doctoral studies.

When considering the initial impetus for a new project it appears that either one or both partners who work together may take the lead depending upon who may have already begun to conceptualise the piece in the initial stages. The various working methods discussed illustrate that there are probably as many different methods as there are collaborations. With each new artist that I work with we seem to find a new method that fits with both our individual working preferences as best as possible. The collaborations discussed in this part of the commentary illustrate that the subject of totality in artworks comprising music and other art forms is an extremely complex and intangible one. By unravelling some of the collaborative processes it can be seen that the sheer variety of generative methods is kaleidoscopic, with the different elements of collaborative works manifesting themselves in ever-changing patterns and relationships.

THE PORTFOLIO

In the late twentieth-century composers such as Nørgård, Grisey and Murail actively engineered a turning away from the rarefied serialization of musical elements and the post-modern successors of such adventures to a more sensual, physical relationship with sound. This is an area that I am greatly interested in and which affects all of my music. With each new piece I enjoy thinking about the musical material's origins in acoustical phenomena and how listeners might perceive those phenomena in time.

For many composers in the mid-to-late 20th century the dodecaphonic methods expounded through the composition instruction of the time created music where the sheer multitude of intervals and pitches made the audible unfolding of harmonic material very difficult to recognise. Much music from that time has an almost entirely horizontal construction, whilst the vertical aspect was often created without, seemingly, very much deliberate control. In many ways those techniques bear much resemblance to the compositional techniques employed in the music of the Middle Ages where the primacy of the horizontal line in sacred vocal music resulted in many striking vertical sonorities that were not always purposefully intended. Of course, the seemingly chaotic aural experience of some post-war serialism was often the desired result and many striking pieces were created during that time; however, the concepts of audibly perceived harmonic structure or harmonic rhythm dissolve without some form of hierarchies of progression.

On one level much post-war music may seem to be very busy and rapid, however speed in music does not depend upon swift gestural material on the surface but rather upon a fast pace within the very fabric of the harmonic structure, which underpins the surface activity. At the other end of the spectrum, some composers have replaced much of the harmonic complexity with harmonic stasis; this is particularly true of composers of the

spectral movement. However this music often tends to move very slowly on a harmonic level, even if the surface detail is fast, due to the complex nature of the chords involved; the surface details become arpeggiation of the background harmonic structures. I have sought through my own music to occupy the boundary to a certain extent between these two ideals – I have tried to construct harmonic structures based upon a real sense of awareness of the vertical aspect of pitch material but often within the context of a swift harmonic rhythm underpinning the music. Compositional techniques involving the transformations of pitch groups with qualities of symmetry and patterns have allowed me to open up my harmonic palette and combine process driven techniques with my love for harmony drawn from the various permutations of the overtone series. Processes of harmonic continuity and change lie at the heart of my interest in pitch material allowing me to move freely between constructivist harmonic principles and fluid, timbral explorations of instrumental colour and microtonality.

It has not been possible to provide a detailed analysis of each of the fourteen works presented in the portfolio, nor would it have been appropriate to do so in the context of this commentary; rather I have chosen to consider different aspects of some of the works in reference to the three overriding compositional concerns that I have sought to explore during my doctoral studies. Namely, approaches to the construction of pitch material, the design of structure and form and the creative role of timbre. However, in an effort to draw some of these disparate preoccupations together I will return to the question posed in the *Introduction* by my imaginary new acquaintance, 'So, what kind of music do you write?' I'm probably still not sure that I could answer that question precisely. After all, what *kind* of music does anybody write if not her or his own kind? Perhaps, after all, that question isn't one for composers to answer about their own music. However, during the course of preparing this commentary and the portfolio I have managed to coagulate my thoughts in order to answer the question *why* I write my music – a lifelong fascination with sound, patterns and numbers, concepts of stasis and change, instruments, the orchestra, singing, and also

with dance, has led me to a career where I can continually explore these preoccupations and hopefully contribute some developments in the area of contemporary classical composition.

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