Portfolio of compositions with technical commentary

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PORTFOLIO OF COMPOSITIONS WITH TECHNICAL COMMENTARY

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Abstract

The seven pieces in this portfolio explore different modes of ‘narrative' musical development and display an increasing preoccupation with finding ways of integrating quarter-tonal and equal tempered material. Over the course of my portfolio I have largely allowed the material itself to drive the overall shape of the music, which has led me away from notions of closed form and linear narrative to something closer to Adorno’s idea of *musique informelle*, whereby the material “constitute[s] itself in an objectively compelling way, in the musical substance itself and not in terms of external laws”.

'Like memory of music fled...' (2009) alludes to a musical fragment from the Paean of Athenaios found at Delphi and makes use of modal writing. In this quintet foreground and background are constantly blurred.

On parted lips (2010) treats the voice as an instrument and is an investigation into the changing nature of an individual’s role within an ensemble.

The song cycle *Seven songs* (2011) is constructed from a seemingly disparate combination of repetition by diminution and un-pitched/percussive material alongside plainchant and imitative textures. The narrative is often mechanistic and relies on offbeat accents to propel the music forwards.

In her little room (2011) – a foray into both the world of music theatre and electronics – sets out to incorporate quarter-tones alongside equal temperament material. Here an electronic programme is used both to stretch and magnify the acoustic possibilities of the violin in a dramatic setting.

The string quartet *Enveloped Time* (2011) inhabits a rarefied world of harmonics, ‘air sound', and quarter-tonal harmony almost exclusively in the high treble and built around a nucleus of central chords, that are then rendered unstable through an incessant harmonic ‘splintering’ and blurring of pitch levels.

Close in ethos to *Musique informelle*, my ensemble work *Beata Luna* (2011) is based upon two fragments of plainchant: *Beatus Hugo Piscator Dei* and *Alleluia Christus Resurgens*. The harmonic language arose as an attempt to achieve a stable synthesis between quarter-tonal and equal- tempered material whilst the development of the musical narrative is sought by predominantly vertical means.

My explorations into canonic form and the music of Aldo Clementi led me to compose *In memoriam Aldo Clementi* (2012) for 21 players. In essence a summation of my previous compositional pursuits, this piece also delves into the constructive potential of canon.

Acknowledgments

First and foremost I wish to offer my sincerest thanks to Prof. Silvina Milstein, my supervisor, for her support, belief and guidance from day one. If it hadn't been for her I would never have been a King's student: it was because Prof. Milstein believed in my work and found an extra space for me on her list of students that I was able to enroll at King's - because of this I cannot begin to express my thanks. And it was also down to Prof. Milstein that I was a recipient of both a Stanley Thomas Johnson & Radcliffe Trust Young Composers Award and a grant from the Lord and Lady Lurgan Trust. Without both these organisations' generous funding these last three years would have been very difficult and it is my hope that they continue their relationship with King's so that others may benefit too.

I also wish to extend my thanks to Rob Keeley, both for our informal conversations, the scores and Baroque Music CDs he has passed on to me as well as being approachable, affable and always willing to listen. In addition I wish to offer a note of thanks to Rob Witts, Academic Services Manager, who has calmed and rescued many a stressful situation throughout my three years: his decorum and quiet effectiveness is always greatly appreciated!

Since beginning my Ph.D I have had the great fortune to work with the Lontano Ensemble three times and the two recordings in my portfolio are testament to the quality of their playing. Through my contact with this ensemble I was introduced to Odaline de la Martinez - Chachi - and I have learned a great deal through her own, very personal sense of musicianship; her dedication is second to none and I am honoured to count her among my colleagues. Special thanks too go to the Ligeti Quartet for their dedicated and energetic performance of *Enveloped Time*.

Both my mother and father have each in their own way played a pivotal part in my musical upbringing and for their ongoing unconditional support, encouragement and empathy I can find no words sufficiently expressive: they have given me everything.

Lastly I dedicate this portfolio of compositions to my wife, Angel, as the most sincere way by which I can express my gratitude to her; from the moment we met she has always prioritised the fulfillment of my potential before her own. That I was able to push at the extremes of violin technique in *In her little room* is down to the extraordinary kinship she has with her instrument.

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Portfolio of compositions

"Like memory of music fled..." (2009) for five players (c10')

On parted lips (2010) for mezzo-soprano, bass flute and cello (c9')

Seven songs (2011) for tenor, bass clarinet, harp and viola (c17')

In her little room (2011) for solo violin, live electronics, tape and actress (c35')

Enveloped Time (2011) for string quartet (c10')

Beata Luna (2011) for ten players (c10')

In memoriam Aldo Clementi (2012) for twenty-one players (c17')

CD track listing

1. *"Like memory of music fled..."*, Lontano Ensemble, cond. by Odaline de la Martinez; King's College London; 24 May 2010

2. *Enveloped Time*, recorded by the Ligeti Quartet (Mandhira de Saram, violin 1; Patrick Dawkins, violin 2; Richard Jones, viola; Val Wellbanks, cello); King's College London; 18 February 2012

3. *Beata Luna*, Lontano Ensemble, cond. by Odaline de la Martinez; King's College London; 20 March 2012

DVD track listing

1. *In her little room*, Angela Najaryan, solo violin; Paul Evernden, live electronics and direction; Sibylla Meienberg, actress; Simon Clark, voice; First performance at the Riverside Studios, London as part of Tête à Tête: The Opera Festival 2011; 6 August 2011

Section 1

Introduction

From the relatively traditional *'Like memory of music fled...'* to the seventh and final work of the portfolio, *In memoriam Aldo Clementi*, runs the question of whether the work should rebel against any and all musical forms. What began as compositional research into the means of exploring different modes of 'narrative' musical development with significant emphasis placed on the role of the miniature (see *Seven songs* for example) has led me to subscribe, if not whole-heartedly then at least in part to Adorno's self-prescribed *musique informelle*. The portfolio as a whole attempts to address three major research concerns: a) modes of 'narrative' musical development and issues regarding form, b) the pursuit of non-linear narrative development (an issue that has been a central concern to composers for the last sixty-odd years - see for example the work of Stockhausen, Boulez, Berio, and Cage.) and c) the integration of quarter-tonal and equal-tempered material. The seven works fall into three distinct categories in relation to their collective concerns.

The first three pieces – *'Like memory of music fled...', On parted lips* and *Seven songs* – are linked by their focus on the role of the miniature and effective ways in which it can be combined to generate larger forms. The first two works, though unfolding as one continuous movement, are clearly sectional with inter-related sub-sections framing the major segments (the *Cantilenas* in *'Like memory of music fled...',* and the *Madrigales* alternating with the two part *Song* in *On parted lips*). The formal emphasis of *Seven songs* is laid squarely on the miniature: the three Paul Celan settings with shared material are offset by the four more disparate St. Gregory of Narek settings which exhibit a broad frame of reference including imitative plainchant (later seen in *Beata Luna).*

The last four works attempt to create cohesive syntheses between microtonality and equal tempered material, to varying degrees, with each following a slightly different method. Quarter-tones are used as a way of colouring the violin melody in *In her little room,* whilst creating the basis for a more variegated timbral palette provided by the electronics. Though there is a very strict formal design to the piece, and clear areas of tonal centricity (mostly provided by the use of pedals), quarter-tones are used freely, largely for their expressive potential. This approach was further elaborated on in *Enveloped Time,* which sees microtonal harmony blended with natural harmonics to form a distinctive sound world that is constantly being subjected to incremental vertical changes, and where harmonies seem to be in constant flux.

As the musical narrative in *Beata Luna* involves mainly chordal progressions, I felt the need for a more focused and considered approach to the harmony, one where there was clear correlation between equal-tempered pitches and microtones. At the heart of the piece are two fragments of plainchant, *Beatus Hugo Piscator Dei* and *Alleluia Christus Resurgens. In memoriam Aldo Clementi* integrates equal tempered and microtonal material

by way of combining them within canonic writing. Unlike in the previous work, quarter-tones are used linearly, for the most part, but within a non-linear narrative. My serendipitous encounter with the music of Aldo Clementi has proven particularly enlightening and brings me back, full circle, to the issue of how one tackles repetition, as exemplified in *Seven songs,* but with completely different outcomes. In composing *In memoriam Aldo Clementi* I have seen new possibilities for the way I approach my material: combining a 'lapidary' technique with the essential rigour of the canon in the manipulation of small motivic cells, subjecting them to constant local variation so as to give the appearance of gradual change at the large-scale level and therefore engaging with the challenge of ensuring musical cohesiveness in the absence of any (apparent) archetypal residual form.

2. 'Time as the very object of form'[1]

Over the course of this portfolio there is a clear progression away from closed form and linear narrative process - this is most keenly seen in the works in Section 3. To get to that point I felt it necessary to engage with different manifestations of 'form'. Though essentially a somewhat nebulous idea, abstract at the best of times, form is seen as an essential and instinctive aspect of music. Sometimes considered a 'psychological necessity'[2] and one that addresses fundamental issues of symmetry and balance, ideas on form divide opinion; from Gérard Grisey's quote above (see footnote 1) to Merce Cunningham's view that 'an Art process is not essentially a natural process...essentially, Man invents the process'[3], as composers today we face the same issues that have always existed: how to embody convincingly in Art (a human conceit) what is found (effortlessly) in nature. Percy A. Scholes' view, though admittedly old-fashioned has perhaps more in common with that of Grisey than one would have thought, and certainly the importance given to both the Fibonacci Sequence and the Golden Section by Béla Bartók demonstrate what could almost be called a religious fervour over 'new' forms. Essentially I believe form to be a musically composite problem: how to harness the natural passage of time within a self-imposed framework which doesn't nullify the very 'natural' aspects one sets out to articulate.

The three pieces in this section all attempt to address different practical interpretations of narrative development facilitated by a broad engagement with different forms, whether they be through-composed works or collections of miniatures. All three works show a clear formal layout with sectional divides seen in the score; two of the works include voice.

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[1] Gérard Grisey and Joshua Fineberg (2000), 'Did you say Spectral?', Contemporary Music Review, 19:3, 3.

[2] Percy A. Scholes, 'The Oxford Companion to Music', Tenth Edition (1970); Ed. John Owen-Ward, 369.

[3] Merce Cunningham, 'The Function of a Technique for Dance', in Sorell (ed.), 'The Dance has many Faces' (New York and Cleveland: World Publishing Company, 1951)

2.1 “Like memory of music fled...”

Composed for the Lontano Ensemble at the end of 2009 this quintet takes its inspiration from both ancient Greek music and Purcell whilst experimenting with texture and the distinction between foreground and background.

The overall form of the work resembles that of a Rondo, save for the substitution of the last A section with another B immediately preceding the Coda (see *fig.1* below). The two B sections are dominated by the melodic line of the Paean of Athenaios, found in Delphi and transcribed by Egert Pöhlmann (see Appendix). C, entitled *Air* in the score, is a short quotation from Purcell. The remaining A sections as well as the Coda do not consciously allude to any other music and use both the Phrygian mode on G as well as other pitches found in the original Paean (see *fig.1.1*). The letters in brackets in *fig.1* denote the rehearsal marks in the score where the new section begins.

Fig.1 - Formal schematic

	[N in the score]	[S]	[Y]	[CC]	[KK]
A	**B**	**A**	**C**	**B**	**Coda**
	Cantilena 1		*Air*	*Cantilena 2*	

I conferred the role of axis on the central pitch: d’’, and its importance can be seen as early as the second bar (see *fig.1.2)*, where the vibraphone has a quick reiterated gesture which becomes a *tremolando*. Here the d’’ forms a major 2nd with the flute before being left at the bottom of the tessitura. The next time we hear the d’’ sustained is in bar 7 on the viola and the major 2nd has become a perfect 4th (with the violin - see *fig.1.3*). At bar 13 the axis d’’ is played by the alto flute in a gesture derived from the vibraphone (bar 2) and here the interval with the pitch above (played on flute) initially expands from a perfect 4th before coming to rest on a major 3rd above d’’ (see *fig.1.4*). By composing in a waxing and waning of intervallic relationships around the central axis (d’’) I can reveal the extent of the combined pitch collection (and therefore the harmonic language of the piece as a whole) little by little. Manipulating the material in this way also helps to lend the music the feeling that it is ‘anchored’ somewhere; I am then free to shift that ‘anchor’ but only once it has been established. By also associating a particular gesture with a specific pitch one can play with the ear’s expectations whilst offering a sense of the ‘known’ in a new work; at letter D in the score the reiteration of the axis pitch on the instrument which first sounded it and with the identical gesture undeniably offers the music a sense of return (see *fig.1.5*). Such devices also lead to cyclical narrative development which underline an essentially linear process at the heart of the work.

Fig.1.1 - Pitch collection including Phrygian Mode

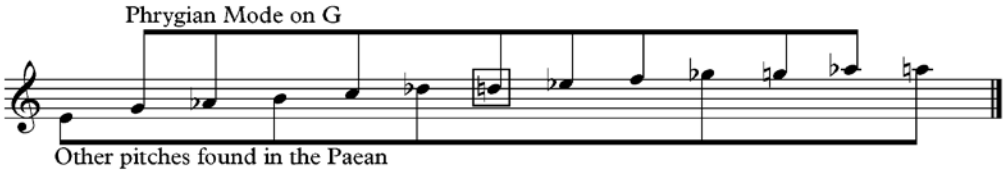


Fig.1.2 - "Like memory of music fled...": bb1-3

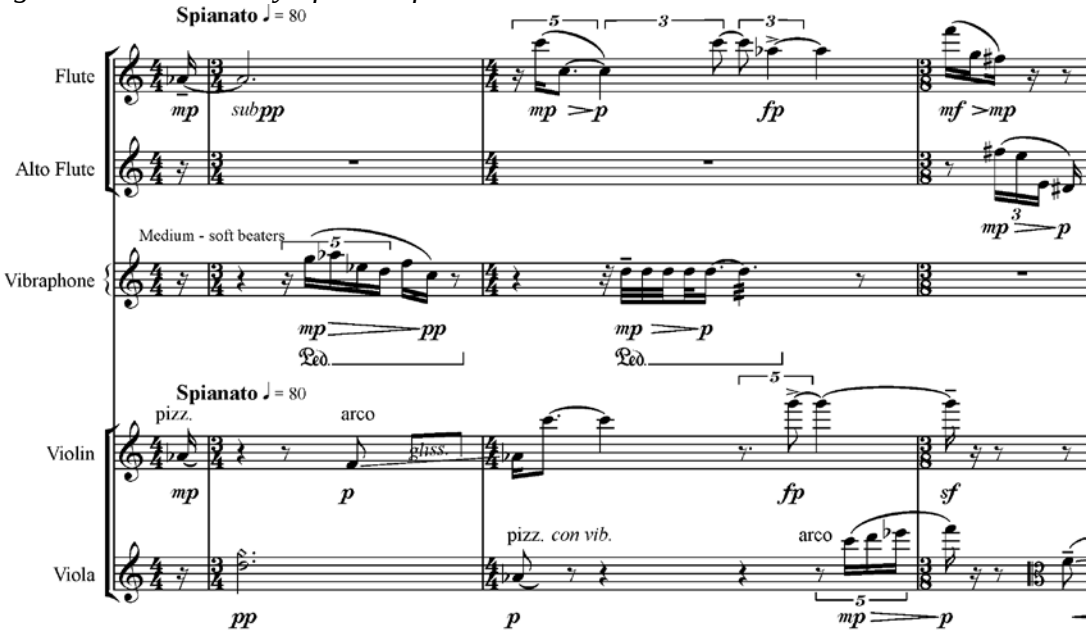


Fig.1.3 - "Like memory of music fled...": bb6-7

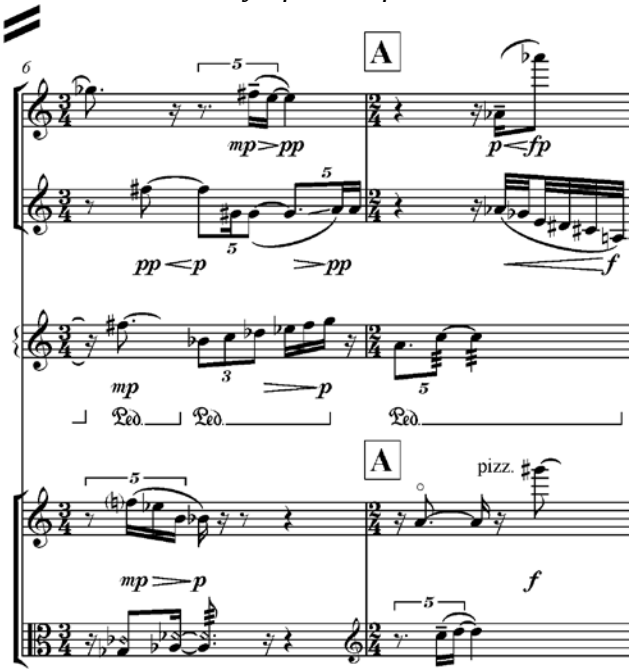


Fig.1.4 - "Like memory of music fled...": bb11-13

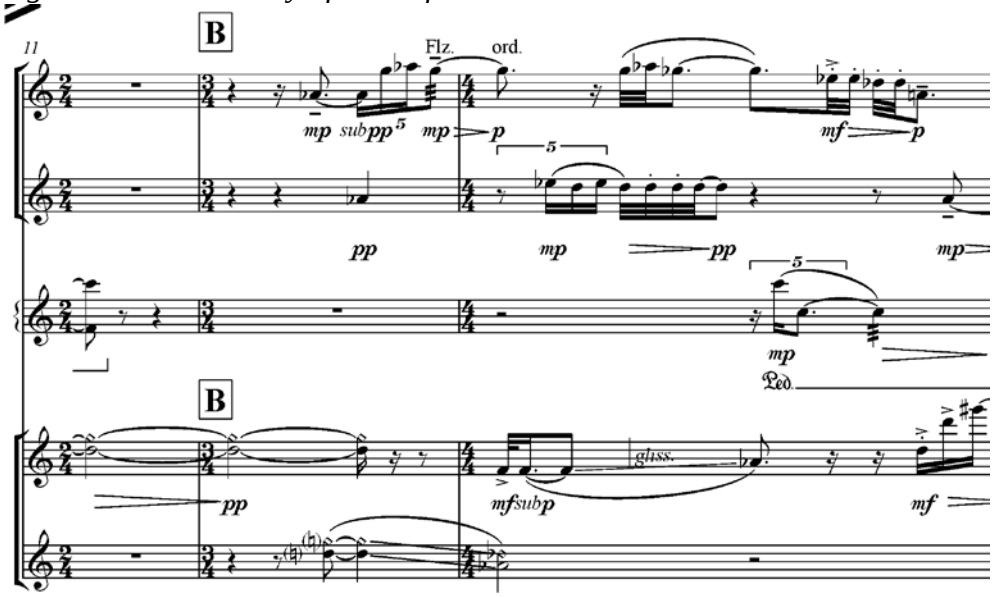
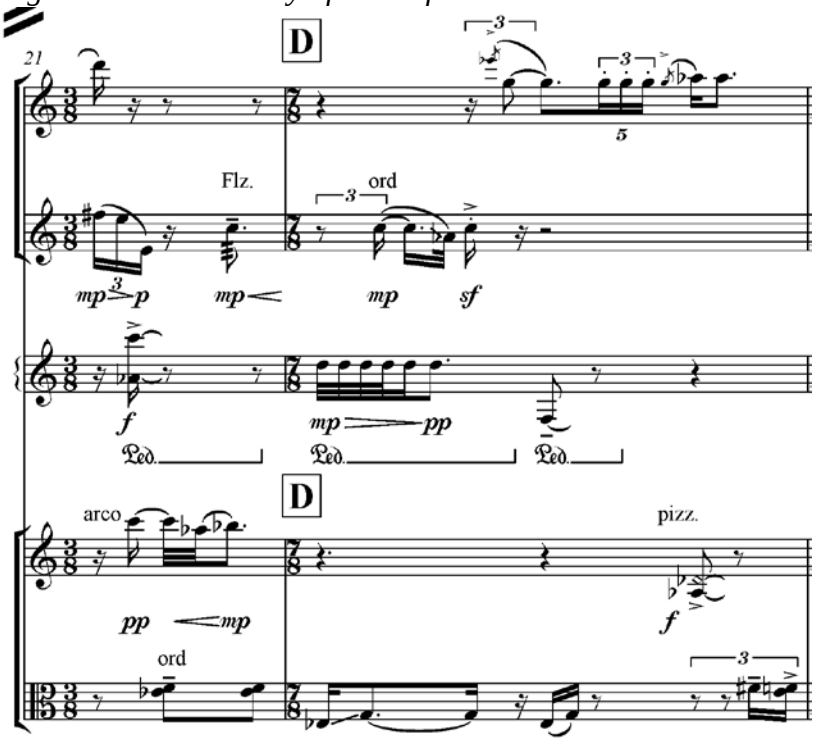
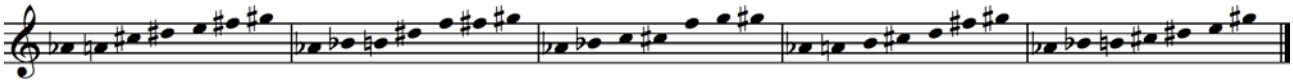


Fig.1.5 - "Like memory of music fled...": bb21-22



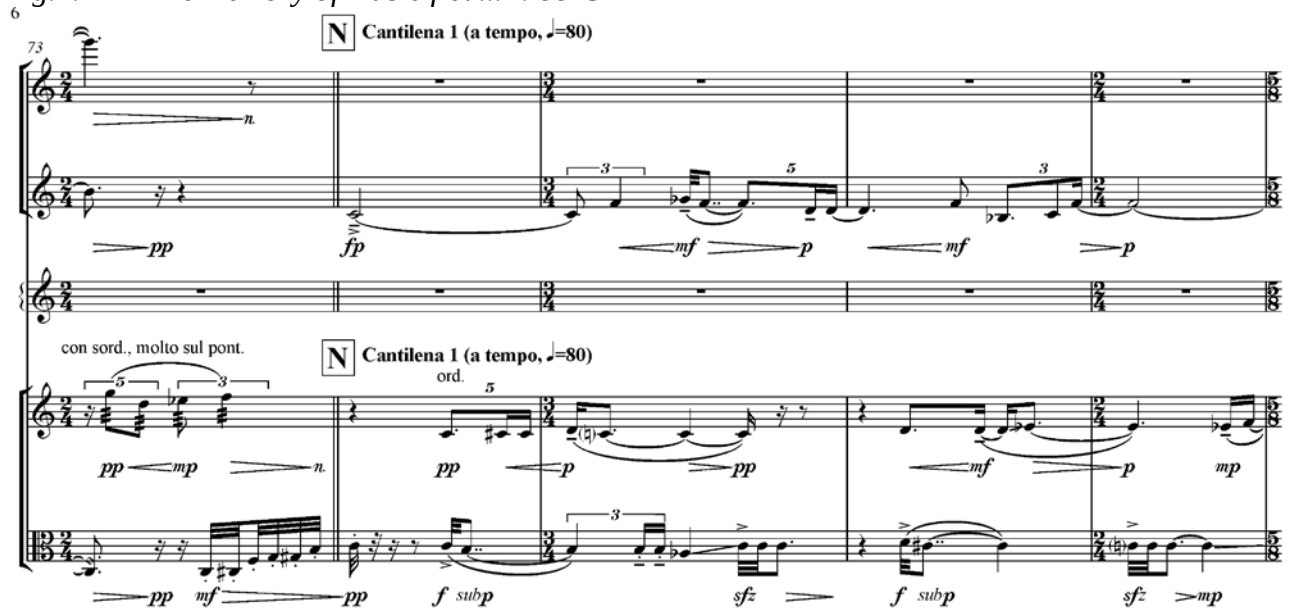
The harmonic field was enriched by exploring various rotational permutations relating to a selection of seven pitches from the collection seen in *fig.1.1* (see *fig.1.6* below).

Fig.1.6 - pitch rotations



The two *Cantilenas* form the backbone of the piece; ignoring the durations inferred by the Paean I used the pitches only to create a free heterophony between the alto flute, violin and viola (in the first *Cantilena* - see *fig.1.9*; the whole ensemble is involved in the second). Where there is a question mark in the original transcription as to the exact pitch I substituted by ear, rather than by process. The whole of the Paean is contained within the Appendix to this Thesis.

Fig.1.7 - "Like memory of music fled...": bb73-77



The quotation from an Air by Purcell[4] functions as a sort of *objet trouvé.* As Proust's madeleine, it has the potential of transporting the listener back to the 17th-century. It thus provides a bridge in time between the Paean and my music as alluded in the title: ***"Like memory of music fled..."*** . Its inclusion brings an element of surprise that is heightened by virtue of there being no allusions to the Purcell material before its appearance. Yet the fact that the Paean and the Purcell share some elements suggested that the latter's interpolation whilst striking, would not result in an irreparable hiatus in the narrative for the quotation delineates a transitory moment in the score rather than an irreversible departure.

Although the Paean starts in the Phrygian mode on G[5], it partially overlaps with the F minor of the Air. The prevalence of the Db particularly on the second page reinforces this assertion, though its alternation with D natural makes it less clear (the D appears in the vibraphone gesture that precedes the quotation along with four elements from the Phrygian mode on G). The harmonic cross-referencing continues in the vibraphone part at AA where

[4] I am unable to remember the exact source of this Air.
[5] Shown in the Appendix

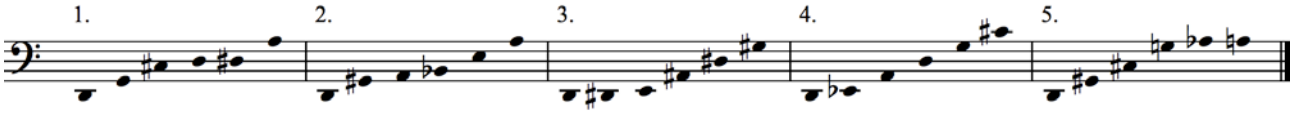
Eb and Db are taken from the melodic minor (descending) before we first hear F and C (tonic/dominant), followed by tonic /mediant (Ab). By articulating an F minor triad, albeit in splintered fashion, my intention was to 'smooth' the transition into the Air, though not fully prepare it as I didn't want to spoil the surprise.

2.2 On parted lips

Written for mezzo-soprano, bass flute and cello and set to a text by my mother, Jeanna L'Esty, *On parted lips* represents a very conscious attempt at trying to integrate the voice within an instrumental ensemble. Divided into eight short sections, the two main compositional strands are found in the four *Madrigales* and two-part *Song*; in the former the voice sings *bocca chiusa* and is treated instrumentally, the trio forming a three-part vocal texture (I ask both the flautist and cellist to hum whilst playing) as it was my intention to create the idea of three independent voices. In the *Song*, which is divided into two parts, the voice comes to the fore, and it is here where I set the text. Though there is a clear vocal line, and the instruments are accompanying, I wanted to avoid any sense of virtuosity or bravura in the voice, as I felt that such affects would not be in keeping with the intimate mood of the text. There are two short instrumental sections, the first marked *Preludio* in the score, the second occurring at bar 74 and unmarked though clearly sharing much the same material and gestural language as the opening. *Madrigale 3*, though instrumental, does ask for the flautist to hum, so maintaining the vocal nature of the work.

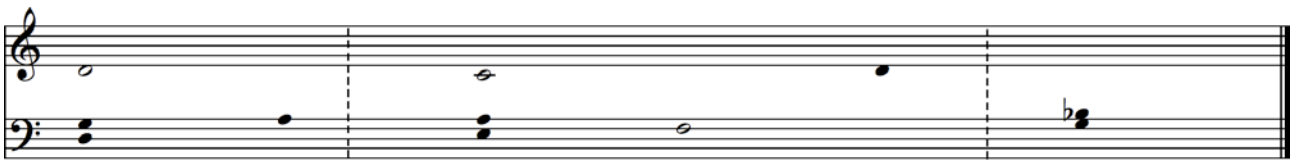
The opening chordal gesture shared by bass flute and cello provides much of the material for these two instruments. Through simple pitch rotation I was able to extrapolate another four six-note cells (see *fig.2*).

Fig.2 - Pitch rotations of opening gesture



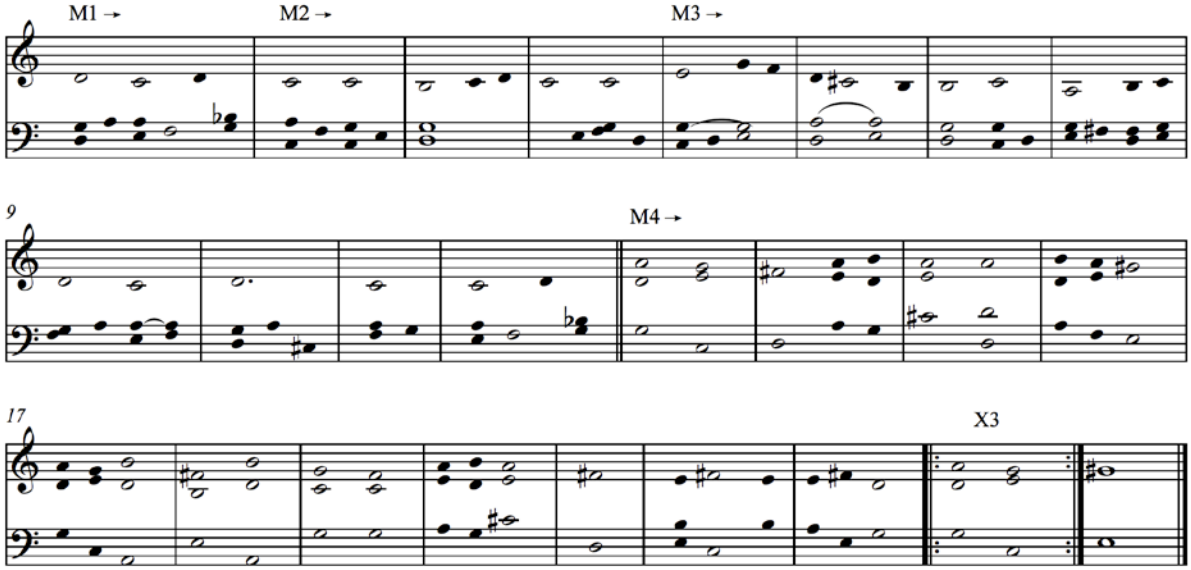
Whilst the material in the *Preludio* and *Song* is chromatic in nature I sought a complete contrast with all four *Madrigales*. Unlike in *"Like memory of music fled..."* where I made use of a quotation far removed from the harmonic world of the ancient Greek modes, in this work I wanted to achieve the same dramatic effect but without 'falling back' on extant material. The music of the *Madrigales* is more modal, redolent of Renaissance polyphony in character with several simple triadic progressions and cadences *(*see *fig.2.1).*

Fig.2.1 - Harmonic schematic of bb13-15



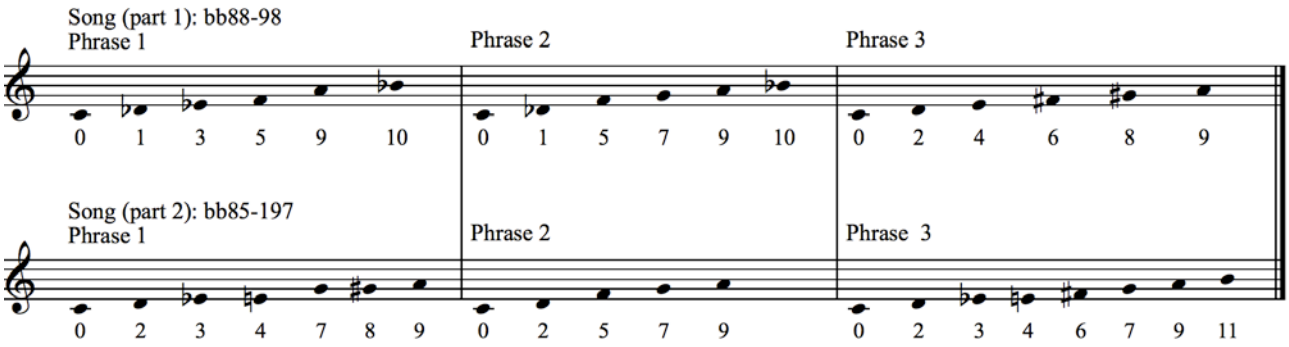
Madrigale 1 contains the most active harmonic movement; *Madrigale 2* follows the same procession through a chorale but starts at a later point and has an added major 3rd above the top voice; *Madrigale 3* again follows the same route through the harmony but, like its predecessor, starts later and includes an added perfect 4th above the top voice. In contrast to the other three, *Madrigale 4* is completely different, following a separate chorale. A schematic charting the development of the *Madrigale* material can be seen in *fig.2.2* below:

Fig.2.2 - Harmonic schematic of the Madrigale sections



The *Song*'s harmony is less straightforward but can be better understood by a) taking into consideration pitches which are absent from the *Madrigales* and b) relating both parts of the *Song* to each other. With this in mind a cursory look at the first three phrases of both parts (bb88-98 and bb185-197 inc.) shows clear parallels between parts with the second section of the *Song* containing several of the pitches contained in the former but with additions; in this way the two sections are clearly related harmonically (as well as with regards the gestural language and linear development) though at the same time retain their own individuality. Reducing the first three phrases of each part down to their constituent (ordered) pitch-class sets is an expedient way of mapping the similarities and differences:

Fig.2.3 - Pitch class sets for Song (part 1&2; phrases 1-3)



From the above pictogram one can see that whilst part 1 is heavily characterised by the interval of a semitone, which is to be found in the *Preludio* material (see vocal line in bar 89), part 2, though containing minor 2nds (voice and flute in bb187-190), has a predominance of 3rds (mostly minor) as well as larger intervals suggesting a more expressive and commanding vocal line. This fact is supported by the gradually augmenting *tessitura* of the mezzo line: in both parts phrase 1 is contained within a major 3rd; phrase 2 in part 1 stretches to an augmented 4th whilst in part 2 the *tessitura* is a minor 7th; phrase 3 in part 1 retracts to a major 3rd again whilst in part 2, though also contracting, the resultant interval is a perfect 5th. Thus, in the space of these three small phrases one can see the demonstration of the whole approach to the work.

Another fact which suggests that the first three phrases of the second part of the *Song* are more expressive in nature is their length. Much has been made of their harmony and *tessitura* but if one examines their length in beats it is clear that the phrase lengths in part 1 are shorter and almost equal whereas in part 2, not only are they longer but there is much more discrepancy between them (see *fig.2.4* below) suggesting that the music has become more expansive as well as harmonically richer (eight pitches used in phrase 3, part 2 compared to six pitches in the corresponding phrase in part 1).

Fig.2.4 - Formal proportions: top value=phrase no., bottom value=no. of beats

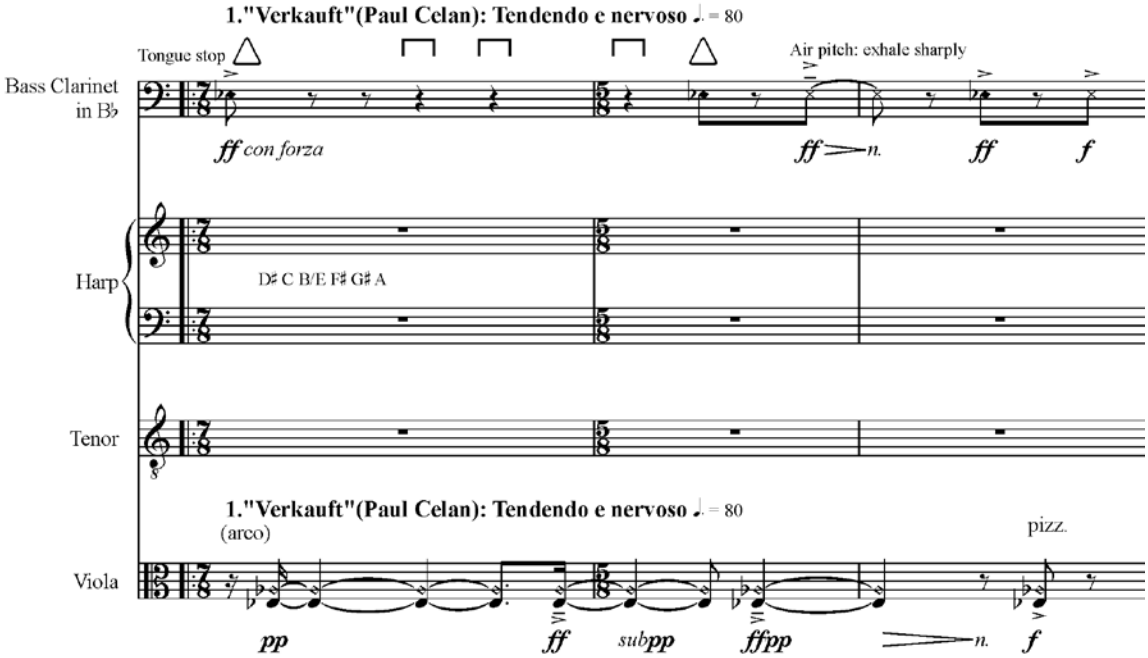
	Part 1			**Part 2**	
1	2	3	1	2	3
9	8	9	14.5	10	13

A similar use of pitch classes can be seen in later pieces such as *Enveloped Time* and *In memoriam Aldo Clementi* though in the latter work it is for the purpose of multiplication. Nevertheless, in taking this approach to analysing *On parted lips* I hope to highlight some of the continuities in my compositional approach throughout this portfolio.

2.3 Seven songs

Drawing on texts from both the Romanian-German poet Paul Celan and the tenth century Armenian monk St. Grigor Narekatsi, *Seven songs* is one of the longer works in my portfolio. Scored for tenor, bass clarinet, harp and viola, a significant inspiration for my work was *Schnee* by Hans Abrahamsen; the incessant repetition of minutely contrasting bar lengths, evoking something of a hypnotic effect on the listener led me to instigate my own compositional 'experiments' away from traditional linear narrative development of the type seen in the previous two works in this section. Ignoring the possibilities provided by vertical development through a work (*Beata Luna*), perhaps *Seven songs* embodies more the cyclical potential for development seen in *In memoriam Aldo Clementi*; the idea of repetition is key to understanding the compositional process. Like the afore mentioned *Schnee* I seek to impose contrast on similar material through varying its length, so for example the first two bars of the first song, *Verkauft* contain exactly the same material which is subjected to a process of diminution whereby bar one is 7/8, bar 2 - 5/8 (see *fig.3*).

Fig.3 - Seven songs: bb1-3



This diminution through repetition (and augmentation seen later in the work) applies to only the three Celan settings; the four St. Grigor Narekatsi movements are formally freer and are generally built around one, often very simple, idea/gesture (see song 2, Prayer 27(A) where the powerful verticals seen in the ensemble are offset by the proto-linear, plainchant melody given to the tenor).

The three Celan settings are the longest movements though all seven are essentially miniatures, none lasting more than five minutes. After *"Like memory of music fled..."* and

On parted lips, both of which were through-composed (though sectional) I wished to tackle a more extended form but one that was constructed from smaller constituent parts. A sense of continuity is indirectly achieved through the extensive use of a limited range of pitch transformational processes, namely pitch rotation and 'modulation'.

In choosing texts, I was inspired by their parallels in subject despite them having been written ten centuries apart. I hoped to reflect these deep connections by deploying similar compositional techniques (in particular harmonic) throughout the settings.

By juxtaposing the four 'prayers' with three aphoristic secular works my intention was to generate dramatic tension. Whilst the three Celan poems are neither religious in tone nor contain any specific liturgical allusions, in the context of his oeuvre I read the nihilistic/existential imagery present here as well as his predilection for the deconstruction of words into mere sound as obliquely dealing with religious subject matter. In seeking a *tabula rasa* after the horrors of the Second World War and implicitly rejecting monotheism, Celan's work manifests, albeit by means of negation, the familiar framework and terminology of religious discourse. By his 'de-consecrating' the literary images we are left with bare words partly stripped of their original meaning. It was this sparseness, the 'space' within the text that initially attracted me.

Whilst the Narekatsi works are more wordy, their clarity of expression and intense focus along with their sometimes austere tone mirrors the asceticism of the Celan. Thus I intuited that their combination could yield 'two sides of the same coin': both poets pointing to human fragility. Accordingly a slightly different approach to word setting was taken with each poet. While the 'prayers' are set melodically in a mode akin to plainchant, Celan's poems are, to greater or lesser degrees, deconstructed according to a scheme of repetitions. Already fragmentary in nature, individual words are often split into their constituent syllables and occasionally there is even the suggestion of new words being formed (see bb157 - 158).

In keeping with the ecstatic nature of the 'prayers', I avoided excessive tension in the music and used quasi-tonal references in all four settings. When there is tension, this is eventually resolved (see bb104 - 105). This principle can also be seen in the Celan settings, most prominently at the very end (bb355 - 356). For most of the cycle the music follows the words closely as my principal aim was for the text to shine through.

The texts are arranged as follows:

1. Celan
2. St. Grigor Narekatsi
3. St. Grigor Narekatsi
4. Celan
5. St. Grigor Narekatsi
6. St. Grigor Narekatsi
7. Celan

1. Verkauft

This song is built around four four-note chords (see *fig.3.1),* which are then subjected to a series of intervallic rotations (see *fig.3.2)* that serve two purposes: the first is to increase the number of different constituent pitches, the second is to extend the intervallic range, in this instance upwards. From each of the three rotations I selected two.

Fig.3.1 - Thematic chords

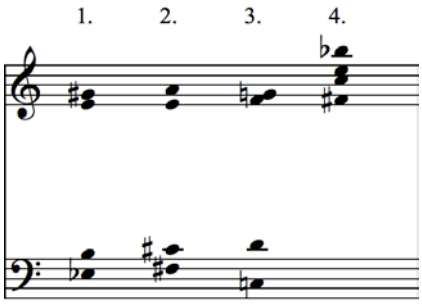
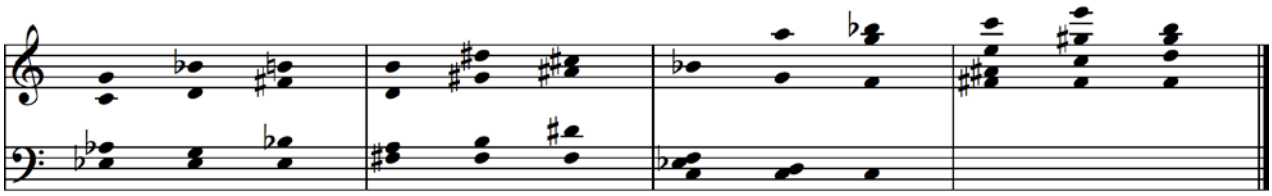


Fig.3.2 - Intervallic Rotations



Both the initial four chords and each of their two transpositions were then used as broken chords (see *fig.3.3,* as seen in the first seven bars - chord 1 - before the music moves to chord 2 at bar 12 - note the f’’’ sharp in the harp and the c’’’’ sharp in the viola - see *fig.3.4*) and continues in a similar fashion throughout the movement. Each chord is anchored by a pedal tone. Generally the bass clarinet and viola take it in turns to articulate the pedal at any given time through a variety of textural changes achieved through altering the playing techniques of both instruments (tongue stop and air pitch on the clarinet, pizz., artificial harmonic, arco, sul pont and ord. on the viola). In all three Celan settings the voice is very much an equal member of the ensemble and often the three accompanying instruments are more active and assume the focus. This is reversed in the four St. Grigor Narekatsi songs mirroring the more aphoristic nature of the Celan poems as opposed to the more expansive ‘prayers’.

Fig.3.3 - ‘broken-form’ pitch modulations

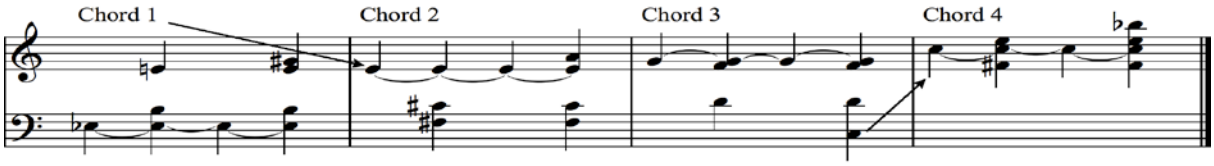
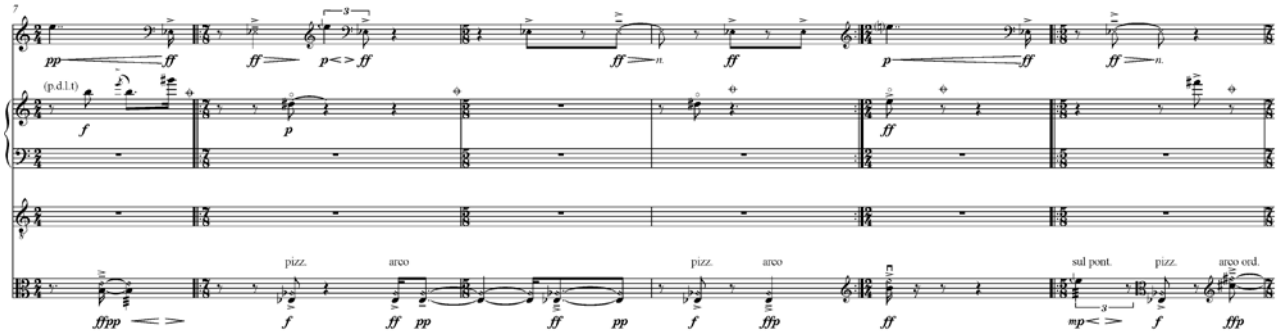


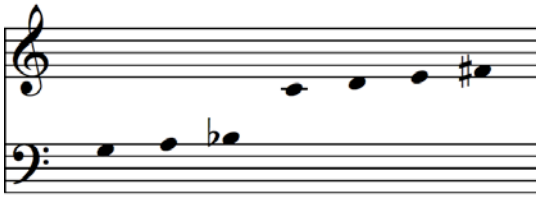
Fig.3.4 - Seven songs: bb7-12



2. Prayer 27(A)

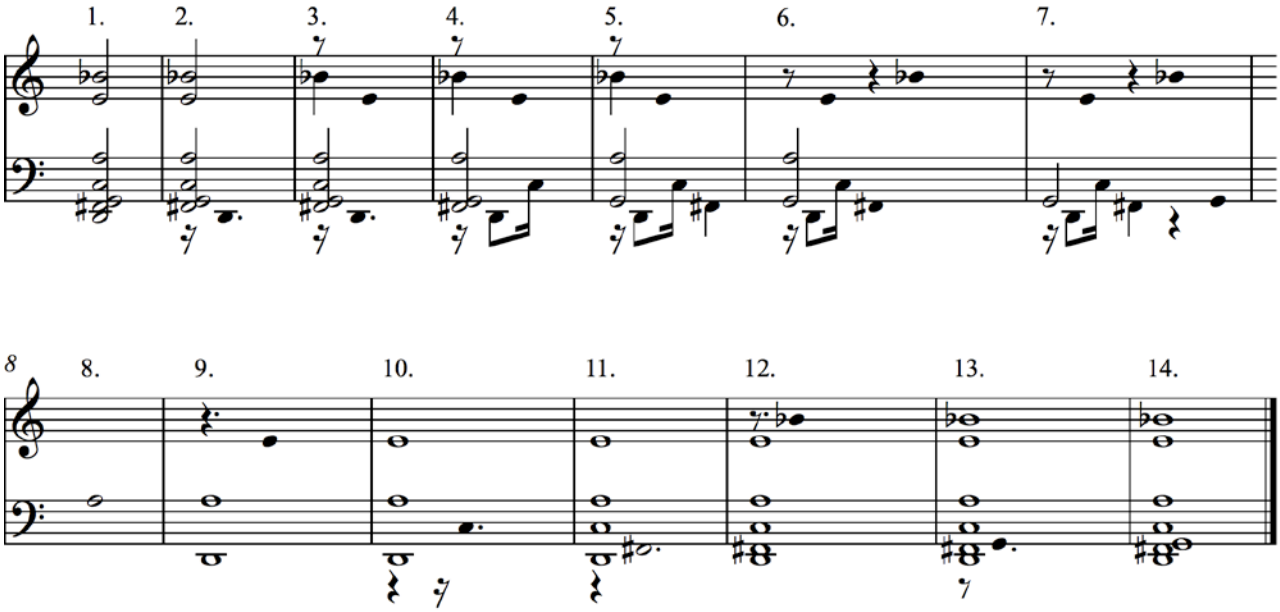
The seven notes of the *Duduk*, an ancient Armenian folk instrument that survives today in different forms across the Caucasus provided both the harmonic and melodic material for this song. I 'rounded up' any quarter-tones to the nearest equal-tempered pitches (see *fig.3.5*). For instance, the chord that punctuates the tenor's line throughout is an aggregate of these seven notes arranged to be especially sonorous (see bar 78). The simple formal idea of the movement results from the inherent dichotomy between the fundamentally vertical nature of the material played by the ensemble in stark contrast to the linear, quasi-plainchant melody given to the tenor.

Fig 3.5 - Duduk pitches



The seven-note chordal aggregate is heard twelve times in total but each time it is 'splintered' so that the vertical breaks up, the constituent pitches becoming further away from each other until its seventh appearance (bb98-99) sees the chord so spread that it becomes part of the linear narrative. After this point the chord is gradually reassembled following the original additive rhythmic process in reverse (see *fig.3.6).* The tenor line prefigures the other three St. Grigor Narekatsi settings in its obvious indebtedness to plainchant, its emphasis on the text over vocal affect and its general declamation. Melodically it borrows its content from the notes of the *Duduk*, gradually incorporating all seven by bar 102, only four bars before the end of the movement.

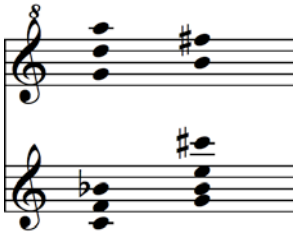
Fig.3.6 - Rhythmic dissemination of chord



1. Prayer 27(D)

In contrast to the preceding song, movement 3 sees a much more involved and melodically diverse tenor line, which weaves itself around two alternating chords (see *fig.3.7*); these in turn are linked by *bisbigliando* flourishes initially on viola before being joined by the bass clarinet *ostinati* sequences made out of three notes (see viola at bar 106).

Fig.3.7 - Thematic chords



The triplet semiquaver *ostinato* first heard on the viola is made up of seven notes almost reflecting the intervallic formation of the *Duduk* scale from the previous movement (see *fig.3.8*). The tenor's line is drawn from the same pool of pitches although organised to form a notional scale (see *fig.3.9*).

Fig.3.8 - Pitch schematics: Viola vs. Duduk

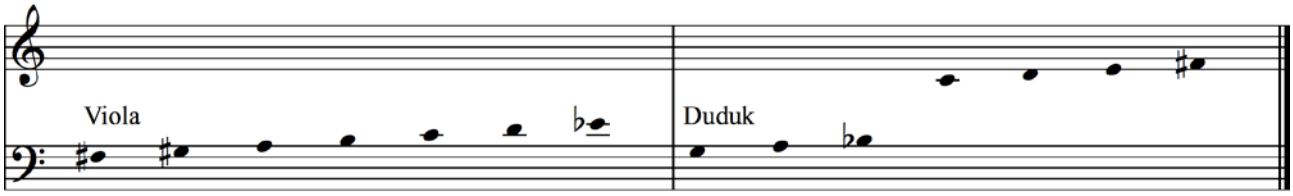
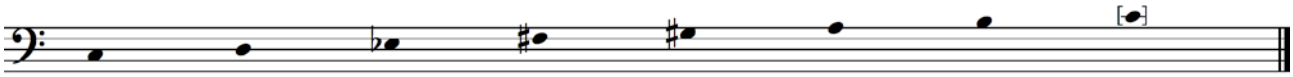


Fig.3.9 - Tenor "scale"

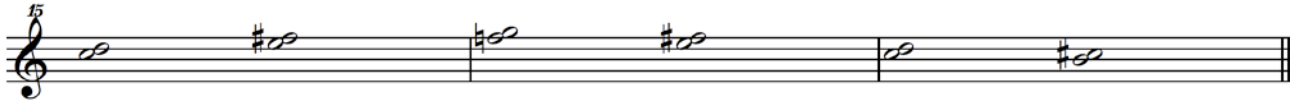


When the bass clarinet joins the viola with its simple *ostinato* the texture becomes heterophonic, the three exceptions being bb135, 138 and 143 where the bass clarinet line, using a similar process ascends or falls in a dying flourish.

4. Die Beschenkten

Repetition at the bar line is again used in both diminution and augmentation. The cyclical narrative that this effect generates is offset by the use of a chordal *ritornello* on harp, viola and voice which consists of a series of major 2nds which rise a 4th before falling back again but this time finishing a semitone lower than where they started (see *fig.3.10*). Towards the end of the movement (bar 196 onwards) these dyads expand into more chromatic chords; here too the rhythm which, in the preceding bars had become more complex unravels slightly and with the bass clarinet anchoring the ensemble (playing on the beat again, see bar 194 onwards) with an identical gesture to the one it had at the beginning of the movement, only lower, the music settles into a more regular rhythmic pattern.

Fig.3.10 - Harp ritornello



The pitch material for the movement comes from a simple expanding four-chord sequence (see *fig.3.11*) evident in the opening bars (bb146-150). This, in turn, leads to a series of transpositions based on the five aggregate pitches contained within the four-chord chorale (see *fig.3.12*). Thus, sections of material to be repeated would be generated by using two or three pitches from one of the cells before transposing, i.e. switching to a new cell: between bb153 - 160 cell 2 is used; using the g# in the bass clarinet as an axis, the material modulates to cell 5 (which has g# as its root); the *ritornello* dyads, other than differentiating the texture also articulates the point of transposition by immediately preceding it.

Fig.3.11 - Expanding chord sequence

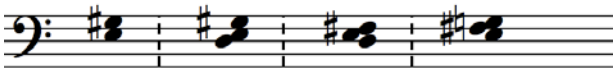
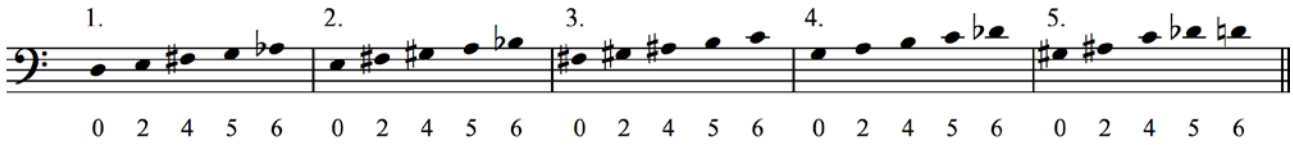


Fig.3.12 - Pitch transpositions based on aggregate of chord sequence (see above)



The four-note chords played by the harp from bar 196 to the end are aggregates of the five-pitch cells whilst the tenor line too revolves around the initial transpositions.

5. Prayer 27(G)

As in the second song, the fifth movement sets up a very simple two-part texture; the tenor is given material redolent of plainchant once again (though this time based on g below c') whilst the bass clarinet has a *scherzo*-like line that is reinforced by doublings on the harp and viola (each imitating the other).

The main melodic material heralds from another seven-note sequence (again inspired by the *Duduk* but, like Prayer 27(D) dissimilar in intervallic sequence) that is also found transposed up a minor 6th (see *fig.3.13).* Here g below c' is the nominal tonic/axis which each of the two independent melodic lines orbit around, particularly the tenor whose line is predetermined by the nature of the text: several different melismas were composed to fit a variety of different words dependent on how many syllables they contained (see *fig.3.14).*

Fig.3.13 - Thematic 7-note sequence and its transposition

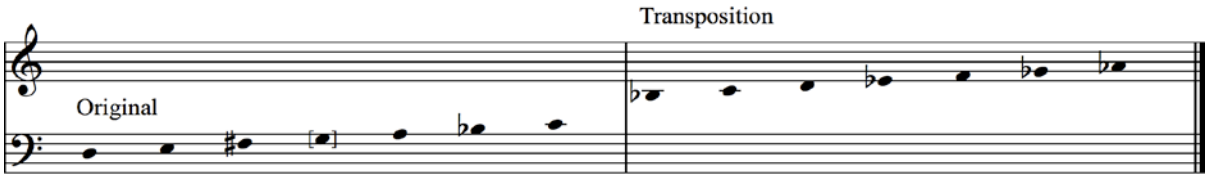
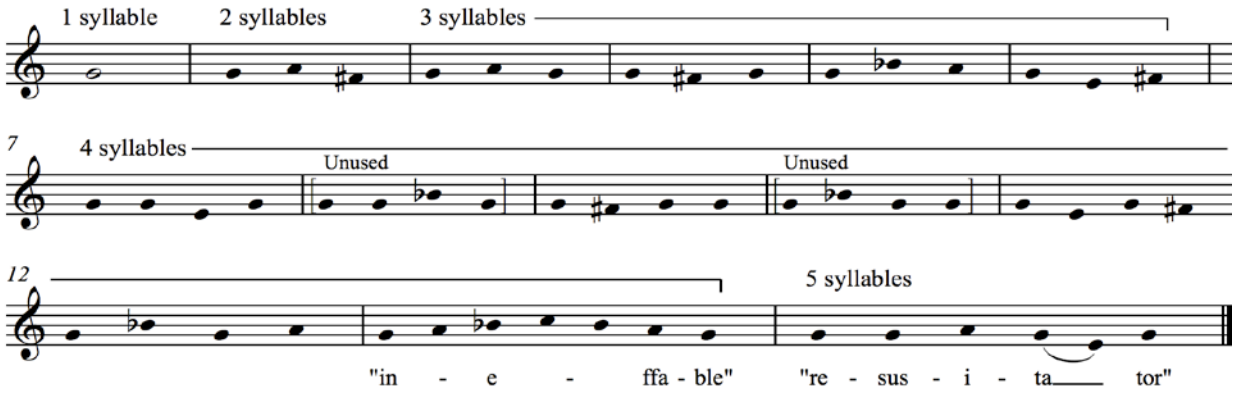
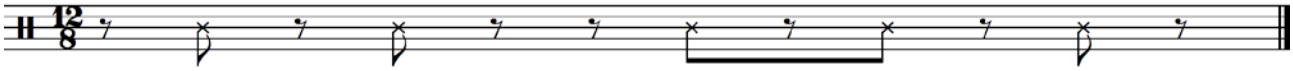


Fig.3.14 - Schematic of vocal melismas and corresponding syllable numbers



The rhythmic pattern governing the bass clarinet (see *fig.3.15)* is such that not only does each revolution of the pattern start a quaver beat later but also on the next pitch of the original sequence consigning the first pitch to become the last. As the rhythmic cell consists of only five pitches this operation comes full circle relatively quickly (upbeat to bar 215: three bars into the movement). A pattern dictating the ***sfz*** accents (alternately strengthened by the viola and harp) works via the simple principle of retrograde: c' - e'' - b' flat etc.

Fig.3.15 - Bass clarinet rhythmic pattern



6. Prayer 88(A)

This is the only segment of the St. Grigor Narekatsi text that does not originate from Prayer 27. In deference to this salient fact this movement does not follow any strict processes and has a freer, more improvisational air to it, particularly for the voice. It also follows (to a degree) conventional tonal thinking, inspired by the Armenian folk flute known as the *Shvi* which exhibits an F centricity encompassing both major and minor (see *fig.3.16*). After transposing the cell into another four keys (sub-dominant, relative minor, dominant and mediant) I was then able to compose a chord sequence consisting of ten chords, effective in all four keys; to these chords (composed in the dominant, i.e. C major) I added intervals of mostly a major/minor 3rd (see *fig.3.17*) though six chords have an added major 2nd and/or perfect 5th.

Fig.3.16 - Shvi pitches

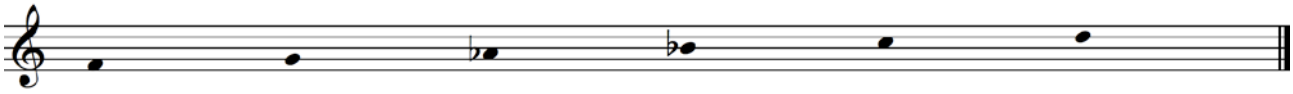
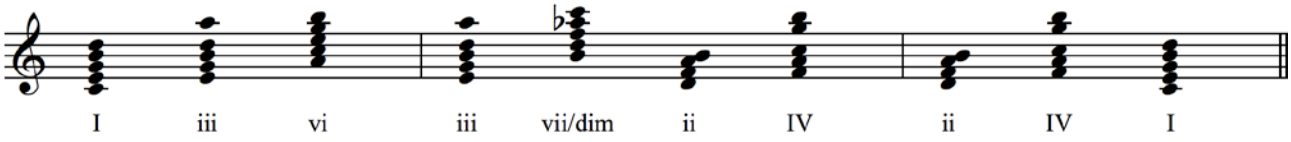


Fig.3.17 - Main thematic chord sequence in C major



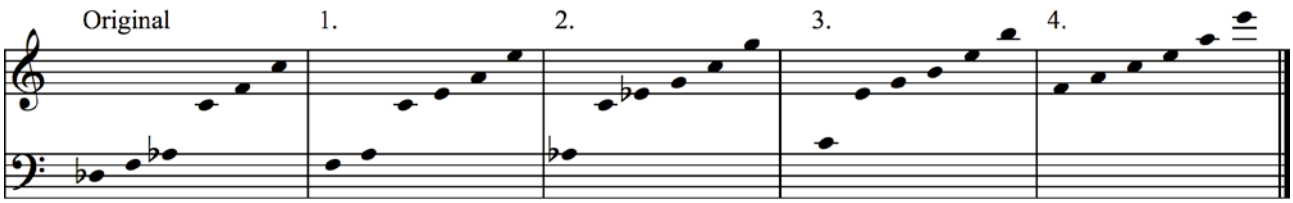
The tenor voice retains the pitches of the *Shvi*; as with the *Duduk* I 'rounded-up' any quarter-tones to equal tempered pitches. Although one can see evidence of quarter-tones in the bass clarinet part these are inflections and not part of the intrinsic harmony.

One can clearly see that the first two bars of the movement (bb247 - 248) contain all the notes in chord I; bar 250 articulates chords iii and vi, bb251 - 252 chords iii, vii dim. and ii; bar 253 chord IV; bb254 - 255 chords ii and IV and bb256 - 257 complete the progression with chord I. Then the music modulates to the sub-dominant (B-flat major) with chords I, iii and vi used between bb258 - 260. Between bb261 - 263 there is a short 'interlude' before inferring a return to the beginning at bar 264 but commencing (bb265 - 266) with the fourth chord of the sequence - vii dim. (in C major) where the A□ is sharpened (see a' in bass clarinet) before moving in reverse through chords iii and vi (bar 267) and chord iii in bar 268 (taking into account the d'' in the tenor part). The final pitch of the tenor is the lowest note of the *Shvi*.

7. Bald ist morgen

The last song of the cycle is the longest and is formed of five distinct sections: 1) bb271 - 288; 2) bb289 - 306; 3) bb307 - 318; 4) bb319 - 341 and 5) bb342 to the end. Both the first and last sections (as well as the third: *Luminoso)* share a sense of an F major tonality with a high proportion of the pitches forming the perfect fifth of that scale; sections two and four are much more chromatic though all the pitch material was derived from an initial six note cell which was then subjected to four subsequent transpositions (see *fig.3.18*). As well as these transpositions there are a certain amount of 'free pitches' which were added by ear (bar 275 - the g' and b'□ in the bass clarinet part should be seen as passing notes between the three harmony notes of f', g' and c''). The implications of these added pitches are almost exclusively melodic as they were conceived by linear thinking.

Fig.3.18 - Pitch cell transpositions

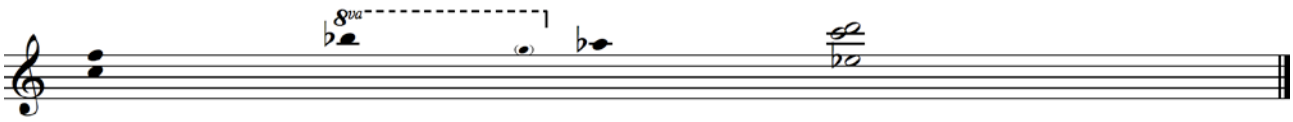


The *Klangfarbenmelodie* at the beginning soon gives way to the highly stylised texture of the second section (bar 289) reminiscent of the other Celan settings (and heard again in the penultimate section - bar 319); that the very end reflects the beginning save for the omission of the viola is perhaps to be expected. It is the *Luminoso* section which takes

one by surprise; its harmony is based on a small sketch which preceded the composition of the movement (see *fig.3.19*) and though the material is later subsumed into the fourth section its presence within the main narrative and its effect on the development might be most expediently explained as similar to a theatrical aside.

In keeping with the fact that the other two works in this section all closed with a dyad (major 3rd), *Seven songs* follows suit but, this time with a minor third. There is no systematic explanation for this, only that at the time I sought closure to all my work in similar fashion and am naturally drawn to the third.

Fig.3.19 - Harmonic sketch for "Luminoso" section; Seven songs: bb307-318



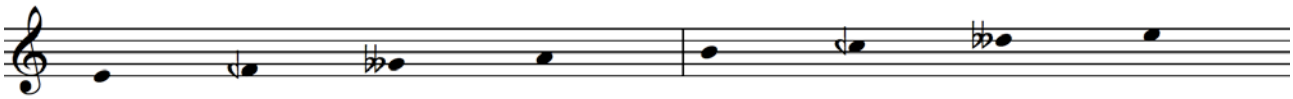
Section 2

3. Breaking free of prefabricated sounds

The next two works are particularly involved with issues pertaining to microtonality. Whilst arguably the two pieces in section 3 represent a more subtle approach to integrating quarter-tone and equal tempered material, one can find incipient attempts already in the music theatre work *In her little room,* and to a greater extent in the string quartet *Enveloped Time.*

A cursory look back at musical history will tell us that microtonal music is certainly not new; examples such as the Greek Dorian mode (enharmonic genus - see *fig.4*) found in the Delphic Hymns - extant fragments of ancient Greek music extensively documented by Pöhlmann and West[6] - as well as Indonesian Gamelan and traditional Thai, Burmese and African musics, not to mention the systems of 22 śruti in Indian music, give us just a small sense of the universal 'appeal'. Even when we look closer to home and at the history of western classical music one does not have to look far before coming across the name of Nicola Vicentino (1511 - 1576), a renaissance composer who built what was popularly referred to as an *archicembalo* - a keyboard with 36 keys to the octave, just so that he could compose using microtonal intervals.

Fig.4 - Ancient Greek Dorian Mode



It seems that when Gérard Grisey spoke of 'breaking out from the tempered system'[7] this was less a call to arms proclaimed with revolutionary zeal than a reminder to composers of the west that, through the gradual erosion of cultural memory, we (collectively) had ceased to be enthusiastic about sound *per se.*

Following the Spectralists, who developed their approach to composition in tandem with electronic and/or computer programmes, other composers such as Philippe Hurel, inspired by their efforts but wanting to follow their own, individual paths, sought a synthesis

between acoustic theory and computer applications. Others, such as James Wood, approached the use of quarter-tones in a more linear fashion, devising for his two important song cycles of the mid-eighties, *Ho Shang Yao (1983)* and *T'ien Chung Yao (1985*), a series of pentatonic scales using quarter-tones in lieu of chromatic pitches.

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[6] Pöhlmann and West, 'Documents of Ancient Greek Music, Clarendon Press, Oxford (2001)

[7] Gérard Grisey and Joshua Fineberg (2000), 'Did you say Spectral?', Contemporary Music Review, 19:3, 3

Ultimately, I believe in hearing as the most important compositional consideration; first and foremost my use of quarter-tones (at least in the initial stages of composition) is directed by sensual experience.

3.1 In her little room

My long-held fascination with Samuel Beckett's work, particularly *Footfalls*, *Eh Joe* and *Ghost Trio* (where the dramatist stipulates down to the exact bars the passages of Beethoven's fifth piano trio to be used to accompany the action), led me to compose *In her little room* for actress, solo violin, live electronics and tape. Premiered at the Riverside Studios, London as part of Tête à Tête: The Opera Festival 2011, this work particularly focuses on the role of a solo instrument (in this case violin with electronic transformations) in a dramatic setting, and was directly inspired by the correlations Beckett made between musical and theatrical elements.

Contrary to Boulez's view that the musical element need not be the most important one in music theatre[8], at several points in my work the violinist functions as an extension of the character played by the actress and at these points arguably assumes the more prominent role in the drama. Its quarter-tonal undulating, agitated melismas are reminiscent of natural vocal lamentations found in several cultures around the world (e.g. between bb319 - 324).

In Beckett's work – unlike, for example, the collectively improvised pieces presented by The Living Theatre and the experiments with bodily physicality evident in the work of Jerzy Grotowski – music enters the dramaturgy functioning within its own set of parameters rather than originating from the characters on stage. In addition my approach in *In her little room* draws from The Living Theatre's sense of ritual and symbolism (though without their innovative vocal techniques). Thus a wordless dramaturgy unfolds as a distinct layer that has its roots in both the type of 'collective'/semi - improvisational work of the American company and the meticulously controlled dramas of Beckett.

My score not only mirrors the tensions unfolding on onstage, but crucially articulates the more oblique moments in the drama, whilst also reaching climaxes asynchronously with the action on stage. At several points our focus of attention is taken by the violin whilst the actress is almost or literally frozen (e.g. at bb204 - 208). The electronics do not assume the mantle of an independent voice in the drama but its role is to magnify the violin and, at times, distort its true sound; this is especially evident where the music serves to articulate the psychological state of the young woman, the resultant blend of acoustic and electronic tones creating a cloud of dissonance (e.g b334).

I commissioned a text based around the Pygmalion myth from Alexia Anastasiadis. I stipulated that it should be in first person narrative and from the perspective of a child

[8] Boulez, Pierre and Peskó, Zoltán, *Musical Aspects in Today's Music Theatre: A conversation between Pierre Boulez and Zoltán Peskó* (1978) Tempo, 2-9 doi: 10.1017/S0040298200018349

abuser. The result was a monologue, which I divided into five parts, words alternating with music. As I had a very clear idea of the dramatic shape of the work as a whole, it was a deliberate decision on my part that the collaboration finished there.

The outline below gives an overview of the work as a whole and the way in which the constituent sections relate to one another.

Fig.5 - Formal outline

3:	**2:**	**2:**	**1**
A	B	A	CODA
a1 - b	*a2 - c*	*a3 - b1*	*d*

Essentially in ternary form with both a Prelude and Coda, *In her little room* is composed from four separate pieces of material, namely A, B, C and D where A functions in similar fashion to a *ritornello* (lasting roughly 2 minutes), though it undergoes variations as if it were in rondo form. Each of the three main sections of the piece contains further sub-sections pertaining to material A - D, which themselves are then further divided, so the structure at the local level is both rich and complex yet is contained within the simple formal foundations offered by the ternary form.

The music relies on a series of 'quasi' tonics to anchor the various different sections and to produce something akin to a cadence at the very end; in some cases these tonics make use of open strings.
As touched on above, the A material is used thrice, each time modified (A1, A2 and A3) and is derived from thirty-two fixed pitches within an (almost) chromatic scale beginning on the g open string (see *fig.5.1*). I decided to limit the pitch field for the initial representation of this material and so chose pitches 6 - 26 with an added c'# (see *fig.5.2)* based around a dual axis of the open strings II and I (a and e). Quarter-tones were added around the pitches of g', a' and g''. The arpeggiated chords which are the main feature of the Prelude were achieved by extrapolating the d' and a' (open strings and therefore easy to play within a complex chord), f''# and c'''#. The d' remains at the base of the chord whilst it is gradually altered (see *fig.5.3).*
The tonic centres of the Prelude (see *fig.5.4)* form a chromatic wedge shape, the restricted movement adding to the sense of inertia and - when considered with what is happening on stage - tension.

Fig.5.1 - A1-3 pitch content

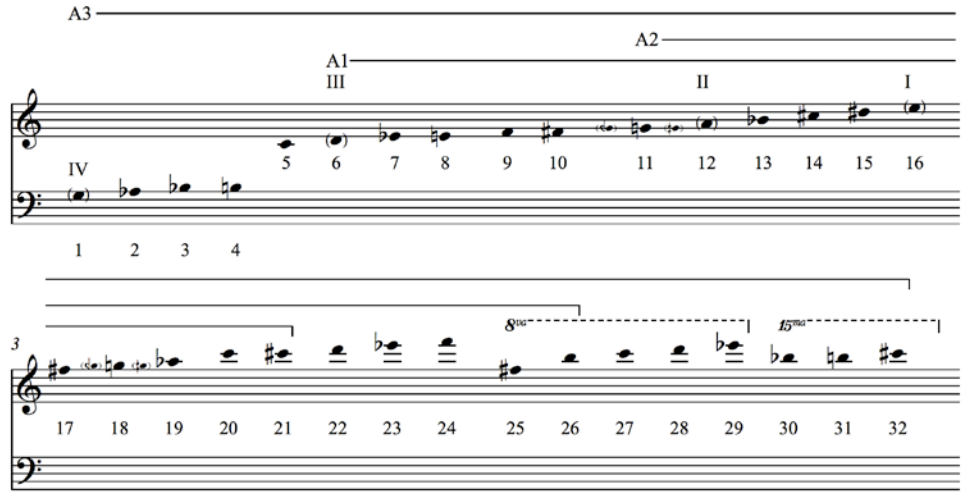


Fig.5.2 - A1

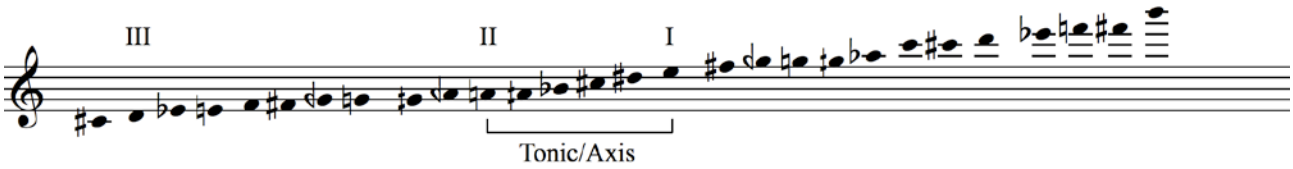
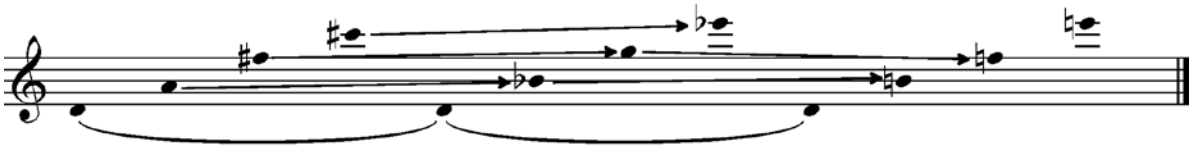


Fig.5.3 - Chordal transposition



The Prelude (A in the score) is divided into three parts (A, B and C), which, when one takes into account the bars of silence, roughly adhere to a formal ratio (in number of bars) of 2:1:3:1:2 (the 1 representing the two bars of silence each time). Throughout *In her little room* I was dependent on using ratios to dictate overall form, as I felt that when dealing with an extended time frame (*circa* 35') this formal correspondence at the heart of the piece would help with overall pacing. I believe that these sorts of ratios, based on observations of natural patterns, offer a convincing and meaningful criteria with which to determine individual durations within a larger form.

Fig.5.4 - Prelude: Tonic centres

The tonic centre moves from d' to e' over the course of section B, and the material (derived from a fragmented passacaglia, see *fig.5.5)* constitutes a series of elaborations on what could be understood as a notional *cantus firmus* (see *fig.5.6).*

Fig.5.5 - Passacaglia fragment

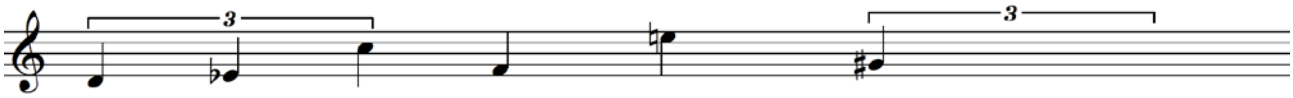
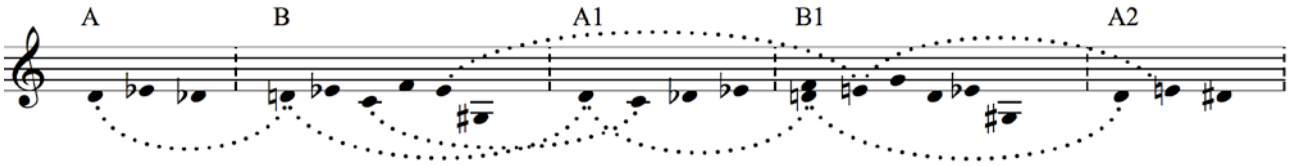


Fig.5.6 - 'Cantus firmus'



C itself can be divided into three smaller parts (A, A1 and B) and there is a clear relation in the *tempi* running through this section: □=54/72/96/72/54, i.e. a gradual *accelerando* by a third.

Letter C in the score is the second of the *ritornelli* and follows a formal ratio of 2:1:1. In contrast to the Prelude (the first *ritornello* section) C uses pitches 11 - 21 (from the thirty-two fixed pitches - see *fig.5.7)* with a clear tonic/axis of e'' which alternates with g'' in the middle.

Letter D is the longest section of the piece and is formed of three central gestures (see *fig.5.8*); these alternate as well as develop over the course of the section and are dependent on the three *tempi* used: □=108/88/100. The first three of the four sub-sections are all divided by a bar's rest (i.e silence). Whilst silence is employed in the Prelude for dramatic effect, here it was a question of helping to ensure that there was enough 'space' in which to hear the voice over the music. The outline below represents not only the numerical patterns governing phrase structure here, but the dispersal of the main motivic gestures (in this case two of the three, labelled *a* and *b*). Whilst gestures *a* and later *c* (from bar 179) are self evident and just as much rhythmic as pitch orientated, *b* stands out as having a modal flavour with chords built around perfect 4ths and 5ths.

Fig.5.7 - C

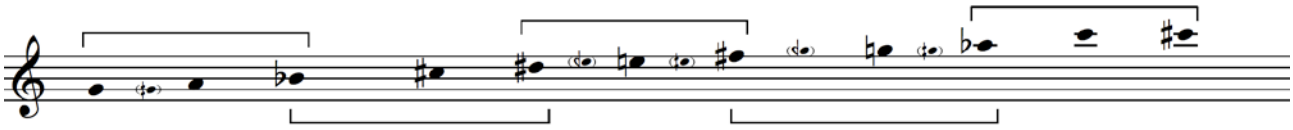
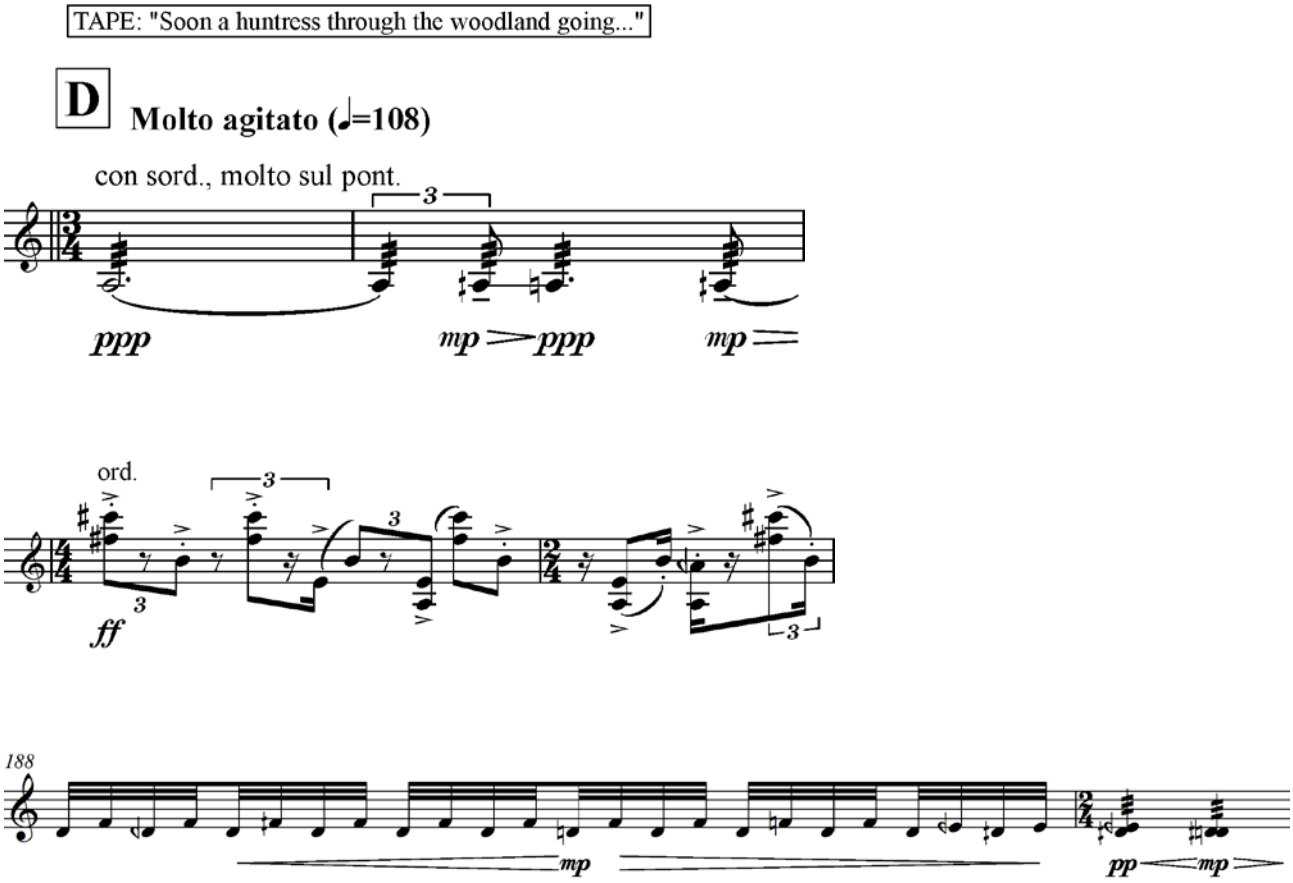
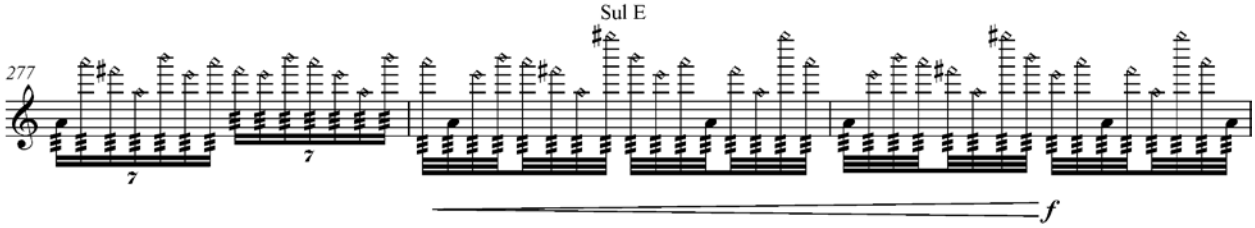


Fig.5.8 - In her little room: a(bb148-149); b(152-153) & c(188-189)



Letter E in the score (marked *doloroso*) leads up to the climax of the work and, through the increasingly *agitato* violin figurations (see *fig.5.9*) creates an almost hysterical atmosphere that resolves at letter F.

Fig.5.9 - In her little room: bb277-279



Again, like other sections, 'quasi' tonal centres are used (sometimes taking the form of pedals) to help anchor the harmony (see *fig.5.10*).

F follows on directly from the theatrical climax of the work. Once again there are correlations between this section and previous ones (the shared tonic of a', formal ratio and the jeté figures which have appeared throughout). Here the microtonal harmony is at its

most expressive, the undulating line straining against the held a' on the G string (see *fig.5.11*).

Fig.5.10 - Tonal centres/pedals

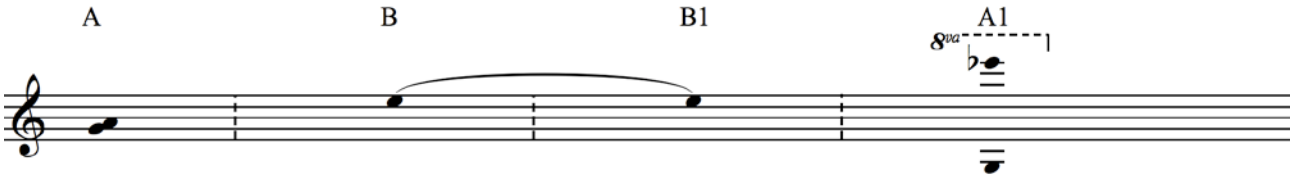
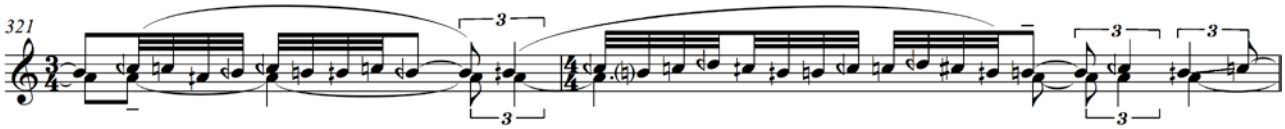


Fig.5.11 - In her little room: bb321-322



The music at the end of *In her little room* (letter G) is the most static. Whilst there are no exact formal ratios there are still sub-divisions within the formal design: A (bb382 - 391) is dominated by the pedal open string G which is initially presented in a perfect 5th with d' before this is slowly augmented to e' quarter-tone flat (see *fig.5.12*) before repeating the process once more. The g minor tonality implied by bb390 - 394 (sub-section B) is always subject to microtonal inflections. Whilst bb395 - 401 (sub-section B1) share gestural motifs with the preceding bars, the harmonic palette is richer - the seven bars being made up of two pentatonic scales with a G open string axis (see *fig.5.13*).

Fig.5.12 - In her little room: bb382-384

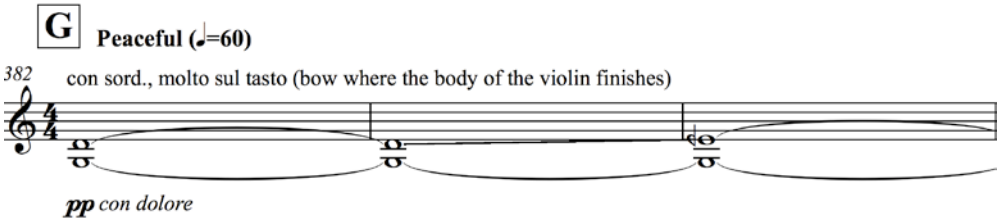
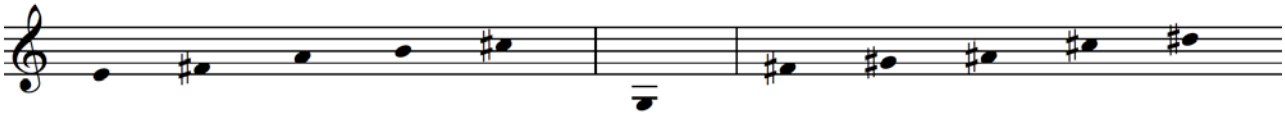


Fig.5.13 - Tonal centre/Axis



The open fifth at the very end (bb406 - 407), which eventually becomes a unison d' maintains the importance of the violin's open strings in this work, both harmonically and

thematically. That our lasting aural impression of the piece is d' suggests that, over the course of the *circa* 35' work we have been on a trajectory that has returned us from whence we started: the c'# pedal/tonic of the Prelude vying for importance with its 'resolution' (d') is remembered now.

From the very outset of composing *In her little room* I was clear as to how I intended to incorporate electronics into my music. Though Max/MSP is *de rigeur* when it comes to electroacoustic music and its derivatives (such as acousmatic music) I realised that in the time frame I had to complete this project I would not be able to learn the programming. With this in mind I started experimenting with AudioMulch (an Australian programme with a similar interface to Max/MSP). For my purposes, which were to transform the acoustic sound of the violin in real time, this programme was more than sufficient.
All seven sections of the score are 'treated' electronically at some point, each with its own, specially configured, 'patch'; whilst a certain amount of reverberation was added to all the patches, all seven were unique in their set-up:

Patch 1 (letter A in score): SDelay, SSpat, Rissetfilters
Patch 2 (letter B in score): NastyReverb, MLimiter, Nebuliser
Patch 3 (letter C in score): SDelay, DLGranulator
Patch 4 (letter D in score): NastyReverb, Nebuliser
Patch 5 (letter E in score): Crossfader, SDelay
Patch 6 (letter F in score): SSpat, NastyReverb
Patch 7 (letter G in score): Rissetfilters, Invert, SDelay

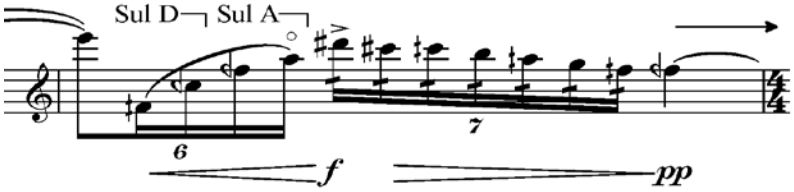
At letter G it was my aim, with the aid of the computer programme, to create a 'new' sound, one that was a composite of the acoustic sound of the violin (including any audible overtones) and the electronics. For this reason the beginning of G is very static, but requiring varying degrees of bow pressure from the performer (thus ensuring not only different dynamic levels but also varying numbers of overtones) and this allowed for the patch to extend the sound at what seemed like a natural pace; I deliberately 'composed in' time for the electronics to develop the sound of the bare fifth, rather than rely solely on me developing the dyad through variation, motivic development etc. In this way, whilst G is divided into a series of subsections and thus has a pre-determined form set by me the initial bars have a more improvisatory feel, relying on the extent of the electronic manipulations to set the form. Though very different in practice this aesthetic approach is sympathetic to the Spectral idea of an 'organic' approach to form, one that is reliant on the self-generation of new sounds and one that I would like to follow more closely in the next work with electronics as I feel that it is at the very end of *In her little room* that there is greater equality (and therefore a truer synthesis) between the acoustic and electronically manipulated sound of the violin, suggesting that there is more that can be achieved in this field.

It was my express intention when composing *In her little room* to appropriate traditional violinistic gestures which I love (such as the arpeggiated chords at A) and set them in a new context: the increasingly frenetic *tremolandi* natural harmonics at E for example. At the same time I wanted to push at the limits of the instrument and was quite happy to hear, as a direct result of striving to get exactly all the triple stops at B, the rasping sound of bow hair on string, digging in; the potential for the violin to sound both guttural and earthy as well as ethereal and to switch between the two in a matter of seconds was an inspiration for much of the writing which at times is unapologetically virtuosic.

Through the proliferation of natural harmonics certain passages take on a modal flavour that I seek to offset by the inclusion of microtones, which in several instances in the score are used chromatically (see *fig.5.14*). In referring constantly to the open strings of the violin by using them as pedal notes (open string e'' at letter C), tonic axes (open string a'

at letter F) and bases for overtone series (open strings IV and III at letter G) the very harmonic essence of the work lies in the unique character and capabilities of the violin.

Fig.5.14 - In her little room: b216



What I hoped to achieve with the addition of electronics was to explore the fusion of the two 'protagonists' as well as the resultant implications this coupling would have on the existing threshold between both sets of parameters.

3.2 Enveloped Time

Composed towards the end of 2011, *Enveloped Time* for string quartet inherits the sectional form seen in *In her little room* whilst anticipating the comprehensive microtonal world of *Beata Luna*. Although the method by which I sought to combine quarter-tones with equal tempered material here is not as systematic as the approach seen in the later work, nevertheless I feel that *Enveloped Time* not only provides a necessary bridge between the music-theatre work and *Beata Luna* but also between it and the last piece in the portfolio, *In memoriam Aldo Clementi*, in the way it anticipates harmonic organisation by the varying and manipulation of pitch-class sets.

Enveloped Time follows a loose four-part form (see *fig.6*) where, although there is continuity throughout, one can clearly see that B1 follows on from some of the ideas presented in B and, not only in its move away from specific pitches but also in its less linear approach both B and B1, moves the music beyond the initial world of the linearly articulated chords (up to letter D in the score).

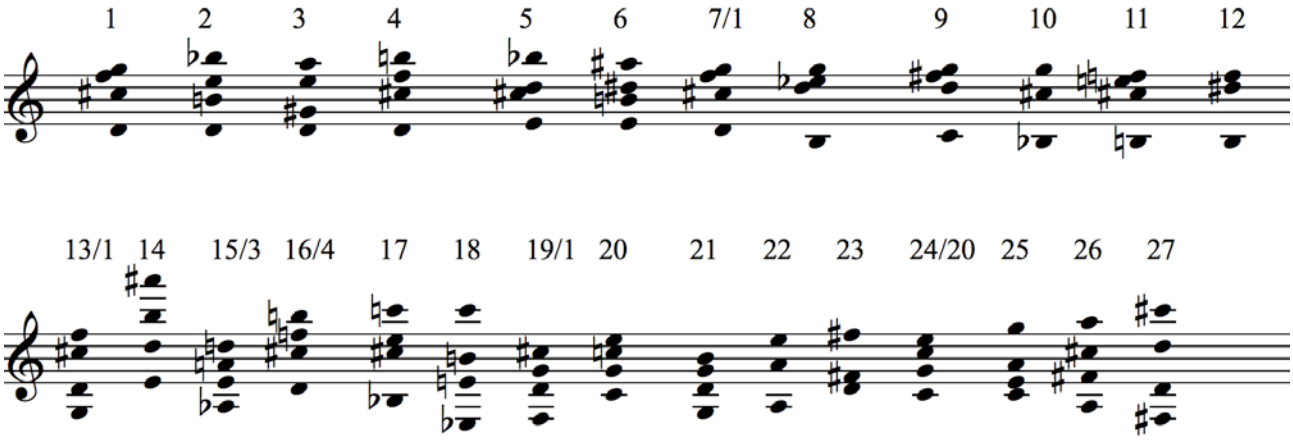
Fig.6 - Formal Schematic

A	**B**	**B1**	**CODA**
Beginning to D	D - F	F - I	J

Enveloped Time is based around twenty-seven chords (twenty-one original and six repeated one or more times: chord 1 x three, chords 3, 4 and 20 x one - see *fig.6.1*). Eighteen of the chords consist of four different pitches (in other words, a note per instrument); seven of the chords have only three different pitches (chords 10 and 12 have only three notes);

20, 21, 24, 26 and 27 all repeat one note, usually the tonic of the triad (20, 21, 24 and 27) or the third (26) and two chords (22 and 23) only contain two different pitches (one of which is doubled): this will become significant later.

Fig.6.1 - 27 Thematic chords



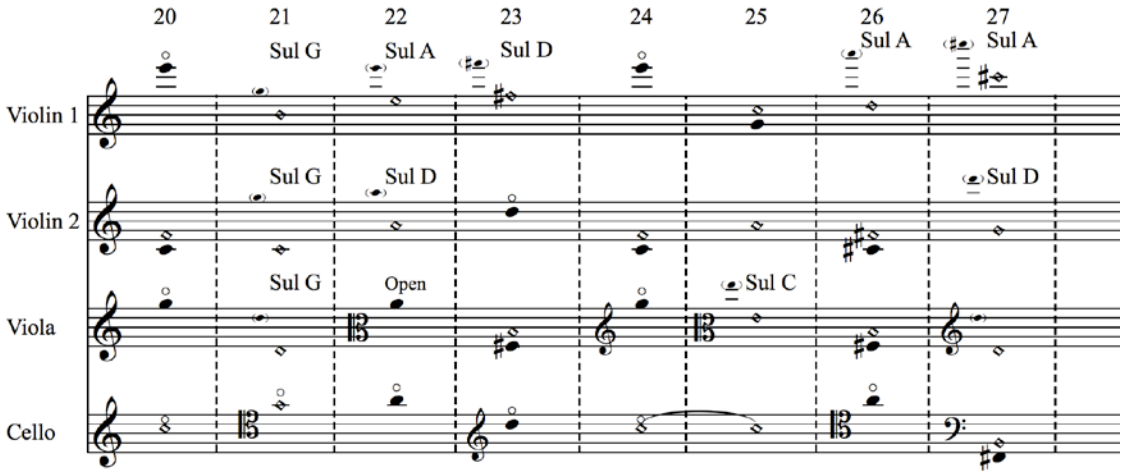
Chords 20 - 27 are all tonal and, when considered together resemble a skewed harmonic progression in G major (see *fig.6.2*).

Fig.6.2 - Chord sequence

G major:	IV	I	ii	V	IV	ii7	vii	V7
Chord:	20	21	22	23	24	25	26	27

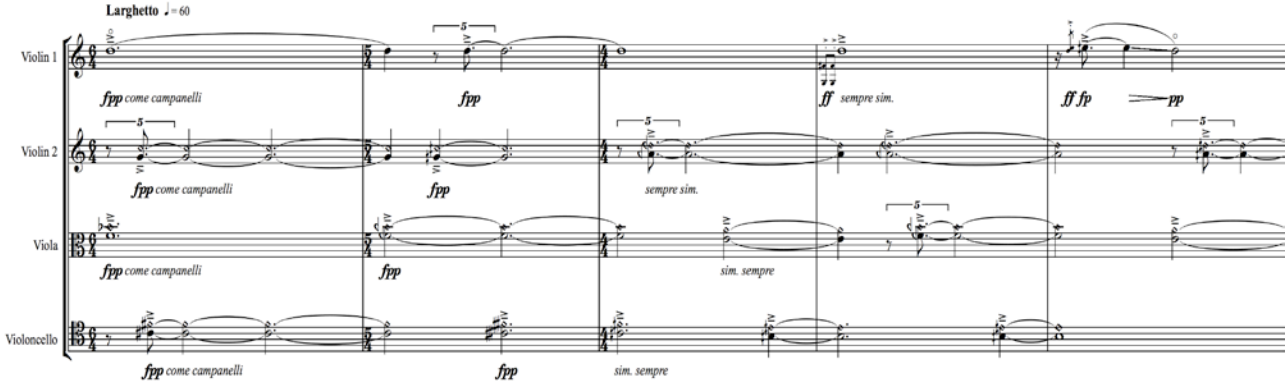
Chords 20 through 27 were chosen for being articulated wholly as natural harmonics (see *fig.6.3*). Harmonics, both natural and false make up the vast majority of the string writing in *Enveloped Time* and I wanted the end to reflect the beginning of the score though much less agitated. I found that simple major triads lose something of their naivety when articulated as harmonics. Add to this quality the variation in texture dependent on both instrument and string and very simple chords such as chord 20 are imbued with an arguably more interesting quality.

Fig.6.3 - Chords 20 - 27 scored in harmonics



The twenty-seven chords are not distributed evenly throughout the score, hence, as one would expect there is conscious differentiation between areas of harmonic stasis where only a few chords are used (such as between letters B and C where only one chord is used - no.14) compared to between A and B where nine different chords are used. The harmonic stasis mentioned above is a complex issue as not only are all 27 chords 'joined up' by counterpoint but even when the texture is relatively sustained and static such as the first five bars (see *fig.6.4*) the use of microtones constantly shifts the harmonic focus. Consequently, although only a handful of chords of equal tempered pitches may be being used the constant 'blurring' effect of the quarter-tones in between trick the ear into believing that we are in fact journeying through several harmonic fields.

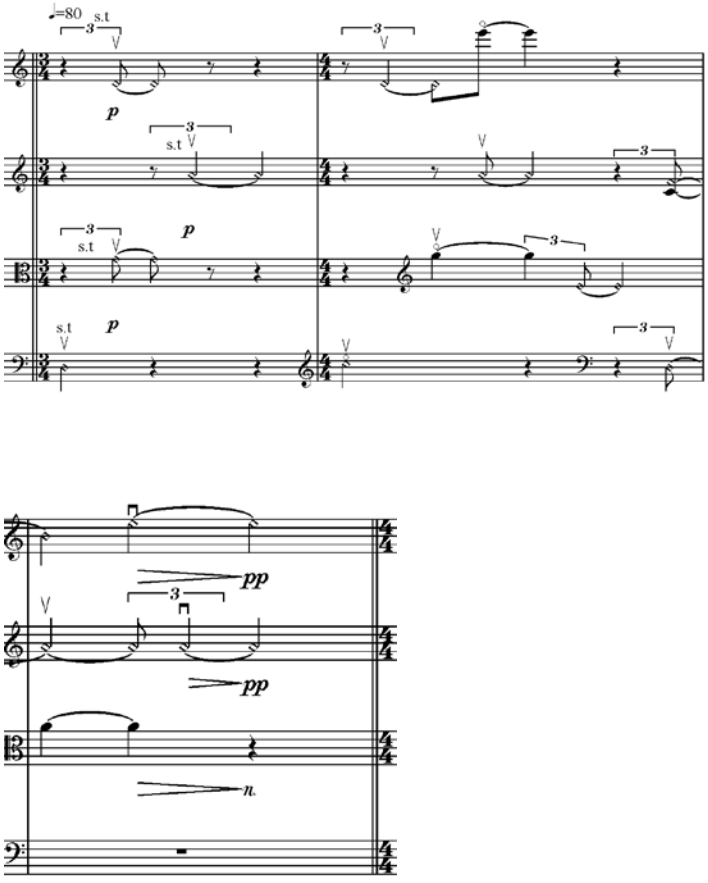
Fig.6.4 - Enveloped Time: bb1-5



The disposition within the score of the 27 chords is as follows: chords 1 - 4 inclusive are heard up until letter A whereupon chords 5 - 13 are used up until B which, as mentioned above contains only one chord: 14. Letter C contains chords 15 through 17 and D, like B contains just one chord: 18. Between E and G the material moves away from a reliance on specific pitches; E prefigures G with its integration of pitch-less ‘sound’ material and F includes both chords 1 and 10 (bb94 and 101 respectively) which are linked by the common pitches of C# and G (1 and 7 in the ordered pitch class set where C natural is

0). H to I in the score contains chords 19 - 25 (see *fig.6.5*). I contains chord 26 as well as 1 and 20 and letter J to the end is formed of different articulations of chord 27 (see *fig.6.6*).

Fig.6.5 - Enveloped Time: bb152-153, 159 & 164-165



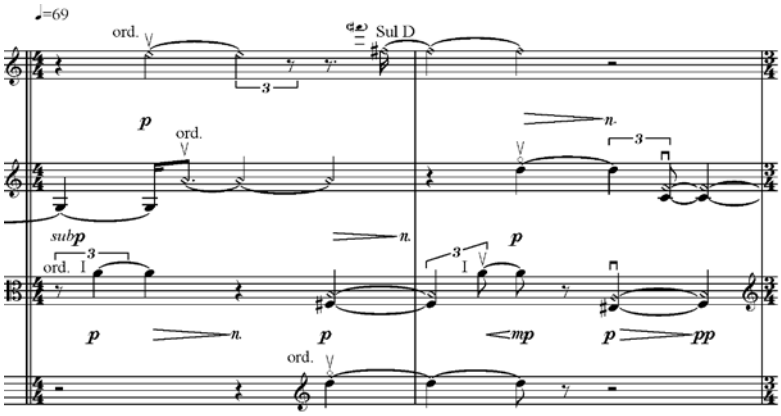
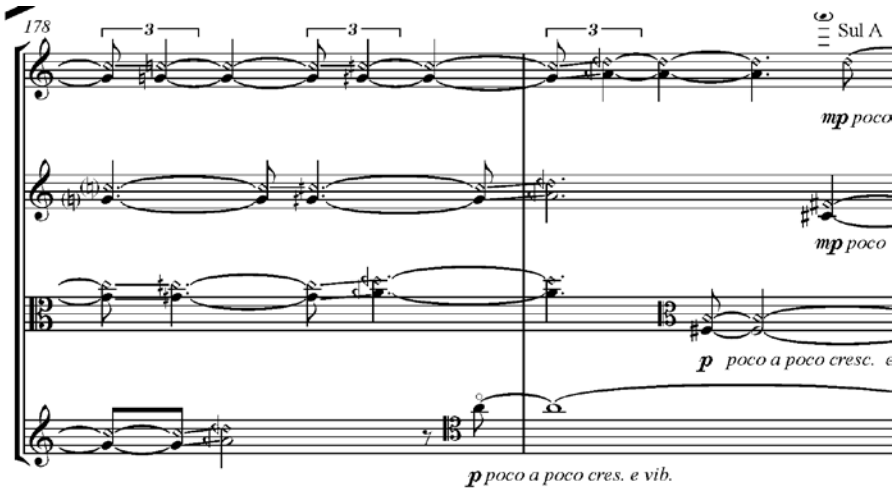
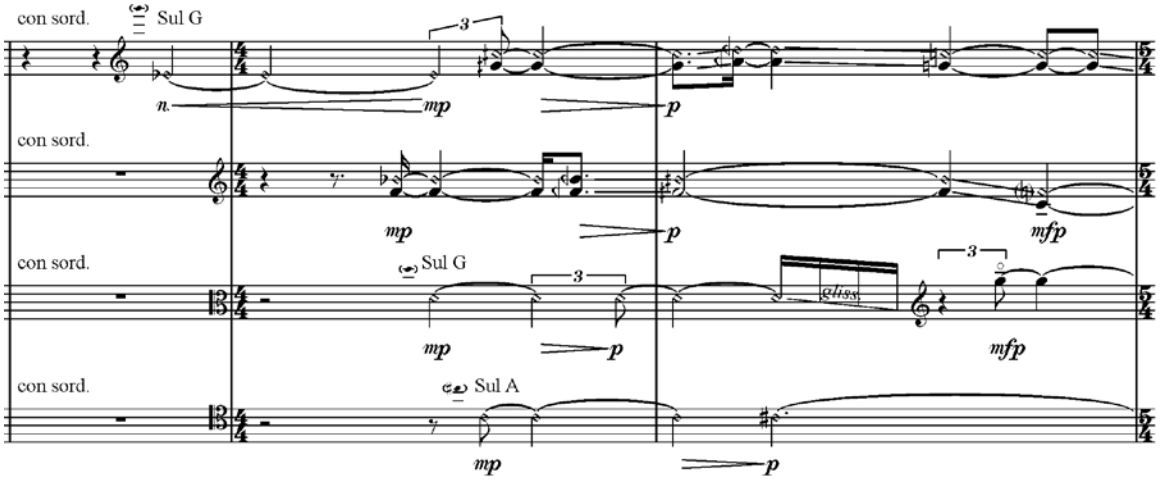


Fig.6.6 - Enveloped Time: bb178-179, 181-183 & 189


178
Sul A
mp poco
mp poco
p poco a poco cresc. e
p poco a poco cres. e vib.


con sord.
Sul G
mp
p
con sord.
mp
p
mfp
con sord.
Sul G
mp
p
mfp
con sord.
Sul A
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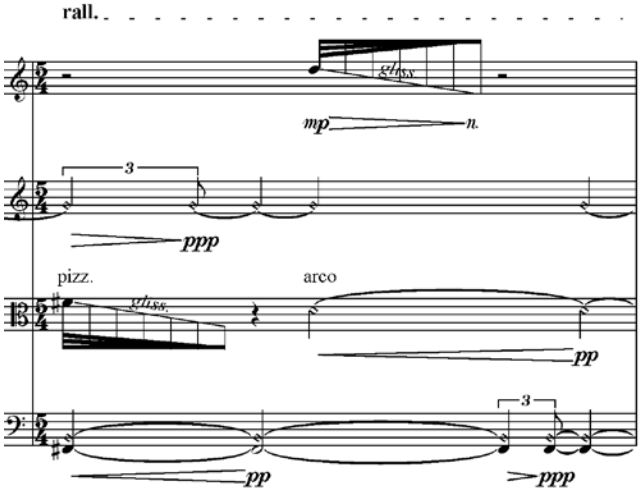
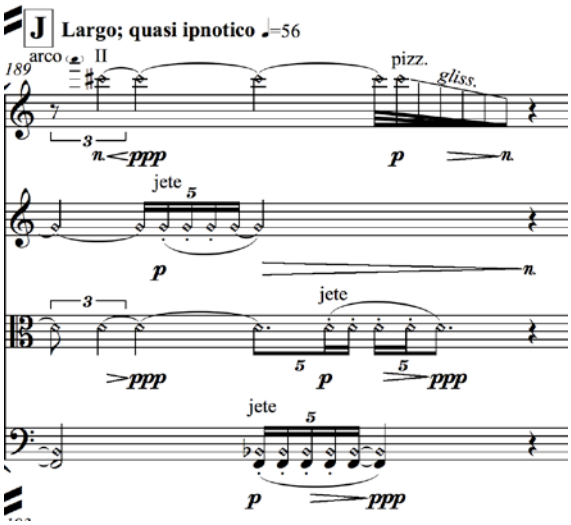
p

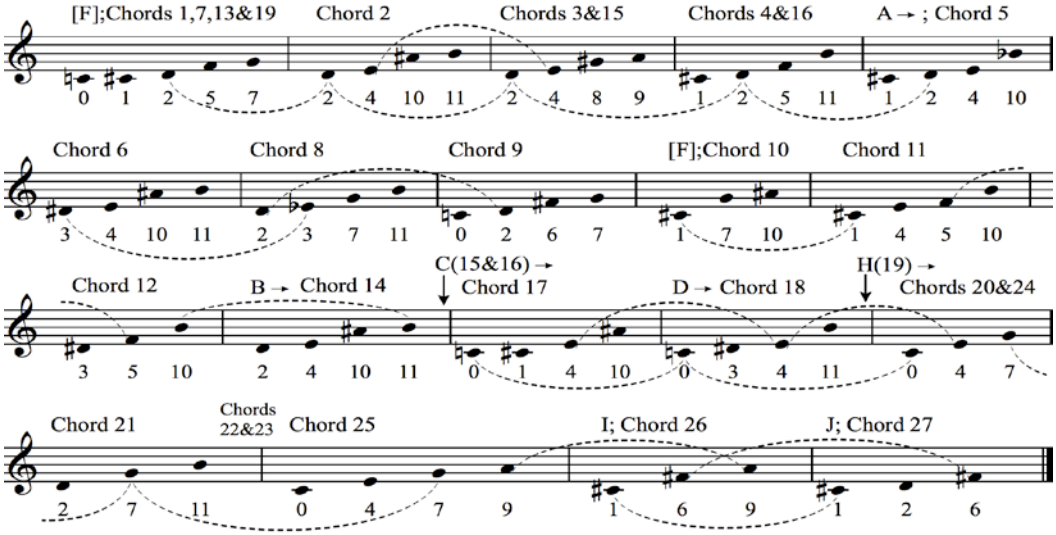

rall.
mp
n.
ppp
pizz.
arco
pp
pp
ppp

(b189)



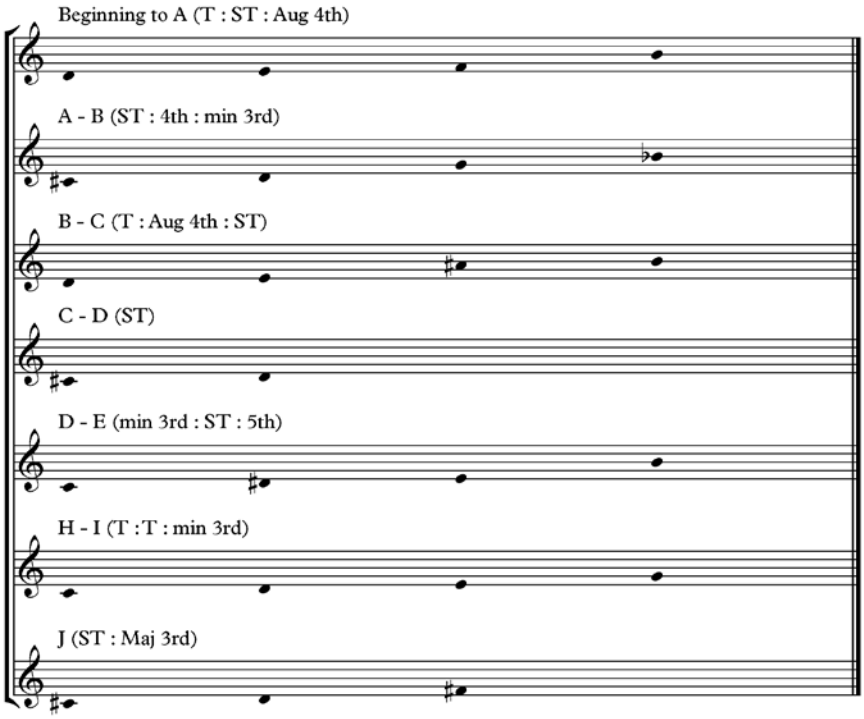
When analysing the relationships between the chords I found it useful to reduce them to a series of pitch collections. Though I have not followed pitch-class set theory, describing each chord's pitches in ordered form makes their transpositional relation to pitch class 0 evident (see *Fig.6.7).* In my compositional approach pivot or common notes are important in establishing degrees of familiarity between the twenty-seven chords.

Fig.6.7 - Pitch-class sets



I find this way of looking at chords a useful way of exploring potential ways of connecting them. As the 27 chords consist predominantly of four elements, using this kind of presentation one can easily identify the four most common pitches occurring between rehearsal marks. *Fig.6.8* (below) shows the most common pitches used in the chords at any given section of the piece and the resultant intervals.

Fig.6.8 - Most common constituent pitches



From this diagram a number of points come to light which will help to explain/rationalise what we are hearing in the music: the very beginning of *Enveloped Time* up until A and between B and C share exactly the same pitch-class sets (although in a slightly different order); the chords used between A - B, D - E and H - I share the interval of a minor 3rd which is not present in the four other sections; H - I contains the only pitch-class set which does not have a minor second (this is explainable due to the predominance of major triads) but contains two major seconds instead; J to the end is the only section made up of a pitch-class set containing a major third (chord 27). The presence of the semitone links almost all pitch-class sets to chord 1. The difference attributed to the inclusion of the major third, the 'anomaly', is what may lend the last chord a sense of ‘light’ and lack of tension.

Staggered rhythmic units are a feature of the score, from the very first chord through the first section up to and indeed after A (see *fig.6.9*), the 3s against 2s at D (see *6.10*) to the staggered entries at F (see *fig.6.11*).

Fig.6.9 - Enveloped Time: bb1-3

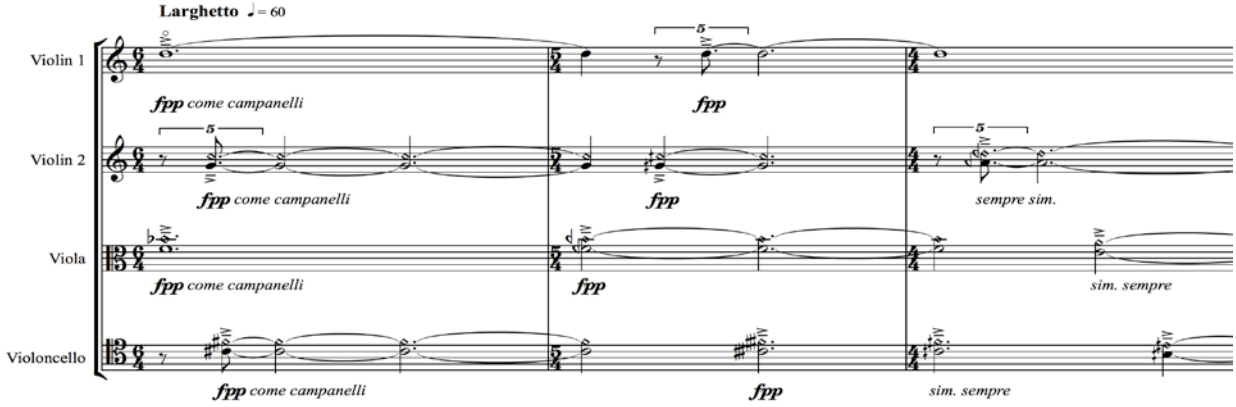


Fig.6.10 - Enveloped Time: b70

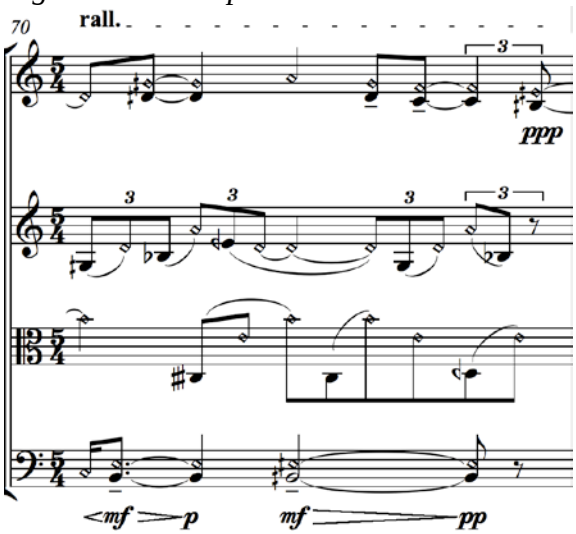
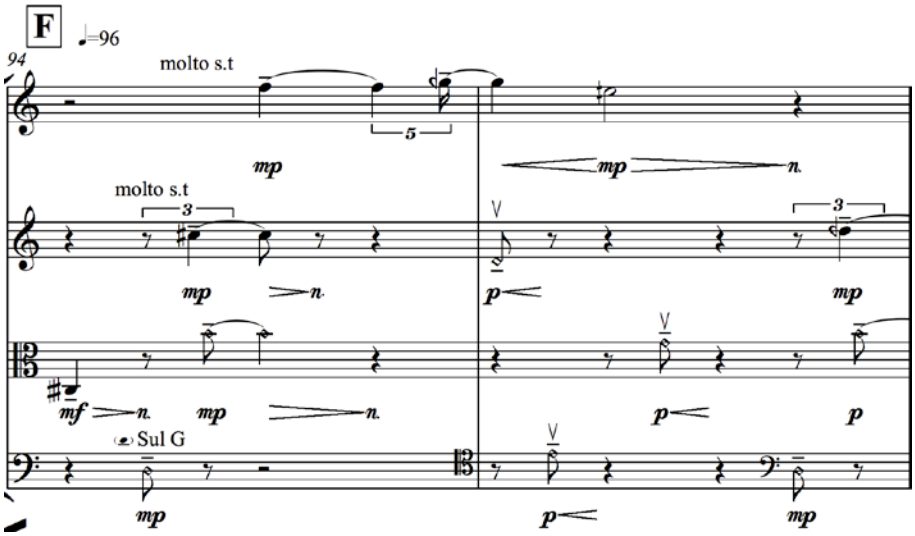


Fig.6.11 - Enveloped Time: bb94-95



Whilst these examples point to the formation of a counterpoint based on minute fragmentation of the beat where everybody is playing a split second later than the other,

perhaps the most arresting point in the score is when both harmonic and rhythmic artifice is stripped away (see *fig.6.12*) at G. This represents a very primal moment where by using accents on/off the beat whilst at the same time making an *accelerando* the tension and excitement are both raised through the simplest of means. I believe that this extreme differentiation in rhythmic texture is only successful when placed alongside its complete antithesis and prepared in advance (see the viola in *fig.6.13*).

Fig.6.12 - Enveloped Time: bb115-118

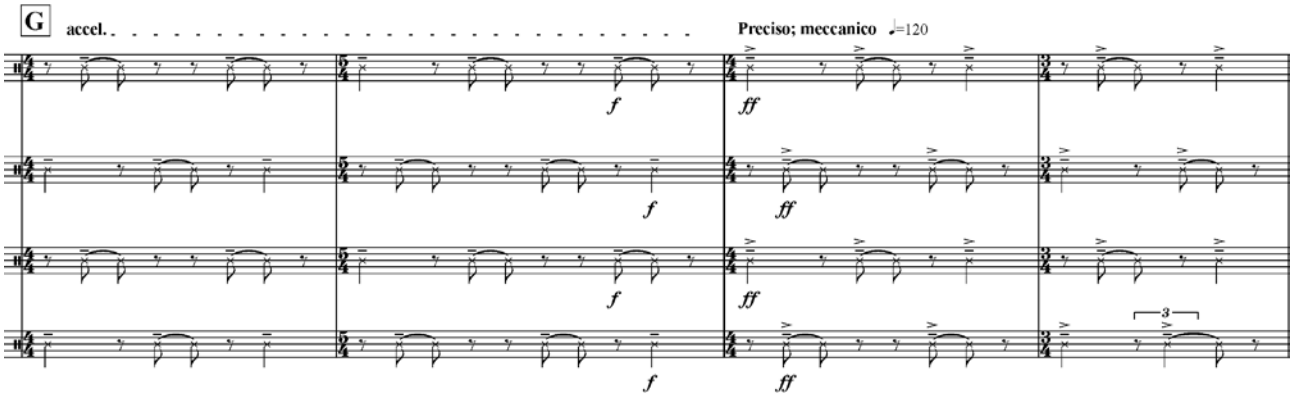
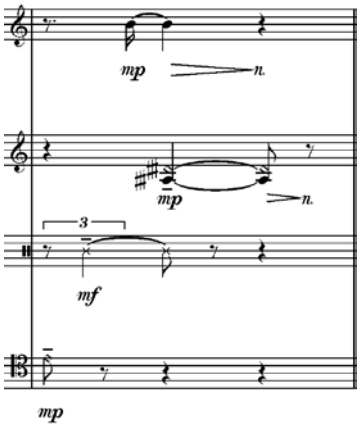
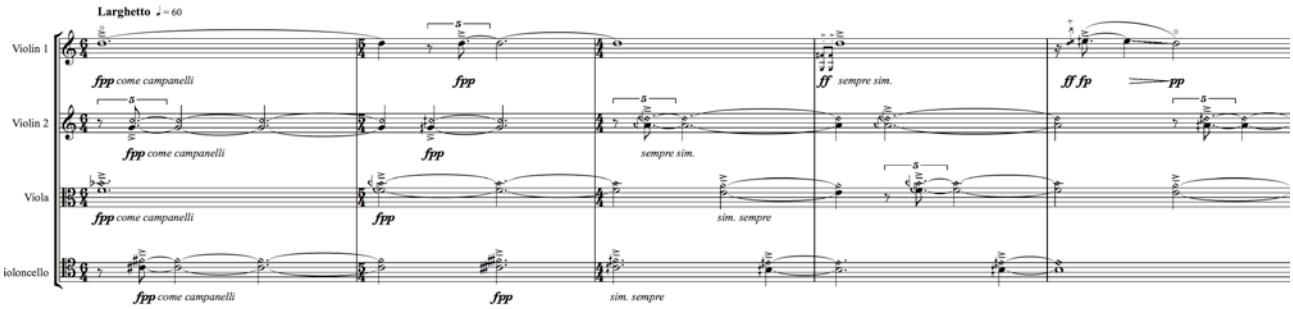


Fig.6.13 - Enveloped Time: b108



Similar in method to *In her little room* in the approach to the integration of quarter-tones with equal tempered material, *Enveloped Time,* though built almost exclusively from verticals, moves linearly. Consequently, and unlike the subsequent work, *Beata Luna*, microtones are used melodically inasmuch as, though they effect resultant chordal patterns, they are conceived linearly with harmonic implications. Generally, once the initial (equal-tempered) chord starts to undergo microtonal transformation, I retain one pitch of equal temperament that in turn acts as a pedal and nominal axis from around which the other pitches oscillate (see first violin in *fig.6.14*).

Fig.6.14 - Enveloped Time: bb1-5

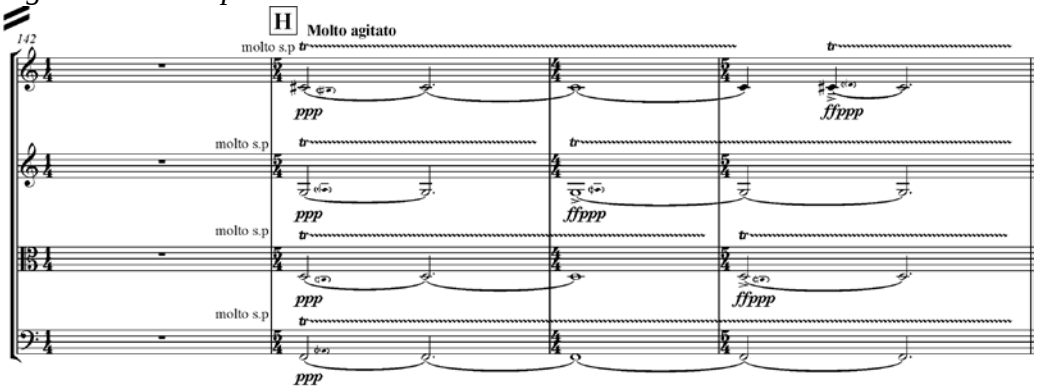


Around this pedal one can see small gradations of augmentation/diminution of the original chord: the second violin's pattern within the first five bars is up a quarter-tone, up a quarter-tone, up a semitone which is almost the opposite of the viola; the cello mirrors the viola in reverse. In bar 3 the original chord is at its most stretched, where the top two voices, having been a major second apart now form the interval of a major third; the bottom two voices have shrunk from a major seventh to what could conceivably be termed a diminished minor seventh (see *fig.6.15*).

Fig.6.15 - Chord 1 and its 'mutation' in b3

This practice is replicated throughout the piece and directly contributes to the restless nature of the work up until I. Though *Enveloped Time*'s foundations are built upon those central chords, the very fact that their tuning is always subject to minute intervallic change means that we are left with a sense, not of continual transposition, but rather the aural equivalent of when two different inks 'bleed' into one another on absorbent paper. It is only at H that an element of clarity is provided but even here harmonic definition is subverted by the presence of microtonal trills (see *fig.6.16*).

Fig.6.16 - Enveloped Time: bb142-145



Section 3

4. Not relying on the standardised?

Even in works that fall under the broad category of *musique informelle* logic and causality operate at least to some extent. Adorno himself said that these two concepts cannot be completely dispensed with thus suggesting that they operate on some atavistic or rudimentary level.

Beata Luna and *In memoriam Aldo Clementi* subscribe to the principle that, in *musique informelle* the material 'constitute[s] itself in an objectively compelling way, in the musical substance itself and not in terms of external laws'[9]. Such an approach regards any predilection towards either logic and/or causality as inexorably leading to an *impasse.* When one relinquishes traditional rules, generating new ones with each work then, we step on shaky ground. How can we tell the logical from the illogical, therefore comprehending when the composer sets up ambiguity or departs from the very conventions that he instigated in the first place? For me a partial answer lies in composing with processes; the canonical working seen in the music of Aldo Clementi was inspirational to me for this very reason. Of course, causality is discernible in canon: when note *y* does not follow on from note *x* the canon is broken. Thus the logic and clear sense of causality evidenced in *In memoriam Aldo Clementi* is to some extent achieved by default - the canon itself. When one does not resort to forms, devices and conventional procedures, constructing a clear sense of logic in the composition is a far more risky task.

4.1 Beata Luna

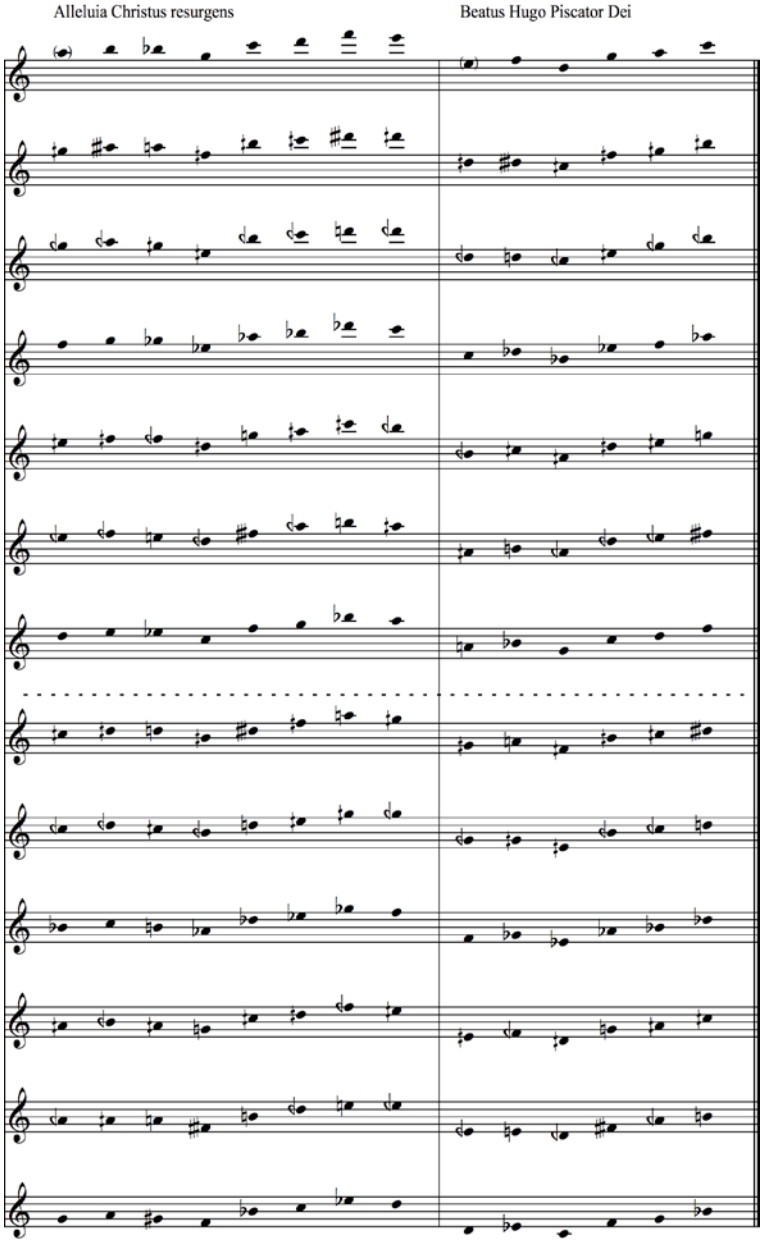
First performed at the Great Hall, King's College London in 2012 by the Lontano ensemble under Odaline de la Martinez[10], *Beata Luna* is scored for an ensemble of ten players.

The work is based entirely on two small fragments of plainchant: *Alleluia Christus resurgens* (used from the very beginning) and *Beatus Hugo piscator Dei* (starting at rehearsal mark G on the crotales). Both plainchants are shown on the upper most stave of *fig.7* with the

[9]Theodor W. Adorno, 'Quasi Una Fantasia: Essays on Modern Music' (1963) Suhrkamp Verlag, p.272.
[10] 'New London Voices' by Lontano Ensemble, LNT137 Track 3, Lorelt 2012.

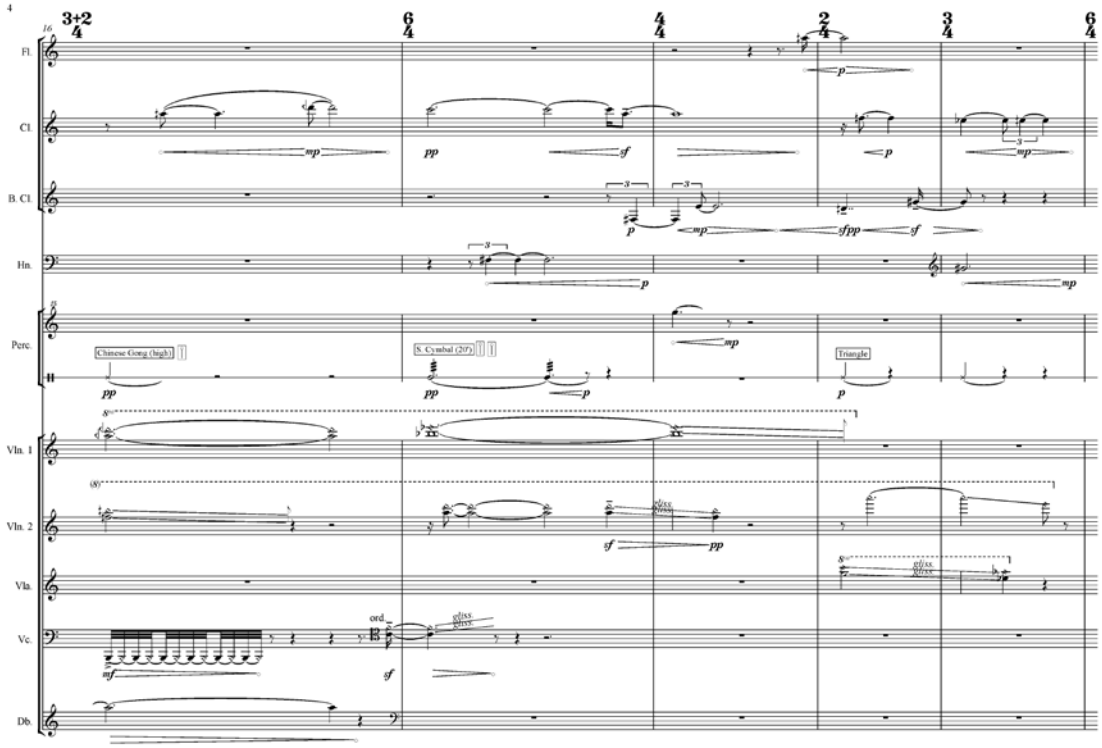
subsequent columns of pitches representing my harmonisations constructed from two minor triads (from bottom to top: G - Bb - D/D - F - A); between each third I insert two quarter-tones which roughly bisects the interval. The title for this work was suggested by the second of the plainchants: *Beatus Hugo Piscator Dei.* 'Luna' – moon – is a term of endearment I use for my wife, to whom the work is dedicated; for grammatical reasons 'Beatus' needed to be changed to 'Beata'. The title also reflects a particular sound world redolent of the cosmos, both regarding the stratospheric *tessitura* and the slow moving nature of the material.

Fig.7 - Pitch matrix based on complete harmonisations of the two plainchants

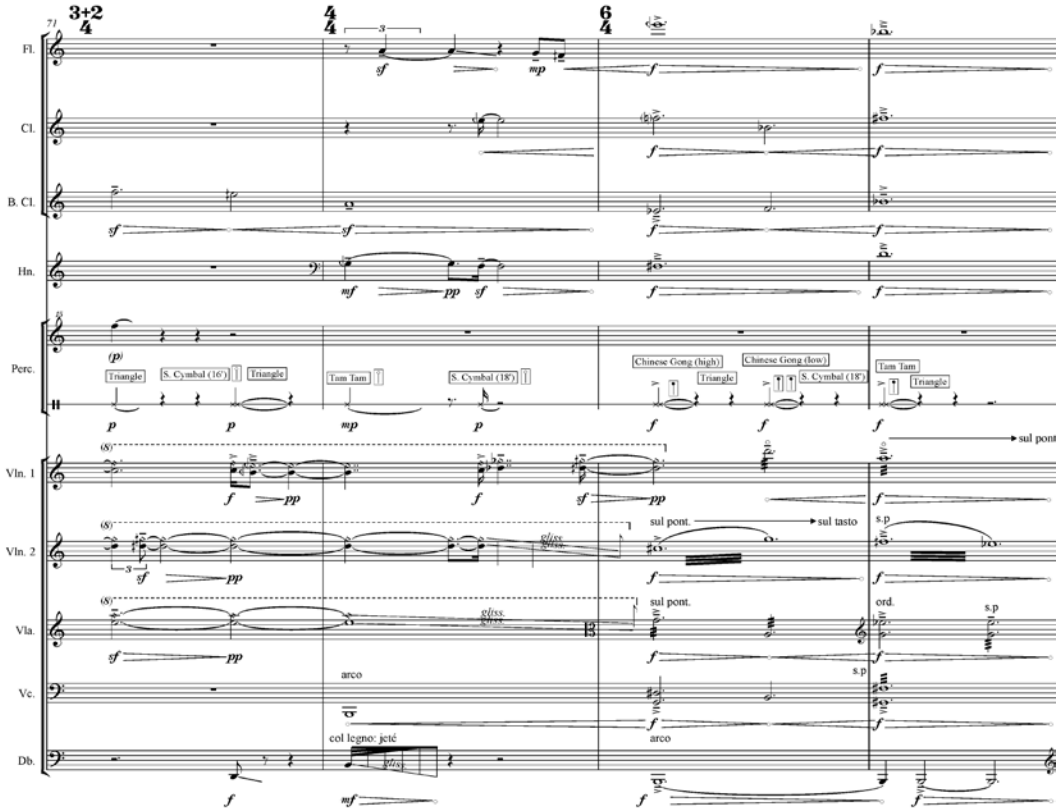


This technique of constructing a simple harmony dependent on the original plainchant meant that at any given moment in the score the microtonal material is in direct correlation with the equal tempered pitches. This restricted harmonic world provided me with the flexibility of creating small chordal formations as well as large aggregates (see *fig.7.1*).

Fig.7.1 - Beata Luna: bb16-20 & bb71-74



(bb71-74)



The early stages of the work are exploratory not only in the sense that a musical landscape is being traced but also with regards to harmony. The plainchant *Alleluia Christus resurgens* is distended at the beginning beyond immediate recognition; it is not until bar 13 that we hear the second and third pitches of it on the crotales (see *fig.7.2*), the previous bars being taken up with a slow intervallic contraction/augmentation retaining the initial a'''' as an inverted pedal (see *fig.7.3*).

Fig.7.2 - Beata Luna: bb11-13

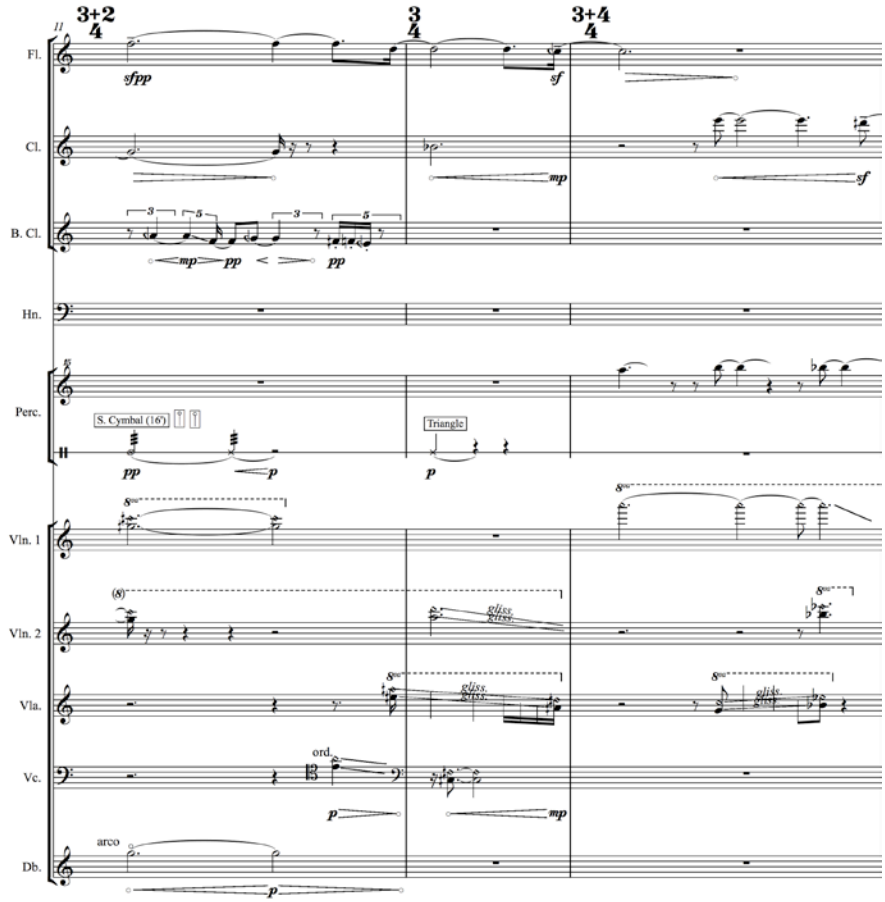
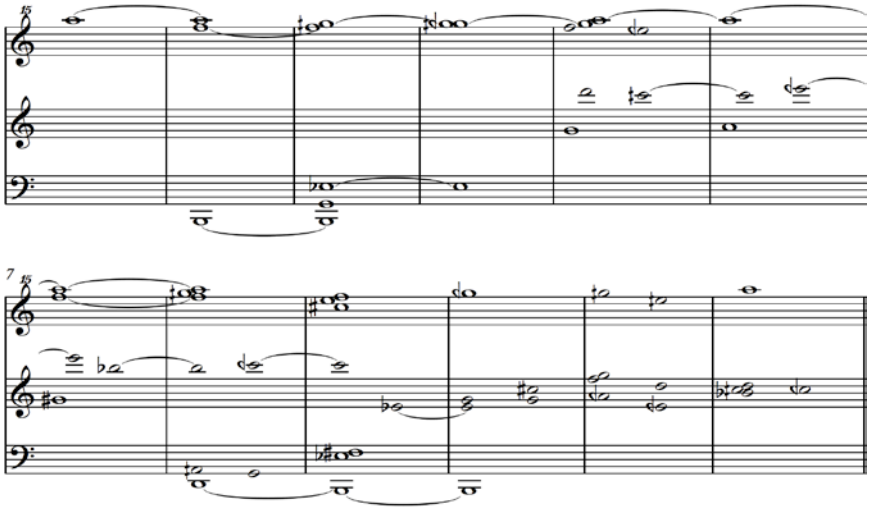


Fig.7.3 - Harmonic analysis of opening 12 bars



Whilst the placement of the *scordatura* low B on double bass and ‘cello - a constant feature of the work - may suggest a spectral approach to harmony, this is not intended: I chose to expand the registers of both the bass and ‘cello for timbral reasons - my ear was drawn to the *frisson* caused when a string is pulled away from its natural tuning, particularly when bowed with some pressure. Another benefit was the richness of the resultant natural overtones emerging from the ‘cello in passages such as bar 3 when it is the most dominant

sound in an otherwise sparse texture (see *fig.7.4*). We hear the B an octave lower on double bass in bb73 - 74 providing an even richer resonance to the chord though here of course any audible overtones will be subsumed into the overall aural impact of these two *tutti* chords, the first of two instances of a homophonic texture throughout the whole ensemble (the other being the penultimate bar, see *fig.7.5*).

Fig.7.4 - Beata Luna: bb1-4

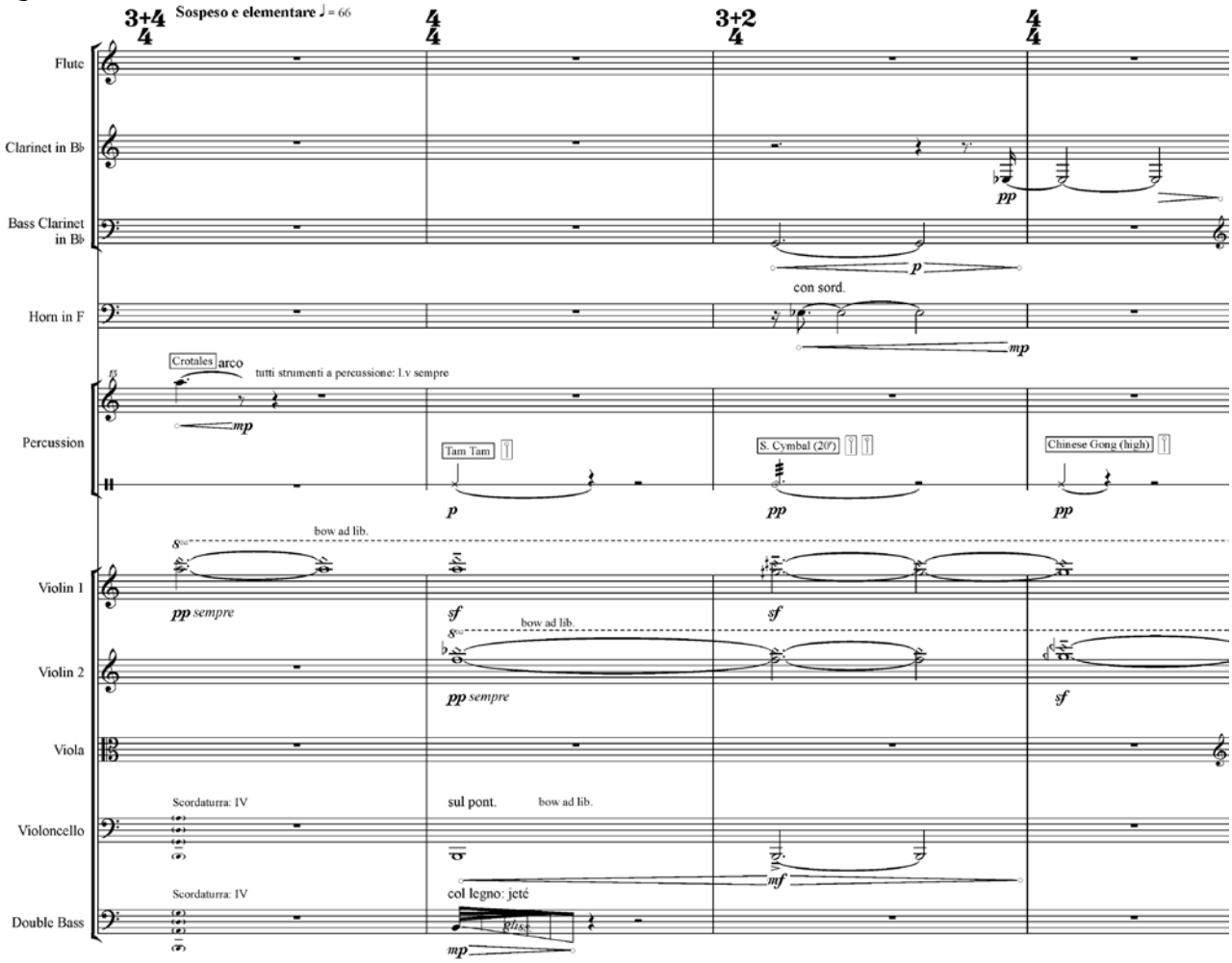
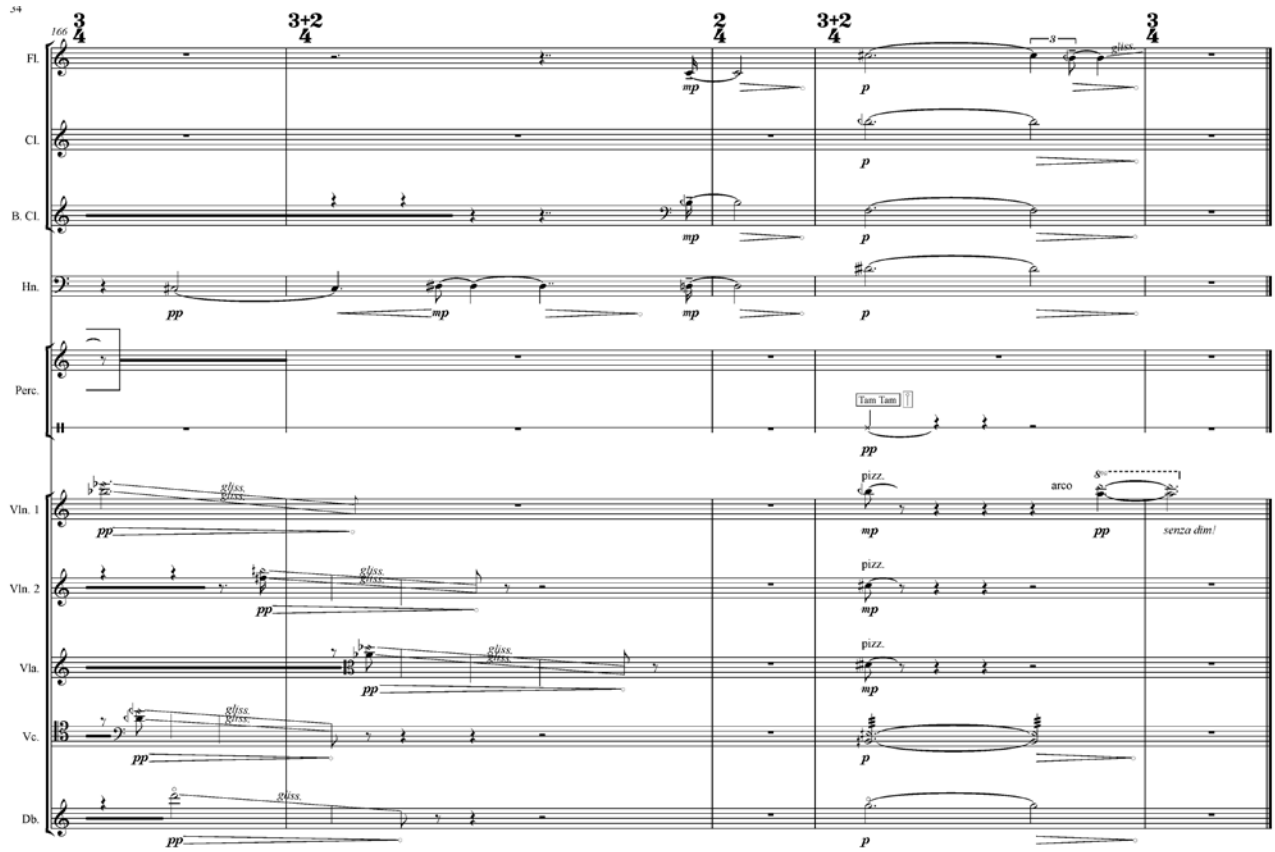
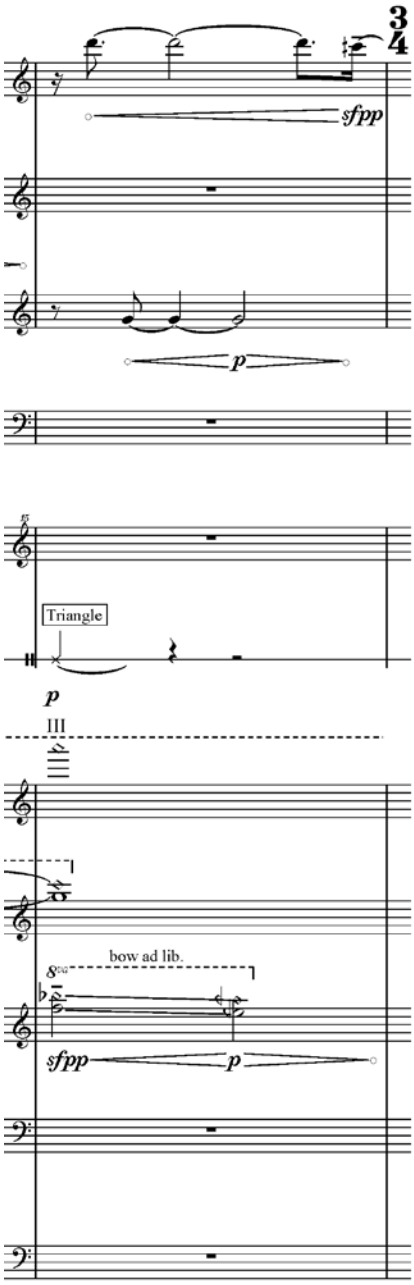


Fig.7.5 - Beata Luna: bb166-170



In my initial sketches I was interested in integrating medieval techniques of organum into my composition. Though it would be misleading to suggest that such techniques were applied assiduously throughout the work, there are several instances within the score which reference certain medieval practices; it is possible to stratify the texture so that *tenor*, *organum* and *triplum* lines are visible, though with one crucial difference: whereas the *triplum* should be the top voice and the *tenor* the bottom (traditionally with sustained notes), here these two roles are reversed. The *tenor* line articulates the plainchant and appears at the top of the harmony, in a manner reminiscent of a traditional *cantus firmus* line. Returning to the original harmonic diagram, it is clear that although conventional minor triads are depicted as the staple from which the harmony then atrophies into the mixture of constituent microtones, the interval of a perfect 5th (emblematic of *organum*) is prevalent. Indeed, if one overlooks the fact that the intervals are often compound if not even greater (and therefore not strict *organum*) we do not have to wait long to hear the opening a'''' harmonised at the 5th below - d''' on the flute (see *fig.7.6*), though this is neither a 'pure' nor compound perfect 5th. The harmony is complicated by the presence of quarter-tones *within* the interval and therefore disqualifies the compositional technique at hand as a true mirroring (or reflection) of medieval musical practices. Such examples can be seen throughout the score (see *fig.7.7*) and lend consistency to the harmony.

Fig.7.6 - Beata Luna: b5



Whilst the element of causality found in the *organum* of the Medieval period (including both free and florid styles) is absent here (inasmuch as I deviate significantly from fulfilling orthodox expectations), nevertheless I hope that by judiciously filtering inferences throughout my score a certain amount of cohesiveness in the melodic material is achieved.

In *Beata Luna* it was my express aim to fashion narrative development explicitly by vertical means. A forward trajectory is discernible with harmonic progressions to the fore between rehearsal figures J and L despite the initial appearance of the linear material within boxes (at first the two violins, later taken up by the majority of the ensemble). Certainly the negation of linear development is largely due to the homophonic texture created by the other players. Paradoxically, the importance of the vertical is strengthened by the presence of the melodic content presented in the boxes: in bar 98 (see *fig.7.8*) the chord is an amalgam of the first column of harmonisations for *Beatus Hugo piscator Dei* with the first

violin playing the bottom four pitches of the second triad (e’’’ quarter-tone flat - f’’ - d’’’ - e’’ quarter-tone sharp) and b’’’’ - e’’’’ - d’’’ quarter-tone flat found in the second column (first and second triad) of harmonisations for *Alleluia Christus resurgens.* Although a completely new harmony has been found by cross-fertilising the two pieces of plainchant, by restricting the melodic material to pitches within the same bi-triadic harmonisation one achieves the aural result of reiteration: articulating the same chord and thus retaining a vertically positive sense of narrative development. *Glissandi* are generally used as expressive devices with no end pitch indicated: this was intended to create the effect of a gradual ‘dissolving’ of pitch. The importance and efficacy of such passages is redoubled by the fact that it is predominantly the high - inverted - pedal notes which this pertains to. This does not however preclude me from using *glissandi* to move between harmony notes (see viola in bar 5, *fig.7.9*).

Fig.7.7 - Beata Luna: bb66-70

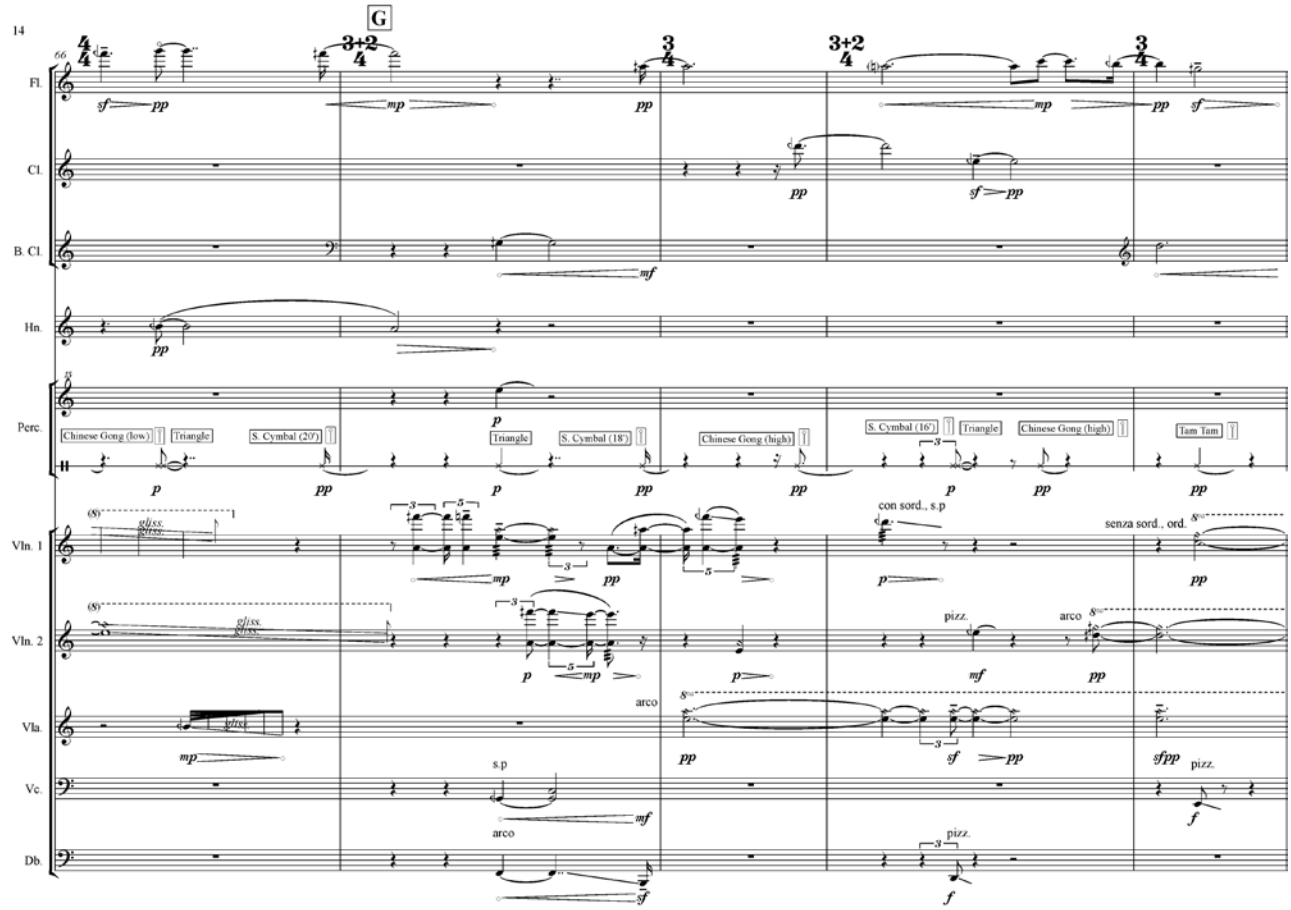
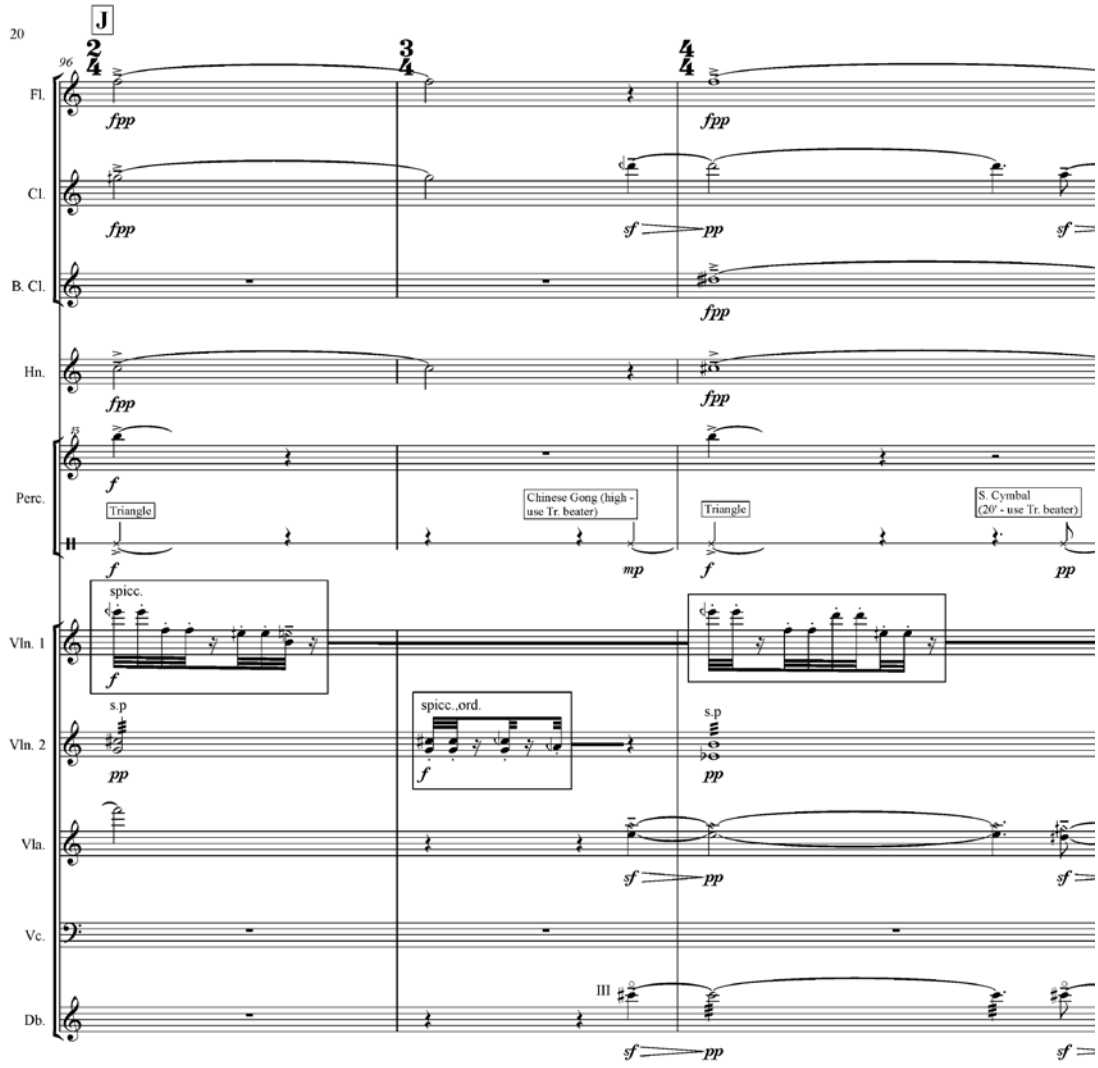


Fig.7.8 - Beata Luna: bb96-98



Between rehearsal marks M and N the compositional focus centres on the vibraphone (alternating with crotales), whose dyadic harmony is augmented by the two violins at first with the viola and 'cello joining two and five bars later respectively. The vibraphone's pitches (which dictate those of the strings) process through the first four columns of the *Beatus Hugo piscator Dei* harmonisation (see *fig.7.10*) and this sense of articulating the ordinary in distended time is off-set by minute durational variations in the strings' box material as well as a more elaborate counterpoint in the wind (see *fig.7.10,* bb138-140).

Fig.7.9 - Beata Luna: b5

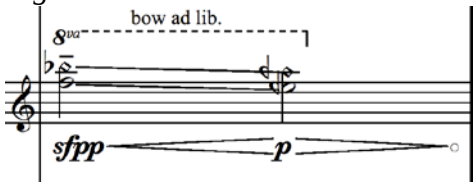
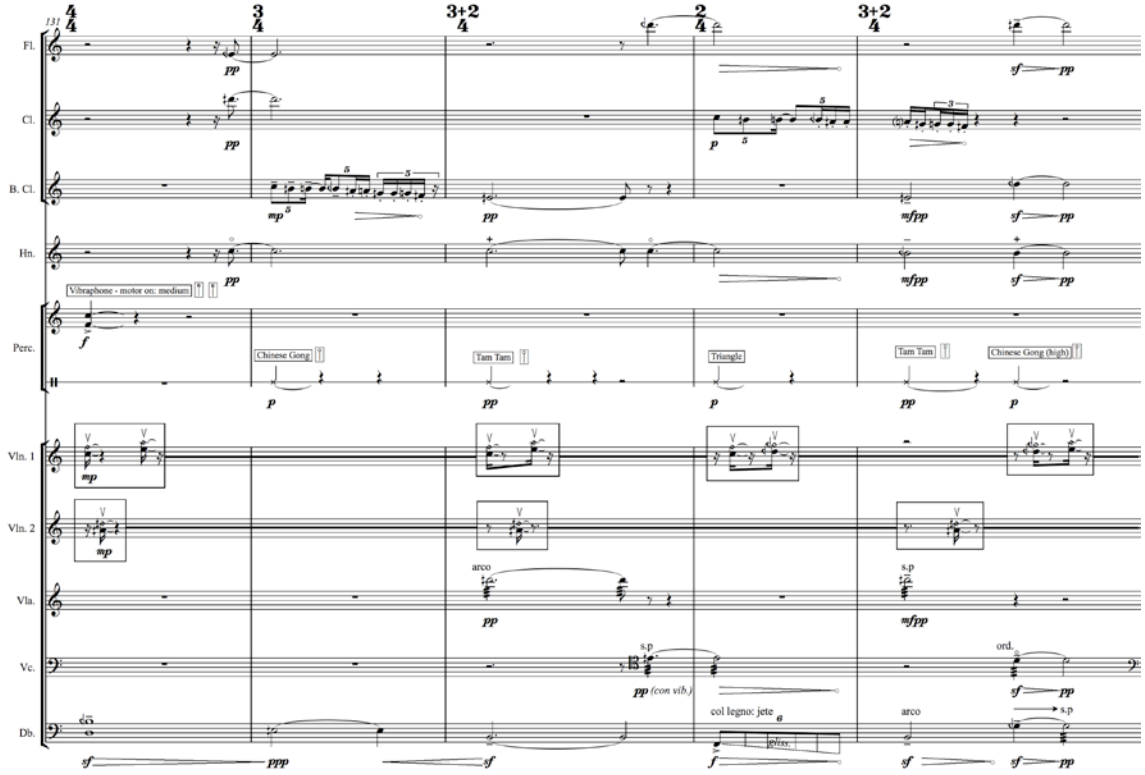
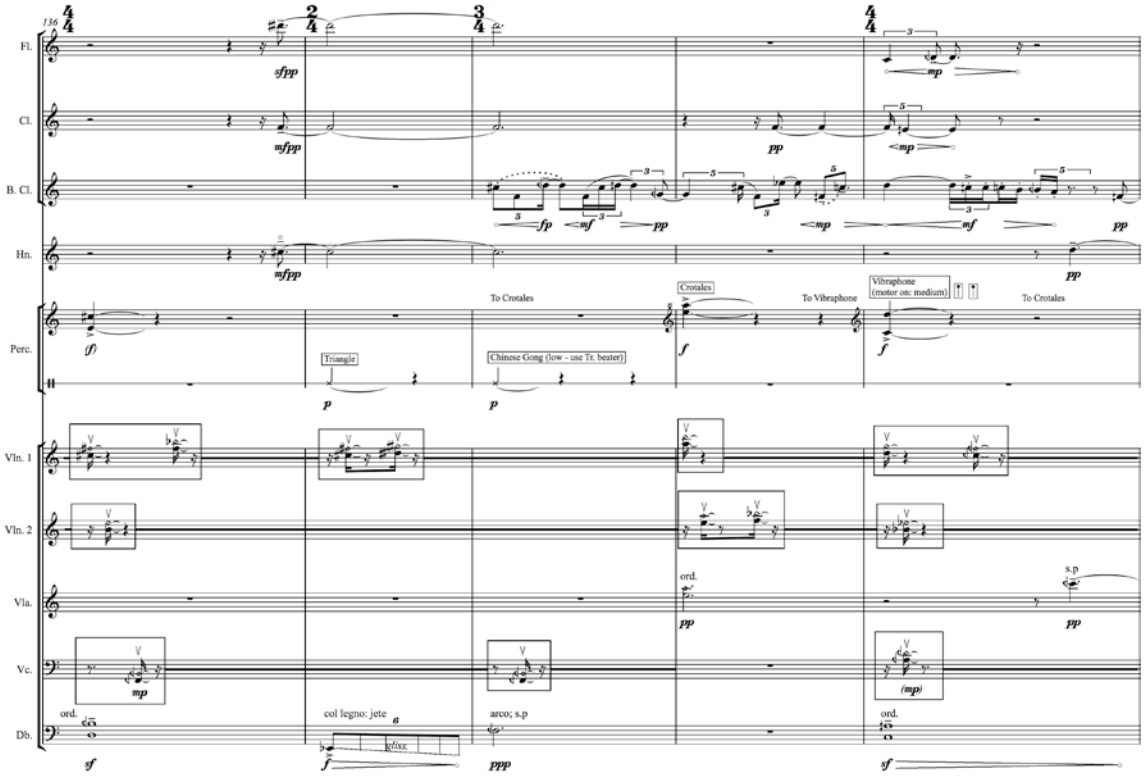
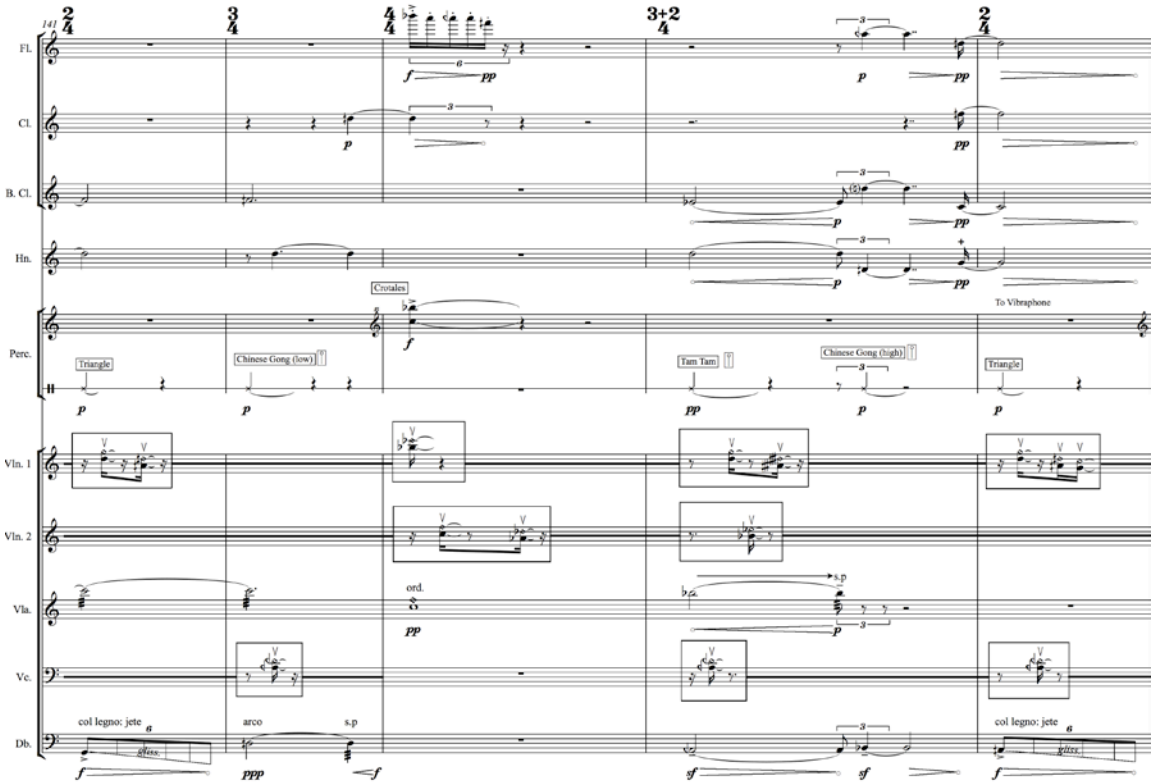


Fig.7.10 - Beata Luna: bb131-135, 136-140 & 141-146


Fl.
Cl.
B. Cl.
Hn.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
Db.
Vibraphone - motor on: medium
Chinese Gong
Tam Tam
Triangle
Tam Tam
Chinese Gong (high)
arco
s.p
ord.
col legno: jete
(con vib.)


Fl.
Cl.
B. Cl.
Hn.
Perc.
Vln. 1
Vln. 2
Vla.
Vc.
Db.
To Crotales
Crotales
To Vibraphone
Vibraphone (motor on: medium)
To Crotales
Triangle
Chinese Gong (low - use Tr. beater)
ord.
col legno: jete
arco; s.p

(bb141-146)



At O variations in duration are subjected to greater scrutiny, the double bass figures up until bar 166 being a pertinent example. After the addition of one note (d''' to a'') the overall duration of the material within the box fluctuates; with the value of a 16th note being constant, the material expands from 5 to 8 before contracting back to 7 and then rising again to 8 (see *fig.7.11*). In context with the four other strings, none of the boxes have the same total duration thus ensuring that the overall effect is of random articulations orbiting a chorale-like figure on the flute, clarinets and horn which, in turn responds harmonically to the vibraphone (see *fig.7.12*).

Fig.7.11 - Doubles bass durations (bb158-164)

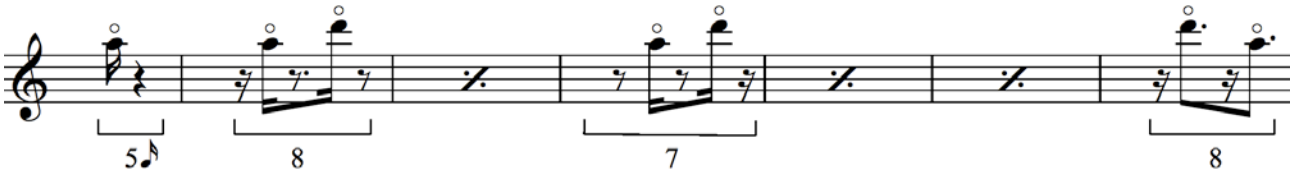
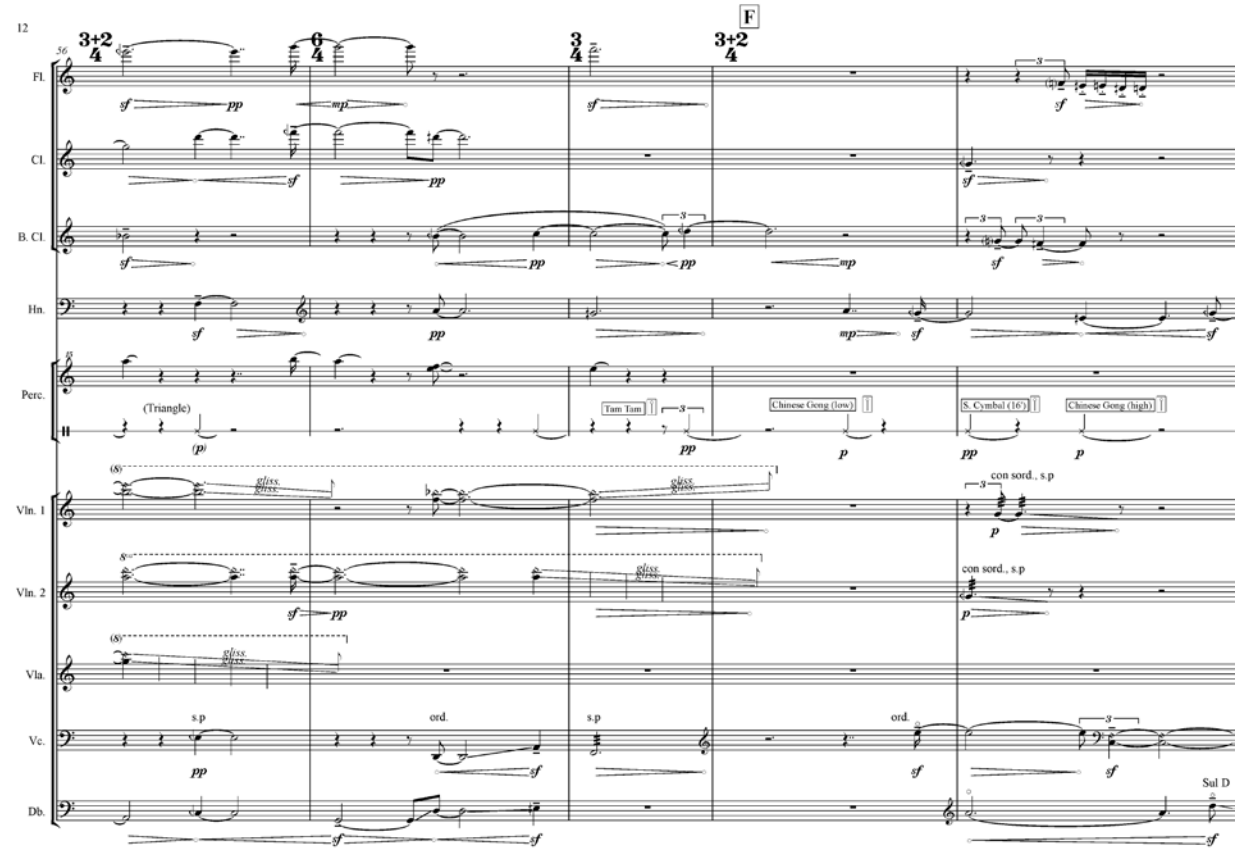
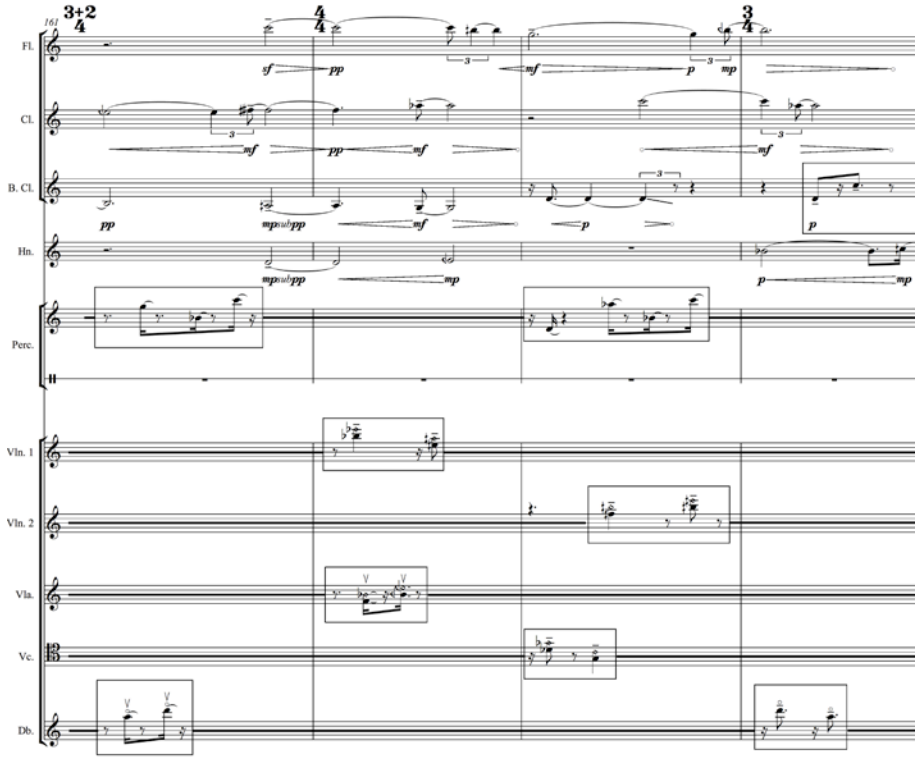


Fig.7.12 - Beata Luna: bb156-160 & 161-164





After the constant yet varied palpitations of the preceding music the final chord (an aggregate of six pitches contained within column 5 of the *Alleluia Christus resurgens* harmonisation) echoes the dramatic effect achieved at the climax (bb73-74) by virtue of

introducing a sudden static vertical into the texture. Perhaps this chord represents the sort of ephemeral musical moment Tristan Murail so poetically encapsulates when he speaks of the 'passing of thresholds'[11].

4.2 In memoriam Aldo Clementi

When Adorno coined the term *musique informelle* in 1963 in his essays on new music collected under the title of *Quasi Una Fantasia* he seemed to revel in the succession of paradoxes he cited as being both intrinsic and fundamental to the type of music being written at the time. Obviously Adorno had legitimate grounds for being so certain in the music's uncertainty; in trying to theorise about the new developments in composition he found that whilst the individual composer may have publicly and polemically exerted his or her break with tradition, nevertheless their music contained elements, facets and techniques common to traditional compositional practice. How then to resolve this dichotomy?

Certainly Aldo Clementi has taken the ideas of motivic and thematic composition to a new level; by engaging with repetition on such an explicit level - the likes of which have arguably only been seen in Minimalism - but at the same time managing to imbue that repetition with an innate sense of development through 'absolute graduality'[12]. Inspired by both Clementi's techniques and by the pure sound of his music, and eager to see if I could subvert the 'linearity of time'[13] that associations with the canonic structure invariably brings, I composed *In memoriam Aldo Clementi*.

Scored for twenty-one players, this is the largest work in my portfolio and represents both a summation of previous research and the potential for further modifications to my working methods; it is both an arrival and a departure.

Although the overall formal design is of one continuous movement, *In memoriam Aldo Clementi* displays clear dividing lines between sections (see *fig.8).*

Fig.8 - Formal Schematic

Section One	Section Two	Section Three	Coda

[11] Tristan Murail, 'After-Thought', Contemporary Music Review, 19/3, 2000, p.7.
[12] Gianluigi Mattietti (2011), 'The Strings of the Canon: The Evolution of Aldo Clementi's Contrapuntal Writing through the Compositions for Solo Violin', Contemporary Music Review, 30:3-4, pg.278.
[13] David Osmond-Smith, 'Aldo Clementi and "La Petite Phrase" (1999), Sleeve note to "Madrigale" by the Ives Ensemble, Hat Hut records, WDR, 1999

A - B	C	B* - A	B*
[a1+a2]	[c1+c2+c1+c3]	0.5 [a2+a1]	0.5

Reminiscent of Rondo form one can infer from the diagram above that there is limited material, labelled A, B and C, where A is made up of six eight note chords (*u-z*: see *fig.8.1*), B is the result of a series of pitch-class set multiplications from the total set (see *fig.8.2*) where A□ is the nominal tonic, and C is derived from a series of pitch-class set multiplications from an initial series of expanding verticals (see *fig.8.3* and *fig.8.4*). The material labelled A in the third section (a2, a1) forms a direct correlation with the initial eight note chords at the very beginning of the work; once again the harmony has undergone modulation through pitch-class set multiplication (see *fig.8.5*).

Fig.8.1 - Chords U-Z

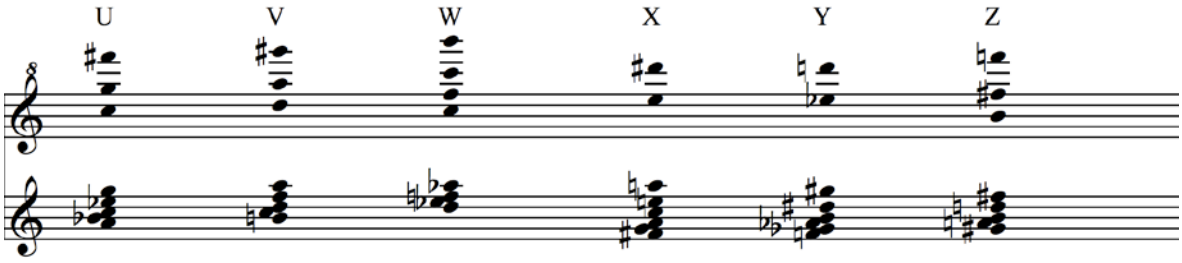


Fig.8.2 - Total Set

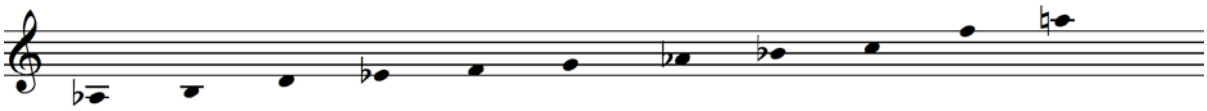


Fig.8.3 - Verticals

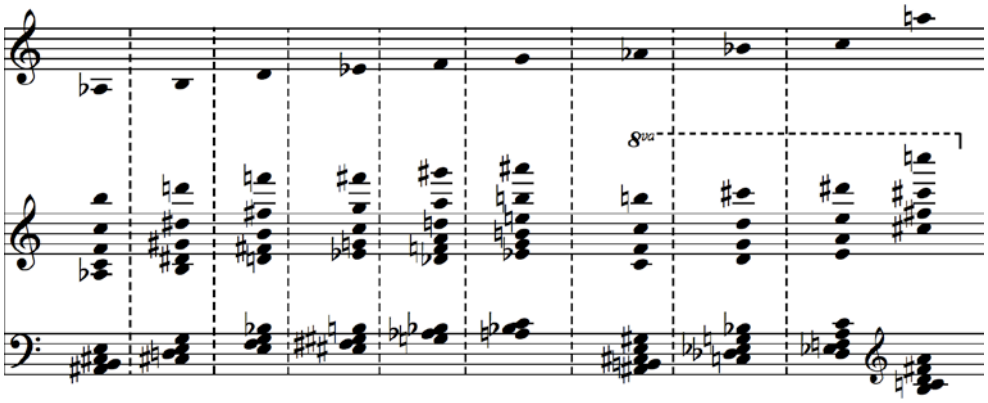


Fig.8.4 - Pitch-class multiplications

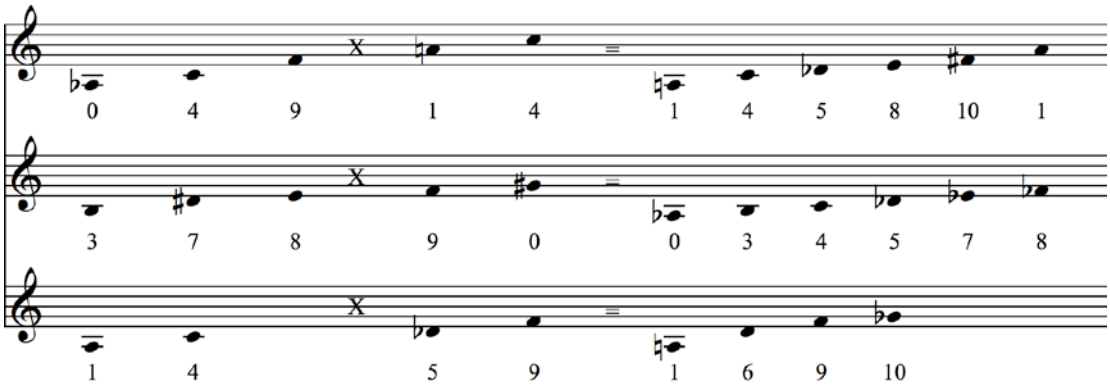
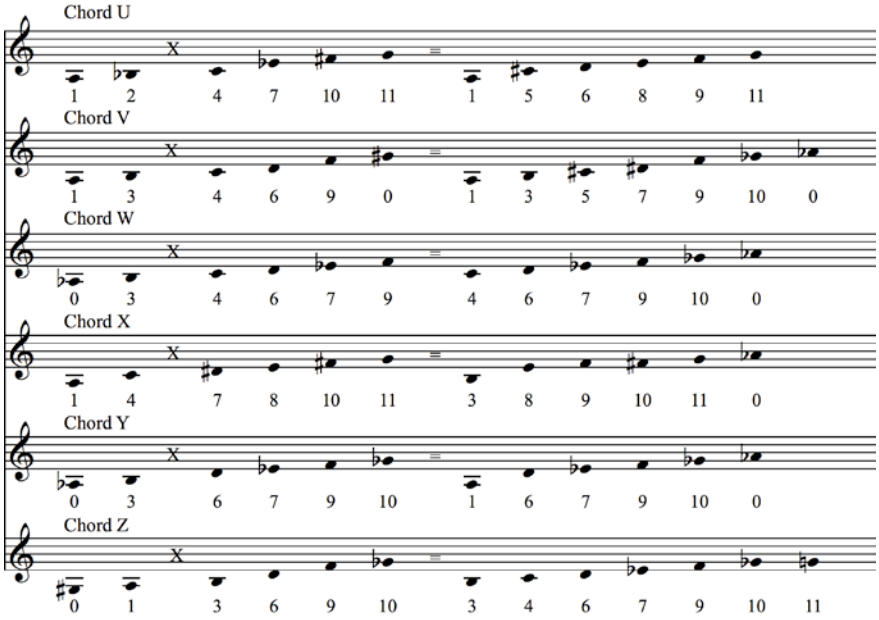


Fig.8.5 - Pitch-class multiplications for chords U-Z



The original form of the augmented 'mirror' canon which dominates the first section and returns in the last originates from an improvised idea which became the precursor to the six eight note chords used at the beginning, see *fig.8.6*. After arranging the pitches in their prime form I then went through two permutations dictated by the intervals given to me (see *fig.8.7)* before progressing to further modulations on the next pitch in ascending order (B - see *fig.8.8*) which gave me three more pitches with which I could complete a 'synthetic' (and irrational) scale based on A□ (see *fig.8.9*). The third permutation/modulation gave me the pitch-class set I constructed my mirror canon from, see *fig.8.10*.

Fig.8.6 - 'Broken chord'

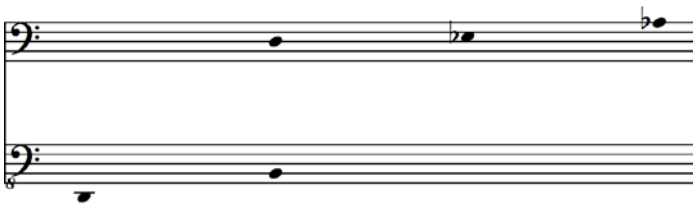


Fig.8.7 - Pitch-class rotations of 'broken chord'

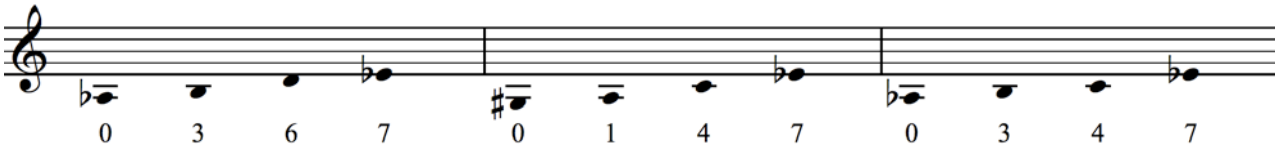


Fig.8.8 - B

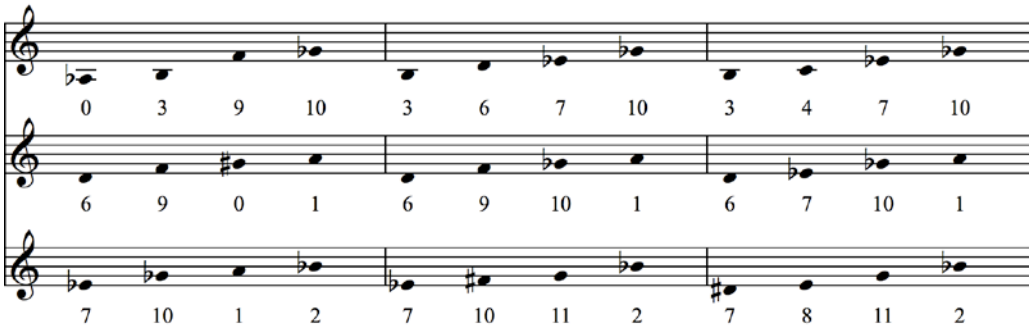


Fig.8.9 - Synthetic scale

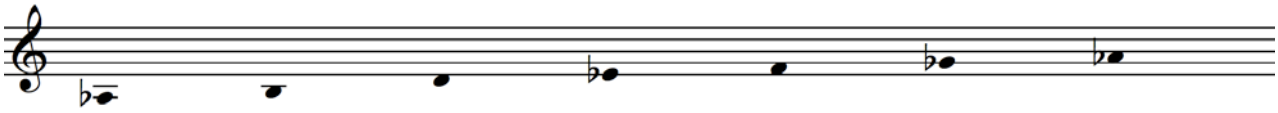
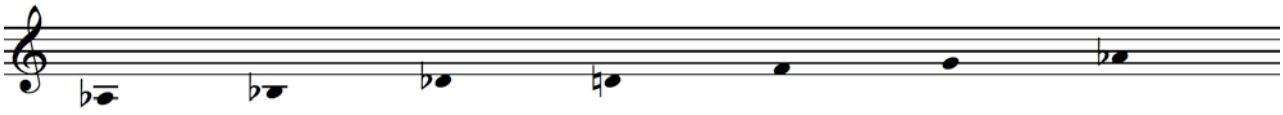


Fig.8.10 - Pitch-class set for Mirror canon



In contrast to a lot of Clementi's music, my piece does not contain any quotations or fragments of other music; this means that whilst Clementi could play on his listener's expectations (to a great extent dependent on the populist nature, or not of his source material) I had to construct familiarity with my musical processes through the structure of the canon itself and not by relying on its melodic content. I was drawn to the canonic model by its logical inferences and, by the *de facto* possibilities of disrupting that perceived order, either through abrupt schisms in the narrative (juxtaposing disparate pieces of material *a la* Dutilleux in *Metaboles*) or by using slowing tempi, which causes the listener's perception of the material to alter by virtue of the temporal shifts.

The original canon (see *fig.8.11*) with its point of symmetry based around the sixth note (d') is altered with the addition of microtonal tunings to the first, third and fifth pitch, each

one raised by a quarter-tone. The transpositions of the canon are a perfect fifth above (a) and two inversions: one at the semitone (d) and one at the tone (e), see *fig.8.12*.

Fig.8.11 - Mirror canon in original form

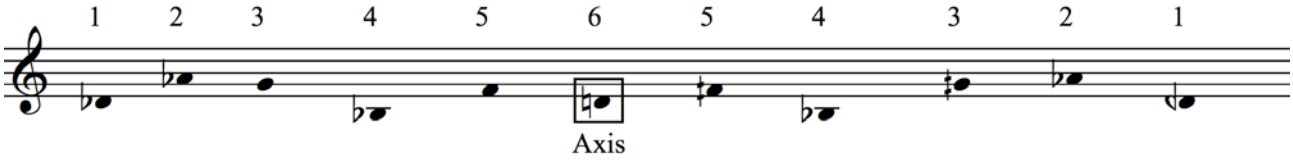
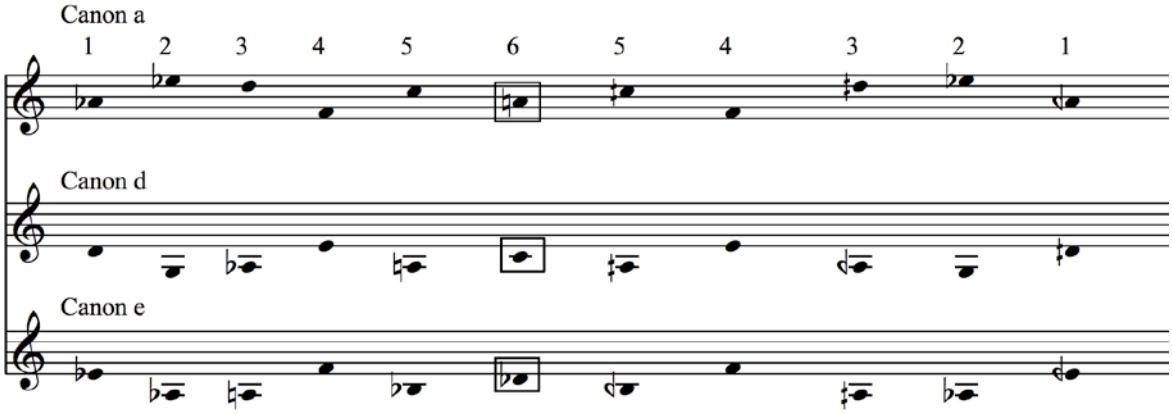


Fig.8.12 - Transpositions of Mirror canon



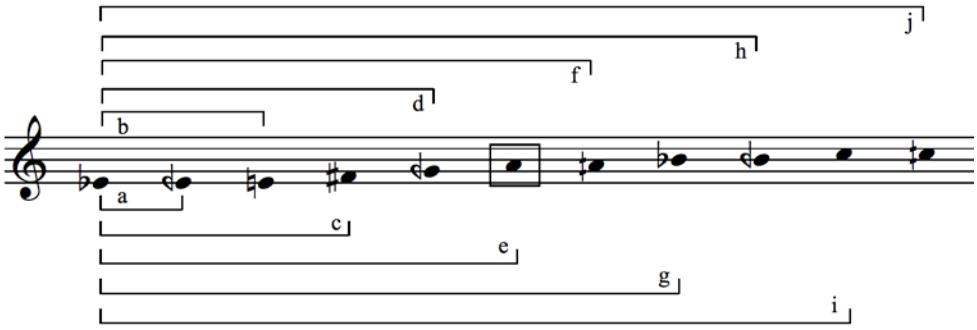
After the opening prelude (bb1 - 11), which contains both prime and retrograde (broken) versions of the A material (here I use the pitches from the six eight-note-chords melodically for the most part, sometimes maintaining smaller aggregates from within the eight notes, see b2), the canon (in its prime form) starts at bar 11 on the first violin (***p*** *en dehors*). It is joined by canon *e* (in Cor Anglais) two bars later (***poco più lento***). Both versions of the canon are treated using the *Klangfarben* technique; by breaking up the melodic line I sought to address a paradox: using canonic technique in a non-linear narrative. Although, like Clementi I was varying the audible results of my canonic practice by virtue of temporal manipulations (explained below) I wished to demonstrate in my music an 'invention of processes, as opposed to traditional development'[14], and sought to mitigate the 'traditional development' by breaking up what is essentially one long melodic line into subsidiary, motivic fragments, a technique borrowed from Webern.

As the work developed I wished to stretch the rigours of my canonic practice, mindful of the following statement: 'the capabilities of compositional systems can only be determined in

[14] Gérard Grisey and Joshua Fineberg, 'Did you say Spectral?', Contemporary Music Review, 19:3, 3

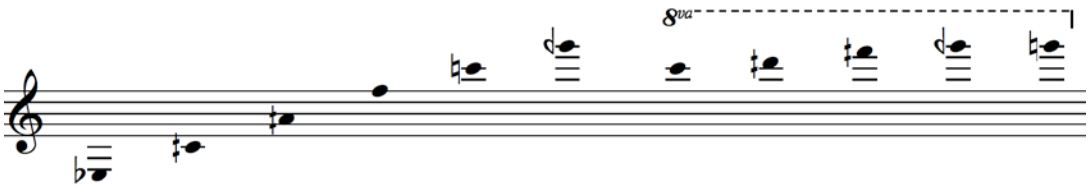
situations where they are subjected to stress'[15]. Consequently I took canon *e* and mapped out the composite intervals from the smallest to the largest seeking to 'stretch' it harmonically (see *fig.8.13*). These were then organised into a series (see *fig.8.14*).

Fig.8.13 - Canon e and its composite intervals



a=>st
b=st
c=min.3rd
d=<min.3rd
e=aug.4th
f=<aug.4th
g=perf.5th
h=<perf.5th
i=maj.6th
j=<maj.6th

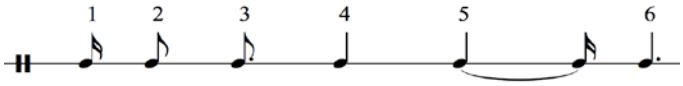
Fig.8.14 - Synthetic harmonic series



Durational processes were applied concurrently to those of pitch when composing the canon; for purposes of symmetry I stipulated that there be six different durations applicable to the six pitches of the first half of the canon (the second group of six mirroring the first). To avoid over complicating the texture when layering two or more canons at the same time I decided that the durations should be calculated in the same subdivisions for all parts: semiquavers (see *fig.8.15*).

[15] Enno Poppe and Rainer Pöllmann, 'Against Spontaneity and Rigidity', Sleeve note to Enno Poppe: Chamber Music by ensemble mosaik, Deutschlandradio-col legno (2005)

Fig.8.15 - Canonic durations



Through a process of simple rotation 180 possible sequences were calculated containing the six numbers (see *fig.8.16*). Details of the specific canon/numeric pattern used in the first section (b1 - 93) can be seen in *fig.8.17.*

Fig.8.16 - Numerical permutations of the sequence 1-6

3	1	5	4	6	2
1	5	4	6	2	3
5	4	6	2	3	1
4	6	2	3	1	5
6	2	3	1	5	4
2	3	1	5	4	6
1	3	5	2	4	6
3	5	2	4	6	1
5	2	4	6	1	3
2	4	6	1	3	5
4	6	1	3	5	2
6	1	3	5	2	4
2	5	1	4	6	3
5	1	4	6	3	2
1	4	6	3	2	5
4	6	3	2	5	1
6	3	2	5	1	4
3	2	5	1	4	6
3	4	1	2	6	5
4	1	2	6	5	3
1	2	6	5	3	4
2	6	5	3	4	1
6	5	3	4	1	2
5	3	4	1	2	6
5	1	6	2	3	4
1	6	2	3	4	5
6	2	3	4	5	1
2	3	4	5	1	6
3	4	5	1	6	2
4	5	1	6	2	3

A feature of a significant proportion of Clementi's work is the use of *ritardandi* or slowing *tempi*. In trying to replicate this I calculated nine inter-connected *tempi,* though for practical reasons I suggest that they are all *circa*. The nine different *tempi* are: □=144, 120, 104, 92, 80, 69, 63, 58 and 54.

Fig.8.17 - Order of durations within the canons

12345654321	31546264513	Original Canon
25146364152	51623432615	a
25146364152		o/a
12345654321		a/o
34126562143		b
34126562143	12345654321	e
25146364152		d
51623432615		e
25146364152		d
31546264513		d
12345654321		e
34126562143	12345654321	d
35246164253		e (retrograde)
13524642531		d (retrograde)
34126562143		e (retrograde)
12345654321		d

Between bb93 - 172 and 222 - end I elaborate on a process I used towards the end of *Beata Luna*, namely that of the 'box' method championed by Lutoslawski. However, in this work I have chosen to write the boxes out. This allowed me greater freedom to vary on the minute level, for example changing the dynamics from bar to bar (see the clarinets in bb141 - 165).

The way I approach repetition in this work is through subliminal transformation on the micro level; from bar 98 onwards instruments are put in pairs and each pair shares significant temporal characteristics with its partner. For example, at bar 98 the alto flute's motivic cell (lasting eleven semiquavers) is joined by the bass trombone initially providing a false octave - e quarter-tone flat below c' and also lasting eleven semiquavers. At bar 104 the first of the alto flute's pitches is lowered a quarter-tone as is that of the bass trombone; thus there is a sense of transposition whilst retaining the intervallic proportions and therefore the contours of the line. By applying a similar working rationale to the rest of the pairs I hoped to cultivate a sense of gradual and imperceptible transition. To help strengthen the effect of these transitions I have (like Clementi who favoured wedge shapes[16]) turned to the overall texture of the composition: at bar 98 nineteen of the twenty-one players are involved. This figure is reduced at bar 125 to seventeen and by bar 141 to twelve. At bar 173 and the start of the final section the numbers playing have dropped to nine although this number does rise by the end of the work.

The final important motif of the work is the quasi heterophonic quartet between harp, flute, clarinet and piccolo trumpet (bb227 - 236). Whilst the harp's melodic line is taken from the equal tempered pitches found in *fig.8.13* the three melody instruments orbit this *cantus firmus*, 'filling in' the harmony with the remaining pitches from the 'row' in an echo effect.

In keeping with the idea of a *homage* to Aldo Clementi, I felt it only right to end my piece in a way he would have approved of - by simply stopping.

5. Epilogue

[16] Gianluigi Mattietti (2011), "The Strings of the Canon: The Evolution of Aldo Clementi's Contrapuntal Writing through the Compositions for Solo Violin", Contemporary Music Review, 30:3-4, 278.

Although I believe that any compositional pursuit is bound to be inconclusive, inasmuch as conclusions necessitate a value judgment based on a fixed point in time, contradicting the fluid nature of the artistic process, I feel that reflection on the portfolio as a whole is highly pertinent. But even more appositely an overview of the portfolio could contribute to defining what I mean by 'prefabricated' and 'standardised' material.

Throughout the thesis, I used these terms with reference to concrete compositional choices. In Chapter 2, I suggested that by incorporating quarter-tones, one necessarily moves away from an exclusive reliance on prefabricated sounds, i.e ones that are formed exclusively from equal tempered material. Though I am not concerned with Spectralism, I am interested in microtonal harmony and am thus obliquely drawn to the harmonic worlds of both Grisey and Murail. Whilst it could be argued that the harmonic series is itself prefabricated, being a natural phenomenon, it is the manipulation of spectra and the meta - processes one can find in spectral music that ensures against any notion of 'ready made'.

'Standardised' was first mentioned in Chapter 3, when introducing the final two works of my portfolio which deal most explicitly with non-linear narrative. Here I used the term in relation to form. Hitherto I had explored standard forms (inspired by classical models) in my work, including miniatures and extended forms made up of smaller, constituent sections, but these pieces aspire to break with this practice.

Prevailing concerns regarding linear and harmonic design do delineate a clear trajectory in themselves through my portfolio and, whilst I have tried to absorb disparate influences – musical and otherwise – my syntax is consistently reliant on clear compositional processes with pitch at their very heart.

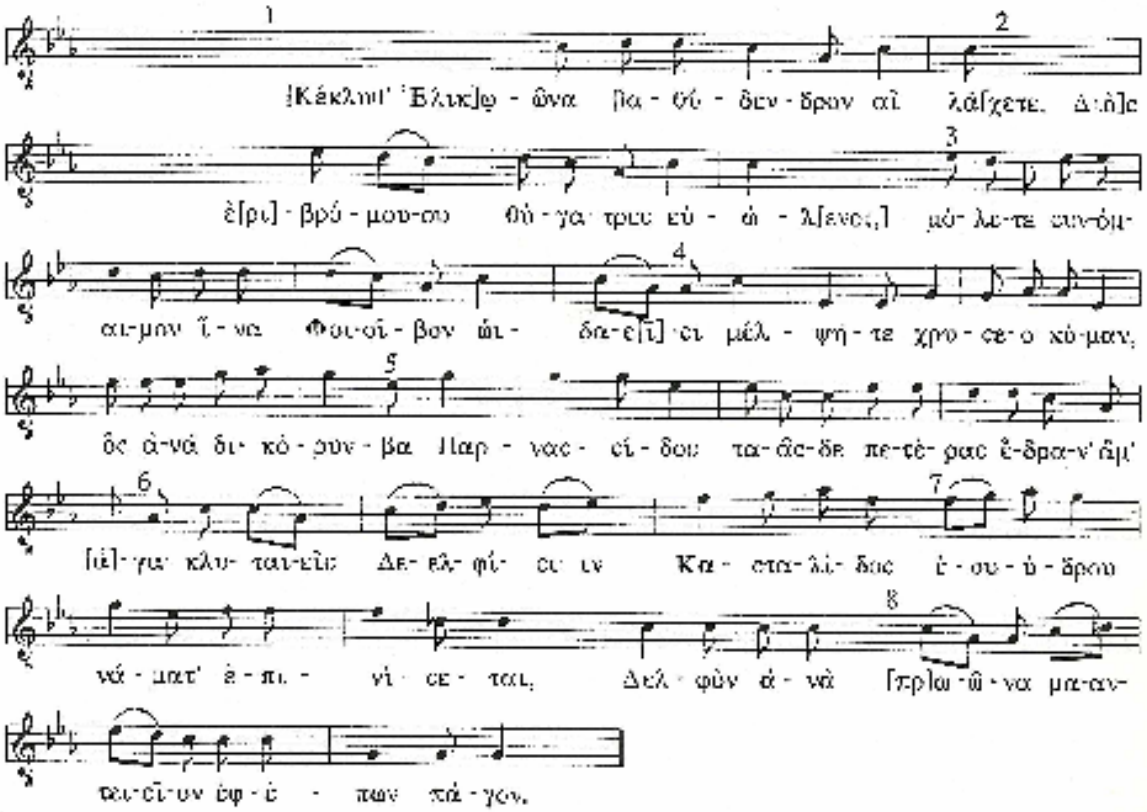
Perhaps at times my focus on form and formal narrative comes too early in the compositional process. Such concerns should ideally be born out of the material, but frequently occur at the initial stages of conception. Arguably this delicate balance is most evident in the last work but, often in my earlier pieces, the form appears somehow constrictive when a more flexible approach might have yielded a result more akin to the nature of the material.

Leaving aside the three unperformed works (those without recordings), the process of realising the others in performance was informative. Of those four pieces only *In her little room* received substantial revision and cutting as a consequence of the rehearsal process. In the two mixed ensemble works, issues of interpretation, such as *tempi* and dynamics, were discussed, and suggestions from the conductor made their way into the final score. With *Enveloped Time* several issues regarding ensemble writing were eventually solved for the recording by using a conductor.

Appendix

Col. ii/i [Παιὰν καὶ ὑπόρχημα] εἰς τὸν Θεὸν ὃ ἐ[ποίησεν | Ἀθ]ήναιος.

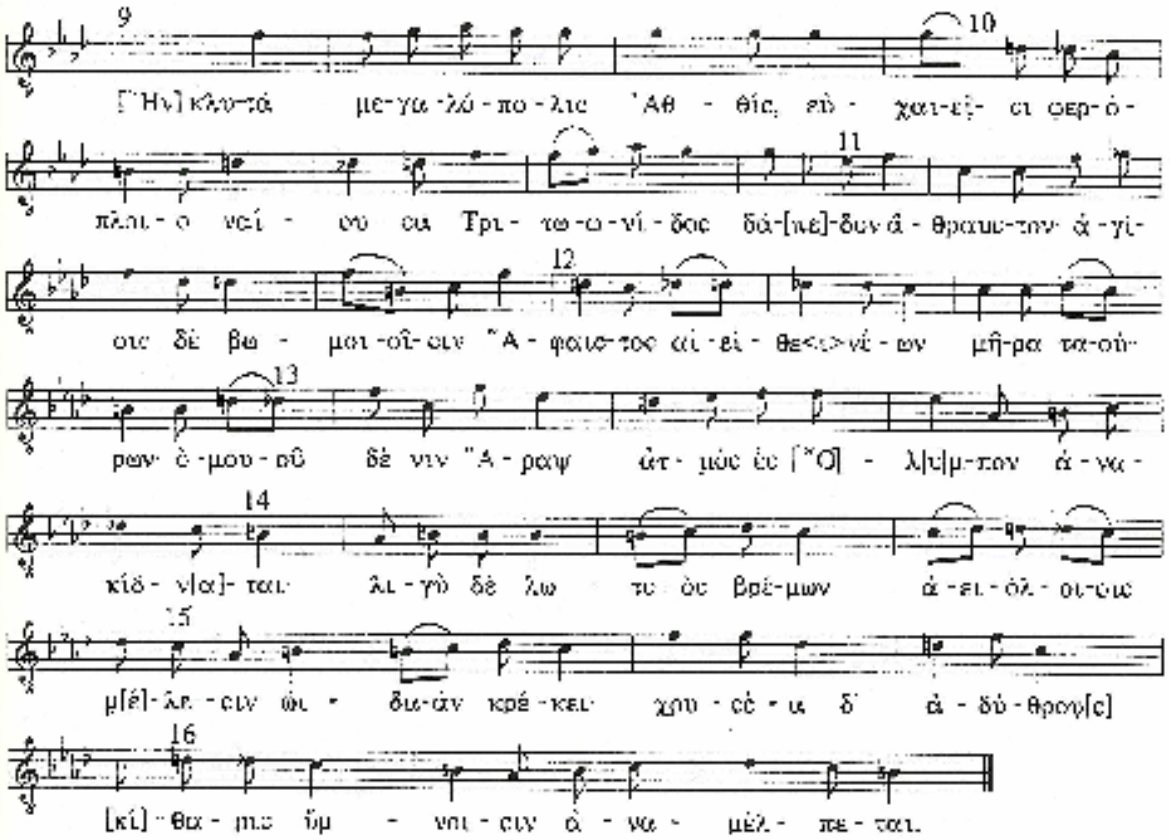
Col. i



Text Title [Παιὰν καὶ ὑπόρχημα] Pöhlmann (1970), 58 ὃ ἐ[ποίησεν | Ἀθ]ήναιος (Ἀθηναίου) Bélis (1992), 55 f.

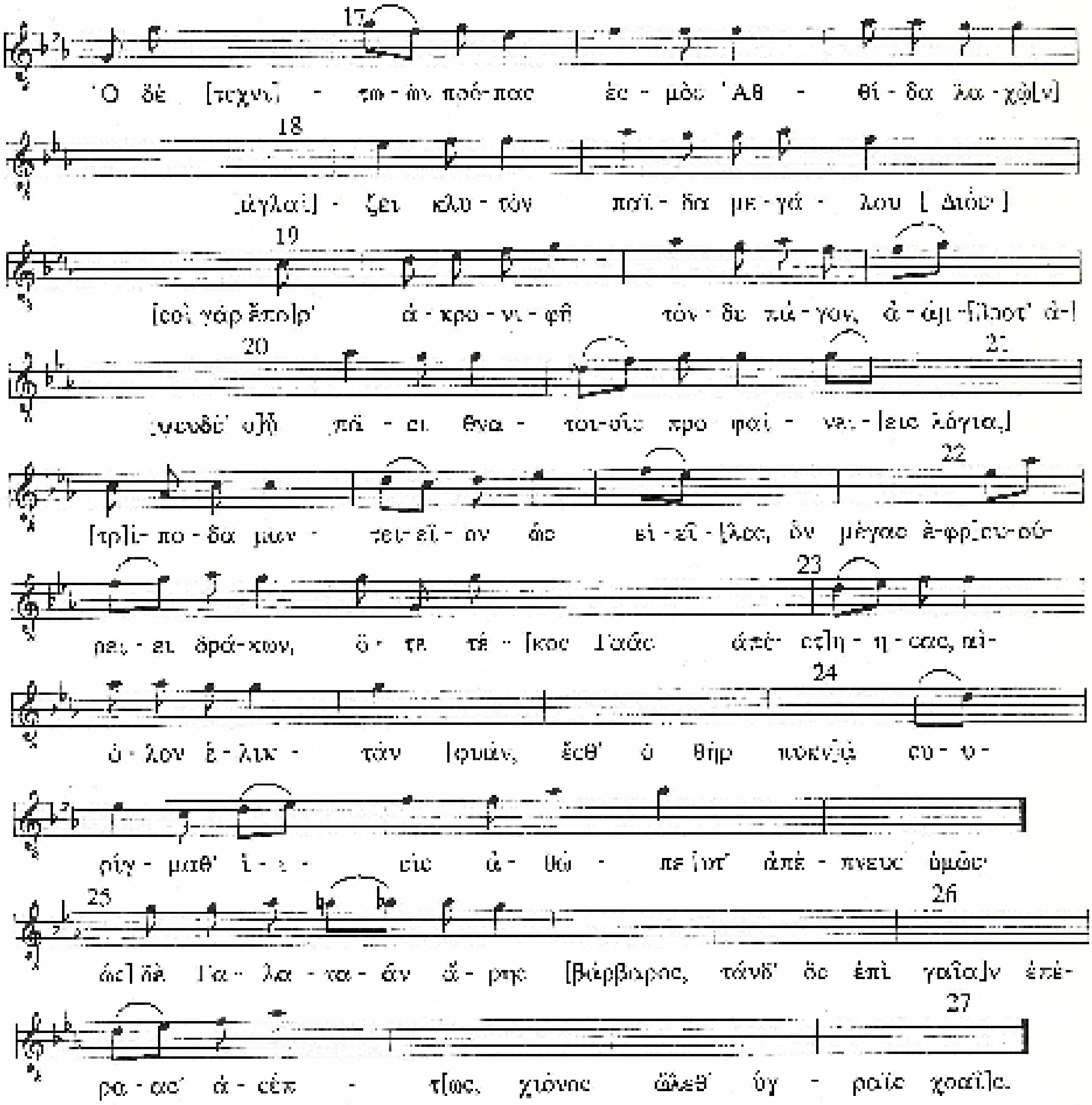
Supplements to 2–24: Weil (1893), 574–77, (1894), 361 and Reinach (1909–13), 152 f., supplements to 22–6: Crusius (1894), 33.

1 [Κέκλυθ' Ἐλικ]ῶνα Crusius (1894), 40 f., Ἐλι[κ]ῶνα Pöhlmann (1970), 58, [Πρόμολεθ Ἐλικ]ῶνα West 1 (1992), 6, Ἑλικ]ῶνα Bélis (1992), 58 2 Διὸ]ς ἐρι]- Reinach (1909–13), 152, Διὸ]ς ἐ[ρι]- Bélis (1992), 55, 58.

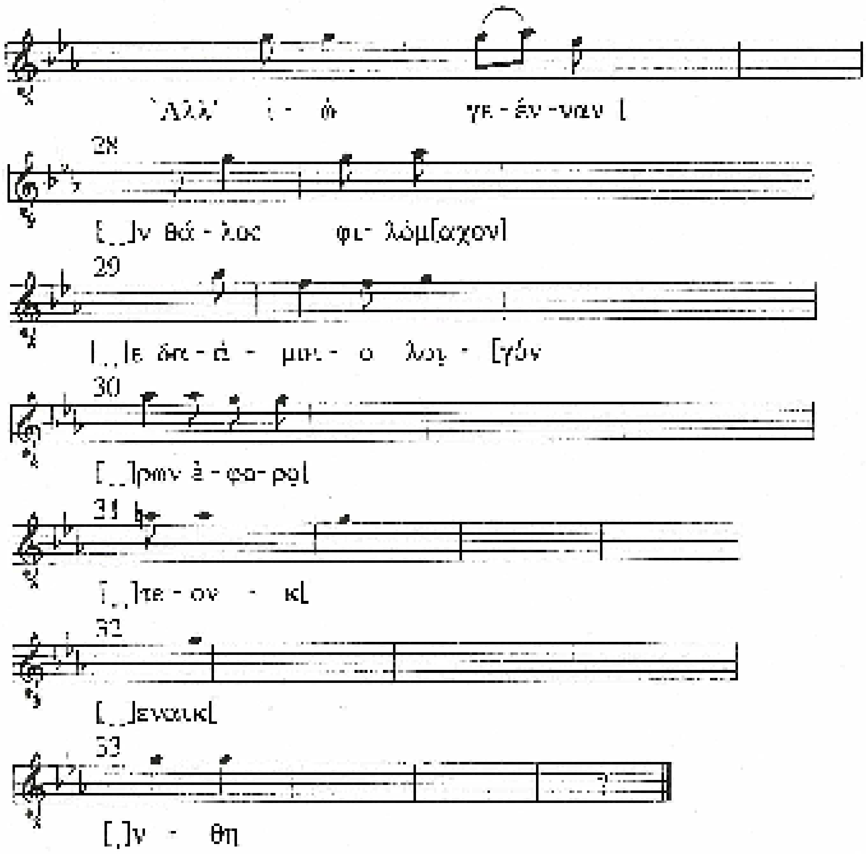


Text 9–10 κόχλαι|[ῖσι]: Weil (1893), 576, κόχλαισι|[σι]ν Reinach (1909–13), 154: 'par madvertance', Bélis (1992), 65 12 ἀτειτθε<ι>ς lapis, ἀτειθε<ι>ς Weil (1893), 576 13 [Ὄ] λ[υ]μπον Weil (1893), 578, ὑλομπον lapis 16–17 [θ]|[ε]ω[ρ]ῶν Weil (1893), 577, τ[εχν-]|[τ]ωῶν Weil (1894), 361 comparing no. 21. 20–1, [τεχν-]|[τ]ωῶν Reinach (1909–13), 152, [τεχνι]|τῶν Pöhlmann (1970), 60, [τεχνι]|τῶν Bélis (1992), 73.

Col. i/ii



Text 17 λαχ[ὼν] Reinach (1909–13), 152, λαχὼ[ν] Pöhlmann (1970), 60, Bélis (1992), 73 17–18 [κιθα|ρί]ζει or]ζει Reinach (1909–13), 155, [ἀγλα|ΐ]ζει West 1 (1992), 61. 18 κλυτὸν Reinach (1909–13), 155, κλυτὸν Colin (1909–13), 155, Bélis (1992), 74 18–19 [Διὸc | coὶ γὰρ ἔ]πο]ρ' West 1 (1992), 7, [Διὸc ὑμνοῦcί cε | χα]ρ' Reinach (1909–13), 152 20 [οἷ]ϲ Bélis (1992), 56, 74, West 1 (1992), 7, [ἃ]ϲ Pöhlmann (1970), 60, [ὅc] Reinach (1909–13), 153 21 εἱ-εἷ-[λεc, Bélis (1992), 74, εἱ-εἷ[λεc, ἐχθρὸc ὃν Reinach (1909–13), 155, ὃν μέγαc Diggle (1984), 71 22–3 τέ[κοc Γαίαc ἀπέ cτ[ηcαc West 1 (1992), 7, τ[ο]ῖcι βέλεcιν ἔ[τρ]ηcαc Reinach (1909–13), 153, 155, τε[ane]ηcαc or better]ηcαc Bélis (1992), 74 23–4 πυκ[ν]ὰ West 1 (1992), 7, cυχ- [ν]ὰ Reinach (1909–13), 153 25 [ὡc] δὲ Reinach (1909–13), 153; cf. l. 21 26–7 ἀcέπτ[ωc, χιόνοc ὤλεθ ὑγραῖc βολ αῖ]c Pöhlmann (1976), 60, χο]αῖ]c West 1 (1992), 8.



Text 27 ααλλιω. ποι ααλλιω lapis, αλλ' ἰὰ Crusius (1894), 37 28]ν and μ[Bélis (1992), 79–80. φιλόμ[αχον Crusius (1894), 38 29]ε Reinach (1909–13), 153,]ε Bélis (1992), 80 (metrically impossible) λοι[Pöhlmann (1970), 62, λο[Bélis (1992), 80, λοιγόν Crusius (1894), 38 30 εφορο[or εφορα[(metrically impossible) Bélis (1992), 80, ἐχθ]ρῶν ἐφορ]μᾶν Crusius (1894), 38.

Fr. 3 *Text* 1]απε Reinach (1909–13), 155, Bélis (1992), 81,] πε Pöhlmann (1970), 62 3]ιος[Bélis (1992) 81, π]ρια[Reinach (1909–13), 155, [.]ς .] Pöhlmann (1970), 62.

Fr. 4 *Text* 1].α.ο[Bélis (1992), 82,]αι... Reinach (1909–13), 156 2]τι- οι μι- Reinach (1909–13), 156,]τι- Bélis (1992), 82 3]ρεν[Bélis (1992), 82, [.]εν] Pöhlmann (1970), 62,]εν[Reinach (1909–13), 156.

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