Portfolio of Compositions

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Abstract


This accompanying commentary discusses compositional concerns explored within the compositions. This includes an approach to creating binary oppositions, which is based upon a combination of Elliott Carter’s stratification techniques in combination with Lutosławski’s interval partitioning techniques. Additionally, approaches to creating musical drama and structural trajectory are explored. This includes drawing upon the structure of Greek tragedy by using Birtwistle’s *Tragoedia* as a starting point, juxtaposing and superimposing binary oppositions and using Stravinskian block structures. I also describe how my instrumental compositions have been influenced by electroacoustic music and describe a method of implementing Thoresen’s typology to plan and trigger textures and timbral ideas.
Declaration

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I would not have been able to complete this PhD without the help of my parents Irene and George and my brother David. Thank you for everything.
Introduction

The research aims for this body of work are as follows:

• To refine an approach to creating binary oppositions.
• To develop various approaches to creating musical drama and structural trajectory, including: applying juxtaposition and superimposition of binary oppositions, using Greek tragedy as a structural device and using block structures.
• To develop a harmonic language which focuses on pitch class limitations and interval partitioning.
• To apply devices from Medieval, Renaissance and Baroque music, including ground bass, antiphony and canon.
• To consider how electroacoustic typology and influences from electroacoustic music can be harnessed to create materials in instrumental music.

During my Master’s degree I was drawn to developing starkly contrasted materials and exploring the tension one can create through the strategic juxtaposition and superimposition of materials in binary opposition. I began to realize that I was particularly drawn to binary opposition because this allowed me to create audible tension, musical characterisation, and thus musical drama, without having to rely on functional tonality to allow such features to ensue.

An interest in the structural features of Greek tragedy consequently stemmed from this as tragedy provides an ideal structural framework for binary oppositions as it centres on the conflict between the protagonist and antagonist: two main characters that are in complete opposition to each other. Furthermore, the structural features of Greek tragedy are well suited to addressing the issue of how to develop drama within music. Returning to theatrical drama to analyse how the structure is manipulated to create
tension and release, whilst investigating how this can be applied allegorically within music, is a way forward for resolving this problem.

Another compositional concern that became apparent during my undergraduate degree was the use of musical devices from Medieval and Renaissance music, particularly canon, ground bass and antiphony. These devices appeal to me because they do not have to rely on functional tonality to operate. Therefore these devices provide a useful and fruitful way of developing and structuring material without depending on functional tonality.

Throughout the PhD I also became influenced by electroacoustic music through attending the MANTIS festivals at the University of Manchester and discussing approaches to electroacoustic composition with my peers. I was influenced by an article by Lasse Thoresen in which he proposes a graphical method for analysing energy articulation in electroacoustic music. I believed that this system of graphics could become a useful tool for helping me plan and trigger ideas for textures and timbres in instrumental work as this was an aspect of my compositional approach that had been previously less refined.

In terms of research context, my approach to binary opposition both relies and builds on previous stratification techniques used by Carter, Lutosławski and Stravinsky. Stratification refers to ‘the process or result of being formed

\[1\] During my undergraduate degree I composed a passacaglia in the song cycle Fragments to Music (2012). Additionally, during the Master’s degree, I composed a string quartet, Hydra (2013), entirely from different types of canons.
or arranged into layers’. Although commonly employed as a geological term, stratification can also be used to describe the layering of musical materials. Richard Delone argues that ‘stratification is a particularly important tool for creating musical shape and design in works in which less attention is paid to techniques involving key change, thematic discourse and sectionalisation marked and sustained by familiar harmonic formulae’. This suggests why the stratification of musical materials became an important technique for many composers of the 20th century who were looking for solutions to compositional problems that were previously solved by using functional tonality. Jonathan Cross has pointed out that Stravinsky was among the first to apply an innovative approach to the layering of musical ideas in works such as the Rite of Spring and Symphonies of Wind Instruments and thus became a fundamental inspiration to composers including Varèse, Ives, Nancarrow, and Carter, who all developed approaches to stratification, albeit from different perspectives.

The use of Greek tragedy as a structural device is a clear continuation of Birtwistle’s application of the features of Greek tragedy (most notably in works such as Tragoedia) but also aligns itself with an ongoing consort of composers looking to Greek tragedy and myth for structural, or programmatic stimulus. For example, Mark-Anthony Turnage turned to tragedy in the opera Greek, both through its subject matter and in its usage of ‘a silent acting group as a Greek chorus’. Roxanna Panufnik has also used the notion of the Greek chorus as a stimulus for material in the quartet Memories of My Father – A Greek Photostory, and through her research into the techniques of Ancient Greek music.

My interest in using devices such as ground bass, antiphony and canon is a continuation of the resurgence in the use of such kinds of devices throughout the last century. For example, Conlon Nancarrow employs complex tempo canons in his studies for player piano whilst Messiaen and Boulez apply rhythmic canons. Similarly, Reich’s works (such as Piano Phase and Clapping Music) ‘depend wholly on a continually adjusting canon’ that is ‘not dependent on melodic or harmonic elements but simply with the time intervals of imitation and the polyphony that results’. Also significant is Ligeti’s lifelong interest in canon and polyphonic devices, most notably his use of canon to create dense textures in his micro-polyphonic works. More recently, composers such as Hans Abrahamsen (in Schnee) and Edmund Finnis (in Shades Lengthen) have continued to exploit canon to create textures. Magnus Lindberg has developed what he terms ‘the chaconne principle’ which refers to ‘using a recurring cycle or chain of chords subject to processes of manipulation’, a theory which is directly inspired by the Baroque device.

This research submission is a portfolio of nine original compositions: Erebos (solo violin and chamber ensemble, 2014), Sisyphus Syndrome (clarinet in Bb and percussion, 2014), Aether (accordion, 2014), Aether II (brass band, 2014), Boreas (s.a.t.b chorus with soprano and tenor soloists, 2014), Erémos (flute choir and percussion, 2015), Helen (solo mezzo-soprano, double chorus (s.a.t.b, s.a.t.b), 4 horns in F and timpani, 2015), Aphrodite Anadyomene (clarinet in Bb, violin, violoncello and piano, 2015), and Teotihuacan (symphony orchestra, 2016).

I will broadly rely on the aforementioned research aims to structure my discussion. The commentary is structured thematically as I decided that this

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9 Mann, ‘Canon (i)’, Grove Music Online.
10 Ibid.
11 I investigated Ligeti’s approaches to using polyphonic devices in my essay ‘Ligeti’s Development of Polyphony’, completed during my Master’s degree in 2013.
is the most suitable way to show how the different research areas are
explored across the portfolio rather than discussing each work individually.
The first chapter will consider my approach to stratification and binary
opposition; these issues are explored throughout the composition portfolio
and as such become the central theme that links the works together. I will
show that by combining Carter’s techniques with Lutosławski’s approach to
interval partitioning I have created an individual approach to binary
opposition one which results in the binary opposition being audibly clear,
providing stark contrast between the materials.

This will be followed by an examination into how I incorporate the structural
features of Greek tragedy within my works Erebos, Sisyphus Syndrome, Boreas
and Helen. Here, I will outline how my approach developed from using the
structure of Birtwistle’s Tragoedia as a blueprint for Erebos to applying the
structure of Greek tragedy in more varied and flexible ways in subsequent
works. I will also discuss how my approach to musical characterisation
diverges from that of Birtwistle, in that I apply my own stratification
techniques (developed from my combination of Carter’s and Lutosławski’s
approaches) to create the polarised ‘musical’ characters of the antagonist and
protagonist.

Following on from this, in Chapter 3, I will consider how I applied ground
bass in Helen to create structural coherence across a large-scale work. I will
also discuss how antiphony was applied in Helen and how this links to the
influence of electroacoustic music.

The influence of electroacoustic music will be discussed in further detail in
Chapter 4, where I will discuss how Lasse Thoresen’s typology provided a
method for planning and triggering textural ideas. In this chapter I will also
discuss how the block structure of Aphrodite Anadyomene provided a break
away from relying on binary oppositions and Greek tragedy to inform
structure.
To conclude, I will discuss in detail the culminating work of the portfolio, *Teotihuacan* for symphony orchestra. I will display how this work responds to the main research aims whilst also commenting on how this final work has opened up new channels for me to continue forward in my composition after the completion of this project.
Chapter 1 - Binary Oppositions and Stratification

In terms of research context, Carter proves to be the most important influence for my own work with regards to stratification, primarily because he manipulates a range of musical parameters to create highly characterized musical materials. For example, in his second string quartet, Carter states that the four instruments are ‘stratified according to their repertoire of intervals, their repertoire of rhythms and their repertoire of musical gestures’.

I follow a similar approach to Carter as I delineate materials according to a combination of parameters, which can include pitch, rhythm, tempo, timbre, register, articulation and dynamics. This is because the major aim with regards to the delineation of materials in my work is to create two polarised materials that can be placed in opposition to each other. I will thus use the term ‘binary oppositions’ to describe this approach.

Although my approach to creating binary oppositions draws on Carter’s stratification techniques, in terms of harmony, I turned to Lutosławski’s interval partitioning technique. Firstly, it is necessary to point out that Carter also employs an interval partitioning system in which all eleven intervals are partitioned between instrumental parts. He assigns a unique set of intervals to each instrumental part and uses the all-interval tetrachord as a ‘key chord’ that allows for the ‘total range of interval qualities to be referred back to a basic four-note chord’. Contrastingly, Lutosławski’s horizontal interval pairings limit, rather than maximise, the amount and type of intervals that can be assigned to each part. This limitation factor is particularly appealing to me as it links with my wider research aim of developing an approach to harmony that exploits a limited number of pitch classes (an aim which will be discussed in more depth later in the commentary). Additionally, the binary

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element of Lutosławski’s interval partitioning, that is to say, the juxtaposition of contrasting pairs of intervals corresponds with my aim of creating binary oppositions. Particularly, the pairing of major 2nds and perfect 4ths against the pairing of minor 2nds and diminished 5ths was appealing to me, as the juxtaposition of these two pairs of intervals offers the greatest amount of contrast and proves to be a useful harmonic strategy for creating binary oppositions that are unambiguously contrasted. This is where Carter’s aims and mine differ. For Carter, although in certain works the aim is to create binary oppositions, more often his aim is to create a number of harmonically differentiated materials without limiting the sound of a piece to a small range of intervals. My aim is to create a clear binary opposition within an approach to harmony that seeks to limit the range of pitches used, therefore I find Lutosławski’s interval partitioning to be more suited to my aims.

1.1 Erebos

The first piece composed for the portfolio, Erebos (for solo violin and chamber ensemble, 2013), clearly illustrates how I create binary oppositions by combining Carter’s techniques with Lutosławski’s horizontal interval pairings. At the start of this work, the two violin parts are assigned polarised materials that are delineated in terms of intervallic content, timbre, tempo and register. For example, the solo violin’s material emphasizes ‘hard’ intervals of minor 2nds and diminished 5ths (see Ex. 1).

Ex. 1, Erebos, bars 1-4, Emma Wilde, 2014.

This is in contrast to the second violin, whose material is constructed only from ‘soft’ intervals of major 2nds and perfect 4ths.
The violins are also delineated in terms of timbre (with the first violin using techniques such as molto sul ponticello and pizzicato in contrast to the second violin's muted tremolo harmonics), tempo (the first violin moves in quavers and triplets, with the second violin moving much slower) and register, (the first violin centres on the G string whilst the second violin's material is formed from harmonics). These contrasted materials are superimposed (see Ex. 3).

The second violin's harmonics-based material is eventually developed into a melodic line that is superimposed against the mechanical quaver material of the solo violin (see Ex. 4).
The idea of mechanical material being pitted against melodic material is indebted to the opening of Carter's Cello Sonata, where Carter assigns mechanical quaver material to the piano which is pitted against the cello's lyrical material. This became an important model for informing my approach to binary oppositions.

1.2 Boreas

*Boreas* (for s.a.t.b choir with soprano and tenor soloists) applies binary opposition in a similar way to *Erebos*. The work was commissioned for the University of Manchester's World War I centenary commemoration event and employs a text from the University of Manchester magazine (1914), written by a student who was fighting in the war. I selected passages that gave two distinct views of war: one that described the naively optimistic perspective of war held by the 'people back home', and another that described the reality of the student's bleak life in the trenches. These two contrasting texts were deliberately chosen so that they would be suited to a setting informed by binary oppositions.

The parts are demarcated in terms of intervallic content as the soprano's material is formed from a pentatonic scale, which emphasizes the soft intervals (major 2nds and perfect 5ths). The pentatonic scale was intentionally used to give the material a folk-like quality that emphasised the naivety suggested by the text (see Ex. 5). This is where my harmonic approach starts to diverge from Lutosławski's as, although I use his interval pairing, I limit the amount of pitches that can be used to a pentatonic scale. On the other hand, the tenor's material emphasizes minor 2nds and diminished 5ths without reference to any particular scale (Ex. 6). Again, I drew upon Lutosławski's intervallic partitioning technique to create unambiguous harmonic contrast.
The materials are also delineated in terms of timbre as the tenor part has more timbral variety including transformations to and from various extended techniques such as whispering, speaking and sprechstimme whilst the soprano part is only sung or spoken. Timbre is manipulated in a way such that the soprano part sounds plaintive and folk-like in contrast to the more dramatic timbral palette of the tenor. Contour also became an important parameter here, as the tenor part needed to contrast against the curving lyricism of the soprano part and so took on an angular shape. This contrast of contours is an exaggeration of the contrast between recitative and aria styles. The contrasting materials are placed in juxtaposition throughout the work to emphasize the juxtaposition of the contrasting opinions of war conveyed in the text I set.

1.3 Sisyphus Syndrome

The aim of *Sisyphus Syndrome* (for clarinet in Bb and percussion) was to continue exploring the idea of binary opposition. This work focuses on delineating materials through rhythmic profile, articulation and dynamics, intentionally using unpitched percussion to take the focus away from the parameter of pitch and to create binary oppositions without relying on Lutosławski’s intervallic partitioning technique. Another aim with this work was to investigate how I could make transitions between polarised musical materials. In *Erebos* and *Boreas* each work’s material is assigned to an instrumental or vocal part and remains fixed to that particular part.
throughout the work. In *Sisyphus Syndrome*, I investigated ways of allowing the two materials to move between the instrumental parts. Additionally, I wanted to explore how the two different instruments could be made to sound homogeneous when assigned the same kind of material, thus examining how binary oppositions can be placed in juxtaposition with homogeneity. In earlier works of mine, the binary opposition became the defining feature and I was aware that this could make the structure one-dimensional.

The clarinet’s opening material - which is characterized by irregular time divisions, sporadic dynamic changes and phrase lengths - is transferred to the percussion from section A (see Ex. 7).

Contrasting material is introduced in the clarinet part, characterized by slow-moving rhythms, soft dynamics and legato articulation, creating a binary opposition between the clarinet and percussion (see Ex. 8).

I introduce a ‘seed’ that allows this new material to transform, namely by allowing it to suddenly rhythmically accelerate and grow in dynamic at the end of phrases (see Ex. 8, bar 52). This ‘seed’ is developed from section C to D, where the clarinet gradually accelerates and transforms back into its original material.
From section D the clarinet and wood blocks are made to sound homogeneous by allowing them to each explore the same kind of fast-moving, irregular rhythmic patterns and staccato articulations (shown in Ex. 9). The choice of wood blocks is significant as they allow for sharp articulations that match the staccato tonguing of the clarinet. Similarly from G, when the clarinet’s slower moving material returns, I introduce metallic, resonant percussion for the first time, which allows the percussion to take on timbral characteristics that complement the sustained, resonant clarinet sound. The use of the tuning fork as a metallic resonator on the tam-tam allows the tam-tam to emphasize the same rhythmic patterns of the clarinet whilst simultaneously maintaining a sustained sound beneath (see Ex. 10). Thus the first half of the piece explores binary opposition whilst the second half of the piece explores homogeneity.
1.4 Erémos

At this stage of the research, I had only explored how individual lines could be pitted against one other in binary opposition. In the subsequent piece *Erémos* (for flute ensemble and percussion, 2015) I decided to create two opposed textures, that are constructed by combining Carter’s and Lutosławski’s techniques. The opening texture of the piece (Texture A) uses only four pitch classes (Bb, C, F and G), chosen because they can form major 2nds and perfect 4ths, again Lutosławski’s soft pairings. This texture is also characterized by its focus on the timbral inflections such as harmonics, flutter tonguing, air sounds and timbral trills. It is slow moving and continuous in movement, often swelling and then fading in dynamic and density (see Ex. 11).

![Ex. 11, Erémos, Texture A, bars 5-8, Emma Wilde, 2015.](image)

The second texture (Texture B shown in Ex. 12) contrasts to Texture A as it is sporadic, in that it is often broken up by silences and focuses on rhythmic characterization, the flutes’ percussive qualities, and the interactions between individual lines. In terms of pitch, it emphasizes minor 2nds and diminished 5ths and employs a wider range of ten pitch classes.
The two opposing textures are juxtaposed and superimposed as follows:

<table>
<thead>
<tr>
<th>Texture A</th>
<th>Texture B</th>
<th>Texture A</th>
<th>Texture B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juxtaposition</td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>A+B</th>
<th>Superimposition</th>
<th>Texture A transforms to Texture B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(from letter D)</td>
<td>(from letter F to G)</td>
</tr>
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</table>

The ‘transformation’ section where one texture transforms into the other builds on the same technique used in *Sisyphus Syndrome* to transform the clarinet’s slow-moving material into the percussion’s fast moving material. I planted a rhythmic motivic seed that eventually accelerated. The same thing happens here in that texture A always includes a quintuplet quaver motif that becomes the rhythmic motif that starts the transformation from section F to G.

### 1.5 Helen

*Helen* (for mezzo-soprano, double chorus s.a.t.b, 4 horns in F and timpani, 2015) also involves the superimposition of two opposing textures, this time with two vocal choruses. In this piece the binary opposition does not occur
until the climactic section of the piece (at letter J) where the two choruses are assigned different texts which each describe a contrasting view of Helen of Troy's character (see Ex. 13). Unlike previous works, I decided to save the introduction of binary opposition until a moment of structural importance and used it to create surprise. The texts that the choruses are assigned are *To Helen* by Edgar Allen Poe, a rather superficial account of Helen's beauty, and *No Second Troy* by W.B Yeats that displays a negative account of Helen's persona. In *Boreas* I chose texts that would be suited to a setting informed by binary oppositions and the texts were chosen to facilitate the same strategy in *Helen*.

The choruses’ materials are delineated in terms of pitch content. The first chorus’ pitch material is taken from the Aeolian mode. I drew upon a mode to create a folk-like quality to depict the pastoral and romantic nature of Poe’s poem. Also, the mode allows for the emphasis of major 2nds and perfect 4ths. The second chorus’ material again emphasizes Lutosławski’s ‘hard’ pairing of minor 2nds and diminished 5ths, but from a limited collection of five pitch classes (C, Db, F#, G Ab). The choruses are also juxtaposed in terms of the style of the setting. The first chorus’ text is set melismatically to create a lyrical character in contrast to the second chorus’ syllabic setting. The choruses’ are also contrasted in terms of dynamics and articulation (the first choir’s material is legato in contrast to the second chorus’ accents and staccatos).
Ex. 13, Helen, bars 508-513, Emma Wilde, 2015.
1.6 Conclusion

The works discussed display how I have created a technique for developing and implementing binary oppositions as a feature of my works. This technique is informed by a combination of techniques developed by Carter and Lutosławski. Although my technique draws on Lutosławski’s interval partitioning, my approach diverges from that of Lutosławski’s as I take the pitches from particular scales, modes, or a limited collection of pitches. I have also shown how the juxtaposition and superimposition of binary oppositions can be exploited to create structural and dramatic interest.
Chapter 2 - Greek Tragedy as a Structural Device

The juxtaposition and superimposition of binary oppositions can be an interesting structural strategy, as outlined in Chapter 1, but this can become obvious and one-dimensional once the listener becomes aware of the strategy. To solve the problem of how to create structural interest, the research aim was to investigate how Greek tragedy can be employed as a structural device. Greek tragedy always has conflict as its core theme.\(^{16}\) In Greek theatre, the characters are separated into a hierarchy, with the protagonist having the most important role, followed by the deuteragonist as the secondary character.\(^{17}\) In Greek theatre the protagonist is commonly opposed by an antagonist who is played by the secondary character of the deuteragonist.\(^{18}\) It is the conflict between these two characters that provides an ideal structural framework for exploring the musical conflict from binary oppositions.

2.1 Erebos

_Erebos_ was the first foray into employing the structure of Greek tragedy, and as such it is the work that follows the structure most rigidly and, in terms of research context, draws on Birtwistle’s _Tragoedia_ as a model to help inform the structure and instrumental relationships. The division of roles within _Erebos_ is related to that of Birtwistle’s _Tragoedia_, which the composer has described as:


‘The instruments are divided into three groups: wind quintet, harp and string quartet. The cello and horn, being the ‘odd men out’ of their representative groups, act as individual opponents within the conflict, while the harp acts as linking continuo.’

In *Erebos*, the two violins are extracted from the ensemble to act as ‘individual opponents,’ as I came to the conclusion that they are, in a sense, the odd ones out. Once the violins are extracted, there remains an ensemble of flute, clarinet, viola, violoncello, piano and percussion, which forms a balanced chamber ensemble of two winds, two strings and two percussive instruments. The first violin is treated as the ‘protagonist’ and the second as the subordinate character of the ‘deuteragonist.’ The solo violin has the more prominent role and so is assigned highly profiled musical material, which has a clear contour and strong rhythmic identity of quavers and triplet quavers.

The first violin also asserts its dominance simply by the fact that it plays more in the first half of the work. On the other hand, the second violin is assigned faceless material in the form of quiet slow-moving tremolo harmonics to ensure that it is heard as a subordinate and less important 'character', in the shadow of the first violin (Ex. 14).

Although *Erebos* uses *Tragoedia* as a blueprint, the characterization of the violins’ materials is a departure from Birtwistle’s approach. As previously discussed in Chapter 1, the violins’ materials are individually characterized according to a delineation of a number of parameters to create a binary opposition. The aim of *Erebos* was to merge this approach to creating binary

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oppositions (which combines techniques from Carter and Lutosławski) together with Birtwistle’s technique of dividing the instruments according to the roles typical of Greek tragedy. Robert Adlington points out that there are differences between Birtwistle’s and Carter’s approaches to musical characterization, stating that it is ‘difficult to identify in Tragoedia the sort of unambiguous qualities that, for instance, Elliott Carter bestows upon the four players in the String Quartet No. 2’. He goes on to argue that, ‘in Birtwistle’s music the identity between instrument and dramatic character is rarely as securely maintained,’ as it is in Carter’s works.20 Taking into account that ‘the first and most obvious quality of tragic conflict is its extremity,’21 it is fair to conclude that conflict between characters in tragedy is unambiguous and so the unambiguous qualities of Carter’s (and Lutosławski’s) approaches to characterization are well suited to musically representing the opposition between characters in Greek tragedy.

The remaining instruments in Erebos form a chamber ensemble, which serves as the role of Greek chorus. Aristotle emphasizes that a primary function of the chorus is to act as a ‘collective character.’22 An impression that the ensemble is moving together as one, like the Greek chorus, is created. A sense of unity is created by assigning material focused on the same rhythmic motif characterized by quintuplet semiquavers to the wind and percussion parts. The wind and percussion parts also move in a hocket to give the impression that they are moving as one line. Similarly, the piano and strings move in a hocket, and are assigned chordal material, with the strings playing pizzicato to match the percussive sound of the piano. The two groups are put together to form a homogeneous sounding ensemble (Ex. 15).

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21 Peter Burian, ‘Myth into Muthos’, 181.

Aside from the instruments being delineated according to the aforementioned roles, the structure of Erebos is also informed by tragedy. Aristotle categorizes the sections of tragedy as follows: 'Prologue, Episode, Exode, Choric song; this last being divided into Parode and Stasimon,' and offers a definition of these terms:

'The prologue is the whole of that part of a tragedy that precedes the parode, or first entry of the chorus. An episode is the whole of that part of a tragedy that comes between complete choral songs. The exode is the whole of that part of a tragedy which is not followed by a song of the Chorus.'

These subsections outlined by Aristotle inform the structure of Erebos as shown in Fig. 1.

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24 Ibid.
**Section of Greek tragedy being represented:** | **Figure or movement in score:** | **Instruments involved:** |
---|---|---|
Prologue | I. Mono | Violin I |
Parode (Choric Song - Entrance of Chorus) | II. Mazi (i) | Chamber Ensemble |
Episode | III. Dyo | Violin I and II |
Stasimon (Choric Song) | IV. Mazi (ii) | Chamber Ensemble |
Episode | Figure B. | Violin I, II and Chamber Ensemble |
Perepeteia | Monos (ii) | Violin I, II and Chamber Ensemble |
Exode | VII. Mazi (Exit) | Violin I and Chamber Ensemble |

Fig. 1, Structure of *Erebos*

Aristotle also provides the term ‘perepeteia’ to describe a common feature of tragedy where a character has a sudden realisation or when there is a sudden reversal in fortune. The climax of *Erebos* involves the transformation of the second violin’s harmonic material into strongly contoured melodic material that breaks through the texture to become the more prominent part and is heard as a soloist in a movement of its own (V. Monos II), depicting the perepeteia of tragedy.

After composing *Erebos* I realized that Greek tragedy could provide a useful structural framework to follow as it creates a musical structure that is

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coherent and interesting in that it deals with conflict between musical materials, dramatic turning points and resolutions. However, a drawback to this is that the structure is rigid and if I were to follow it strictly in all works, the structures would become predictable. Additionally, in subsequent works, I realized that it is not always practical to follow the structure so rigidly, particularly in works that employ texts that force the structure to go in a different direction. In subsequent works such as Sisyphus Syndrome, Helen and Boreas, the aim was to investigate how certain features of tragedy could be applied with more flexibility and this allowed my research to depart from using the structural blueprint of Birtwistle's Tragoedia.

2.2 Sisyphus Syndrome

Sisyphus Syndrome incorporates some structural elements of tragedy. As Sisyphus Syndrome is a duet between clarinet and percussion, the concept of the chorus is redundant in this work and so the structure of tragedy cannot be followed literally. However I still drew upon key structural features of tragedy to help develop the structure of the work, as shown in Fig. 2.

<table>
<thead>
<tr>
<th>Section of Greek tragedy being represented:</th>
<th>Figure in score:</th>
<th>Instruments involved:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prologue</td>
<td>Bar 1</td>
<td>Solo Clarinet in Bb</td>
</tr>
<tr>
<td>Extended Episode</td>
<td>Fig. A</td>
<td>Clarinet and Percussion</td>
</tr>
<tr>
<td>Perpeteia</td>
<td>Fig. F</td>
<td>Solo Percussion (Tom toms)</td>
</tr>
<tr>
<td>Exode</td>
<td>Fig. G</td>
<td>Clarinet and Percussion</td>
</tr>
</tbody>
</table>

Fig. 2, Structure of Sisyphus Syndrome
The clarinet is given the role of protagonist and begins the work with a prologue, which asserts its dominance as the main ‘character’. The percussion part is treated as the deuteraganist (acting as antagonist), displayed by its contrasting musical material (as discussed in Chapter 1). An extended ‘episode’ of dialogue between the characters ensues when the percussion enters at Fig. A. The climax of Sisyphus Syndrome is a point of perepeteia as it occurs when the percussion part breaks through the texture to become the most dominant part, with the tom-tom solo at Fig. F. The ending of the work forms an ‘exode’ and provides a resolution to the conflict of the first half of the work by having the clarinet and percussion explore homogeneous material.

2.3 Helen

The structure of Helen is also informed by the structure of tragedy. The mezzo-soprano takes the role of the protagonist, and the violoncello as a deuteraganist. The cello deuteragonist does not also act as an antagonist as its material is always accompanying or exploring the same motifs as the mezzo-soprano and so is only a deuteraganist in the sense that it is a secondary supporting character. Unlike in previous works, there is no conflict between individual musical ‘characters’. Helen also contains two separate choruses, which is a departure from the previous works.

The reason for these departures is that the chosen texts suggested a different delineation of roles. The three chosen texts each display a different perspective of Helen of Troy’s character. Helen of Troy by Sarah Teasdale, a narrative monologue told from Helen’s point of view, is assigned to the mezzo-soprano protagonist. The other two texts, To Helen by Poe and No Second Troy by Yeats, provide contrasting views and opinions of Helen’s character. These poems are told by the voices of others and so I felt that it was fitting to assign these texts to two choruses that have the function of omnipresent commentators, like the chorus’s function in tragedy. The idea of
splitting the chorus in two and having it in opposition with itself is a break away from the traditional function of the singular voice of the Greek chorus. The structure of Helen still broadly follows that of tragedy in that the main sections of prologue, parode, episode, stasimon, peripeteia and exode are present (as shown in Fig. 3.) The peripeteia is reached by way of the chorus splitting at letter J into two binary opposed choruses when the third text To Helen, by Poe, is introduced.

<table>
<thead>
<tr>
<th>Section of Greek tragedy being represented</th>
<th>Figure in score:</th>
<th>Instruments involved:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prologue</td>
<td>Bar 1-61</td>
<td>Solo mezzo-soprano</td>
</tr>
<tr>
<td>Parode (Entrance of chorus)</td>
<td>Bar 62</td>
<td>Solo mezzo-soprano, double chorus, horns, timpani</td>
</tr>
<tr>
<td>Episode</td>
<td>Fig. B</td>
<td>Solo mezzo-soprano, violoncello</td>
</tr>
<tr>
<td>Stasimon</td>
<td>Fig. C</td>
<td>Double chorus, horns, timpani</td>
</tr>
<tr>
<td>Episode</td>
<td>Fig. D</td>
<td>Solo mezzo-soprano, violoncello, double chorus, horns, timpani</td>
</tr>
<tr>
<td>Stasimon</td>
<td>Fig. F</td>
<td>Double chorus, horns, timpani</td>
</tr>
<tr>
<td>Episode</td>
<td>Fig. G</td>
<td>Solo mezzo-soprano, violoncello</td>
</tr>
<tr>
<td>Stasimon</td>
<td>Fig. H</td>
<td>Double chorus, horns, timpani</td>
</tr>
<tr>
<td>Episode</td>
<td>Fig. I</td>
<td>Solo mezzo-soprano, violoncello</td>
</tr>
<tr>
<td>Peripeteia</td>
<td>Fig. J</td>
<td>Solo mezzo soprano, double chorus, horns, timpani</td>
</tr>
</tbody>
</table>
2.4 Boreas

*Boreas* also takes some inspiration from tragedy in the way that roles are delineated, but the structure was freely invented, focusing on the juxtaposition of two binary oppositions. As it is a very short work the intricate structure of tragedy with multiple sections would not have been suitable. The work focuses on a conflict between two individuals - the solo soprano and tenor parts - with the rest of the choir acting as a 'collective' chorus.

As in *Helen*, the chosen text had a great influence on the division of roles within *Boreas*. As previously mentioned in Chapter 1, the text for *Boreas* presents two completely opposing views of war, which led me to assign the contrasting texts to two soloists. Although the two soloists are not truly protagonist and deuteragonist, as they have roles of equal importance in the work, the idea of having two individual characters in opposition to each other came from tragedy. Also, the way musical materials are assigned to the chorus in *Boreas* is influenced by tragedy. Aristotle argues that:

> 'The Chorus should be regarded as one of the actors; it should be a part of the whole, and should assume a share in the action, as happens in Sophocles, but not in Euripides. With other playwrights the choral songs may have no more to do with the plot in hand than with any other tragedy; they are mere choral interludes, according to the practice first introduced by Agathon.'

Weinar has interpreted this to mean that Aristotle thought that the choruses of Sophocles were more successful because they were more integrated into the play and had something directly to do with what was going on between the main characters. Therefore to make a chorus successful in music,

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27 Albert Weinar, 'The Function of the Tragic Greek Chorus', 206.
according to Aristotle’s views, the chorus’s material should have some sort of connection to the soloist’s material. In Boreas I applied this principle. The chorus’ materials are directly linked to the materials of the soprano and tenor soloists. For example, from the opening of the work, the solo soprano’s plaintive melodic line is hummed by the first soprano part in the chorus. (See Ex. 16) Additionally, the whispered motifs are related to the tenor’s whispered material (see Ex. 17).

Ex. 16, Boreas, bars 2-3, Emma Wilde, 2014.

Ex. 17, Boreas, bars 57-59, Emma Wilde, 2014.
2.5 Conclusion

Throughout this chapter I have shown how the structure of Greek tragedy can provide a useful framework for exploring the musical conflict between binary oppositions. The structure of Greek tragedy can be followed quite rigidly (as in *Erebos*), or particular features and overarching ideas from the form can be extracted and used more freely within structures of my own devising. Additionally, in terms of characterisation I make a departure from Birtwistle’s approach and I draw upon the unambiguous qualities of Carter’s and Lutosławski’s approaches to characterisation that are well suited to musically representing the opposition between characters in Greek tragedy.
Chapter 3 – Ground Bass and Antiphony

One of the secondary research aims was to explore the use of devices and techniques used in Medieval, Renaissance and Baroque music, which is something that has interested me since my first forays into composition as outlined in the introductory chapter. The particular devices that I have explored in the portfolio include ground bass and antiphony. Canon is also featured in Teotihuacan, and this will be discussed in Chapter 5.

3.1 Ground Bass in Helen and Teotihuacan.

Scholars have had trouble defining the related forms of ground bass, passacaglia and chaconne as Baroque composers often used the terms interchangeably.28 A ground bass is a bass line that is repeated many times whilst upper lines are superimposed.29 The passacaglia and chaconne are dances both in triple metre and contain a repeated bass line or harmonic progression over which variations are set; the variations change in conjunction with each repetition of the bass line or harmonic progression.30 It has been considered that the chaconne uses a repeated harmonic progression rather than a bass line and that this signifies the difference between the two devices.31

29 Ibid.
30 Ibid.
These forms experienced resurgence in popularity during the twentieth century after being used more sparingly during the eighteenth and nineteenth centuries, although Brahms included a passacaglia in his Fourth Symphony. Leon Stein attributes this increase in the use of passacaglia in the twentieth century to its ‘aesthetic-constructive principle’ of repetition that ‘provides continuity, coherence, order and symmetry’. He goes on to argue that these characteristics became ‘more sought after in order to compensate for the lack of organisation which was previously provided by tonality’. Devices centred on the use of ground bass do not need tonality to function and can provide structural coherence due to their characteristic of repetition. I believe that it is for these reasons that I and many other composers have become interested in using these devices.

Numerous passacaglias are evident in works from the twentieth century. Noteworthy examples include the passacaglia that is employed in the fourth scene of Berg’s Wozzeck. Passacaglia is also found in various works by Britten including his Serenade for Tenor Horn and Strings, the second and third cello suites and in many of his operas. Ligeti also employs passacaglia in various works including Le Grand Macabre, the Trio for Violin, Horn and Piano and the harpsichord work Passacaglia Ungherese. More recently, Lindberg has used the chaconne in works such as Corrente and has developed what he terms ‘the chaconne principle’ which refers to ‘using a recurring cycle or chain of chords subject to processes of manipulation’, a theory which is directly inspired by the device. Additionally Thomas Adès employs passacaglia in Asyla, The Tempest and Arcadiana.

My use of ground bass in Helen and Teotihuacan coincides with a use of triple metre and variation form and so typifies the passacaglia. Both instances of my use of passacaglia coincide with themes of lament and death and this was

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32 Alfred Blatter, Revisiting Music Theory, 240.
34 Ibid.
one of the reasons for the use of this device. The text *Helen of Troy* by Sara Teasdale deals with the concept of death. Similarly, the section of *Teotihuacan* in which the ground bass appears is named ‘The Avenue of the Dead’. Alfred Blatter states that ‘when the composition is a lament or when the words deal with tragedy or grief, the ground bass will frequently be a descending chromatic line,’ citing the examples of Dido’s lament from Purcell’s opera *Dido and Aeneas* and the ‘Crucifixus’ from Bach’s *B minor Mass.*

The ground bass in *Helen* incorporates a descending chromatic tetrachord, (Ex. 18) which has been linked with lamentation since the seventeenth century.

The ground bass in *Teotihuacan* does not feature downward chromatic descent due to the limited pitch set from which it is constructed from (D, E, Bb, A, C). However, it does feature a descending contour as shown in Ex. 19.

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37 This has also been termed chromatic fourth, chromatic hexachord and lament bass as discussed by Peter Williams in *The Chromatic Fourth During Four Centuries of Music*, (Oxford: Clarendon Press, 1998), 4.

Aside from utilizing passacaglia for its connotations with lament, in *Helen* passacaglia was used to create coherence across a large-scale work. The 18 bar ground bass which starts in the ‘cello in bar 75 keeps returning throughout the work, after each interjection from the chorus and instrumental parts (see Fig. 4). Each repetition of the ground bass is accompanied by a variation in the mezzo-soprano of the thematic material contained in the mezzo-soprano’s opening soliloquy (bars 1-61). The material is intervallically characterized by minor 2nds and tritones and rhythmically characterized by quavers and triplet quavers. The ground bass is also varied in that it is transposed on each repetition.

<table>
<thead>
<tr>
<th>Variation</th>
<th>Bars</th>
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<tbody>
<tr>
<td>1</td>
<td>92-110</td>
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<td>2</td>
<td>111-127</td>
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**INTERJECTION BY CHORUSES AND INSTRUMENTAL PARTS**

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<tbody>
<tr>
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<td>168-185</td>
</tr>
<tr>
<td>4</td>
<td>186-203</td>
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<tr>
<td>5</td>
<td>204-221</td>
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<td>6</td>
<td>222-239</td>
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**INTERJECTION BY CHORUSES AND INSTRUMENTAL PARTS**

<table>
<thead>
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<tbody>
<tr>
<td>7</td>
<td>243-260</td>
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<tr>
<td>8</td>
<td>261-278</td>
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<td>9</td>
<td>279-296</td>
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<td>10</td>
<td>297-315</td>
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<tr>
<td>11</td>
<td>316-333</td>
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<tr>
<td>12 -</td>
<td>334-339</td>
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</tbody>
</table>

**INTERJECTION BY CHORUSES AND INSTRUMENTAL PARTS**

| Continuation of 12 | 412-423 |
|                   |        |
| 13                 | 424-431 |
| 14                 | 450-451 |

**INTERJECTION BY CHORUSES AND INSTRUMENTAL PARTS**

| Continuation of 14 | 453     |
|                   | 455-459 |

**INTERJECTION BY CHORUSES AND INSTRUMENTAL PARTS**

| 16 | 497 |

Fig. 4, Theme and variation structure in *Helen.*
3.2 Antiphony in Helen

Another important feature of Helen is the use of antiphony. Antiphony is ‘a term for music in which an ensemble is divided into distinct groups, used in opposition, often spatial, and using contrasts of volume, pitch and timbre.’

As antiphony is linked to a delineation of materials it is a fitting device for dealing with binary oppositions, which can visually and audibly emphasize the contrast between the delineated materials. The definition above also refers to a ‘spatial’ aspect of antiphony. This was another reason that I started to explore the device as I had begun to become interested in how space is used in electroacoustic music.

The duality of the instrumentation of Helen was deliberately chosen to allow for effective antiphonal interplay between all the parts. There is a double chorus, four horns (that can be divided into pairs), two timpani and two soloists (mezzo-soprano and violoncello). The score calls for a stage layout that emphasizes the duality of the performers and calls for space between them (Fig. 5).

![HELEN - Stage Plan](image)

Fig. 5, Helen, stage plan.

Through the first half of the work the two choruses are assigned the same material and antiphony is used to explore dialogic interactions of the material, which creates echo effects in places (Ex. 20). At figure J (see Ex. 13, p. 29) the two choruses split into a binary opposition and are assigned delineated materials. Here the antiphony emphasizes the contrast between the two choruses. There is also antiphony between the horn and timpani parts. These parts are assigned the same material but it moves from one side of the stage to the other, which gives the effect of panning (Ex. 21).

3.3 Conclusion

In conclusion, passacaglia is used in Helen as a way of developing structural coherence across a large-scale work. Antiphony is applied in Helen to emphasize and convey the binary opposition between the choruses and also, along with the stage plan, was influenced by effects found in electroacoustic music such as spatialization.
Chapter 4 – Tangents: Electroacoustic Music and Block Structures.

4.1 Aether

*Aether* for solo accordion signalled a number of changes in my compositional approach that led to a divergence from the research aims outlined in the previous chapters. I was asked to compose a short work for solo accordion for a composition course I attended in Poland. One of the most important factors that signalled a change in my compositional approach was the nature of the accordion. There were a number of features of the instrument that interested me:

- The different register switches which affect changes of reed couplings so register is not only altered in terms of pitch but also in terms of timbre (for example octave doublings and stereo effects can be produced).
- The varying amounts of vibrato that can be produced from shaking the side of the accordion with the hand.
- The large dynamic range available.
- The extended techniques available, including the air sounds.
- The fact that the accordion is actually a wind instrument in the way that it produces sound but also has the added advantage of the player not having to breathe. This allows for longer sustained sounds.

These features were mostly related to timbre, so I realized that I wanted to compose a piece for accordion in which timbre and texture became the primary parameters. Rhythm and pitched sounds had been important parameters in creating the musical material in previous works, whereas they became less important to me in *Aether*. In fact, I limited the amount of
pitches used in Aether to just three, a set of fourths (Eb, Ab, Db). This was intentionally done to take the focus away from pitch and to allow for the insertion of non-pitched sounds, but this created a new compositional problem. My compositional method of creating binary oppositions and implementing them in structures informed by Greek tragedy was founded primarily in the delineation of pitch (through interval partitioning) and rhythm. It was clear that this approach would not be suitable for this work. Therefore, the aim of Aether was to explore an alternative way of developing and structuring material without relying on binary opposition.

At the same time that I began to work on Aether I became interested in electroacoustic music. Throughout the 20th century, various composers became inspired by techniques used in electroacoustic music and this had an effect on their approach to instrumental composition. For example, Benjamin R. Levy has shown that techniques typical of electroacoustic music, such as crossfading, are present in Ligeti’s orchestral work Apparitions. 40 Lachenmann has also described how ‘musique concrète instrumentale’ has things in common with Pierre Schaeffer’s ‘musique concrète’ in ‘that it incorporates everyday perceptions’ and ‘applies this kind of perception to our traditional instruments’. 41 Lachenmann explains further:

‘In everyday life, I hear the most diverse sounds without ever considering their acoustic qualities. If a china plate falls on a stone floor, we hear timbres, frequencies, even rhythms, but our senses do not react to them in a musical or aesthetic manner—we hear that or how a plate has been broken to pieces. Perception requires all the acoustic signals in order to be able to draw conclusions as to what has happened as a result of a mechanical event. It was that kind of hearing that I wanted to incorporate into my music—on a traditional musical instrument.’ 42

40 Benjamin R. Levy, ‘Shades of the Studio: Electronic Influences on Ligeti’s Apparitions’, Perspectives of New Music, 47, (2009), 76.
42 Ibid, 150.
Unlike Lachenmann, who takes into consideration the physicality of sound production as a ‘result of a mechanical event’, my approach involves considering the acoustic qualities of sounds by turning to a table created by Lasse Thoresen that displays an approach to analyzing energy articulation in electroacoustic music (Fig. 6). Thoresen points out, that ‘in so far as analysis is concerned, Western musicology has focused on pitch structures (harmony, modality etc), construction of musical forms (themes, motives etc), and rhythm (meter),’ while timbre is ‘traditionally regarded simply as a matter of colorization of musical structure’. Thoresen believes that because timbre has been treated as a less significant parameter in Western musicology, there is no defined analytical procedure for dealing with timbre directly. This has led Thoresen to develop a table, adapted from Pierre Schaeffer’s typomorphology, which provides a number of graphic symbols that can be used to analyze sound and energy articulation; essentially timbre and texture.

![Figure 1. Typology – minimal representation.](image)

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44 Ibid.
Thoresen divides the ‘sound spectrum’ into ‘pitched’, ‘complex’ and ‘variable’ (Fig. 6). With regards to my own work, I take ‘complex’ sounds to signify the use of extended techniques that have no sense of definite pitch. Although this method of analyzing sound was designed to be applied to electroacoustic music, I also believe it can be an appropriate method of analyzing timbre and texture in instrumental works. Denis Smalley also suggests that some contemporary music, which is concerned with spectral and textural complexity, would be much better analyzed spectromorphologically, as the score is an ‘inadequate representation of perceptual qualities.’ If Thoresen’s table of symbols can provide a system of analyzing timbre and texture in a finished work, could they not also provide stimuli for designing and planning timbre and texture in a new work? The clearly identifiable system of graphics can be used to trigger ideas for materials and to graphically sketch and plan materials for an instrumental work.

*Aether* is formed essentially from one sound mass that emerges from a single sustained sound that intensifies in energy throughout the piece. Thoresen’s graphic symbols were used to trigger and plan these ideas. The structure of *Aether*, as represented by Thoresen’s symbols, is displayed in Fig. 7.

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Fig. 7, Structural outline of Aether as represented by Thoresen's symbols.
The work begins with long, sustained pitched tones, combined with iterated ‘complex’ sounds, ‘complex’ because they utilize the air sound of the accordion (Ex. 22).

Ex. 22, Aether, bars 1-4, Emma Wilde, 2014.

The accented fortепиано introduced from bar 16 are examples of Thoresen’s pitched ‘impulses’, which he defines as a ‘short thrust of energy (Ex. 23).’ The thrust of energy is also created by the sudden register change on these notes that gives a sudden variation in the timbre.

Ex. 23, Aether, bars 14-17, Emma Wilde, 2014.

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46 Thoresen, ‘Spectromorphological Analysis of Sound Objects’, 134.
As the textures become denser (from bar 26), sustained pitched sounds are combined with iterated pitched material and pitched impulses (Ex. 24).


The work culminates with accumulated sounds that transform from pitched material to complex sounds in the form of key clicks (Ex. 25).


4.2 *Aether II*

*Aether II* for brass band is an extended version of *Aether*, which follows the same structural outline as the accordion version. I decided to explore a
version of *Aether* for brass band as there are many similarities between brass instruments and the accordion. The same extended techniques (air sounds and valve clicks) are available, and also the brass instruments provide a variety of timbres (with the variety of mutes available) and vibrato. Due to the large amount of instruments available in the brass band, there was scope to further explore the extended techniques of the air sounds and valve clicks, which when played by a large number of performers, provide complex sounds. In *Aether II* the air sounds, which were only a passing feature of the accordion version, are explored further to create a new opening section from bars 1-16, and the introduction of pitched sounds in the brass instruments is reserved until bar 17. Similarly the closing section (from Fig. F) is expanded and the air sounds return in combination with the valve clicks.

### 4.3 Erémos

The subsequent work *Erémos* for flute choir and percussion also drew upon Thoresen's graphic symbols, this time to create more complex textures. Each of the materials presented in the opening texture (Ex. 26) were triggered by Thoresen’s symbols and the materials were layered to create a composite texture.

A pitched sustained sound is found in the bowed vibraphone. The tam-tam, played with superball, is neither completely pitched or non-pitched and so is an example of the complex sustained sound.
Ex. 26, Erémos, bars 1-8, Emma Wilde, 2015.
The flutes’ sustained notes, which gradually transform from air to pitch to flutter tongue (eg. alto flute bar 2-3), were created in response to Thoresen's ‘vacillating variable’ symbol. Trills and flutter tongues were triggered by the ‘iterated pitched’ symbol. The tam-tam roll in bar 5 exemplifies the ‘complex iterated’ symbol.

Later in the work a contrasting rhythmic texture appears in juxtaposition to this opening texture at Fig. A (as discussed in Chapter 1). Tongue-rams, pizzicato tongued notes and notes combined with key clicks are used to create a texture. These materials were developed in response to Thoresen's complex accumulated symbol. These extended techniques create sounds that are neither fully pitched nor non-pitched and so are ‘complex’ in nature. When they are placed together they become ‘accumulated’. This ‘complex accumulated’ sound is combined with ‘complex iterated’ sounds from the temple blocks, and ‘iterated pitch’ material to create Texture B.

The two textures are later superimposed from Fig. D. Ex. 27 shows how the ‘complex accumulated’ material (in flutes 5-8), ‘iterated pitched’ material (in the piccolo) and ‘complex iterated’ material (in the temple blocks) from Texture B is combined with the ‘sustained pitched’ sound (in the vibraphone) and the ‘vacillating variable’ material from Texture A (in flute 2).
Ex. 27, bars 118-121, Erémos, Emma Wilde, 2015.
4.4 *Aphrodite Anadyomene* and Block Structure.

*Aphrodite Anadyomene* also signalled a change in my compositional approach but this time with regards to musical structure. In previous works the structures unfolded organically, with contrasting materials being introduced and developed, culminating in a superimposition of materials that was heard as a natural progression. There was no great 'surprise' in the musical structure so to speak and I felt that this was something I should address.

This work comprises brutal immediate changes from one section to another without preparation or introducing materials beforehand (for example see abrupt change at Fig. G). This draws on what has loosely been termed as Stravinsky’s 'block structure' whereby ‘blocks of relatively heterogeneous content are often abruptly juxtaposed’\(^{47}\). Jonathan Cross describes how the musical blocks in *Symphonies of Wind Instruments* are ‘individually characterized’ with the sudden movement from one block to the next ‘forming the primary subject matter’ of the work.\(^{48}\) The musical ‘blocks’ in *Aphrodite Anadyomene* follow an individual characterization scheme as follows:

- **Section 1 (Opening):** Strings: Slow moving, directionless shape, loose sense of pulse and high in register.
- **Section 2 (Fig. C):** Piano and clarinet: Faster moving, contoured material and stronger dynamic.
- **Section 3 (Fig. G):** Pulsating and rhythmic.
- **Section 4 (Fig. K):** Sparse texture with melody.

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The sections are characterized or juxtaposed particularly in terms of texture and rhythm (or tempo) and also in terms of register, contour and dynamic (e.g in sections 1 and 2). The work, however, does not follow the Stravinskian ‘block’ structure throughout as it includes a transitional section from Fig. G to Fig. K. The differentiation between foreground and background material was something I felt had been lacking in previous works and I aimed to consciously think about this issue in *Aphrodite Anadyomene*. The polyrhythmic material, which begins as foreground material, signals the transition process through its gradual rhythmic rallentando. When the listener becomes aware of this process the clarinet melody is introduced, relegating the rhythmic material to the background, consequently distracting the listener from the transitioning process (Ex. 28).


The work displays a continuation of the use of a simplified harmonic language that involves using a limited amount of pitches that follows on from the research carried out in *Aether*. Four pitches are used in the opening section (A,B,E,F#, a pair of major 2nds) and then in the rhythmic material at fig.C (G#, A, D Eb, – a pair of minor 2nds). These are selected according to the interval pairings of Lutosławski, to offer contrast. The sections of limited
pitch contrast with the material at Fig. C that is built from a larger collection of pitches. The opening texture was also created according to Thoresen's graphic symbols. For example the accented piano notes are examples of Thoresen’s pitched impulses (Ex. 29).

Ex. 29, Aphrodite Anadyomene, bars 12-17, Emma Wilde, 2015.

4.5 Conclusion

In this chapter I have displayed how Aether provided a turning point in that it signalled a break away from the primary research areas and introduced new areas of interest including the influence of electroacoustic music and Thoresen's typology. Aphrodite Anadyomene provided a different turning point with regards to my approach to structure and this continued to influence the structure of the subsequent and final work, Teotihuacan.
Chapter 5 – *Teotihuacan*

The final work I composed for the portfolio was *Teotihuacan* for symphony orchestra. This proved to be the work that linked together a number of key research threads: stratification, limited pitch collections and Lutosławski’s interval separation technique, block structures, the use of medieval and renaissance musical devices and the influence of electroacoustic music. The work also opened up new lines of enquiry including an interest in Latin American rhythms and an interest in the techniques used in visual art. These are research areas that I intend to pursue further after the completion of the PhD.

5.1 Line and Kandinsky

The initial idea for the orchestral work stemmed from my interest in individual lines. As a clarinettist I have often viewed music from a linear rather than harmonic perspective. After attending an interview with Birtwistle in which he discussed the influence of visual art on his own compositions, I was drawn to an investigation into the techniques used in that medium.\(^49\) Having previously studied and been interested in Kandinsky’s approach to line, this was something that sprung to mind and I returned to read his work ‘Point and Line to Plane’. In this work, Kandinsky identifies different types of lines: straight, curved and angular.\(^50\) He also categorizes the directionality of lines as horizontal, vertical or diagonal and attaches these to certain ‘colours’ or ‘temperatures’.\(^51\) For example, horizontal lines are ‘black and cold’, vertical lines are ‘white and warm’ whilst diagonal lines are a variety of colours (red, grey or green) and ‘temperatures’ (cold and warm).\(^52\)

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\(^{49}\) Harrison Birtwistle, ‘Students Q&A with Harrison Birtwistle’, Martin Harris Centre, Manchester, UK, 28th January 2016.

\(^{50}\) Wassily Kandinsky, *Point and Line to Plane*, (New York: Dover, 1979), 57-69.

\(^{51}\) Ibid.

\(^{52}\) Ibid.
I questioned how these types of lines could be represented musically. Their relation to colour and ‘temperature’ also has a direct correlation to different timbral combinations and I realized that this could provide a stimulus for my approach to the orchestration of lines in *Teotihuacan*. In terms of research context, other works that have addressed individual lines that proved to be important models for *Teotihuacan* include *Coursing* by Oliver Knussen, *Sensemayá* by Silvestre Revueltas and *Tachophobia* by Richard Whalley.53

## 5.2 Lines in Teotihuacan

*Teotihuacan* is based upon the following types of linear material that were developed in response to Kandinsky’s definitions.

### 5.2.1 Horizontal Lines

The first line that appears in the piece is a straight horizontal line that interprets ‘straightness’ through its even rhythmic contour of constant semiquavers and even articulation of slurs (Ex. 30).

![Ex. 30, Teotihuacan, flutes and celesta, bars 1-4, Emma Wilde 2016.](image)

This line emphasizes major 2nds, major 3rds and perfect 4ths and 5ths from a Greek Sabah scale (Ex. 31). These are intervals that are reminiscent of Lutoslawski’s soft pairing, although with the added addition of the 3rds.

![Ex. 31, Greek Sabah scale.](image)

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53 I attended a talk with Richard Whalley (*Rhythm, Rubato and Recordings, Composers’ Forum, Martin Harris Centre, University of Manchester, UK, 14th February 2013*) in which he discussed how *Tachophobia* displays an approach to composing lines that rhythmically accelerate and decelerate which influenced my approach to composing diagonal lines in *Teotihuacan*. 
Kandinsky categorizes straight, horizontal lines as ‘black and cold’ and I took this description to inform the timbral colours when orchestrating this line as this line is attached to metallic timbres, most notably the celeste and the flutes, at the beginning of the work.

The second straight horizontal line interprets straightness in a more obvious way with its material centred round a repeated pitch (Ex. 32).

![Ex. 32](image)


The repeated pitch is always selected from a limited pitch class collection (B, Ab, G, Eb). These pitches were chosen because they are not found in the Sabah scale and so this harmonically delineates the straight line from the previous one that takes its pitches from the Sabah. Linearity is also achieved rhythmically through the use of a steady triplet quaver pulse and through evenly accented articulation. Again, Kandinsky’s description of straight, horizontal lines as ‘black and cold’ was taken to inform the orchestration of this line. For example, at the beginning of the work the line appears simultaneously in the high piccolo and bass register of the piano, this was intentionally done so that the extreme space between the registers would create a ‘cold’ sonority.

![Ex. 33](image)


A curved horizontal line, which is melodic in character, is introduced at bar 21 in the bass clarinet (Ex. 33). Curvedness is interpreted through the contour and rhythm. The 5:3 rhythm is employed to give the line a sense of irregularity when placed as a polyrhythm against the other material, and this
rhythmic irregularity contributes to its curved character. This line takes its pitch material from a limited set (Eb, F, Ab, Bb, C, D), that emphasizes major 2nds, perfect 4ths (Lutosławski’s ‘soft’ pairing) with the addition of major 3rds and also delineates itself from the previous material as it utilises a pitch set that is not reliant on the Sabah.

5.2.2 Straight Vertical Line

A straight vertical line is introduced in the form of block chords in the woodwind and brass at bar 85. The pitch material of the chords is chosen to emphasise dissonant intervals of the Sabah scale. Kandinsky describes vertical lines as ‘white and warm’ and so this line is assigned to the bright sonorities of the woodwind and brass.

5.2.3 Diagonal Lines

The work introduces and explores various types of diagonal lines from section D to E. Various musical interpretations of diagonal lines were created. The first interpretation is the idea of accelerando and rallentando; a gradual slowing down or speeding up that relates to the change in gradient of a diagonal line. Also, a transformation of timbre and register can be used to represent this change in gradient.

Ex. 34, Teotihuacan, solo violin, bars 89-98, Emma Wilde, 2016.

The first diagonal line is introduced in the solo violin (Ex. 34). The straight horizontal line that was first heard in the flutes and celesta in the works’
opening is transformed into a diagonal line by way of a rallentando through rhythmic diminution. The material also undergoes timbral changes (sul pont. to sul tasto) and variations of dynamic and register to display a change in ‘gradient’.

Ex. 35, Teotihuacan, piano, bars 105-107, Emma Wilde, 2016.

A variation on the straight line that appeared in the piccolo and piano at the start of the work is introduced in bar 105 (Ex. 35). The straight line is transformed into a diagonal by way of rhythmic acceleration, the crescendo and the timbral transformation from the muted to open piano string.

Another interpretation of a diagonal line is found in the woodwind and brass (Ex. 36). This time the line is diagonal in contour (rising and falling) and also incorporates rhythmic diminution to create a rallentando. This line is rhythmically characterized by septuplet demisemiquavers and semiquavers and with regards to pitch, emphasizes chromaticism.

Ex. 36, Teotihuacan, woodwind, bars 130-131, Emma Wilde, 2016.

Glissandi are also interpreted as diagonal lines and appear in the violins, horns and trombones (Ex. 37).
The orchestration of the lines in this section is also related to Kandinsky’s theory that diagonal lines are linked to a variety of colours and temperatures. The previous horizontal and vertical lines are attached to particular timbres whereas the diagonal lines are moved around the orchestra much more freely to explore a variety of timbres.

5.2.4 Angular Line

From section E, the final type of line to be introduced is an angular line that first appears in the clarinet (Ex. 38). The line has an angular contour and is also angular with regards to rhythm (through syncopation), dynamics and articulation (through changes between staccato, slurs and accents). This line emphasizes ‘hard’ intervals of minor 2nds, diminished 4ths and minor 7ths from the Sabah scale.

The characterisation of the lines in Teotihuacan again draws on Carter’s stratification techniques and Lutosławski’s intervallic partitioning technique that was outlined in Chapter 1. Each line has its own identifiable character through its contour, rhythmic identity, harmonic identity, articulation and dynamics. However, as I am no longer dealing with a binary opposition but rather a collection of different materials the aim of the characterisation is different. Sometimes the lines complement and work alongside each other and in some cases, they juxtapose each other. The plurality of materials in Teotihuacan means returning to a type of stratification that has more in
common with the original geological usage of the word to describe ‘the process or result of being formed or arranged into layers’.\(^54\) This means that my approach to using Lutosławski’s interval partioning technique does not need to be as clear-cut as in the earlier works that explored binary oppositions. Rather, in *Teotihuacan* the lines are still assigned pitch content which can Thoresen an overall sense of consonance or dissonance but their intervallic content does not need to be as limited as it was in the material in the earlier works. This is in line with the overall trajectory of the portfolio that displays a move away from an extremely structured and ordered approach to composition to a slightly freer approach in which the techniques used in the earlier works can be applied with more flexibility. The linear material of *Teotihuacan* is summarised in Fig. 8.

### Summary of Linear Material in 'Teotihuacan'

<table>
<thead>
<tr>
<th>Musical Example</th>
<th>Contour</th>
<th>Directionality</th>
<th>Harmonic Identity</th>
<th>Rhythmic Identity</th>
<th>Articulation</th>
<th>Dynamics</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Musical Example 1" /></td>
<td>Straight</td>
<td>Horizontal</td>
<td>Consonant intervals of Sahil</td>
<td>Semiquavers</td>
<td>Even</td>
<td>Piano</td>
</tr>
<tr>
<td><img src="image2" alt="Musical Example 2" /></td>
<td>Straight</td>
<td>Horizontal</td>
<td>Limited non-Sahil set (5, 7, 9, 11)</td>
<td>Triplet quavers</td>
<td>Even accents</td>
<td>Forte</td>
</tr>
<tr>
<td><img src="image3" alt="Musical Example 3" /></td>
<td>Curved</td>
<td>Horizontal</td>
<td>Limited non-Sahil set (5, 7, 9, 11)</td>
<td>Quintuplet crotchets</td>
<td>Staccato</td>
<td>Piano</td>
</tr>
<tr>
<td><img src="image4" alt="Musical Example 4" /></td>
<td>Straight</td>
<td>Vertical</td>
<td>Dissonant intervals of Sahil</td>
<td>Quavers</td>
<td>Accented</td>
<td>Forte</td>
</tr>
<tr>
<td><img src="image5" alt="Musical Example 5" /></td>
<td>Straight</td>
<td>Diagonal</td>
<td>Limited non-Sahil set (5, 7, 9, 11)</td>
<td>Rhythmic accel. and rall.</td>
<td>Varied</td>
<td>Varied (trills and dim.)</td>
</tr>
<tr>
<td><img src="image6" alt="Musical Example 6" /></td>
<td>Curved</td>
<td>Diagonal</td>
<td>Chromatic</td>
<td>Septuplet (demisemiquavers &amp; semiquavers)</td>
<td>Staccato</td>
<td>Forte</td>
</tr>
<tr>
<td><img src="image7" alt="Musical Example 7" /></td>
<td>Curved</td>
<td>Diagonal</td>
<td>Emphasized dissonance between consonant intervals</td>
<td>Varied</td>
<td>Varied</td>
<td>Varied (trills and dim.)</td>
</tr>
<tr>
<td><img src="image8" alt="Musical Example 8" /></td>
<td>Angular</td>
<td>Horizontal</td>
<td>Dissonant intervals of Sahil</td>
<td>Syncopation</td>
<td>Varied</td>
<td>Varied (trills and dim.)</td>
</tr>
</tbody>
</table>
5.3 Structure of Teotihuacan

*Teotihuacan* has two concurrent structures: one that concerns the accumulation of linear materials and another that follows a four-part block structure that is inspired by an extra-musical source. This is a continuation of the research carried out in *Aphrodite Anadyomene*, which also followed a four-part block structure that signalled a break away from the use of the structure of Greek tragedy and from the strategy of juxtaposition and superimposition of binary oppositions.

5.4 Programmatic Block Structure in Teotihuacan

In Nahuatl, the name Teotihuacan means ‘the place where the Gods were created.’ Teotihuacan is an ancient Mesoamerican City, located approximately 50km from Mexico City and built between the 1st and 7th centuries A.D. Following a visit to the site in March 2016, whilst I was in the beginning stages of sketching the orchestral work, I was particularly struck and inspired by the great size and beauty of the site and the work came to be structured in four distinct sections that each depict a different aspect of the site.

5.4.1 Section One – ‘Pyramids of the Sun and the Moon’ (bars 1-99)

The first section depicts the two Pyramids of the Sun and the Moon. The straight horizontal lines that I composed according to Kandinsky’s linear definitions became the materials that represent the straight architecture of the Pyramid of the Sun. The curved horizontal line that is introduced in the bass clarinet in bar 21 represents the Pyramid of the Moon, which is much smaller and is situated in the shadow of the Pyramid of the Sun. From section B to C (bars 34-79) a development of this curved horizontal line appears in two pitch canons in the strings. There is one pitch canon between the solo violin and first violins that fluctuates between a canon at the unison and double octave due to the change between harmonics and non-harmonics (Ex. 39).
Another pitch canon at the octave begins in bar 37 between the 2nd violins (with octave doubling in the violas) and the ‘cellos (Ex. 40). The combination of these two canons in conjunction with each other creates a denser texture. The idea of simultaneous canons was triggered by Thoresen’s ‘pitched accumulated’ graphic. Polyphony offers one instrumental interpretation of Thoresen’s ‘pitched accumulated’ graphic.

These canons are punctuated by metallic percussion (crotales, tam-tam and cymbal) in conjunction with the harp and piano. Metallic timbres were used, not only in correspondence with Kandinsky’s concept of the ‘cold’ horizontal line but also because the ‘Pyramid of the Moon’ suggested the use of metallic timbres.
5.4.2 Section Two – Tlamanaliztli (Sacrifice and Offering), (bars 100-210).

There is evidence that sacrifices were performed at Teotihuacan. It is suggested that sacrifices in Aztec culture were accompanied by ‘musical outbursts, elaborate costumes and dancing’. The ‘musical outburst’ that accompanied the sacrifice is reflected in the piece by the rhythmic percussion section that enters at letter E. The rhythmic material incorporates basic rhythmic patterns found in Latin American folkloric music. The idea of using Latin American folkloric rhythms to musically represent elements of pre-Hispanic culture and ritual has been explored by Silvestre Revueltas in *La Noche de Los Mayas* and Carlos Chavez in *Sinfonia India* and these works were important influences for *Teotihuacan*. As no written notation of pre-Hispanic music has been found, Mexican twentieth century composers turned to the rhythms of their own present day folk music to represent the pre-Hispanic cultures of the past.

The set of rhythmic patterns found at figure E (Ex. 41) is typically found in many dance styles including mambo, guaracha, calypso and fast rumba.

![Ex. 41, Teotihuacan, Percussion, bars 144-147, Emma Wilde, 2016.](image)

Rhythms typical of salsa are also employed. Salsa is underpinned by ‘two-measure timelines known as the clave which can be felt as either a 3+2 or

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2+3 pattern.’ From bar 158, a 3+2 clave starts to be employed in the salsa bell (Ex. 42).


The piano also has an important role in salsa and plays a repeated, syncopated ostinato (or vamp), called a montuno. There are many possible variations and ornaments for the montuno, with the primary characteristic being an inclusion of syncopated rhythms. From bar 158 of *Teotihuacan*, a piano montuno is employed (Ex. 43).


The montuno is often combined with a bass tumbao which is also based on a syncopated pattern. In *Teotihuacan*, the tumbao is heard in the bass of the piano in combination with pizzicato ‘cellos (Ex. 44.)


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60 Ibid.
5.4.3 Section Three – The Avenue of The Dead (bars 210-268).

The third section represents the Avenue of The Dead, which is the main path between the pyramids, thus named because the temples situated along its sides look like tombs. I place this section after the sacrifice to continue the theme of death. To represent this ominous theme a passacaglia is employed, as discussed in Chapter 3. A development of the curved melodic line that first appeared in the bass clarinet in the opening section of the work (at bar 22) becomes the theme of this section albeit this time the line utilises a contrasting limited pitch class set (G, A, Bb, C, D, Eb) which emphasizes dissonant intervals to reflect the funerary character of this section. This line is passed between the bass clarinet, cor anglais and alto flute, which were chosen for their complementary dark timbres.

5.4.4 Section Four – The Temple of Quetzalpaplotl (bars 269 to end).

‘The Temple of Quetzalpaplotl’, which means the temple of the feathered serpent, is a rich and grand palatial temple and is very ornamentally decorated. In this temple you can find paintings and decorations that are found on the other sites of Teotihuacan and so it serves as a collage of the whole site. This section serves as a quasi-reprise of the opening section albeit this time with the addition of the diagonal and angular lines that were introduced in the central sections of the work. The linear materials of the piece are gradually layered in this section like a collage to create a climax, which emulates the grandness of the temple but also the collagist nature of the temple's design.

5.5 Linear Accumulation in Teotihuacan

The aim for the work was to develop a different approach to structure that was less restricting than employing Greek tragedy or the straightforward
juxtaposition and superimposition of binary oppositions. As *Teotihuacan* progresses, the different types of lines are introduced and superimposed upon one another but the accumulation of lines does not happen smoothly. This allows for more interest and surprise in the work's structure. Once a line has been introduced it can be taken away and then it can reappear later on in the work in combination with new lines. In terms of research context, this owes much to Silvestre Revueltas’s *Sensemayá*, which focuses on the gradual accumulation of different ostinati, with each ostinato having its own intervallic and rhythmic qualities.\(^{61}\) Alejandro Cardona has described the structure of *Sensemayá* as containing ‘accumulative waves’ in which thematic material is gradually added in each wave and then suddenly subtracted so that a new wave can grow again.\(^{62}\) I took a similar approach in *Teotihuacan* in the opening (Pyramids of the Sun and the Moon) and closing (The Temple of Quetzalpaplotl) sections of the works whose structures display similar wave-like shapes with regards to how the lines are accumulated. Contrastingly, the two central sections explore and introduce a limited number of lines. The second section (Tlamanaliztli) explores diagonal lines in a fragmentary rather than accumulative way and later introduces the angular line at Figure E, in the clarinet. During the third section, (The Avenue of the Dead), vertical block chords punctuate just one solitary curved line. Graphic outlines, which display how linear material is accumulated in *Teotihuacan*, are provided in the figures below.


Fig. 9, First ‘accumulative wave’, Teotihuacan.

Fig. 10, Central fragmentary sections in Teotihuacan.
5.6 Conclusion

In conclusion, *Teotihuacan* linked together many of the main compositional concerns that were explored throughout the portfolio. The creation of the different individual lines drew upon Carter’s stratification techniques and Lutosławski’s intervallic partitioning, albeit in *Teotihuacan* the aim was not to create one clear binary opposition but to create sets of individually characterized lines which could contrast and complement each other. Much of the linear material’s pitch content was also taken from limited sets of pitch classes that continued the research aim of creating a simplified harmonic language. The block structure of *Teotihuacan* also continued the exploration of block structure found in *Aphrodite Anadyomene*. The use of devices from Medieval, Renaissance and Baroque music, including passacaglia and canon, was also present, as was the influence of Thoresen’s graphic symbols to trigger musical material and textural ideas.

Fig. 11, Second ‘accumulative wave’ in *Teotihuacan*.
Conversely, *Teotihuacan* also opened up new lines of enquiry that I aim to explore further in my research after the completion of the PhD. This includes new ways of thinking about musical line in relation to visual art, using rhythms from Latin American folkloric music and a new approach to structure that involves accumulating linear materials in wave-like patterns, which is influenced by Silvestre Revueltas’s *Sensemayá*.
General Conclusions

Whilst creating this body of work I have been able to refine my compositional techniques and approaches, as well as discover some new interests along the way. The project allowed me to further explore some of my longstanding interests such as stratification, binary opposition, the use of Greek tragedy as a structural device and the use of devices including ground bass. The first work Erebos owes much to Birtwistle’s Tragoedia, although in this work I developed my own approach to musical characterisation which relies on a combination of techniques from Carter and Lutosławski and this diverges from Birtwistle's approach. I also discovered that Greek tragedy can be a useful structural device and provides an ideal structural framework for binary oppositions both when it is followed quite strictly as in Erebos or when elements of the structure are implemented more freely as in Boreas, Sisyphus Syndrome and Helen.

Part way through the project new interests emerged. I developed an interest in electroacoustic music and discovered that Thoresen’s typology can prove to be a useful tool for triggering and planning textural ideas and this led me to compose the work Aether which proved to be a turning point. The influence of Thoresen’s typology continued to provide the inspiration for the textures in Erémos, Aphrodite Anadyomene and Teotihuacan.

A new approach to structure was explored in Aphrodite Anadyomene, which contained a four-part Stravinskian block structure and this was continued in Teotihuacan. During the composition of Teotihuacan I came across a new influence in the form of Sensemayá by Revueltas, which led me to consider the accumulative layering of individual lines. This was a clear break away from dealing with the juxtaposition and superimposition of binary oppositions.
Now I am eager to further explore some of these new compositional interests in my forthcoming compositional projects. I am currently composing a work for amplified accordion and effects pedal, two violins and percussion. In this work I will add an electronic element for the first time and have been thinking about Thoresen’s typology, this time in relation to how it can trigger ideas for electronic as well as instrumental material. I am also continuing to explore theme and variation form and have been exploring antiphonal interplay between the two violins, which builds on ideas from Helen. My interest in Latin American music and culture is also continuing in this work as it will incorporate rhythmic patterns from Latin American folk music in the percussion parts. I am also composing a shorter scale work for symphony orchestra in which I aim to continue to explore approaches developed in Teotihuacan, including the orchestration and layering of individual lines.
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