

# ***METTA VEE:***

**A Stylistic Journey Through a Landscape of String**

**Contextual & Analytical Commentary**

**Tim Perkins**

A thesis submitted in partial fulfilment of the requirements of  
Birmingham City University for the degree of Doctor of Philosophy

2014

Birmingham Conservatoire, Birmingham City University UK

## Abstract

The aim of *Metta Vee* is to explore stylistic metamorphosis in an extended cross-generic work for electroacoustic string ensemble which combines the rich vocabulary of string writing from the Western art tradition with that found in jazz, folk and rock music. In performance this is achieved by individually expressing and then fusing the associated playing styles. In a series of supporting works different aspects of cross-genre writing for strings are explored, both in scored and sonic pieces. The final composition, *Metta Vee* (a phonetic abbreviation of *metamorphous violin*) is an evolving landscape which travels through various styles whilst retaining cohesion in the overall design. It is, as expressed in the subtitle, a stylistic journey through a landscape of string.

Two violin soloists, one acoustic and one electric, convey the more intricate details of stylistic fusion, exploiting the instrument's technical capacities and broad repertoire. The electric solo part has been scored for a 5-string violin, incorporating the low viola C string in addition to the standard tuning. Opportunities for soloing and musical exchanges between the players have been designated within the main work to showcase the cross-stylistic performance aesthetic through a series of variations generated by repeated motifs. *Metta Vee* is a work that faces the challenge of mixing the tonal characteristics of the electric violin with the acoustic string world so the two may be not just individually showcased, but homogenized, creating a new sonority as well as stylistic fusion.

## Acknowledgements

My entire life has been driven by musical experience and activity from as early as I can remember, and a myriad of people, places and events have inspired, enthused, and helped to mould me into the musician and artist I am today. Friends and acquaintances from all walks of life, fellow band-members and orchestral colleagues, teachers and students, visual artists, writers and performers in all recognizable media, they are simply too numerous to mention in any form of tributary catalogue, though in their individual way they have all been influential either consciously or subconsciously on the *Metta Vee* folio and the textual and musical contents enclosed therein.

I should like to extend my gratitude to my wife and family for their patient support, and all my tutors at the Conservatoire for their faith and guidance in this project, and their unwavering guidance throughout its long and arduous course. Also, special thanks go to the various members of the Metta Vee Ensemble for their musical expertise in the recording session and to the resident studio engineer Chris Humphries, for his sterling work and time in assisting me with the mixing, editing, and production of the music.

All notated scores are ©Tim Perkins 2014. *England Rolls Up & A Brief History of Tim* are ©NorthStar music 2014.

## Contents of Folio

### ***Metta Vee (2014)***

13 piece electro-acoustic string ensemble --- duration 27'

solo electric 5-string violin

solo acoustic violin

4 violins • 2 violas • 2 cellos

double bass • bass guitar

### **Supporting Works (Scored)**

#### ***Where does car go when it die? (2009)***

solo soprano • viola • piano • drum kit --- duration 4'

#### ***Turn Crank (2010)***

amplified string quartet --- duration 5'

#### ***Son of Metta Vee (2010)***

4 violins • 2 violas • 2 cellos • double bass --- duration 4'

#### ***I've started, so I'll finish (2011)***

string quartet • solo electric violin/narrator --- duration 3' 30"

#### ***Moves moves (2011)***

alto sax • viola • guitar • piano • drum kit --- duration 6'

## **Supporting Works (Sonic)**

### ***England rolls up (2009-2010)***

Track listing

1. England rolls up
2. 5-Petal Rosy
3. Kalibos
4. Portraits of a musical onion
5. Vienna Pig-race
6. From screaming to dreaming
7. The Jersey devil
8. Chunderbluster
9. The Finest Pearl
10. Trim the fatheads
11. Old brass down Korn way
12. Live short and fester.

### ***A brief history of Tim (2009-2010)***

Track listing

1. Candy with mad hair
2. Borborygmus
3. Smess
4. Singing Watches
5. No pressure, no chemical
6. Brain oil 3-6-9
7. Into the Mauve Zone
8. The Rusty Phoenix
9. Bushfink
10. Gentler Fruit

## Contents of CDs

*Metta Vee* – full score. Computer-generated wavelab recording 2<sup>nd</sup> May 2014

*Metta Vee* - excerpts

1. Formation pt. 1 (bars 1 – 131)
2. Formation pt. 2 (bars 205 -247)
3. Formation pt. 3 (bars 275 – 340)
4. The Physical (bars 394 -416)
5. Dual cadenza (bars 466 – 507)
6. Plateaus (bars 513 – 568; 599 – 611)
7. Fusion Ritual (bars 630 – 678)
8. Trance Terminal / Afterglow (bars 811 – 866)

Recorded by the Metta Vee Ensemble – Headington School, Oxford 5<sup>th</sup> January 2014

Conductor - Dan Watson

Soloists - Cara O' Reilly (acoustic violin), Tim Perkins (5-string electric violin)

*Moves moves*

Computer-generated wavelab recording 12<sup>th</sup> March 2011

*Son of Metta Vee*

Recorded live by BCMG - Symphony Hall, Birmingham 17<sup>th</sup> June 2010

*Turn Crank*

Recorded by the Boult Quartet - Adrian Boult Hall, Birmingham 21<sup>st</sup> February 2010

*Where does Car go when it Die?*

Computer-generated wavelab recording 12<sup>th</sup> March 2009

# List of Contents

<b><u>1. Background and Context</u></b>	1
1.2 Musical Philosophy and Aesthetic	2
1.3 Compositional Influences	4
1.4 The <i>Metta Vee</i> Project	9
<b><u>2. Supporting works</u></b>	12
2.2 Scored Works	12
2.3 Sonic Works	17
<b><u>3. The Main Work</u></b>	21
3.1 Origins	21
3.2 Grand Design	22
3.3 Motivic Elements	24
3.4 Sector 1 ‘Formation’	26
3.5 Sector 2 ‘The Rush of Apparency’	30
3.6 Sector 3 ‘The Physical’	32
3.7 Sector 4 ‘Plateaus of Silver and White’	35
3.8 Sector 5 ‘Fusion Ritual’	36
3.9 Sector 6 ‘Trance Terminus’	39
3.10 Sector 7 ‘Afterglow’	40
3.11 Summary	41

<b><u>4. Conclusion</u></b>	44
4.1 A Stylistic Journey Through a Landscape of String	44
4.2 The Case for Advanced Electroacoustic Composition	47
<b>Appendix:</b> Full list of Compositions during Research Period	50
<b>Bibliography</b>	52
<b>Discography</b>	54



# Commentary

## **Chapter 1: Background and Context**

This section outlines my professional career as a musician to date, explaining my personal philosophy as a musician and composer, before relating this to the doctoral project.

### **Personal History and Profile**

My musical background is rooted in orchestral music as a violin player. When switching to viola at Trinity College of Music I discovered a more interesting space in the orchestra, where tone-colour combinations, textural qualities, and tonal relationships between instruments could be examined and absorbed. For me, the string section became the linchpin of music performance practice, and proved to be deeply influential during my formative years owing to the rich diversity of repertoire it offered. This ‘classical’ training gradually became offset by the discovery of non-classical art forms, namely European roots music, 1960s pop psychedelia, and contemporary electronic music experimentation. These pursuits were (and still are) spearheaded by a passion for non-classical string instruments, including the electric guitar, mandolin and bouzouki, all of which I have studied informally and by way of self-tuition. This in turn led me to investigate other styles of violin playing, mainly diatonic English Morris dancing tunes of the Cotswold and North-West traditions which were ideal for the violin’s tuning in 5ths and from there, my relationship with the electric violin began. At first this was done using basic pick-up systems with acoustic violins, which later expanded to solid electric instruments. While continuing along a path of orchestral training I became more aware of rock, jazz, and folk music through television, radio, and recorded media and it was inevitable that I would diversify my violin study to accommodate these different music forms. My earliest experience in divergence was playing fiddle for Morris dancing teams and then ceilidh bands, both of which required higher levels of amplification. By the time

I had started my first year on a classical music degree course, my development as an electroacoustic performer was already well under way.

## **1.2 Musical Philosophy and Aesthetic**

### **Impulse over System**

Improvisation plays a key role in my music, both as part of the compositional process and also in designated passages of the finished work. In improvised music, if you say something once, it is mere implication; twice, and it becomes intention. I would liken it to spontaneous photography, with the instrument acting as an imaginary apparatus for capturing unplanned musical moments, 'snapshots of accidental sound'. When referring to improvisation, the composer Cornelius Cardew once said he thought it was 'something like composing, but accelerated a thousand times' (Small, 1998, 283). Clearly, for Cardew, improvisation and composition are inseparably linked. This is also true in my experience, where the two aspects are co-dependent on one other as part of the process that results in a finished work. Therefore, in my approach music scores serve the purpose of controlling and formatting free improvisations and similar creative impulses in order to seal them in a kind of secure framework.

Musical improvisation might also be compared to spontaneous speech, but with the added complication of instrumental mechanics that require technical skill: 'when improvisers talk about their music, they often draw upon linguistic metaphors grounded in verbal communication or rhetoric' (Parncutt & McPherson, 2002, 117). Violin playing is often considered improvisation-unfriendly owing to the mechanical and postural difficulties presented by the instrument. Thus, it is difficult to effectively implement these skills into formal string instrumental training and priority still resides in the practice, and thereby preservation of, the established repertoire. According to Bailey, 'one reason why the standard Western instrumental training produces non-improvisers is that not only does it teach how to play an instrument, it teaches that the creation of music is a separate activity from playing that instrument' (1980, 98). One of the challenges I have faced in

this project has been to bring together very different conventions to find new, common ground, and to try to give greater credibility to the violin's standing in the world of extemporization.

### **Essential Roots**

'If power is immanent in all social interaction and not vested solely in leaders and the incumbents of formal office, then we need to ask what is special about power emanating from cultural events, ceremonials, and customary practices' (Parkin, Caplan and Fisher, 1996, xv). One unique contributing factor of folk culture is that it has the ability to impart information by way of mythology and storytelling, and therefore the same method can also be applied to instrumental music teaching and creative music making. In music the power of folk-roots is bound with an intrinsic sense of homecoming and belonging. Another aspect of folk music is that it is at once immediate yet gradual and satisfying. Through the application of folk melody a composer can create a unique mix of the unknown with the familiar, transcending fad and fashion. Such works as *The Bluegrass variations* for solo violin by Martin Butler, *An Orkney wedding, with sunrise* by Maxwell Davies, *Folk songs* by Berio, or *Tam O' Shanter* by Malcolm Arnold achieve this effect in their own individual way. It is these very qualities that I try to emulate in my own musical exploits, thus empowering my musical language by the acknowledgement of folk traditions.

In relation to violin practice, roots music traverses a wide range of styles and methods. The alternative tuning system dubbed 'Troll tuning' by Norwegian Hardanger fiddlers is just one example, and similar forms of scordatura that feature in other European folk musics have also inspired many orchestral works, such as the peasant fiddle part in Mahler's Symphony no. 4. I believe that originality cannot come into any existing practicable shape or form without acknowledgement of and orientation to the past and it is especially important to me to acknowledge and build on ancient traditions. My approach might be summed up thus: the art of making viable choices for the future by modifying the past with the machinery of the present.

## **Compliance and Subversion**

One particular question facing me as composer is the balance between compliance and subversion, and this automatically pre-empts a dichotomy of freedom and confinement within the creative musical procedures. The effect of this is, to an extent, determined by the relationship between culture and subculture in the music business. Mainstream classical music has always had a tendency to subsume the music of what was perceived to be lesser cultures in an act closely akin to territorial acquisition. According to Goehr 'we have before us a clear case of *conceptual imperialism*' (2007, 245). The enormous counter-cultural movement that was prevalent in the UK and the USA during the 1960s and 1970s in the form of rhythm and blues, psychedelic pop and later, progressive rock, proved to be one of the most groundbreaking epochs in the history of music. An entire generation of intuitive musicians was spawned, and these mostly relied on the oral traditions of music-making, proving that musical literacy and invention did not necessarily go hand in hand. It is understandably difficult for formally trained musicians to shake off the irresistible lure of 'classicism' and the widespread infiltration of such thinking that has pervaded so much creative thinking in the twentieth century. 'Classical music is and will continue to be fundamental to everyone who has confronted or been confronted by it' (Long, 2008, 1). The burgeoning sense of the importance of concert music was neatly summed up in 1835 by Franz Liszt. He declared that 'we require the foundation of a musical museum' (Goehr, 2007, 205), suggesting that serious composers should be organized into a canonical order and their works be carefully archived. Instinctively, I feel that such paradigms can no longer take precedence, and that any prevailing conceptual values relating to 'classicism' are now subordinate to a wider global and all-inclusive contemporary culture.

### **1.3 Compositional influences**

My compositional thinking and formula has always seemed to be in an ongoing state of flux caught between the acceptance of well-established musical forms and performance

practices, and the dynamism and impulsiveness of ‘non-classical’ music pursuits: jazz, rock, folk, and electroacoustic free improvisation. A number of works have had considerable influence on the *Metta Vee* portfolio. The following list is not intended to be exhaustive, but does feature works where acoustic and electric strings (violins in particular) are central to the composition and performance in both style and content.

#### Schnittke: Concerto Grosso No. 1 (1977)

Many elements of this piece influence the *Metta Vee* portfolio, most notably the pop-Baroque style of the 5<sup>th</sup> movement (Rondo) on *The Rusty Phoenix*, and the dual violin sequence in the cadenza midway through *Metta Vee*. The fusion of disparate styles in the piece (particularly the 3-way Baroque, contemporary and light music narrative) is especially powerful. In a similar way I created a balance between Scottish folk, music of the Classical period and contemporary electroacoustic characteristics in another of my works: *I’ve started, so I’ll finish*. The combined effect of these conflicting styles is at once tragic, comic, and perplexing. Schnittke makes references to a number of compositional and period playing styles in the work: Vivaldi, Mozart, Tchaikovsky, and Webern to name a few. Similarly, in *Metta Vee* striking overtones of particular composers are evident, e.g. Biber, Stravinsky, Ligeti, Britten, and Bartok by virtue of their string writing.

#### John Adams: *The Dharma at Big Sur* (2003)

This tone poem to Big Sur, California, by John Adams features a part for 6-string electric violin and a mixed ensemble that combines both just and equal temperament tuning systems. The improvisatory nature of the opening uses a mixture of free jazz and Carnatic Indian playing styles. The most obvious connection with *Metta Vee* is the electric violin’s role, though in the latter piece the violin has five strings and is frequently engaged in dialogue with an electric bass guitar. Adams’s exploration of acoustic and electric tonal qualities and the overall sonority of the two combined is clearly relevant to the project, as is the way he effortlessly fuses Indian Carnatic and jazz-blues style electric violin writing. This is most apparent in Part 1 of *The Dharma at Big Sur*, and in Sectors 1 and 4 of *Metta Vee*.

### Vaughan Williams: *The Lark Ascending* (1921)

*The Lark Ascending* by Vaughan Williams is a more obvious influence on *Metta Vee* (especially in the solo parts in Sector 1) because of the spontaneity of its pentatonic solo lines and the composer's association with the English Folk Dance and Song Society. The music achieves a sense of tonal freedom without losing a sense of melody owing to the open-endedness of the 5-note scale patterns it employs and the playing down of strict metric properties in the score (some of it is written without bar lines). It is also interesting to compare the opening of the Vaughan Williams to the introduction of the violin in part 1 of *The Dharma at Big Sur*, as both assume an aerial quality, defying the tyranny of the bar-line; likewise, the solo violin parts of *Into the Mauve zone* and the coda from *I've started, so I'll finish* exhibit similar traits.

### Berg: Violin Concerto (1935)

Completed shortly before the composer's death, the violin concerto remains Berg's most popular and frequently performed instrumental work. It is in two large movements, and features an unusual tone row based on ascending minor and major thirds, freely developed in the solo violin part against a richly orchestrated backdrop with Romantic and impressionistic textures. Also noteworthy is the inclusion of a Carinthian folk melody and a Baroque-style chorale, which add a subtle polystylistic dimension to the music. These additions act as a subtle foil to the overriding harmonic language of the composition, an ongoing dialogue between Berg's 12-note serialism and more traditional tonal centres. This creates a fine line between chromaticism and atonality. Similarly, the harmonic vocabulary of *Metta Vee* is one of struggle between opposing poles of consonance and dissonance, though this in itself makes for a fully cohesive harmonic system.

### Richard Strauss: *Metamorphosen* (1945)

This is another work that inspired *Metta Vee*. The piece thematically refers to the C minor inverted dotted figure from the funeral dirge of Beethoven's 'Eroica' symphony, and this is skilfully woven into a shifting and restless harmonic tapestry. It is believed to be modelled

on the Classical idea of metamorphosis by transcendence through the physical to the spiritual world ‘according to the classical metamorphosis tradition, by discovering the divine within, man could metamorphose into the godly’ (Jackson, 1997, 195). Interestingly, the end of Strauss’ *Metamorphosen* actually dies away in dirge-like fashion in the lower bass string registers at the end of the piece, which might be interpreted as the polar opposite to the Classical notion of metamorphosis. The effect of ongoing restless change in a wide pitch register is demonstrated in this work as the music slowly flowers into a complex and contrapuntal labyrinth of sound. *Metta Vee* displays more of a voyaging character, spanning seven continuous sections over 27 minutes. The initial 10 minutes of the piece, ‘Formation’, fuses the solid regularity of a low bass ostinato (the only hint of a tonal centre) with the elusive qualities of implied thematic snippets that are in flux, and that gradually evolve along the course of the section.

Bartók: 44 Duos for 2 violins (1931)

Rhythmic irregularities and dissonant intervals abound throughout this collection of Eastern European folk orientated violin duets. It was widely regarded as a pedagogical work, designed to be played by students rather than professionally performed. The duos are short, concentrated, and cover a broad sense of occasion and mood (with movements entitled *Maypole Dance*, *Cradle Song*, or *New Year’s Greeting* for example). They are written in such a way that the players are asked to think both individually and collectively, with many unexpected accidentals and time signature changes in quick succession. These pieces proved most instructive to me because they opened a new window of performing opportunity, this being the adaptation of my recently acquired raw fiddle playing style to a more formalized composition. The part writing and harmonies are a curious mix of traditional Hungarian folksong and miniature neoclassical form, the spirit of which is very much alive in the duet passages of Sector 3 in *Metta Vee*.

Among other relevant pieces are *Battalia* (1673) by Heinrich Biber in which brilliant violin writing is tempered by alternative tuning and extended string techniques, and *Seeing is believing* (2007) by Nico Muhly where the contemporary and Renaissance worlds are brought together in a single musical concept. The latter piece is scored for

electric 6-string violin and chamber orchestra and fuses a number of styles, most notably European Renaissance, post-war American minimalism and electronic fusion.

The remaining items have been selected for their outstanding performance features and their importance to the recorded performance of *Metta Vee*. For example, the beautifully crafted yet freewheeling solos of classically trained violinist Simon House on the albums *Hall of the mountain grill*, *Warrior on the edge of time*, and *Astounding sounds, amazing music* by archetypal psychedelic space-rock band, Hawkwind, which added a new dimension to the already well-established sound of that band. This collision of rock and classical schools of thought was a big influence and gave me renewed confidence as I strove to integrate my electroacoustic violin skills with my conventionally scored compositions. Moving more towards the jazz and blues vein, ‘Directly from my heart to you’ (R.W. Penniman) on the Frank Zappa album *Weasels ripped my flesh*, is rich in virtuosic electric violin riffing and soloing courtesy of violinist Don “Sugarcane” Harris. The heavily orchestrated version of ‘Lillibulero’ (trad.) by folk band Bellowhead from their album *Broadside* (2012) features high register tremolando string effects fused with a Celtic jig-type backbeat and this fusion of style and texture is pertinent to my musical thinking. Finally, *Raga Bageshree Kanhra* (2013), by Carnatic and Hindustani Indian violin specialist Dr. N. Rajam is unique in both sound and style. The expressive free playing of this last piece is reminiscent of both the human voice and birdsong, and its improvisatory spirit is evident in works such as *The Dharma at Big Sur*, whilst elements of the style are comparable to the opening violin solos in sector 1 of *Metta Vee*.

All of the compositions listed above have been influential on *Metta Vee*, but three have been particularly important as models for stylistic fusion: *The Dharma at Big Sur*, *The Lark Ascending*, and *44 Duos for 2 violins*. The last of the three fuses the ethnic Hungarian musical idiom with neo-classical harmony, of particular relevance because the combination of established Western harmony and folk music is found in both my own compositions and performance. However, it is the fusion of solo violin writing styles in the pieces by Adams and Vaughan Williams that is most significant, as the two approaches are combined to create a new language that is given a distinctive platform in the opening solo phrases in Sector 1 of *Metta Vee*. This is a new language that can only



be expressed on the violin; one of a sibilant, aerial character, sustained and relaxed, and akin to bird-song.

#### **1.4 The *Metta Vee* project**

The project investigates the creative potential of polystylistic composition by unifying the diverse playing styles and musical languages of string instruments, culminating in a major electroacoustic string composition, *Metta Vee*. This piece draws on both contemporary and historical performance practices and techniques, including world and ambient music, electronica, free improvisation, and a range of non-classical musics such as jazz, blues, rock, and ethnic music traditions from many countries, especially European. A number of supporting works have served as sounding boards for the larger work, exploring the two aims of this research project: firstly, to create a coherent musical language that encompasses a diverse range of musical styles in writing for string instruments, and secondly, to create an extended work that features both electric and acoustic violins as soloists.

The electric violin is an instrument largely associated with rock music, and in more recent times with the increasingly popular British folk-rock scene. Conversely, the acoustic violin still predominates in the world of classical and traditional folk music. At a time when genres are being broken down, I sought to explore how these two close relatives might come together, and to find a compositional language that amalgamates elements of the string playing techniques found in these various genres. The final work addresses this challenge by fusing the writing found in Baroque, Classical, Romantic, and twentieth-century compositions with folk, rock, and jazz fiddle styles. In terms of instrumentation, *Metta Vee* not only features electric and acoustic violins, but also an electroacoustic string orchestra that includes an electric bass. The result is a 27-minute piece that draws on a wide variety of techniques and practices found in string repertoire from the Renaissance period to the present day, whilst retaining a unified musical style.

As stated above, the portfolio also includes a number of supporting works. In these, all of the compositional devices and playing styles found in *Metta Vee* are spread across a mixture of different media and instrumentation, presenting vital learning curves for the main work. For example, the performance-style relationship between the electric violin

solos on *The Rusty Phoenix*, *Into the Mauve Zone*, and *England rolls up* are precursors to the solo parts in *Metta Vee* Sector 1 in their style and tone, while the cellular structural development technique used in *Son of Metta Vee* is recalled once again and taken to new extremes in the latter half of that sector. Two studio albums allowed me the freedom to explore my writing for electric violin in an environment of complete control, as I was the only musician involved. Therefore, I approached the remaining supporting works with a new confidence that arose from the studio experience and felt an increasing level of conviction with each piece as the electroacoustic bond grew stronger. This path eventually led to the main work, *Metta Vee*, where the experience of the studio work and the experiments in using larger structures for acoustic strings came together in combination and were developed to create a longer and more technically advanced piece. Stylistic metamorphosis was achieved in acoustic, electric, and electroacoustic works; for example, *Son of Metta Vee* (acoustic) *Into the Mauve Zone* (electric) *Moves moves* (fusion). All three pieces mix and match different stylistic aspects of performance practice on smaller platforms that are later incorporated into *Metta Vee* and taken to greater extremes within a larger structure. The music in Sectors 5 and 6 is the most striking example, as the highest concentration of ideas and playing styles are built into the content of these two movements.

My overriding ambition in the principal piece was to break down generic barriers while retaining links to significant periods of the musical past. Naturally then, I chose the traditional medium of the string orchestra in order to investigate these ideas within a conventional setting. In performance, this meant that the musicians involved in the project were able to draw on their shared experience and training as string players employing a common language, regardless of the instruments they played or the unusual soundworld created by the addition of electroacoustic instruments. As a result, I believe there is potential for further exploration in this medium, in particular through extended techniques blended with the electric instruments in the score.

*Metta Vee* attempts, among other things, to invoke the spirit of past music that is personal to the experience of the orchestral string player, but that also embraces some features of popular culture. The composition itself is largely self-referential in that it revolves around a set of original motifs that are subject to variation throughout; it does

occasionally quote examples from other works, though these are not central to the overall design. The musical growth in *Metta Vee* derives from a basic theme originally improvised by myself at the piano that, when refined, became the 'Trance Chorale', and is completely abstract with no preconceived or consciously programmatic origin. The piece sometimes refers to playing styles typical of certain periods rather than openly paying homage to any particular composers, and is basically what I would describe as 'polystylistic'. To summarize, *Metta Vee* faces the challenge of tonally and acoustically blending a conventional string orchestra with two electric instruments, whilst maintaining a balance between diversification and overall unity in the form of the music. The 5-string electric violin is pivotal as it covers both viola and violin registers, and comes in both electric and acoustic forms. Two violin soloists, acoustic and electric, convey the more intricate details of stylistic fusion, exploiting the instrument's technical capacities and broad repertoire.

## **Chapter 2: Supporting Works**

This chapter discusses the supporting works included in the portfolio, outlining their connection to the main work, *Metta Vee*. These fall into the two sub-categories, ‘scored’ and ‘sonic’ works, though free use of the electric and acoustic violin is evident in both media.<sup>1</sup> All of the pieces are string instrument based, or feature string instruments in a prominent role, and demonstrate stylistic fusion. A number of musical links between each supporting work have been explored, each one acting as a stepping stone towards the culmination of the project. For example, the percussive techniques in *Turn Crank*, the gradual stylistic transmutation running through *Son of Metta Vee*, and the cross-referencing of a Romantic-style viola part with a jazz-rock fusion rhythm section in *Moves moves* are all revisited and reinvented in *Metta Vee* where they are taken to new extremes. Both scored and sonic supporting works are listed below in chronological order.

### **2.2 Scored Works**

#### *Where does Car go when it die? [Sic] (2009)*

This piece, scored for solo soprano, viola, piano, and percussion, features novelty sounds played on motor horns and kazoo, and a spoken word passage by the ensemble in unison at the very end. The idea for this piece was to musically describe the childlike notion of the life after death of an inanimate object, the object in this case being a motor vehicle and its quest for immortality. The musical content is programmed to illustrate these two conflicting subjects in a number of ways. The vehicular aspect is evident throughout; the imitation of a stalling engine gradually coming to life in all parts at the start, the obsessive-compulsive motor-rhythmic piano writing, and the repeated car horns, for example. The subject of death is largely dealt with in the lyrical content of the vocal line. The words (written by the composer) are a hybrid of ancient Latin text and Cabbalistic language, arranged loosely in the form of a Requiem. Another task the singer is called

---

<sup>1</sup> Unlike in *Metta Vee*, the electric violin employed in the supporting works is the standard 4-string type.

upon to perform is a semi-improvised kazoo solo, the shape of which resembles the changing of motor gears back and forth as a vehicle gains momentum.

The experience of writing this piece and seeing it performed live fulfilled a number of small functions relating to compatibility of part-writing when fusing traditional and graphic notation. These issues came very to the fore when the blurring at the edges of the music became evident, three instances being the seamless transition between random sound effects and scored rhythmic mapping in the drum parts, the way that junk percussion was integrated with a conventional drum kit, and the changing of musical roles undertaken by the singer. These musical roles ranged from spoken word to scat singing to dramatic aria. The nature and content of the text also lent an elusive quality to the work, forming a hybrid of choral and operatic styles. In particular though, it proved that the use of non-classical instruments and playing techniques (i.e. kazoo) to trained singers specializing in Classical-period opera could be made effectively if approached and scored in as performer-friendly way as possible. This was done by scoring well within the vocal range of the singer and choosing inflective sounds with which the performer was already familiar to a certain degree. In this way, I sought to attain a mutual understanding and communication with the performers, and this was a decisive factor in performance.

### *Turn Crank (2010)*

This piece for string quartet was performed and recorded by the Boult Quartet at Birmingham Conservatoire in 2010. It is written loosely in the style of a disjointed tango with subtle tonal centres of F and A in the bass register, though chromatic, pentatonic, atonal, and pantonal systems are employed here. The shape of the piece is largely dictated by a set of dialogues between the two violins playing variations on a tango-style motif distinguished by polarized twin glissandi and staccatissimo quavers a major second apart in horizontal lines (example 2.1) and a minor blues pentatonic cello line that moves diagonally up and down.

Ex. 2.1 Violins in harmony against a ‘percussive’ viola part in *Turn Crank* (bars 17-19)

The musical score for Ex. 2.1 consists of three staves. The top staff is for the first violin, the middle for the second violin, and the bottom for the viola. The first violin part begins with a dynamic marking of *pp* and features a melodic line with a slur over the first two measures and a series of eighth notes in the third measure. The second violin part also starts with *pp* and includes a *gliss.* (glissando) in the first measure. The viola part begins with *pp* and uses *sul pont.* (sul ponticello) in the second measure. The dynamic for all parts changes to *fp* (fortissimo) in the third measure. A percussion staff is located at the bottom of the score, showing a rhythmic pattern of eighth notes.

The main riff (Ex. 2.1) is sporadically interrupted by choruses and bridge sections that lead the music toward a tempo change at bar 101 where four different rhythms based on Latin American dance forms are played simultaneously for a further seven bars. After an abrupt end to this section, the music reverts back to the original tempo, and the percussive backbeat viola part is doubled up with the cello to the very end, where the two violins quote a small fragment of the tango theme to conclude the piece on a chord of G with conflicting major and minor 3rds.

This piece demonstrates the acoustic properties and effectiveness of percussive string techniques, through nominating the viola player to carry out the duty of ‘band drummer’ and general time-keeper. In fact, for the vast majority of *Turn Crank*, the viola closely imitates the sound, style, and playing technique of a bongo drum or conga player. The structure of the piece also provides a good rhythm track for experimenting with diatonic/pentatonic fusion and crossover between the melodic passages played on the two violins and the cello pizzicato.

*Son of Metta Vee* (2010)

*Son of Metta Vee* is a 4 minute piece for string sextet that primarily serves as an example of the sort of multi-cellular development of a small musical fragment that can be clearly identified in the large work, *Metta Vee*. It begins a quartertone flatter than the pitch centre of G towards which the piece gravitates. The opening bars therefore are harmonically consistent with a microtonal system that belies the orthodox tuning in the rest of the piece, as it implies a tonal centre which is later denied when the instruments gradually go

up in pitch. One striking characteristic of this piece is the slightly chameleonesque way it moves through period styles of performance to the end: Renaissance, Baroque, Romantic, neoclassical, jazz and rock, each time interpreting the distinctive traits of a particular period or playing style (e.g. inflective bowing, wide vibrato, portamento, *col legno*, *sul ponticello*, *flautando*, and extended percussive techniques) and incorporating it in the broader musical language of the piece.

This work proved to be a useful learning curve feeding into the project because of the feedback offered by BCMG who rehearsed and recorded the music, making comments and constructive criticism along the way. Most of the remarks related to notation and scoring, and alternative suggestions were made to help swifter sight-reading and rhythmic accuracy. This is especially important as many of the rhythms in *Son of Metta Vee* went on to be developed and extended in the main work, *Metta Vee*.

#### *I've started, so I'll finish* (2011)

In *I've started, so I'll finish*, I arranged a piece for string quartet with electric violin solo (played by myself) based on a hybrid of Scottish folk tunes and played in Norwegian Hardanger fiddle style, thus fusing the Scottish/Norwegian aspects that were fundamental to the life of the programme's longstanding presenter, Magnus Magnusson. Once more, the music is driven by a crossbreed of mainstream cultural and subcultural string music languages. The rhythms in the piece are characterized by dotted and inverted dotted figures, and subtle glissandi akin to Scottish folk fiddle/song traditions, while the electric violin solo is a definite nod to the 'troll' tuning systems of traditional Scandinavian *Fanitullen* (Devil) tunes based on scordatura or alternative tuning methods (the 'troll' system being commonly recognized as A – E – A – C#.) The final aspect is the narration that slowly drifts in and out of the various ensemble passages, vaguely in time with the music. Spoken in Norwegian with an imitated Scottish accent, the text simply translates, 'I've started, so I'll finish, and it's nobody's business if I do'.

*I've started, so I'll finish* demonstrated more directly how the tonal properties of acoustic and electric violins could be mixed and merged successfully, and also how the various electroacoustic violin playing styles (most notably rock/blues and classical) could be distributed among instruments in the score to a satisfactory degree of stylistic

integration. The piece also offered interesting alternative tuning possibilities for the solo violin set against the conventional tuning of the quartet, another subject for further investigation in the project.

*Moves moves* (2011)

This was the last of the supporting works to be written, and also the longest. It is composed for alto saxophone, viola, piano, guitar, and drum kit. After a short introduction, a series of six atonal (though not tone-row oriented) riffs are played on the piano over the top of a repeated bass line on the guitar, which creates most of the harmonic anchorage of the piece by implying, rather than dictating, centres of tonality. A strident, initial homophonic melody is first played on piano, then saxophone, after which the music undergoes continuous development in the form of short-phrase variations shared between the instruments for the majority of the piece. Distinguishing features include a quasi-palindromic looped drumbeat in compound time units of 4 / 3 / 4 / 5 / 4 which form the rhythmic backbone of the music for most of its duration, and a repetitive major/minor 7<sup>th</sup> triplet figure that traverses a number of keys and occurs twice in the piece. *Moves moves* comes across very much as a jazz/progressive rock-fusion inspired ensemble piece in its perpetual motor-rhythmic style with cellular shaping and development. However, other stylistic elements are present: when the music reaches a climax at bar 211 the original melodic material is reiterated once again in the high register of the piano, embellished with Baroque-style ornamentation. This is juxtaposed with distortion-saturated power chords in the guitar part.

A direct two-way stylistic fusion is explored in this piece, in the form of a series of preconceived associations within the instrumentation. Stylistically, the ensemble is almost split directly in half, with piano and viola providing more in the way of neoclassical phrasing, while the guitar and drums complement this with the feel of 1970s progressive rock; the saxophone is somewhere between the two. Naturally the stylistic roles implied by the instruments are interchangeable, and they often cross over and merge. *Moves moves* yielded new ideas for balance, acoustic spacing, and conducting and direction of a larger electroacoustic work.



### **2.3 Sonic works**

#### *England rolls up and A Brief History of Tim (2009-2010)*

These are both studio-based projects consisting of 12 and 10 instrumental tracks respectively. With both cycles the aim was to investigate and fuse diverse sound worlds against a background that was largely dominated by electric and acoustic violin playing both premeditated and improvised music, although the overall mood of each album is distinctly different. The origins of *England rolls up* can be found in the dance forms and structures of the European tradition, while *A Brief History of Tim* shows a wider palette of musical forms from common-time binary structures to *musique concrète*, aleatoric and ambient music, all compressed within 2-minute time frames. I discuss below three of these tracks that I feel are most relevant to the *Metta Vee* portfolio.

#### *The Rusty Phoenix*

This track (*A Brief History of Tim* CD track 7) was constructed by individually layering eight violin parts, four of which are detuned to emulate the tonal qualities of the viola da gamba. Whilst the frequency range matches that of a conventional string quartet, all the parts are played using just one violin. The two sets of four voices are panned to the left and right of the stereo image in the recording. Sailing over the top is a solo electric violin part that harmonically interweaves with the upper string parts, finally resolving onto a high sustained note at the very end of the piece. The sound of this part has been processed to sound like a cross between a violin and an electric guitar. This piece demonstrates the gradual blending of acoustic and electric formal and playing styles within a simple structure. The octet is written in the Classical period style (circa 1790), but with minimal textures and a motor-driven pulse, while the solo part is reminiscent of late Romanticism, with hints of French impressionism, bird-call, and even whale-song. These are implied by the subtle use of portamento high up on the A string, a slow, wide vibrato, and the application of studio compression to the violin, lending a thick and almost wind-like *aulos* nature to the sound. In the final resolution of the piece, the seemingly accidental solo line intertwines with the backing ensemble in consonant harmony.

### *Into the mauve zone*

The next piece in my portfolio, *Into the mauve zone* (*A Brief History of Tim* CD track 5) is another studio-based piece. It starts with an opening statement played on two violins one octave apart, using upward glissandi for melodic function on some of the major 2<sup>nd</sup> and major 3<sup>rd</sup> intervals. The flavour of this, and the integrated use of Indian tabla, is reminiscent of the Carnatic violin playing style. Each stanza is slightly varied up to the closing seconds of the piece where, for the first time, a secure pulse is generated by a Hammond organ which in turn slowly merges with the freestyle tabla playing. This provides the accompaniment for an improvised electric violin solo that has been purposely processed to imitate an overdriven electric guitar. The opening violin statement is looped and then combined with the repeated 3-note organ figure plus distorted solo, fading out to nothing at the very end. The music conveys a sense of the exotic, blending unrelated tone colours and playing styles.

### *5-Petal Rosy*

The piece (*England Rolls up* CD track 2) derives its name from the predominant play on 5/4 and 10/8 in its structure. It is essentially a dance tune based on the traditional French *cinque temps* waltz, given a modern slant by carefully placed accents, and continually shifting emphasis of 2 and 3 (as opposed to 3 and 2) in the basic beat. There is more of a sense of fusion instead of directly horizontal metamorphosis in this work, as it features an unlikely combination of instruments: violin, viola, accordion, bassoon, Irish bodhrán and ethnic hand percussion. The resulting texture is a peculiar brand of folk, early music, and neoclassical styles. The somewhat incongruous use of instruments (for example, the pairing of orchestral bassoon alongside rustic folk fiddle and piano accordion) is exaggerated further by the musical role given to each instrument, the various sub-groupings and sound combinations, and individual stylistic interpretation of the different parts by each player. For example, the chorus sections led by the bassoon are premeditated and scored, the descending whole-tone scale down to F producing an unsettling and surreal effect immediately after the strong, heavily G major orientated diatonic melody played on the violin, imitating European folk fiddle gestures. But these are immediately juxtaposed with the more sombre and plaintive sounding violin part

playing sustained open string chords and the insistent pulsing of the shaker in the background. Without this minor percussion part, the section would trend more towards a dirge than a dance. For this reason *5-Petal Rosy* serves as an example of a tune where any particular sound appearing in or out of the right place at any time can completely shift the axis of the music and alter its character.

## **Conclusion**

A great deal was learnt from the conception and composition of the supporting works. Through these I was able to conduct a range of experiments in stylistic parity, disparity and incongruity within a variety of electroacoustic surroundings, allowing each piece to convey a specific type of music morph-change whilst germinating in its own unique way. Furthermore, a wider technical knowledge and stylistic appreciation of members of the string instrument family was gained through the creative process of the supporting works. The art of successfully pairing electric with acoustic instruments, and the required positioning and stage presentation necessary to enable a workable balance between the two, is one such valuable lesson. Ultimately, the supporting works revealed to me that to meet the challenge of timing well-proportioned and carefully contrasting relationships between musical sparseness and density, it was vital at first to address these technical matters by working with smaller structures.

Two particular performances in the Recital Hall of Birmingham Conservatoire have had a significant influence on the evolution of my project, both in 2011. Firstly, *I've started, so I'll finish* clearly showcased a cross-stylistic practice that could be taken to further extremes in *Metta Vee*. It helped to outline the strengths and weaknesses of tonal differences between the electric and acoustic violin and how these differences could be resolved by some kind of synthesis in both playing style and dynamic balance. At the very end of this piece the improvised solo allowed for a second, more mutable spatial canvas to work on in real time over the static prescribed parts of the quartet, due to the opportunities for dialogue that could be woven into the rests and spaces of the accompaniment. This created an interesting breeding ground for a larger format where

both an accidental and intentional exchange of ideas could be made possible between opposing styles of writing and playing (though on family-related instruments), creating a new world of formal and stylistic fusion. *Moves moves*, on the other hand, grappled with the problems of integrating an amplified viola part played in a traditional manner with instruments whose stylistic traditions and therefore expectations were wholly unrelated, i.e. electric guitar and drums (a sub-grouping which instantly forms associations with Western rock music) and alto saxophone, with its strong jazz and light music image. Hence, the equal distribution of thematic material among the parts was an attempt to eliminate any preconceived notions about individual instrumental style and genre.

There are a number of links between these supporting works and the main piece, *Metta Vee*. The opening sonic numbers displayed more colour-tonal, timbral, and genre-stylistic examples of the way diverse electric and acoustic string languages can be unified by implication. For example, the obvious nod to the Baroque style in the bassoon part of *5-petal Rosy* with its descending scale motif harkens back to a specific period, but when scored in close proximity to the traditional Breton flavour of the violin writing this quality becomes blurred at the edges. *Metta Vee* not only represents a fusing of ideas from supporting works and the culmination of the portfolio, but also challenges even further the role of the solo electric violin. This part was always central to both the sonority and the instances of stylistic morphing in the piece and it was obvious that I should play this part in the recordings. By doing so, it allowed me to both demonstrate the various playing styles I have encountered and practised in my live music career, and to assist in directing the ensemble.

## **Chapter 3: *Metta Vee***

### **3.1 Origins**

The origins of *Metta Vee* are rooted in my personal experience as an electroacoustic violinist. My performing career has always been diverse, exploring different styles and cultures, and the original intention of this project was to celebrate these in a unified composition where they could all be integrated. *Metta Vee* is a scored work, featuring two soloists on acoustic violin and 5-string electric violin, the latter improvising around the scored parts at pre-designated points. I chose the 5-string instrument as it seemed a natural evolution from the 4-string violin used in the supporting works, providing new scale-patterns and extra depth to the electric pitch spectrum of the piece.<sup>2</sup> Naturally this meant that I, playing the electric violin in the recording sessions, would determine the outcome of each improvisation while the piece was being rehearsed, responding directly to the atmosphere created by the ensemble and testing the different ways which the spontaneity of the solos could work around the prepared parts. Therefore, it was only after the initial session that much of the improvisatory instructions found in the electric violin part were really scored as it was necessary for me to respond to the music on the spur of the moment in order to capture the spirit of the piece.

As was expected, the essence and structure of the main work evolved over the course of the last five years as new lessons were learned, many of these as a result of working with Conservatoire ensembles throughout the project. For example, the size of the ensemble gradually shrank from twenty-two to twelve players, and the inclusion of an electric bass guitar part lent a richer frequency spectrum to the electric violin, thus matching the register of the acoustic instruments. Hence, the final line-up for *Metta Vee* was fixed at four violins, two violas, two cellos, double bass, electric bass guitar, solo violin, and electric violin. Aesthetically speaking, the addition of a guitar to the bass section of the ensemble was a crucial decision, because it gave me more stylistic scope and flexibility without deviating too much from the group sound. It soon became obvious that my role in the performance as a director would have to be in conjunction with a dedicated conductor; this helped to create a healthy balance between rigorous direction,

---

<sup>2</sup> For the remainder of this commentary, the 5-string violin will be generically named as ‘electric violin’.

artistic integrity, and performance. Ultimately I have sought to create a work that is not just an exercise in electroacoustic stylistic fusion, but also a concert piece in its own right. The combination of Conservatoire experience with my personal knowledge of both classical and counter-cultural music forms and practices allowed me to do this.

### **3.2 Grand Design**

*Metta Vee* is 27 minutes long and is divided into seven movements called sectors. Some of these merge seamlessly into one another, whilst others are separate, though the musical narrative is continuous throughout. I decided to call them sectors instead of movements because each one is a smaller portion of music within a larger musical plan, and as the piece is a ‘stylistic journey through a landscape of string’ the word has more obvious connotations of a musical journey. I would compare this ‘sector-demarcated journey’ to travelling through a musical landscape, with each sector of the backdrop resembling a ‘terrain feature’ of sound. In terms of large-scale structure, a general pause lasting ten seconds in the middle of the piece determines an outer framework of two larger movements, each containing 3 and 4 sectors respectively. As the music gradually progresses, more regular rhythmic pulsing becomes evident, and a resolution is reached in the twenty-fourth minute when the introductory bass ostinato dubbed the ‘Timeline Sub-Walk’ and development of previous materials culminate at a fixed point. The remaining two minutes of the piece take on the form of a dismembered chorale called ‘Afterglow’ which concludes the music in a long fade-out on a gradual diminuendo.<sup>3</sup>

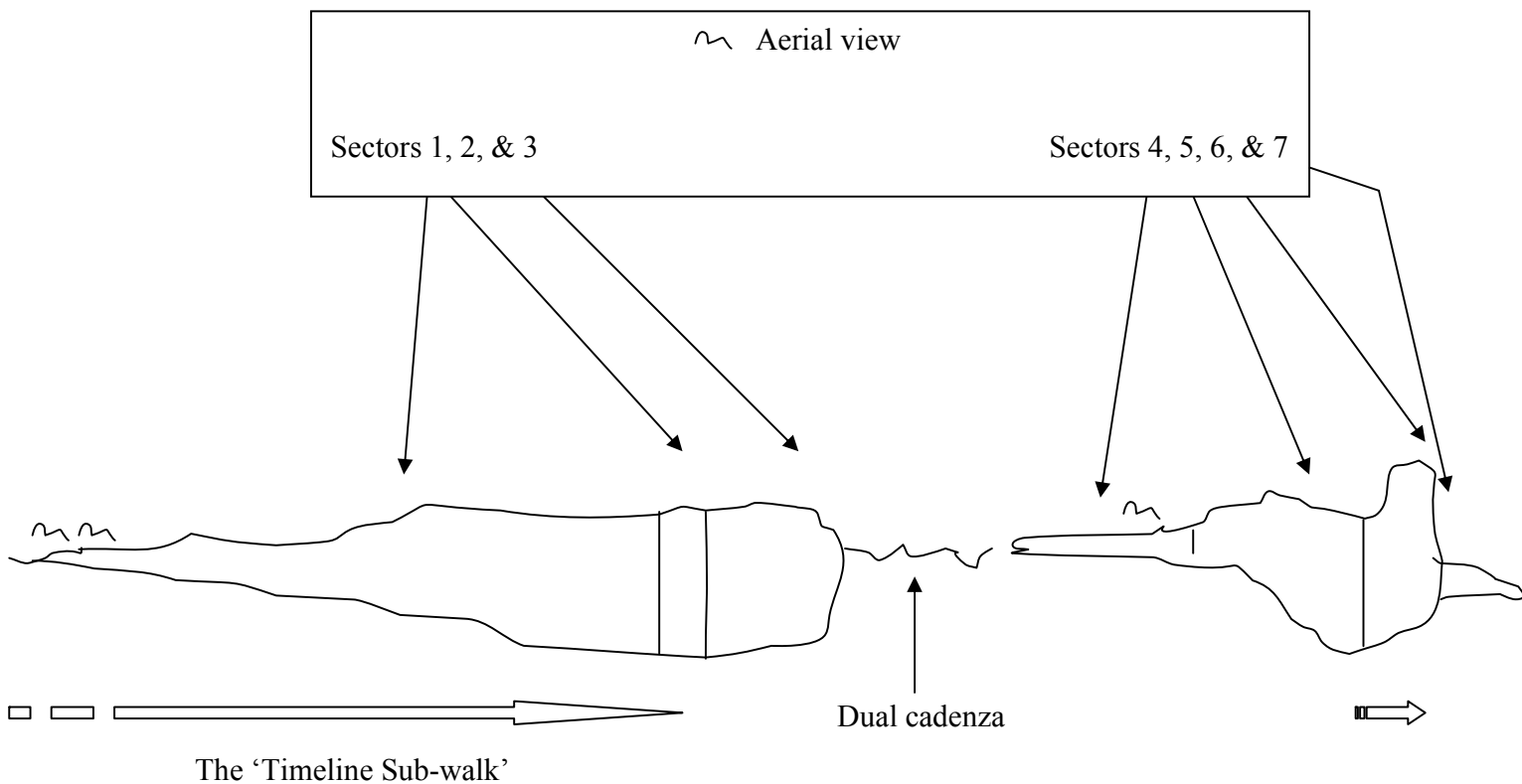
‘Formation’ is the first and longest sector, and is, as the name suggests, an introductory movement in which all the motivic elements are stated. It has the strongest sense of self-evolution from bare strands of thematic material to longer, more rhythmically and harmonically developed passages, using the primary motifs as a basis. ‘The Rush of Apparency’ fundamentally serves as a transitional section before ‘The Physical’, the most animated and terpsichorean sector of *Metta Vee*. Following on from this is ‘Plateaus of Silver and White’; the music here is dominated by slow and protracted chord sequences. This presents the first real mood of stillness and contemplation in the

---

<sup>3</sup> An accompanying CD contains a total of 8 excerpts to which the reader will be directed during the course of the commentary.

piece. The music starts gradually picking up pace again in a series of rhythmic revolutions in ‘Fusion Ritual’, which leads to the penultimate sector, ‘Trance Terminus’. It is here that the final bond of acoustic and electric string worlds takes place. It also displays a higher concentration, and at times collision, of the motivic elements that by now have all developed independently. The work comes to a dramatic conclusion just before the calm of the final sector, ‘Afterglow’, which consists of a long repeated loop for just four of the instruments.

In the diagram below the complete form of *Metta Vee* is illustrated in a linear path from left to right. Sectors 1 to 3 and 4 to 7 respectively are distributed between the two large masses to the left and right respectively. In both masses the shapes vary according to the level of density in the music (Sector 1, for example, starts with just a few sounds and gradually builds in concentration as it approaches sector 2). The irregular line linking the two outer shapes shows the path of the Dual Cadenza. The white arrow at the bottom represents the ‘Timeline Sub-Walk’. All proportions in the image are approximate.

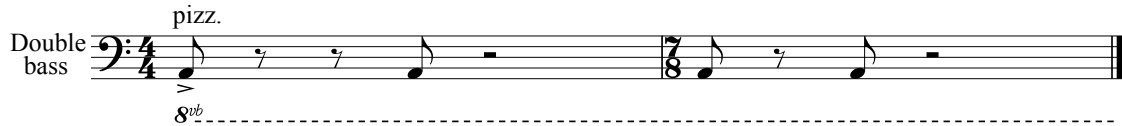


### 3.3 Motivic Elements

There are four distinguishing musical features in the piece, referred to here as ‘motivic elements’. They are cued in at various times across the expanse of the work though they vary a little from sector to sector, and create a wider cohesive framework around the music through their recurrence.

1. The ‘Timeline Sub-Walk’: a simple, 4-note contrabass-register ostinato gravitating towards A natural. This is scored for a low string extended double bass solely nominated for this part, lending tonal ambiguity and a metallic edge to the note owing to its loose tension. The purpose of this part is to provide a cohesive structural anchoring; it terminates just two minutes before the end of the work after reaching its own independent resolution.

Ex. 3.1: The ‘Timeline Sub-Walk’ (bars 1-2)



2. The ‘Aerial View’: this is always stated on twin violins playing flautando, artificial harmonics, and glissandi. The resulting high-registered, sibilant tone is reminiscent of bird-call, though any resemblance to it is purely incidental. It is repeated, contracted, and expanded along the journey, and provides a counterpart to the fixed gravity of the ‘Sub-Walk’. This motif, played at irregular intervals, decorates the first electric violin solo of the piece, and the songlike freedom created here typifies the very character of *Metta Vee*.



Ex. 3.2: The 'Aerial View' (bars 18-19)

Violin 1

Violin 2

3. The 'Trance Chorale': a short statement that is an important lynchpin of the piece, taking on many different forms of development. It is the basis for a set of stylistic solo variations in Sector 5, and is generally used as thematic material that can be adapted to different styles, it being used melodically in all registers and as an ensemble refrain.

Ex. 3.3: The 'Trance Chorale' (bars 214-215)

Violin

4. The 'Primal Call': this three-note phrase is fashioned from a broken chord of F, D# and B and, rather like the 'Aerial View' is reminiscent of a bird call. It is the motif that appears most often, is found in all registers both in solo and ensemble passages and is, in effect, the main counterpart to the 'Trance Chorale'.

Ex. 3.4: The 'Primal Call' (bar 274)

violin

### **3.4 Sector 1: 'Formation'**

The title 'Formation' has been chosen for the opening sector for three reasons. Firstly, it is virtually a complete piece in itself, as it starts with simple repetitive fragments of sound played on just two instruments, undergoes a series of developments and, with increasing volume and intensity from the whole ensemble, achieves a climactic resolution.

Secondly, within this sector all of the four motivic elements are found, before each is extended further at later stages in the work. The sector demonstrates a complete musical evolution from primitive sounding effects and textures to rhythmically-driven four and five-part harmonies based on the motivic elements. In this sense it conveys the most immediate feeling of a 'journey', each phrase and passage gradually unfolding as part of the story. Third, and most importantly, it features an opening violin statement that demonstrates the crucial musical relationship between the acoustic and the electric, drawing together the most lyrical electroacoustic qualities of the supporting works into a single moment. 'Formation', therefore, presents the listener with the chief aspects of the research question (stylistic fusion, period string writing and electroacoustic synthesis) in the form of a slowly emergent inventory, all in the first movement of the piece.

To help represent the character of the opening bars of the piece (which have a sense of freedom and mystery) alternative scoring methods were considered. At first I inserted hand-drawn graphic notation into the conventional staff systems. However, in rehearsal it became clear that a very sparse form of conventional scoring with optional noteheads was a better way of expressing what I wanted, as this method both reflected the loose improvisatory nature of the music and was easier for both conductor and performers to recognize absorb and understand the task ahead.

All four motivic elements appear between bars 1 and 25.<sup>4</sup> The 'Timeline Sub-Walk' is played low on the double bass, 'Aerial View' on two acoustic violins, while both 'Trance Chorale' and 'Primal Call' are quoted by the electric violin as part of an improvisatory passage on that instrument during the early stages of this 'Formation'. Henceforth, each motif is treated in a range of different ways as they are restated, sometimes in close proximity to each other or at times in complete isolation (Ex 3.5). The

---

<sup>4</sup> Bar numbers are given to pinpoint scored sections, whereas timings refer to improvisatory passages and larger structural perspectives.

desired effect here is to provide the listener with precognitive clues as to the identity of the piece as it slowly unravels before them. The overriding characteristic of this initial part of the sector is the textural effect of a long group of glissando passages that gradually come together in slow surges, forming the music into more regular patterns. These various disjointed passages resolve in the guise of an extended version of the ‘Trance Chorale’ at bar 205 in 5-part harmony. The effect of the music up to this point is meant to musically illustrate the slow pulling together of the various components in the process of a formation, merging together gradually towards a more solid form and regular phrasing which becomes increasingly evident between bars 218 and 330.

The first two minutes of ‘Formation’ consist of two basic elements split between four instruments (CD track 1). They are a combination of very high registered single line fragments on the violins, and a regularly pulsating pizzicato bass line that is not dissimilar to the subtle shamanic pulse underlying the opening part of Terry Riley’s *The Cusp of Magic* (2004). This not only provides a canvas against which the motivic elements can be heard, but also displays a maximum frequency range from A” - e””. The solos at the start are directly related to sonic works in the portfolio such as *The Rusty Phoenix* and *Into the Mauve Zone*, where the violin is played in a free *cantabile* style.

Ex. 3.5: The ‘Timeline Sub-walk’ with ‘Aerial view’ and electric violin solo (bars 15-18)

improv variations on original within box

The musical score consists of four staves. The top staff is a treble clef with a 4/4 time signature, containing a melodic line with a box around it labeled '(8) approx entry' and 'be'. Below this are three staves: Vln. 1 (treble clef), Vln. 2 (treble clef), and Db. (bass clef). The Vln. 1 and 2 staves have a 'rubato' marking and 'approximate pitch & placement' written below them. The Db. staff has a regular pulsating pattern. The Vln. 1 and 2 staves also feature '8va' and 'gliss.' markings. Dynamic markings 'mp' are present on the Vln. 1 and 2 staves.

Accompanying the opening violin solos is the ‘Timeline Sub-Walk’ (Ex. 3.1) played pizzicato on a tonal centre of A natural on the double bass. This repeated single-note ostinato is constructed on a rhythmic four-note pattern, broken up by alternating groups of four and three quavers rest. Each group of four notes is again repeated in a loop, but with the occasional interspersed of sporadic glitches, pauses, irregularities, and drop-outs to embrace the spontaneous and occasionally random character of the music. The bass line drives a horizontal pathway through the score, starting unaccompanied, and running almost continuously for over one third of the piece, drawing the different musical elements together into a state of cohesion. It is at around bar 14 that the electric violin makes its initial entry, soaring high above the bass, ushering the ‘Primal Call’ in *cantabile* style. This opening series of improvisations is very free in style, as the repeated single note in the bass presented an open harmonic spectrum with which my improvised solos could react. The style of these initial solo entries pays homage to the melodic violin writing in Vaughan Williams’ *The Lark Ascending* (1921) and *The Dharma at Big Sur* (2003) by John Adams, both pieces having very free and *cantabile* violin parts, thus creating a link between these works and *Metta Vee*, but with their lyrical qualities here functioning both melodically and texturally. This passage immediately directs the listener to the electroacoustic fusion principle.

The main improvisatory challenge in this case was to produce sustained and contemplative sounding melodic lines without being distracted by the jabbing staccato character of the double bass part. I achieved this by starting each entry as *pianissimo* as possible to make the first note slowly flower into a miniature phrase that was always slightly out of time with the steady bass. The spatial effect of the reverb on the violin enhanced this feeling of separation between the two instruments further. Up to bar 59 the electric violin part is scored in note boxes as it is either wholly or loosely improvised. After approximately 30 seconds the ‘Aerial View’ motif (Ex 3.2) is stated for the first time, providing a counterfoil to the firmly grounded solidity of the ‘Sub-Walk’. In relation to supporting works, influences from *Turn Crank* are taken and expanded here. Scratch-tone (an effect created by applying greater bow pressure to the strings while slowing the actual bowing speed down) is indicated in the ensemble parts and the two-pronged texture created by a division between the bass ostinato and the rest of the group

relate to the form and phrasing of *Turn crank*. There are also similarities in texture as both pieces display contrasting instrumental roles between the bass and mid-to-upper parts within a wide pitch spectrum. In terms of playing technique, the first half of 'Formation' is characterized by high-pitched legato lines marked 'with the voice of a seagull' in the electric violin part at bar 75, consistent with the high-pitched improvisatory freedom expressed by the earlier solos. The effect of this birdsong is created by playing groups of rapid short downward glissandi within the space of two or three semitones. Complementing the soloist's line, use of glissando becomes more frequent in the ensemble parts, with intermittent use of scratch-tone (for example in bars 62 and 134). These techniques are used to produce the impression of gradual sound creation, the formative stages of a musical journey.

The next significant shift in the music occurs at bar 75, when the soloist plays the first passage of firmly notated melody over the 'Sub-Walk', high up on the E and A strings using note-values directly related to the 'Trance Chorale' but with different intervals (most notably major and minor 6ths). The string accompaniment parts are written in shorter, more regular block-chord phrases with increasing repetition when for the first time, a constant (though loose) pulse is given. Up to bar 205 the pulse of the ensemble is subdivided (though the time signature is universal) between the rhythm section of three basses suggesting a groove of 4/4 and 7/8 and the middle and upper parts which continue in common time. This creates a loose overall rhythmic framework, without unnecessarily presenting the performers with difficulties in terms of metre and timing. With this strategy in place, the music sails along seemingly quite freely up to bar 205, when the 'Trance Chorale' is stated for the first time, preceded by a hymnal passage in full Baroque-style harmony (CD track 2). At this point a stronger, tighter pulse (starting in bar 218) drives the music all the way to the next sector at bar 332. The 'Sub-Walk' drops out here, not to return until the beginning of Sector 2, and then in a slightly mutated and musically grotesque fashion. Some of the ensemble writing in the latter half of this sector of is reminiscent of textures and phrases in Berg's violin concerto (1935), while the harmonies are influenced by the tonal and modal systems used in Tippett's *Concerto for Double String Orchestra* (1939).

The first taste of sustained perpetual motion starts at bar 276 where the notes of the ‘Trance Chorale’ are repeated in a loop of tone-row variations (inverted and retrograded) played by the electric bass and alternately broken up by extended unison passages based on the ‘Primal Call’ motif (CD track 3). The ensemble gathers increasing rhythmic momentum with the added musical features of canonic solo violin writing and an atonal bass guitar line (Ex 3.6). Hence, this sector fuses modal, diatonic, chromatic, and atonal harmonic systems and writing styles, propelling the music forward to Sector 2.

Ex. 3.6: Fragment of atonal swing bass (bars 275-277)



From bar 275 the ensemble takes centre stage, often in direct counterpoint to the acoustic violin soloist. The violin parts are more rhythmic here, exploiting a wide range of string instrument articulation, particularly staccato and marcato bowing. In the passage between bars 295 and 330 the group alternates between the standard bowing position and *sul ponticello*, a string technique that produces a cold, glassy sound made by bowing close to the bridge where the string tension is very high. This creates a mood of suspense, ideal for musical transitioning. Sector 1 ends abruptly after considerable build-up, concluding the longest period of neoclassical-style development in the piece before the bass line entry in Sector 2, hinting at the dance-orientated music of Sector 3 that follows.

### **3.5 Sector 2: ‘The Rush of Apparency’**

Sector 2 acts as a passageway between ‘Formation’ and ‘The Physical’, two movements predominated by ‘classical’ thematic style and dance-formats respectively. The title is meant to describe a feeling of sudden clarity after the previous sector which is one of musical restlessness. It begins with both bass instruments reiterating the ‘Timeline Sub-Walk’ at a faster, more urgent tempo, finger slapping the strings swing jazz style. This, however, fades to silence after roughly fourteen bars, not to return until bar 483 in the

cadenza, and then only in the form of a brief quotation. After the bass fade-out, the phrases fall into sparse 4-square patterns (in contrast to the textural enrichment of the previous sector). The music is more repetitive, with a mood of increasing agitation, constantly moving along a horizontal path of conflicting triplet and duplet figures. It is between bar 351 and 367 that the twin soloists return, mingling with the ensemble accompaniment. Quotations of the ‘Sub-walk’ and ‘Aerial View’ appear sporadically until bar 393, when a climax is reached in the score featuring major 2<sup>nd</sup> and augmented 4<sup>th</sup> intervals in unison, causing the various parts to resolve together at this point. This is echoed in the bars leading up to Sector 3 by a combination of diagonal and horizontal shapes in the score from the bass part upwards. Apart from intermittent references to the first two motivic elements, Sector 2 is ensemble-driven, with no fixed key centre. It fuses low-register harmonic density with minimalist-style composition and overtones of early 1970s UK progressive rock (e.g. bands like Genesis, King Crimson, Pink Floyd, Van der Graaf Generator and Soft Machine). In example 3.7 repeated quaver patterns creep in as the ‘Sub-Walk’ bass line fades out. This process is called ‘cross-fading’ in the recording industry and was popular with the more experimental recording artists of the late 1960s and early 1970s. The bass guitar cue at bar 349 neatly ties in the ‘rock’ element with the tapestry of interweaving violins.

Ex. 3.7: The cross-fade in Sector 2 (bars 340-341)

The musical score for Ex. 3.7 is set in 4/4 time. It consists of four staves: Violin 2 (treble clef), Viola (Vla, alto clef), Double Bass (DB, bass clef), and Bass Guitar (B gtr, bass clef). A double bar line at the beginning of bar 341 is labeled "CROSSFADE". Above this line, a tempo change is indicated: "A tempo ♩ = 135".

- Violin 2:** Before the crossfade, it is marked "legato non vib" and "solo". After the crossfade, it is marked "solo" and "mp".
- Viola (Vla):** Before the crossfade, it is marked "legato non vib" and "solo". After the crossfade, it is marked "mp".
- Double Bass (DB) and Bass Guitar (B gtr):** Both are marked "(bass section ♩ = 200 up to bar 345)" and "mp" after the crossfade.

### 3.6 Sector 3: ‘The Physical’

The title of this sector is derived from the wealth of dance-based material and general dynamism of the movement, and it is here that assorted folk melodies become part of the electroacoustic sound world. It therefore addresses the aspect of the research project that seeks to fuse folk roots and traditional music and classical string music in a single score. Some parts of ‘The Physical’ include idiosyncratic string techniques, particularly in the closing cadenza (CD track 4). Sector 3 starts off harmonically grounded with a strong anchoring on D, though feeling independent of the major/minor system, it rather combines diatonic, chromatic, modal, and microtonal systems that gravitate towards a tonal centre. A staggered, regular rhythmic pattern is distributed between the instruments, creating a pitch spectrum of maximum width. The mood of the music quickly gravitates towards that of traditional dance, and thus seems more instant and animated than before. This sector differs formally from the previous two in that it provides a platform upon which a series of distinctly separate traditional fiddle-influenced melodies are aired (bars 401-483). These are synthesised into the harmonic progression of the music whilst also being woven into the overall sonority and thematic development of this sector. In example 3.8 (below) the electric violin accompanies the other soloist by playing across the beat in *pesante* ‘spring’ bowing style mixed with some left-hand pizzicato; the two violins simultaneously emulate traditional French and Irish fiddle playing styles.

Ex.3.8: Fragment of ‘folk’ style violin duet (bars 412-414)

The musical score for Ex.3.8 is presented in two staves. The top staff, marked with a box containing the letter 'F', begins with the tempo 'alla hurdy-gurdy'. It contains three measures of music. The first measure is in 5/4 time and features a series of chords and single notes, with dynamic markings 'f' and 'pizz.' (pizzicato) and 'arco' (arco). The second measure is also in 5/4 time and continues the sequence of chords and notes, with 'pizz.' and 'arco' markings. The third measure is in 4/4 time and features a similar sequence of chords and notes, with 'pizz.' and 'arco' markings. The bottom staff, marked 'trad. Irish style' and 'f', contains three measures of a melodic line. The first measure is in 5/4 time and features a series of eighth and sixteenth notes. The second measure is also in 5/4 time and continues the melodic line. The third measure is in 4/4 time and features a similar melodic line. The time signature changes from 5/4 to 4/4 across the three measures shown.



Melodic references include *Grey Eagle* and *Turkey in the straw* (trad. North American, bar 403); *Kerry Polkas*, (trad. Irish, bar 412); a Viennese waltz (bar 423); Russian gopak (bar 425); French duple time bourée (bar 430); trad. South American tango (bar 438); Polish mazurka (bar 441); and finally *Marie's wedding*, (trad. Scottish bars 444-448). Norwegian Hardanger, English, Scottish, French and Breton fiddle-inspired violin lines from *England rolls up*, and the traditional Scottish dotted / inverted dotted dance rhythms prevalent in *I've started, so I'll finish* are evident in much of the twin solo writing between bar 412 and 450. In bars 430 to 437 the bass instruments form an independent rhythm section, briefly imitating the style of Heinrich Biber's *Symphonie Battalia*, and the spirit of this heavily percussive playing is taken up by other players in the group at bar 451, resolving the music in a state of rhythmic breakdown by combining duplet, triplet, and dotted figures. Here we see a slight wavering of tempo before the sector concludes, as the music first slows down, then accelerates a little at bar 456. From bar 452 onwards the rhythmic phrasing gradually becomes more urgent, with shorter rest gaps, and more interplay between the violin parts to lead into the dual cadenza immediately before Sector 4. This is driven by the late arrival of a final tune voiced by the soloists, this being a hybrid of klezmer-style melody with its characteristic minor third interval, and traditional Cuban rhythms. It is during the cadenza that a short riff in Jewish klezmer style becomes gradually modified by blues and jazz influences. This is done by gradually introducing syncopation and repeated major/minor thirds in close succession. References to Bartók's *44 Duos for 2 violins* (1931) are evident here in the relationship and tensions between consonant and dissonant harmony. Sector 3 generally displays more sub-grouping and some percussive effects in the solo violin part in contrast to the denser passages in Sector 2. In this sector the electric violin is used both texturally and melodically, sharing experimental territory with previously recorded sonic works such as *Singing watches* and *The Rusty Phoenix*. From bar 451 onwards the music in the upper string parts disintegrates over constantly pulsating bass lines, only to pick up again in Jewish klezmer fashion, overlapping the closing tutti chords of the sector and developing further in a dual violin cadenza starting at bar 466. This technique, which gives the impression of sequentially piecing together a musical pattern by fragments

coming together at (in this case) regular intervals, is also used at the very start of *Son of Metta Vee*.

The dual cadenza (which concludes the sector) comprises a number of subtle musical evolutions in perpetual motion for just over one minute (CD track 5). Starting with an implied tonal centre of D, the music shifts to Ab in bar 472, all the time keeping the musical narrative thematically consistent with the initial subject of the cadenza. As the rhythms become more syncopated at around bar 474, the traditional Jewish klezmer style is less recognizable, giving way to stronger influences of East Coast American jazz circa 1950's with a Latin feel, by shifting the trend from downbeats to upbeats, and more frequent syncopation of rhythms and phrases. At bar 479 a key centre of A minor is presented, with the duet steering towards rhythmic elements of the 'Timeline Sub-Walk' at bar 483. From 486 onwards the playing lulls, pauses, then quickly picks up again in the form of a two-way dialogue until bar 503, where the original tune is reiterated and, quite unexpectedly, the electric part whimsically veers off at a tangent in the form of a pentatonic minor-based blues. The aim of the solo improvisations during boxed sections in the cadenza was to stylistically shade the musical content in a short space while trying to maintain a dialogue with the other player to ensure that the continuity was not broken. This was done through a trial and error process with the other soloist. Several slow repetitions in practice gave me a chance to work out a number of viable alternatives that fitted well with the scored violin part. Rubato markings and fermatas gave the music a little more of the unexpected and unpredictable, as well as relaxing the players by removing the tyranny of the metronome from that part of the cadenza. The overall mood of the duet is one of unrest, and resembles dialogue at the edges of concord and discord. Technically, the two violins explore various playing devices that add new texture to the sound. These include left-hand pizzicato and spring bowing (ricochet bowing at the tip of the bow bouncing off the strings) at bar 412, left-hand 'pull-off' pizzicato (banjo-style) in the middle of the cadenza and massed *col legno*, creating a rattling un-pitched percussive edge to the ensemble sound at bar 451. The sector concludes with the solo violins duetting, highlighting the dance-like elements of the music at this point through a series of syncopated rhythms before the ensemble strings create a very different canvas of sound in Sector 4.

### **3.7 Sector 4: 'Plateaus of Silver and White'**

The beginning of this sector explores the tonal and textural features of group strings, and the wider harmonic possibilities of the quarter-tonal system. Its name refers to the colour of the bow hair of a string instrument (white), the finish of chromium-plated strings (silver), and the combined effect of bows being drawn across strings at a very slow speed (plateaus).

The first notable thing about Sector 4 is the pulse shift from 60 to 50 minim beats per minute. The music suddenly becomes static and serene in nature and texture, a complete comedown from the energetic cadenza that precedes it. The main thematic link is the harmonic progress of the 'Trance Chorale' first stated in Sector 1, and the way this is treated in a series of slow modulations including a casual reference to the first movement of Brahms' Violin Concerto (1878) in bars 534 and 535. All traces of the 'Timeline Sub-Walk' have gone and the sector is largely dominated by long expanses of slowly moving block-chordal harmony from bar 506, further enhanced by sustained downward pitch gradation in the violin parts and a generally quieter group dynamic. The overriding characteristic of this sector is that it creates the most prolonged mood of stillness in the journey of the music that, hitherto, has continued along a path of motion and dynamism (CD track 6). It also offers the listener what is effectively a musical interlude before the next act unfolds. This movement features some brief viola and cello solos playing in quartertones in the style of a South Indian Carnatic raga, a reiteration of the 'Aerial View' motif in its most developed state, and an improvised mini-cadenza section played by the electric violin with a metal guitar slide, producing sounds that emulate pedal-steel or Hawaiian guitars. This is very slowly blended with a repeated 4-part violin chord that spills over into the following sector. The improvisations here are quite languid and meditative to fit the mood of the sector, and somewhat reminiscent of the opening solos in 'Formation', but with the extra metallic effect produced by the slide. Though no melodic or harmonic framework is suggested, the style alone pre-empts a conventional diatonic scale system and this neatly juxtaposes the clashing major/minor dissonance of each passing chord in the upper strings. The texture of the block string writing and solo parts in this sector can be compared to the wavering stillness in Ligeti's

string music such as *Ramifications* (1969), or his Cello Concerto (1966). The actual combination of guitar slide with an alternative posture imposed technical limitations on the playing which in itself yielded interesting ideas, not possible in the normal playing position, for example, creative use of the tonal saturation produced when the sustain of crossed electric violin strings blur together in long glissando runs (see Ex. 3.9).

Ex. 3.9: ‘Slide guitar’ electric style violin solo in Sector 4 (bars 599-603)

At this point in the recording (bar 599) I decided to change the amp setting by activating the overdrive facility. This produced a thicker, more compressed sound that made the instrument sound like a curious hybrid of electric violin and slide guitar. Whilst I chose not to, I made it clear in the score that other performers had the option of using a guitar plectrum in this set of solos, thus allowing for alternative ‘rockist’ playing styles. In relation to the research questions, this sector focuses on alternative, non-classical playing and improvising techniques, and both inflective and systemic use of microtones.

### **3.8 Sector 5: ‘Fusion Ritual’**

‘Fusion Ritual’ addresses the idea of compositional metamorphosis and is the longest ensemble passage in *Metta Vee*. It showcases a fusion of classical, jazz, blues, folk, and rock influences that are melted down climactically in the aleatoric section towards the end, concluding at bar 748. After the long musical interlude in ‘Plateaus’, Sector 5 follows in a seamless transition. It is called ‘Fusion Ritual’ because it quotes thematic fragments from all the other preceding sectors, giving the impression of being a big musical climax, but in fact it is merely a link to the next sector, ‘Trance Terminus’.

Sector 5 is perhaps the most musically dramatic, with a large amount of offbeat rhythms and syncopation. It features a long, slow, ominous build up of what appears to be a variation of the chorale, by means of phrasal and rhythmic augmentation (CD track 7). Gradually emerging from Sector 4, the chorale is at first ushered in by a single repeated chord in the violins, which punctuates each of the 'slide guitar' style solos. The chords then continue in a series of looped repeats, augmented by extra notes or beats with each successive phrase (immediately evocative of phasing techniques used in studio recording); a musical transition is thus created through the merging of two different passages, the first dying away as the second slowly emerges. The main theme (a fully extended version of the 'Trance Chorale') is stated at bar 673, ushering in the new *moderato* tempo of crotchet = 140. Shortly after this tempo change the music evolves into an accented bass offbeat rhythmic theme inspired by Caribbean reggae where, yet again, a clear example of 'non-classical' intervention is evident. This in turn becomes further elaborated with the infusion of repeated triplet figures that reach a conclusion at bar 682. The music then becomes increasingly swing-jazz orientated after this, showing influences of Russian music from the twentieth century, most notably Stravinsky (e.g. the agitated harmonies and motor-rhythmic dynamism of pieces such as *Symphony in Three Movements* and *Les Noces*). At bar 679 the violins reach a resolution in the form of a five-bar run of rapid demisemiquavers and this, with the preceding quaver tied over from bar 678, is a fleeting reference to the blues improvisations of electric violinists 'Sugar Cane' Harris and Jean Luc-Ponty. The writing features multiple sub-grouping in layers, for example, the duplet/triplet/quintuplet cluster in bar 718 (and similarly later on with greater intensity in bars 739 to 741) to elevate the feeling of rhythmic dissolution. The ensemble finally concludes with a run of repeated block chords at bar 728 where the solo violins reappear after an absence of three minutes.

Upon entering, the violins immediately take up the general baroque/jazz style of the music at this point, playing delicately ornamented melodic lines that utilize yet more syncopation. When playing the solo part I took the opportunity to improvise here in the more ornamental style of the Baroque. The solo line weaves in and out of the accompanying parts, which are harmonically relatively stable. This required a different approach to that of free jazz or blues playing, as I had to improvise within a

comparatively limited harmonic progression. I also responded to the short themes played by the other soloist, creating variations on the material. Having studied the thematic content of the score at this point in advance was helpful, as it enabled me to respond much more quickly in my extempore passages. The music continues for both soloists and ensemble in block triplet fashion until bar 741, where the last cross-fade is put in place. The two fusing elements consist of regular triplet repetition amid rapidly emerging multilayered rhythms taken from the same melodic source, thus producing a sort of poly-metric and multi-thematic meltdown in the music. At this point, the ensemble is subdivided with selected players on two violins, one viola, one cello (forming a string quartet) being assigned to the role of fading in the ‘Trance Chorale’ motif in a minimalist style, while the remaining instruments disappear from view. The mixture of partially disguised self-referencing and quotation with the gradual shift between two predominant dance-forms is comparable to *Where does car go when it die?* [sic] and structural elements of *England rolls up*. The content during this cross-fade is largely aleatoric, and short fermatas that have been randomly distributed among the parts. Ex. 3.10 highlights the point where Sectors 5 and 6 start to merge. This is an exceptional point in the music, being completely free from the constraints of metre and pulse, and was inserted here to create a dramatic sense of rhythmic meltdown after a substantial period of repetition.

Ex. 3.10: Cross-fading in the lower parts (bars 746-748)

The image shows a musical score for two parts: Viola (Vla) and Cello (Vc.). Each part consists of a treble clef staff and a bass clef staff. The Viola part has a treble clef staff with five notes marked with a hat and an asterisk, and a bass clef staff with a melodic line. The Cello part has a treble clef staff with three notes marked with a hat and an asterisk, and a bass clef staff with a melodic line. Dynamics are indicated by *ppp* and *mp*. The score illustrates the cross-fading process where the *ppp* dynamics of the upper staves transition into the *mp* dynamics of the lower staves.

Bar lines are temporarily removed, and the performers are given instead alternative noteheads indicating approximate pitch, length, and position, while the chorale is simultaneously being played to a steady pulse in common time. As this passage fades out, the combination of different noteheads, written instructions, and hand-signals from the conductor produces the required effect of the music randomly dispersing in the wake of the burgeoning 'Chorale'. Shades of *Aurora* by Xenakis (1971) and *Black Angels* by George Crumb (1970) can be heard towards the end of this sector, and in the subsequent Sector 6. This transition is a crucial part of the composition and the project as a whole because it produces the boldest example of stylistic metamorphosis of the music; both in the score (through the use of alternative noteheads) and performance (in the performers' stylistic interpretation).

### **3.9 Sector 6: 'Trance Terminus'**

'Trance Terminus' is both very instantaneous and ritualistic in nature and heralds that the end of the journey is in sight. Its identity is a paradoxical coupling of classical string ensemble and electronic pop music, and is a particular moment where the orchestra 'rocks out'. After a short general pause the music immediately bursts forth from the last sector in the form of a tribal 4-square pop-rock chorus at bar 760 marked 'in the spirit of rave or techno music', a whimsical allusion to the sub-cultural European dance movement of the 1990s. This leads into a more Baroque period sounding version of the refrain at bar 782. The music then cyclically repeats itself in the form of a musical chant, up to the point of final resolution at letter bar 811. Between bars 760 and 780 the two soloists combine to add extra force and drive to the sound through the use of extended techniques. These include artificial harmonics, bowing behind the bridge and effects created by relieving both finger and bow pressure to produce *flautando* resonances. For much of this sector, short phrases in the style of mediaeval hocketting appear in the middle and upper parts as demonstrated in supporting works such as *Son of Metta Vee* and *Moves moves*. The 'Timeline Sub-Walk', looped fragments of the 'Trance Chorale'

and 'Primal Call' accelerate to a point of convergence just before bar 820. Ex. 3.11 shows the vibrant spirit of the music before it finally concludes in Sector 7.

Ex. 3.11: Solo parts over 'Timeline Sub-walk' chord stabs (bars 802-803)

The musical score for Ex. 3.11 is presented in four staves. The top staff, labeled 'EV', contains a complex rhythmic pattern of eighth and sixteenth notes. The second staff, labeled 'Vln', features a series of chords with a steady eighth-note pulse. The third and fourth staves, labeled 'Vln. 1' and 'Vln. 2', show sparse, rhythmic chord stabs, with a dynamic marking of *ff* (fortissimo) at the beginning of each staff. A circled 'O' is placed above the first measure of the EV staff.

The passage between bars 800 and 820 (and in particular the solo violin parts) resonates with the modern Baroque-style violin writing in Schnittke's Concerto Grosso No. 1 (1978), leading to a climactic resolution after the long tread of separate paths from the outset of the work (CD track 8), a rousing electroacoustic 'wall of sound' in classic ensemble style. This was designed to create a convincing 'false' ending before the complete surprise of sector 7. This Sector gives the larger ensemble an opportunity to 'rock out' in a style which is a hybrid of baroque, antiphonal music, and techno-pop.

### **3.10 Sector 7: 'Afterglow'**

The name 'Afterglow' seemed most appropriate for this closing sector because it is a continuation of an underlying fragmented chord cycle that leaves the whole piece feeling unresolved after a long series of conflicts between extremes of texture and volume. It therefore succeeds by constantly repeating a phrase that is already familiar to the listener,



and continues the classical/techno-pop fused style to the end. The sector exhibits a mood of stillness, resignation, post-reflection, and an inevitable sense of being trapped in a never-ending cycle of memory. By the time this sector starts, the long-trodden path of the 'Timeline Sub-Walk' draws to a close in a short violent burst of triple- *fortissimo* vertical chords. The 'Trance Chorale' variation first stated at bar 747 reappears, once again starkly played by four violins *sul tasto non vibrato* (at a slightly slower tempo for dramatic effect), the phrases repeating in a rhythmic loop. Towards the end, the chorale gradually fades out by means of diminution, each successive repeat being shortened by one note, until it is reduced to a single recurring *pianissimo* chord, subject to a gradual diminuendo, forming a bookend to the piece's mysterious introduction. The dying chords at the end echo the final relationship between classical and non-classical cultures, mixing romantic string textures with ambiguous major third/perfect fourth clashing harmony, and a techno-pop style fadeout.

### **Summary**

From start to finish, the *Metta Vee* journey has undergone both diversification and modification. This is partly because as the ideas became more carefully studied and developed, the logistics of performance and acoustic balance became more of an issue. That seemed perfectly natural, as there had to be a point in the composition where the imagination became subordinate to reality. I personally discovered a new wave of confidence as performer/composer as the use of electric instruments steadily became more convincing in the music. This again was confirmed by my experiences with electroacoustic groups such as Decibel which not only provided an experimental platform for airing such musical fusions, but also as a testing ground for performers and audiences alike. Such experiences paved the way for the main *Metta Vee* recording session with a different group formed solely for the purpose of performing this work, comprising musicians from the Oxford Proms Orchestra, the Orchestra of the Swan, and the CBSO. A wired rehearsal room attached to the studio became a suitable location for this because it provided a relaxed forum for stylistic interpretation, and a place where individual opinion and collective effort could meet. Also, it was agreed by open discussion with some of the musicians and the conductor both before and after rehearsals that most

examples of stylistic transmutation in *Metta Vee* became more apparent and were more objectively understood when applied to performance-style matters rather than musical structure and form. In other words, it was not so much the material content of the music itself, but the way it was interpreted and expressed that truly created the desired sense of artistic metamorphosis. From the start, I made every attempt to make my intentions clear, and written stylistic instructions were much more effectively grasped after verbal explanation and practical demonstration on the violin were given. On reflection, this was important to my musical values because I wanted *Metta Vee* to be a piece that any collection of trained string players could tackle given the right mindset and desire to explore less conventional playing methods. Hopefully, the examples given in the recordings will allow other classically-oriented string players to recreate the desired effects should they wish to perform the piece.

Regarding the outcome of the recording session, the main realization was that the piece in its entirety could not be fully rehearsed and recorded in the time available. We therefore agreed to record a selection of excerpts representing key moments in the piece. After the recording and editing procedures were through, I took care to see that the sequencing and layout of the CD presented maximum tonal and dynamic contrast, and covered all the various instrumental combinations within the scoring. The contents of the disc showcase many important facets of the work, e.g. the motivic elements, examples of thematic development, individual solos, duets, and a variety of improvisations.

The gap between intention and realization in this project has been considerable, though the work has always remained true to my original concept. From the outset it was intended to be an exploration of the way that culturally diverse violin writing and playing styles could be explored and then unified in a single piece, and how an oddity such as a 5-string violin could be fused with the scoring, individual tone colour, and overall sonority of a conventional string group. I believe this has been achieved in *Metta Vee*. A number of changes took place en route, and these were the outcome of many lessons learned through trial and error in the structure of the composition, the scoring, and the practicalities of performance. For example, the fact that over the duration of the project I explored a wider range of non-classical string styles meant that a greater awareness and absorption of non-classical string music eventually became a feature of the work,

especially the playing style of South Indian Carnatic music. Among the more technical issues, one particular problem was with the timing of the sections, and how they made sense individually while still relating to one another. Therefore, the piece gradually evolved into more of a concertante type work, in which the two solo parts were often paired to best show the tonal distinctions between them; this pairing integrated with the ensemble in a complementary way, as opposed to using the group as an accompaniment. All things considered, the biggest difference between my original idea and the final product has purely come down to the enrichment of further stylistic knowledge whilst remaining faithful to the basic idea of electroacoustic cross-stylistic synthesis pertinent to the violin. The music succeeded by virtue of confident performance, and this was not just due to scoring and clarity in the part-writing, but because of the historical and traditional quotes in the music, with the inevitable feeling of familiarity they bring.

On the subject of improvisation, this was an aspect of the piece which, not surprisingly, fell more meaningfully into place during the later stages of production, when the outer proportions of the work were completed, and when the opportunity of live musical interaction with prescribed parts was offered during the recording sessions. This was especially important in the dual cadenza, where success was dependent on the chemistry shared by two individual musical minds. In future performances, the piece would undoubtedly benefit from a firm musical understanding between the two soloists with careful rehearsal, and by testing the results of tempo variance and deviation. Similarly, a global chemistry was created within the whole ensemble by the sense of intuition and judgement commonly shared by string players, their knowledge of the instrument, and the degree of speed and precision with which they can react to one another in these circumstances.

I am confident that *Metta Vee* has not only established new criteria for string composition and improvisation, but has helped to bring attention and credibility to a hitherto unexplored contemporary musical genre where the worlds of classical and non-classical violin bond in an electroacoustic environment, and that this might help encourage further investigations in this field.

## **Chapter 4: Conclusion**

### **4.1 A Stylistic Journey Through a Landscape of String**

The ‘landscape of string’ is the diverse pathway of musical experience that I have trodden both professionally as a performer/composer and through interest in string music languages outside my sphere of work and training. The PhD project has been a long learning curve that began with two studio albums of electroacoustic instrumental miniatures and eventually led to the main work, *Metta Vee*. All of the works in the portfolio demonstrate the possibilities of stylistic fusion using the electric violin. Indeed, it is these two areas – stylistic fusion, and the use of electroacoustic instruments – that this project has made a contribution to knowledge. The infusion of global violin styles has always been central to the project, both in terms of composition and playing, and is at the core of each composition in the portfolio. This occurs in both a significant way (for example, the diverse approach to improvisation found in baroque, blues, jazz, and aleatoric styles in *Metta Vee*) and in minor, less developed forms (for example, pentatonic guitar improvisations clashing against an accompaniment of diatonic steel drums in *Singing Watches*).

The performance and recording of *Metta Vee* gave me the ideal chance to prove that the electric violin could be a part of the extended string family. This was aided by the fact that as a string specialist understand the mindset and training procedure of the string player. It was a constant challenge to integrate the sound that the electric violin generated with the sonority of acoustic strings (along with the nine bowing angles of a 5-string configuration) but, once I had found the right balance of volume and tonal adjustment, I felt it blended sufficiently well. I therefore realized that the electric violin could not only emulate standard violin and viola techniques, but unite them and homogenize this newly fused technique within a string ensemble. This insight steadily grew out of the process of writing the supporting works. One striking example of the influence of earlier works is the opening bars of the electric part in *Metta Vee*, which instantly evoke the electric violin solo at the end of *The Rusty Phoenix* in timbre, fluency, and style. Recording a piece like *The Rusty Phoenix* was instructive for several reasons; the foundation of the

music was built by layering a number of harmonized violin parts that were all treated differently before and during the recording. By detuning and tonally varying the violin sounds using outboard graphic equalization (as well as making deliberate expressive differences in the playing) I was able to produce a thick texture of sound from one instrument that imitated a small string orchestra. The electric (standard 4-string) violin part sailed freely over this, improvising in the high register on the E string with a moderate amount of reverberation. This created a sound reminiscent of a single-line electronic instrument such as a theremin or an electrically generated wave-form. The timbre is distinctly electric as the pre-amp in the mechanism of the instrument compresses the sound that would be otherwise thinner and quieter on a normal violin. Having created a sound that I really liked, I adopted a similar approach to the opening solos in *Metta Vee*, where again the higher positions of the violin are explored. The other set of recordings, *England rolls up*, was more of an exploration of stylistic crossover and the modernization of traditional dance forms than digital sound-craft. Basic rhythms in tunes like *Kalibos* and *Vienna pig-race* were incorporated into the broader rhythmic machinery of 'The Physical' and the first theme of *The Jersey Devil* is quoted literally by the basses in that sector. In creating the sonic works I found considerable scope for uniting the two areas of research investigation (namely stylistic fusion and electroacoustics) on a miniature scale by using both my studio knowledge and the different playing techniques at my disposal.

Moving on to the scored pieces, the technical content and performance style of each of these contributed to the thinking and production of the main work. *Turn Crank* and *I've started, so I'll finish* shared common ground in that they are basically extended chamber string pieces. Both works allowed me to experiment with the shaping of dynamics and balance when working with amplified instruments. These aspects were then expanded in *Metta Vee*, where I had my first opportunity to improvise on the electric violin with a string quartet. *Son of Metta Vee* scored for conventional string septet, was something of a departure from writing for an electroacoustic group and prompted me to look to the compositions for string ensemble written during the twentieth century in order to inform my own writing. This proved a valuable experience as it shifted the focus onto group rhythmic and motor-rhythmic phrases that were developed further in Sectors 1 to 3

of *Metta Vee*. *Where does car go when it die?* and *Moves moves* developed the use of rhythmic and thematic elements further. These pieces used the additive rhythms and cellular structuring that is prevalent throughout the main work. Both continue to fuse opposing styles; for example the rock guitar, jazz saxophone, and classical viola are all found simultaneously in *Moves moves*.

With hindsight, I could have been a bit more adventurous when writing for electric instruments in *Metta Vee*, exploring special effects and outboard processing (more in the spirit of *A brief History of Tim*), but this would probably have upset the careful tonal equilibrium that had taken so long to achieve. I might also have asked selected ensemble players to improvise in some of the sectors, though this would have been risky given that I had only one day in which I could record with the instrumentalists. None of the players in the group were familiar with one another, which triggered a formal approach to rehearsal and performance, and it was because of everyone's individual professionalism and expertise that the collective results yielded with such a high standard. With the knowledge of this and of the financial resources always in mind, the recording schedule was organized in such a way that we prioritized the larger sections of the music, leaving me with the option to follow it up with additional solo and multi-tracked recordings. Without the restrictions of time and budget I would have recorded the entire work, and might well have experimented with more improvisation in the ensemble, but this has only left me with a greater feeling of resolve to further explore the potential for improvisation in the future. This is an aspect that is particularly suited to the string ensemble because of the fact that classically-trained professional string players are able to quickly absorb the finer points of performance practice (fixed or aleatoric as predetermined in the score) within a large-scale work, as they are accustomed to following both literal and verbal instructions in such circumstances.

In terms of ensemble writing, in retrospect I might have ushered in the main string parts earlier in the piece and played with more lyrical, melodic ideas for the violins. However, *Metta Vee* was chiefly a thematic composition constructed from short motifs with a strong rhythmic predominance throughout. In terms of the rhythmic content, I have always been aware that string players often struggle with syncopation, polyrhythm and multi rhythmic playing, and wanted to address these issues in the writing rather than

avoid them. I did this by emphasizing the offbeats in the music, especially in the first sector, but by arranging the bowing patterns in a way that made the entry of each phrase more approachable. The large ensemble sections in the piece give plenty of practical examples for the string player to consider and prepare in matters of rhythm and timing.

#### **4.2 The Case for Advanced Electroacoustic String Composition**

The case for the advancement of electroacoustic composition lies not just in the main work, but in the portfolio as a whole which explores stylistic fusion and the interaction of acoustic and electric instruments throughout. The balancing of electric and acoustic instruments is found throughout, ranging from the electric violin improvisations in *The Rusty Phoenix* and *Into the Mauve Zone*, to the carefully planned amplified sonority of *Turn Crank*. I am now satisfied that improvisation and design have not only been successfully amalgamated in the portfolio, but have also merged with both the polystylistic and electroacoustic aspects of the works presented. One place where all these qualities are drawn together in a concentrated point is the dual cadenza in *Metta Vee*. It is precisely here that a bridge is created between polarized worlds: acoustic and electric, classical and non-classical, accident and design. Equally important is the opening of the piece where the acoustic solo violin writing of Vaughan Williams and the electric violin landscape created by John Adams are combined with my own style of electric violin playing, the three melodic forces joining, blending, and finally yielding a new musical idiom for the violin.

One remarkable thing the project has proved to me is that the manner in which instruments are approached and played and the training and experience of the players is equally if not more important than the actual design and image of the instrument in this instance. It also points to the fact that formal musical training tends to share many common principles and is a school of thought that can apply to any instrument or sound-source. These notions came to light during the recording sessions when suspicions were quickly allayed as it became clear that, in spite of their association with rock and folk bands, electric string instruments adapted very well to the acoustic space, with the ability

to tonally and dynamically blend with the normal string family (similar scored modern classical works such as *Seeing is Believing* by Nico Muhly and *The Dharma at Big Sur* by John Adams certainly help to reinforce this principle). One strong aspect of the writing in *Metta Vee* is the clear predilection for offbeats, syncopation, and the synthesis of improvisation with the score. Though string playing has always been historically associated with improvisation (the performance practice of the European Renaissance and Baroque being an obvious example), its improvisatory function was sidelined throughout the twentieth century as other instruments rose to prominence in this art of playing. As a result guitars, keyboards, saxophones and percussion came to the fore in this respect in non-classical or improvisatory music forms, whilst a more rigid convention of obedience to the score and the composer's intention remained in force in the classical string fraternity. It became clear to me that the streamlined design of the electric violin was more 'improv-friendly', as the playing action of the fingerboard was faster and the gauge of the strings lighter, and that the noticeably amplified sound enabled more accurate emulation of non-classical playing styles, especially Indian Carnatic, jazz, and rock, where a much higher level of improvisation awareness is part of a musician's performance practice. Compared to the electric guitar community which, though historically younger, is home to an established musical sub-genre where extemporization is *de rigueur*, electric violins are still largely underused in the classical world. I believe that this could change over time if such an instrument developed and built up its own repertoire and musical library. I would hope that in its own way *Metta Vee* has dispelled some classical myths, broken down barriers, and given genuine credibility to an unusual and completely overlooked string instrument, still in its infancy of development.

The creation of this portfolio has made me feel more positive in promoting scored electroacoustic string music. Indeed, the work was met with positive feedback from the orchestra during the day of recording. Considering that *Metta Vee* passed this acid test of a live, interactive workshop and recording session, I now feel most able and qualified to further the argument for electroacoustic musical synthesis in any live or studio-based media. In brief, the most valuable lesson I learned was that the ultimate endorsement of the idea was by leading from the front, teaching by example, and demonstrating with non-classical electric instruments in an acoustic setting. This added greater conviction to



the proceedings, imbued others with confidence, and was consistent with my philosophy as a performer/composer, as my performance participation and input were vital to the final outcome of the recordings. Having reached the end of the project, I now feel emboldened to develop this type of composition further, safe in the belief that in performance, the electroacoustic ethos of *Metta Vee* works both on the counter-cultural fringes and on the mainstream concert platform.

## Appendix

### Full list of Compositions during Research Period

**2009** ----- *Reveal the monkey* for choir and accompaniment. Performed by the Icarus choir at Recital Hall, Birmingham Conservatoire

**2009** ----- *Where does car go when it die* for small ensemble. Performed by Decibel at Recital Hall, Birmingham Conservatoire

**2010** ----- *Son of Metta Vee* for string sextet. Workshopped and performed by BCMG at Symphony Hall, Birmingham

**2010** ----- *7<sup>th</sup> Heaven* for piano solo. Performed by Mami Shikimori at the Holywell Music Room, Oxford

**2011** ----- *I've started, so I'll finish* for string quartet and electric violin / narrator. Performed by Tim Perkins with the Boult Quartet at Recital Hall, Birmingham Conservatoire

**2011** ----- *Bending glass* for bassoon, strings and keyboard. Performed by Susanna Perkins with the Oxford Proms Orchestra at the Sheldonian Theatre, Oxford

**2012** ----- *Turn Crank* for amplified string quartet. Performed by the Boult Quartet at the Adrian Boult Hall, Birmingham Conservatoire

**2012** ----- *Moves moves* for small ensemble. Performed by Decibel at Recital Hall, Birmingham Conservatoire

**2012** ----- *Cherubim and Paraffin* for 7 players.  
Performed by Ensemble Settecento at the Holywell Room, Oxford

**2013** ----- *The fiddler of Dooney* for soprano and violin  
Performed by Rosie Aldridge and Tim Perkins at the Holywell Room, Oxford

**2014** ----- *Metta Vee* for electroacoustic string ensemble  
Workshopped and recorded by the Metta Vee Ensemble conducted by Dan Watson at the Britten Room, Headington School, Oxford.

## Bibliography

- Adams, J. (2003) *The Dharma at Big Sur*. London: Boosey & Hawkes.
- Bailey, D. (1980) *Improvisation*. Cambridge, MA: Da Capo.
- Baron, J. H. (1998) *Intimate Music: A History of the Idea of Chamber Music*.  
New York: Pendragon Press.
- Bartók, B. (1933) *44 Duos for 2 violins*. Vienna: Universal.
- Berg, A. (1936) *Violin Concerto*. Vienna: Universal.
- Campbell, M., C. Greated and A. Myers (2004) *Musical Instruments*. Oxford: O.U.P.
- Dilworth, J. (1993) *The Violin and Bow: Origins and Development*. Cambridge: C.U.P.
- Glaser, M. (1981) *Jazz Violin*. New York: Oak.
- Goehr, L. (2007) *The Imaginary Museum of Musical Works: An Essay in the Philosophy of Music* 2nd edition. USA: O.U.P.
- Haynes, B. (2007) *The End of Early Music*. Oxford: O.U.P.
- Jackson, T. L. (1997) *Richard Strauss: New Perspectives on the Composer and His Work*.  
Durham, NC: Duke University Press.
- Katz, M. (2004) *Capturing Sound*. Ewing: University of California Press.
- Landy, L. (1991) *Sound Transformations in Electroacoustic Music*. Composers' desktop project, available from [www.composersdesktop.com](http://www.composersdesktop.com) [accessed 5/10/11].
- Long, M. (2008) *Beautiful Monsters*. Berkeley & Los Angeles: University of California Press.
- Massey, R., and J. Massey (1996) *The Music of India*. New Delhi: Abhinav.
- Mazzola, G. (2002) *The Topos of Music*. Basel: Birkhäuser.
- Mazzola, G. and P.B. Cherlin (2009) *Flow, Gesture, and Spaces in Free Jazz*. New York:

- Springer.
- Nyman, M. (1999) *Experimental Music* 2nd edition. Cambridge: C.U.P.
- Parkin, D., L. Caplan and H. Fisher (1996) *The Politics of Cultural Performance*.  
Oxford: Berghahn.
- Parncutt, R. and G. E. McPherson (2002) *The Science and Psychology of Music  
Performance*. Oxford: O.U.P.
- Sachs, C. (1944) *The Rise of Music in the Ancient World*. London: Dent.
- Schnittke, A. (1977) *Concerto Grosso No. 1*. London: Boosey & Hawkes.
- Seashore, C. E. (1967) *Psychology of Music*. New York: Dover.
- Small, C. (1998a) *Musicking*. Middletown CT: Wesleyan University Press.
- (1998b) *Music of the Common Tongue* 2nd edition. Middletown, CT: Wesleyan  
University Press.
- Strauss, R. (1946) *Metamorphosen*. London: Boosey & Hawkes.
- Strickland, E. (2000) *Minimalism: Origins* 2<sup>nd</sup> edition. Bloomington, IN: Indiana  
University Press.
- Vaughan Williams, R. (1925) *The Lark Ascending*. London: O.U.P.
- West, M. L. (1994) *Ancient Greek Music* 2<sup>nd</sup> edition. Oxford: Clarendon.
- Whitely, S., A. Bennett and S. Hawkins (2005) *Music, Space and Place*. Farnham:  
Ashgate.

## Discography

- Adams, J. (2006). *The Dharma at Big Sur*, Tracey Silvermann (violin), BBC Symphony Orchestra, rec. Abbey Road Studios, August 2004, Nonesuch 75597 98572
- Adams, J. (2006). *Violin Concerto*, Chloë Hanslip (violin), Royal Philharmonic Orchestra, Leonard Slatkin (cond.), rec. Abbey Road Studios, December 2005, Naxos 8.559302
- Berg, A., Janáček, L., *et al.* (2001), *Violin Concerto*, Thomas Zehetmair (violin), Philharmonia Orchestra, Heinz Holliger (cond.), rec. Snape Maltings Concert Hall, July 1991, Apex 0927 408122
- Crumb, G., Shostakovich, D., *et al.* (1990), *Black Angels*, Kronos Quartet, rec. June 1990, Nonesuch 79242
- Gordon, M. (2004 re-mix). *Trance*, Icebreaker, original rec. November 1995, Canteloupe CA 21018
- Kennedy, N. (2010). *The Very Best of Nigel Kennedy*, Nigel Kennedy (violin), Berliner Philharmoniker, Polish Chamber Orchestra, etc., rec. 1986-2010 EMI 6315142
- Mahler, G. (2007). *Symphony No. 3*, CBSO, Simon Rattle (cond.), EMI 5007212
- Martland, S. (1994). *Patrol*, Steve Martland Band, rec. 1993, Catalyst 09026 62670 2
- The Mothers of Invention, (1970). *Weasels Ripped My Flesh*, Frank Zappa, The Mothers of Invention, Don "Sugarcane" Harris, rec. 1967-1969, Bizarre records MS 2028
- Muhly, N. (2011) *Seeing is Believing*, Thomas Gould (violin), Aurora Orchestra, Nicholas Collon (cond.), rec. Snape Maltings Concert Hall, October 2010, Decca 478 2731
- Riley, T. (2008). *The Cusp Of Magic*, Kronos Quartet, Wu Man (pipa), rec. Nicasio CA, August 2006, Nonesuch 360508-2
- Strauss, R. (2007). *Metamorphosen*, Nash Ensemble, rec. London, 2006, Hyperion CDA67574.
- Tippett, M. (2009). *Concerto for Double String Orchestra*, Moscow Chamber Orchestra,

Bath Festival Orchestra, Rudolph Barshai (cond.), rec. London 1962, EMI Encore  
2357442

Xenakis, I. (2006). *Aurora*, New Philharmonia Orchestra, Elgar Howarth (cond.), rec.  
London, November 1976, Explore EXP0017