

Copyright
by
Ian James Dicke
2012

**The Treatise Committee for Ian James Dicke certifies that this is the approved
version of the following treatise:**

**Grand Central
for chamber orchestra, live audio processing, and video projections**

Committee:

Dan Welcher, Supervisor

Russell Pinkston

Yevgeniy Sharlat

Robert Freeman

Tom O'Hare

Grand Central
for chamber orchestra, live audio processing, and video projections

by

Ian James Dicke, B.M.; M.M.

Treatise

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Musical Arts

The University of Texas at Austin

May 2012

Dedication

To my talented and loving wife Elisa: your wisdom, patience, unwavering support, and willingness to listen has inspired and guided me through the triumphs and tribulations of graduate school.

Acknowledgements

I'd like to thank the entire faculty at UT for their encouragement and support for all the projects I've completed while being a student here. To my supervisor Prof. Dan Welcher, thank you for teaching me the virtues of preplanning(!). To Dr. Russell Pinkston and Dr. Bruce Pennycook, thank you for providing me with an amazing array of technical know-how in creating electronic music. To Dr. Yevgeniy Sharlat and Dr. Robert Freeman, I want to express my gratitude for the invaluable conversations we've had about music and everything in between. And a big thank you goes to Dr. Tom O'Hare for attending all of the concerts! You've witnessed firsthand my progress as a student composer over the last four years.

Grand Central
for chamber orchestra, live audio processing, and video projections

Ian James Dicke, D.M.A.

The University of Texas at Austin, 2012

Supervisor: Dan Welcher

Grand Central is a twenty-minute multi-media work for chamber orchestra, live audio processing, and video projections. The piece was commissioned by the San Francisco Conservatory of Music's New Music Ensemble, and will be premiered in March 2013. Composing a multi-media work poses many challenges, including the methodology of how to work with diverse components, the interplay between these elements, and how to best utilize the performance space to its full potential. The work is inspired by my experiences at Grand Central Terminal during my childhood and the musical material is derived from the building's infrastructure and rich cultural history. The first chapter of this treatise examines the genesis of the composition, Grand Central's history, and technical considerations related to the integration of technology, orchestration, and staging. The second chapter is encompassed by a thorough movement-by-movement analysis, complete with explanations of pitch derivation, formal principals, and programmatic considerations.

Table of Contents

List of Figures	viii
Chapter 1. Genesis of <i>Grand Central</i>	1
1.1. Introduction	1
1.2. Grand Central Terminal	3
1.3. Technical Considerations	5
Chapter 2. Complete Analysis.....	10
2.1. Introduction	10
2.2. Movement I. <i>Solari di Udine</i>	11
2.3. Movement II. <i>Whisper</i>	19
2.4. Movement III. <i>Grand Stage</i>	22
2.5. Movement IV. <i>Iron Horse</i>	30
2.6. Conclusion.....	35
<i>Grand Central</i> - Full Score	37
Bibliography	148
Vita	149

List of Figures

Figure 1.1. <i>Grand Central</i> , mvt. IV, Tutti, mm. 147-150	7
Figure 2.1. Fixed element No. 1, Winds, Strings, and Percussion, mm. 29-30	14
Figure 2.2. Fixed element No. 2, Winds and Piano, m. 36	15
Figure 2.3. Fixed element No. 3, Bassoon, Horn, Violoncello, Contrabass, mm. 28-30	15
Figure 2.4. Fixed element No. 4, Trombone, mm. 45-48.....	16
Figure 2.5.1. Oboe, Trumpet, and Viola, mm. 51-53.....	16
Figure 2.5.2. Low Winds, Brass, Strings, and Piano, mm. 60-63	17
Figure 2.6. “Central” Musical cryptogram.....	17
Figure 2.7. Verticalized “Central,” Strings, mm. 23-24.....	18
Figure 2.8. “Grand” musical cryptogram	20
Figure 2.9. Horizontal “Grand,” Clarinet, mm. 4-6	20
Figure 2.10. Vertical “Grand,” Winds and Brass, mm. 40-43	21
Figure 2.11.1. First canon, Winds and Brass, mm. 1-2	21
Figure 2.11.2. Final canon, Winds and Brass, mm. 29-30	22
Figure 2.12. “Last Night Was the End of the World,” Chorus	24
Figure 2.13. <i>Grand Stage</i> , “Last Night Was the End of the World,” mm. 6-10 ...	25
Figure 2.14.1. Monteverdi’s <i>Vespers</i> , <i>Sonata sopra Sancta Maria</i> , mm. 48-50...	26
Figure 2.14.2. Monteverdi’s <i>Vespers</i> , <i>Sonata sopra Sancta Maria</i> , mm. 54-58...	27
Figure 2.15. <i>Grand Stage</i> arrival chords, m. 37, m. 45, m. 53, m. 67.....	28
Figure 2.16. Final statement of chords, mm. 64-65	29
Figure 2.17. “Bell” motive, Brass and Percussion, mm. 6-8.....	30
Figure 2.18.1 “Whistle” motive, Winds and Brass, mm. 27-29.....	31

Figure 2.18.2. “Whistle” motive, Trombone and Low Strings, mm. 45-48.....	31
Figure 2.18.3. “Whistle” motive, Strings, mm. 109-112	32
Figure 2.19. “Grand Central” musical cryptogram	32
Figure 2.20. “Grand Central” harmonized. Bassoon, Viola, and Violoncello, mm. 24-26	33
Figure 2.21. Polytonal “Grand Central” musical cryptogram, mm. 165-168	34
Figure 2.22. Diminution of rhythm, Contrabass, mm. 169-192.....	35

Chapter 1: Genesis of *Grand Central*

1.1 Introduction

Over the last several years, my works have explored the musical possibilities embodied in our social-political culture. My approach to “program music” seeks to illuminate the subject using a variety of technical processes, while simultaneously creating an artistic experience greater than the sum of its parts. I offer a few examples of how this process unfolds in several of my earlier works. My short chamber orchestra work *Assembly Lines* (2011) explores Henry Ford’s revolutionary processes that resulted in the mass production of automobiles. After a brief, yet clangorous fanfare, a solo bassoon unveils an ascending “conveyor belt” theme. Similar to the way in which products are manufactured linearly on an assembly line, the ensemble appends this tune with a series of interchangeable motifs, which hammer and thrash the musical texture to an intricate web of syncopation and orchestral color. Underneath the surface, the work operates under several “automated” processes, such as the gradual augmentation of melodic lines and a complex cycle of beats against a grid.

In *Get Rich Quick* (2009), for piano and pre-recorded voices, audio samples of financial gurus and pundits invite the listener to reflect on the complexities and contradictions of our financial institutions. As the work progresses, the piano’s motives and gestures systematically interact with the pre-recorded voices to uncover the implied pitch and rhythm embedded within everyday speech. By the end of the composition, the two disparate sources become one. In a broader sense, these works reflect my belief that

there are countless artistic experiences hidden within our daily lives. As such, my work focuses on finding the music within these unlikely sources, which may enable listeners to connect some of the same experiences within their own lives.

In 2011, I was awarded the Hoefer Prize from the San Francisco Conservatory of Music. The award includes a commission for the Conservatory's New Music Ensemble and a week-long residency prior to the premiere in March 2013. After the enriching experience of working on two previous large ensemble works, *The Lunatic Fringe* (2009) and *Assembly Lines* (2011), I knew I wanted to return to the format of composing for extended chamber forces and the Hoefer Prize fortuitously extended me that opportunity. During my four years at The University of Texas at Austin, I have also developed an ongoing interest in integrating acoustic instruments with digital media. Thus, it was a fairly easy decision that my dissertation would take the form of a multi-media work for one-on-a-part chamber orchestra, interactive electronics, and video projections. But what would serve as the inspiration?

As a child, I grew up fascinated by trains and all things train-related. My father is a train-aficionado, so I was exposed to model railroading and historic steam railroads at an early age. I can remember our trips to New York City, and the magical experience of walking through Grand Central Terminal. The sheer size, beauty and grandeur of this magnificent structure has remained within me all these years. I believe a composer's dissertation is not only a summation of a body of creative work, but also a chance to look back on how our seminal influences have served as musical inspiration. For me, the trains of Grand Central Terminal—the rollicking sound of wheels on steel rails, the loud,

harmonically complex lonesome whistle, and the mechanical tolling of the railroad crossing chimes—have influenced me in both tangible and subtle ways throughout my career as a composer.

After some initial research into the history of Grand Central Terminal, I began to see many musical possibilities imbedded within the building. The Whisper Wall, a lower level corridor next to the Oyster Bar with an unusual amount of reverberation, suggested the use of digital delay. The rapidly whirling sounds emitted from the celebrated analog departure boards inspired the rhythmic organization of the first movement. It seemed that as my research progressed, I would uncover more and more musical connections between the terminal and my vision for the piece. It seemed fitting that my homage to the iconic New York destination would “arrive” in 2013, the centennial of Grand Central Terminal.

1.2 Grand Central Terminal

In 1871, the steamboat entrepreneur turned railroad tycoon Cornelius Vanderbilt designed and built a railroad terminal at Fourth Avenue (now Park) and 32nd street. Formally named Grand Central Depot, the 15 tracks and 100-foot high glass train shed “proclaimed to all New York the power and might of Vanderbilt’s vast rail empire” (Schlichting, 29). The depot served as a terminal for the New York Central and Hudson River, the Harlem, and the New York, New Haven and Hartford railroads (ibid., 31).

In its first year of operation more than 4,000,000 passengers rode trains to and from Grand Central Depot (ibid., 38). By 1886, commuter and long distance traffic had outgrown the depot’s capabilities. Renovations were attempted, but these expansions

could not compete with the pace of demand. A historically important rail accident that left fifteen dead in 1902 led the city and state to outlaw the operation of steam locomotives in Manhattan. This legislation created additional problems for Grand Central Depot, which was originally designed to accommodate only steam, not electric locomotives.

In 1903, William J. Wilgus, chief engineer of New York Central, proposed to overhaul Grand Central Depot and construct a monumental station, rechristened as Grand Central Terminal, with two levels of tracks below the street. His blueprint included air rights above the train yards, which would allow developers to build tall buildings near the terminal, and more importantly, provide funding for the massive renovation through rent collection (*ibid.*, 59). The lower level would be restricted to suburban trains and the upper levels would be reserved for the more glamorous long-distance trains, such as the famous 20th Century Limited (*ibid.*, 60).

Grand Central Terminal was an undertaking like none other in New York up to that time, calling for the removal of more than three million cubic yards of dirt and rock, demolition of several hundred buildings, electric generating plants, a complex electric distribution system that stretched through Manhattan, the Bronx, and Westchester, and real estate development throughout the railroad's property in midtown Manhattan (*ibid.*, 64, 73). Despite the insurmountable challenges, Wilgus and his engineering team succeeded in a triumph of building and technology when Grand Central Terminal first opened its doors to the public in 1913.

Today, Grand Central Terminal remains one of New York City's most popular destinations with its famous classical façade, elaborately decorated astronomical ceiling painted by Paul César Helleu, and immense columns. However, Grand Central Terminal has become so much more than the showy undertaking of Vanderbilt and his New York Central Railroad. Historian Kurt Schlichting writes, "The story of the creation of Grand Central brings together a number of important themes of New York's history: the forces for urban change, powerful individuals, brilliant engineers, and the dynamic influence of technology on history" (x).

1.3 Technical Considerations

Composing a multi-media work for chamber orchestra poses several challenges. The foremost problem is how to integrate the disparate sources of material without compromising the quality of the overall artistic experience. One potential issue with multi-media works is the confusion that arises in identifying the foreground and background material at any given point. For example, in Sebastian Currier's *Nightmaze* (2004) for chamber ensemble, narrator, video projections, and four-channel electronics, highly active music and visual components compete with a lively text. To me, the resulting over-stimulated experience muddles the work's narrative. In other cases, the multi-media element is rendered superfluous, such as the collaborative work *Field of Infinite Forms* (2008) by Chris Theofanidis and Mark Wingate for orchestra and digital playback. Here the synthesized electronic component plays over the live score, rather

than in counterpoint. The two sources vie for sonic real estate, but fail to unite meaningfully.

Grand Central poses two solutions for integrating digital video and audio with acoustic instruments in ways the works by Currier and Theofanidis/Wingate did not: 1) allow the two sources to be physically connected through the intermediary of technology and 2) exploit the differences between the two sources through a deliberate contrast that is also unified by a common extra-musical concept. More specific examples of both solutions are presented in the analysis chapter that follows.

Writing for one-on-a-part chamber orchestra invites complications of a different variety. The strings and winds are often covered by the intensity of the brass, and the percussion can easily overpower the entire ensemble. An attention to register can defray some of these issues, along with an appropriate orchestration that reinforces lines, or discrete layers, through doubling. The latter is a major orchestration and composition strategy I use to construct my works. Using a sequencer, such as Sibelius, I am able to compose one layer, which normally occupies a specific register, at a time. Figure 1.1 shows a representative excerpt from the fourth movement of *Grand Central*. There are five layers in this passage: 1) upper winds and violin I; 2) percussion II (marimba) and piano right hand; 3) bassoon and lower strings; 4) brass; and 5) piano left hand and contrabass. Although there is some inevitable overlap in register between the layers, the profile of each is maintained through the continuity of orchestration.

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

147

148

149

150

Figure 1.1: *Grand Central*, mvt. IV, Tutti, mm. 147-150.

As an electronic-acoustic composer, I am interested in achieving an organic balance between the two sources. From Stockhausen's *Gesang der Jünglinge* (1956) to Parmerud's *La vie Mécanique* (2004), composers throughout the short history of electronic music have gravitated toward the transformation of sound. However, music, and all sound for that matter, also has an inescapable temporal component and my works demonstrate a principal interest in this aspect. For example, my solo amplified flute and live audio processing piece *Chapter One, Page One* (2008) uses a digital delay to create an infinite canon with the flautist. In *Eight Oh Eight* (2011) for percussion and live audio processing, the percussionist is challenged to synchronize with a series of variable loops recorded in real-time, which overlap and shift in seemingly unpredictable ways. In both examples, synthesized sounds are avoided in favor of a digital ecosystem comprised of matching timbres. Similarly, all electronic sounds in *Grand Central* are generated in real-time, based either on processing a live signal or on recording a signal, for later manipulation, while the work unfolds.

For staging a multi-media work, the primary concerns are the placement of computers and audio equipment to optimize the synthesis between the electronics and the ensemble. More often than not, there are multiple ways of achieving these objectives. My solution will be to position the microphone, audio interface, and computer in a partition to the left of the conductor where a concerto soloist is usually located. The MIDI controller, used to change parameters within a Max/MSP patch, is placed next to the piano, so that the pianist can have unencumbered access. All of the MIDI directives are

clearly notated in the full score. An explanation of ensemble synchronization is addressed in Chapter 2.

Chapter 2: Complete Analysis

2.1: Introduction

Grand Central is cast in four movements, each exploring a different aspect of the terminal using a variety of digital and compositional processes. The following analysis places an emphasis on the means by which I arrived at my materials and their relationship to my research of both Grand Central Terminal and precursors in the literature. It would be impractical, if not impossible, to provide a detailed measure-by-measure explanation of the piece. It may also show to be a fruitless effort, since on the whole I am mostly interested in process-based composition. During the pre-composition phase, form is usually determined by my need to produce contrast, rather than a standard fixed arrangement, such as sonata-allegro or rondo form.

As a composer, I am chiefly interested in the discrepancy between the way a piece is made and its resulting sound. This is in direct contrast with Steve Reich's early philosophy articulated in his watershed manifesto "Music as a Gradual Process," where the composer asserts, "what I am interested in is a compositional process and a sounding music that are one in the same" (35). Reich supports his ideas through vivid everyday analogies such as "pulling back a swing, releasing it, and observing it gradually come to rest; turning over an hour glass and watching the sand slowly run through to the bottom" (34). After writing the essay, Reich composed *Pendulum Music* (1968), a "litmus test" that attempted to literally validate his philosophies of music construction. In this unusual work, a series of microphones are swung over an amplified speaker. The resulting

feedback allows the listener to track the gradual phase shifts that occur between microphones. In that spirit, perhaps *Grand Central* is my own battleground to demonstrate my ideological constructs related to the integration of multi-media and process.

Finally, it is important to note that I do not believe an audience needs to be aware of the method I use in constructing my pieces to enjoy experiencing them. As Dutch composer Louis Andriessen famously stated, “there is no such thing as a fascist dominant seventh,” (Adlington, 114) meaning we cannot attach a specific extra-musical message to a motive or chord and expect a universal agreement on its implied meaning. Instead, my use of extracting musical detail from programmatic sources is purely a means of narrowing down the now infinite musical possibilities afforded by today’s totalist environment.

2.2: Movement I: *Solari di Udine*

The first movement is named after the Italian manufacturer of split-flap departure boards once used in train stations and airports around the world. Now replaced by digital displays, the original electromechanical boards indicated the times and track numbers of arriving and departing trains. Solari boards became an indicator of Grand Central Terminal’s massive volume of traffic, as its many rows of panels would flap simultaneously to reflect changes in train schedules. A Solari board now hangs in the Museum of Modern Art in New York, NY, as an example of outstanding industrial design.

On a recent trip to New York, my wife Elisa Ferrari and I captured footage of one of the last analog departure boards operating in the United States at Newark Penn Station in Newark, New Jersey. The fast, percussive quality of the rotating panels suggested a series of uneven 16th note patterns. In lieu of generating a pre-assembled video of the Solari board with a pre-determined sequence, I elected to allow the first percussionist to “trigger” the video playback using a patch created in the Max/MSP visual programming language. Controlled through amplitude (loudness), the video advances a few frames whenever a predetermined threshold is reached by an amplified snare drum positioned near the front of the stage next to the conductor (referred to in the full score as “solo playing position”). The timbre of a snare drum with brushes is quite similar to a Solari board; in a sense the video’s audio acts as a digital extension of the live percussionist.

My previous experience with large ensembles and fixed media has taught me that it is best to avoid the use of click tracks. Conductors are not metronomes and often find it difficult to maintain an undifferentiating mechanized pulse. Since the percussionist is controlling the timing of the video playback, and the conductor is providing the proper tempo for both the percussionist and ensemble, everything remains synchronized.

In determining the movement’s formal organization, I found inspiration in Morton Feldman’s colorful commentary. The composer once stated:

Earlier in my life there seemed to be unlimited possibilities, but my mind was closed. Now, years later and with an open mind, possibilities no longer interest me. I seem content to be continually rearranging the same furniture in the same room. My concern at times is nothing more than establishing a series of practical conditions that will enable me to work. For years I said if I could only find a comfortable chair I would rival Mozart. (Ross)

Feldman's music, particularly the later "minimalist" pieces, is constructed out of the careful rearrangement and reordering of various sound objects, which include dense sonorities and transparent gestures inspired by Anton Webern's use of fixed registration.

Unexpectedly, Feldman's concepts translate well to the Solari board. The device is constantly shifting its panels (varied repetition), which contain static, unchanging information (fixed objects). In fact, one interesting consequence of this technology is that the Newark Penn Station board has destinations that are no longer directly accessible from Newark, such as Chicago and Los Angeles. This speaks to the decline of railroads in the United States in favor of road and air transport. The names of these forgotten destinations dash by so quickly that they appear to us as ghostlike remnants of the past.

To integrate the Solari board's constant flux of unchanging symbols with the live score, I created several "practical conditions" or static musical elements that are easily identified via orchestration:

The musical score for Figure 2.1 consists of eight staves. The first three staves are for the woodwinds: Flute (Fl.), Oboe (Ob.), and Clarinet (Cl.). The next two staves are for percussion: Percussion I (Perc. I) and Percussion II (Perc. II). The last three staves are for the strings: Violin I (Vn. I), Violin II (Vn. II), and Viola (Va.). The score is divided into two measures, 29 and 30. In measure 29, the woodwinds and strings play a 16th-note motif, while the percussion instruments play a similar motif. In measure 30, the woodwinds and strings continue the motif, while the percussion instruments play a different motif. The percussion parts are labeled 'Snare Drum' and 'Wood Blocks'.

Figure 2.1: Fixed element No. 1, Winds, Strings, and Percussion, mm. 29-30.

Figure 2.1. illustrates the basic 16th note motivic cell of the movement, which is treated antiphonally between the winds and strings. To fully underscore the subtactile pulse, each instrument family is doubled with percussion. The second fixed element, consisting of a stepwise piano figure doubled by the oboe and clarinet, is shown in Figure 2.2.



Figure 2.2: Fixed element No. 2, Winds and Piano, m. 36.

The third fixed element contains a series of implied harmonic progressions (Figure 2.3 illustrates VI, V⁶, i, III, in C# minor) orchestrated with the bassoon, horn, violoncello, and contrabass.

Figure 2.3: Fixed element No. 3, Bassoon, Horn, Violoncello, Contrabass, mm. 28-30.

The final “sound object” is the trombone’s falling minor 9th, which is subjected to transposition and rhythmic variation over the course of the movement.

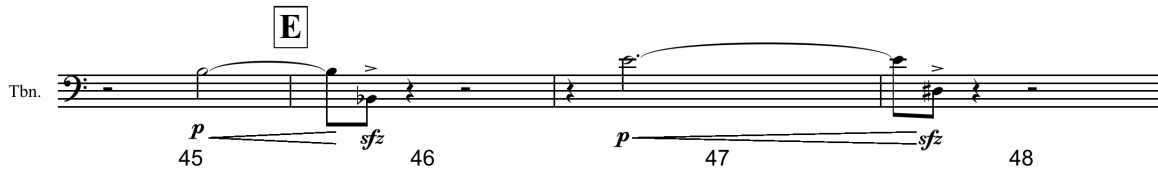


Figure 2.4: Fixed element No. 4, Trombone, mm. 45-48.

These fixed elements are constantly rearranged and recombined intuitively to form a nebulous texture of pulsating color. In essence, the Solari board’s continuum of stasis and rapid activity is echoed through the movement’s hybrid linear/cyclical form.

The fixed material itself is varied and transformed in small, yet detectable detail. For example, the oboe, trumpet, and viola line that emerges at rehearsal E (m. 46) later forms the foundation of the bass line in the section that follows:



Figure 2.5.1: Oboe, Trumpet, and Viola, mm. 51-53.

The image shows a musical score for five instruments: Bn. (Bassoon), Tbn. (Trombone), Pno. (Piano), Vc. (Violoncello), and Cb. (Contrabass). The score covers measures 60 to 63. The key signature has two sharps (F# and C#), and the time signature is 2/4. The Bn., Pno., and Vc. parts have dynamic markings of *ff* (fortissimo) and *f* (forte). The Tbn. part has markings of *f* and *mf* (mezzo-forte). The Cb. part has markings of *ff* and *f*. The measures are numbered 60, 61, 62, and 63 at the bottom.

Figure 2.5.2: Low Winds, Brass, Strings, and Piano, mm. 60-63.

The pitch material for the first, second, and fourth movements is derived in part from the name “Grand Central.” In a cryptogrammic sequence of musical notes, a predetermined relationship between note names, or the equivalent solfege designations, is paired with alphabetic letters to reference an extra-musical text. For the first movement, the word “Central” [C, E, Ti (B), Ra (D \flat), A, Le (A \flat)] is employed as a source for pitch structure.

The image shows a musical cryptogram for the word “Central”. It consists of a single staff with a treble clef. Below the staff, the letters C, E(N), T, R, A, and L are aligned with notes. The notes are: C (C4), E(N) (E4), T (G4), R (F#4), A (A4), and L (G#4).

Figure 2.6: “Central” Musical cryptogram.

The pitch collection is reordered both vertically and horizontally throughout the movement as a basis for development. Figure 2.7 depicts the “verticalization” of the “Central” pitch collection. D \flat and A \flat are enharmonically altered in the score to facilitate the spelling of thirds.

The image shows a musical score for four string instruments: Violin I (Vn. I), Violin II (Vn. II), Viola (Va.), and Violoncello (Vc.). The score is in 4/4 time. Measure 23 shows a forte (ff) dynamic with a 'non vib.' marking. Measure 24 shows a forte (f) dynamic with a 'non vib.' marking. The score is labeled with 'C' in a box above the first staff.

Figure 2.7: Verticalized “Central,” Strings, mm. 23-24.

After the texture of the ensemble becomes diluted in the final measures of *Solari di Udine*, a short audio sample of the violoncello’s F \sharp is captured in measure 96 by the Max/MSP patch. This snippet is stored for later use in unifying the electro-acoustic interplay of the third movement. In order to accurately start the recording at the appropriate time point, the pianist triggers the operation (when signaled by the conductor) on a MIDI controller positioned near the piano.

2.3 Movement II: *Whisper*

The second movement is inspired by Grand Central Terminal’s Whisper Wall, which is situated next to the famous Oyster Bar below the Grand Concourse. The Whisper Wall is a peculiar area where the acoustical properties of low ceramic arches effortlessly transmit sound across a room to the opposite or adjacent side. In order to approximate this curious effect, *Whisper* prominently features an amplified solo flute processed with a variable digital delay. I wanted to imitate the inadvertent time lag that distorts how information is sent and received through the Whisper Wall’s omnidirectional echo chamber. Before beginning work on the movement, I imagined a scene where two lovers murmur playful flirtations at opposite sides of the room. As their affection continues, the two lovers slowly approach each other, thereby reducing the amount of delay, until finally embracing.

This fictitious scene is executed in *Whisper* through the gradual diminishing of the amplified flute’s delay time. The movement is cast in a simple alternating form between the soloist and ensemble, which is comprised here of only winds and brass. At each delay transformation, notated as “Delay Events” in the score, the pianist again uses the MIDI controller to trigger the operation.

Similar to the first movement, *Whisper* features a musical cryptogram derived from the word “Grand,” [G, Ra (D \flat), A, D] as illustrated in Figure 2.8:

The compositional process most analogous to a digital delay is a canon. Thus, to build a structural relationship between the flute's delay and the ensemble, I treat the winds and brass canonically. However, while the flute delay becomes shorter and shorter as the movement progresses, I decided to reverse the process and elongate the ensemble's note values through the four statements of the principal theme. Figures 2.11.1 and 2.11.2 outline this progression by showing the first and last statements of the canon (16th notes to dotted 8th notes):

Ob. *p*

Cl. *p*

Bn. *p* *mp* *p* *mp*

Hn. (con sord.) *p*

Tpt. *p* straight metal mute

Tbn. *p* *mp* *p* *mp*

1 2

Figure 2.11.1: First canon, Winds and Brass, mm. 1-2.

D A tempo

Ob. solo mp

Cl. p

Bn. p mp p mp

Hn. p

Tpt. p

Tbn. p mp p mp

29 30

Figure 2.11.2: Final canon, Winds and Brass, mm. 29-30.

Similar to the first movement, *Whisper* also concludes with a short audio recording of the solo flute’s low B in measure 39. Instead of being stored, however, a loop of the recording begins immediately and continues through the third movement as the flute decrescendos. The transparent verticalization of “Grand” (see Figure 2.10) brings *Whisper* to a soft and unsettled close.

2.4 Movement III: *Grand Stage*

The appearance of the Grand Concourse has changed little over the past 100 years and the same can be said of its passengers. Although today’s travelers may appear different in terms of fashion and technology, they still possess the same fundamental desire for social interaction as their predecessors. Without a doubt, the same handshakes,

kisses, arguments, miscommunications, and flirtatious glances have occurred over and over again throughout the terminal's history.

The third movement of *Grand Central*, entitled *Grand Stage*, investigates this microcosm of endless social exchange through the digital and acoustic manipulation of time. Digital video loops of passengers traversing the main concourse filmed by Elisa Ferrari are sped up to eight times their original rate. These quick images are juxtaposed over a floating bed of slowly changing harmonies devoid of pulse. In essence, the stark contrast between the visual and aural sources disrupts our sense of time, allowing us an unobstructed view of the terminal as a grand public stage, where daily dramas emerge in an infinite cycle.

The movement is harmonically static and makes use of elongated pedal tones. To connect with the previous two movements, *Grand Stage* begins with a combination loop consisting of the Violoncello's pre-recorded F# (from *Solari*) and the flute's low B (from *Whisper*). This interval of a fourth (the Violoncello sample is transposed down an octave) reinforces the drone-like texture through the first third of the movement (mm. 1-26).

Unlike the cryptogrammic pitch derivation of the other three movements, the musical material and form of *Grand Stage* are extracted from a popular song written and recorded in 1913, which coincides with the year Grand Central Terminal was opened to the general public. Harry Von Tilzer's "Last Night Was the End of the World," spent 22 weeks at the top of the charts and offers a reflection on unrequited love. The lyrics make poetic reference to stars and moonlight, which reminded me of the Mediterranean sky painted on the Grand Concourse's ceiling.



Figure 2.12: “Last Night Was the End of the World,” Chorus.

The first seven notes of the song’s chorus (“My dream is o’er, to live no more, last”, see Figure 2.12) are B, D, D \sharp , F \sharp , E, C, and A. In order to distort the audience’s sense of time and periodicity, I decided to digitally stretch the original recording sung by Henry Burr. The resulting sound highlights the width of Burr’s vibrato, creating a continuum of discrete pitches that extend outside the confines of equal temperament. The greatly augmented melody is superimposed over the orchestra four times throughout the movement (m. 6, m. 19, m. 32, m. 48), roughly every thirteen measures from the first entrance. To achieve a blend with the ensemble, the theme, played by the pianist on a MIDI controller, is doubled by the horn at the unison.

Figure 2.13: *Grand Stage*, “Last Night Was the End of the World,” mm. 6-10.

My use of an *idée fixe* is of course partly inspired by Hector Berlioz’s *Symphonie fantastique* and *Harold en Italie*, which are both works that use reoccurring themes to represent a specific programmatic idea. In the latter, a viola concerto labeled “viola obbligato” by Berlioz, the soloist’s melody embodies the weariness of Lord Byron’s *Childe Harold* and makes several dramatic appearances through four orchestral scenes. A more significant influence, however, stems from a much earlier period of music history. Claudio Monteverdi’s *Vespro della Beata Vergine 1610* is a large liturgical work for soloists, chorus, and large ensemble. It features sacred and secular forms including

sonatas, hymns, motets, and psalms. The *Sonata sopra Sancta Maria* movement is similar to a typical late sixteenth-century instrumental canzona, as it comprises a series of loosely related sections with repetition of the opening material at the end. But the sonata also features a short cantus firmus from traditional Gregorian plainchant that is reiterated by a solo soprano voice eleven times. Each successive statement is altered rhythmically and separated by rests of varying durations, as is demonstrated in Figures 2.14.1 and 2.14.2.

48

VI. da br. I

VI. da br. II

Ctto. I

Ctto. II

Tbn. I

Tbn. II

Vla. da br.

Tbn. III

C.

B. gen.

San - cta Ma - ri - a O - - - ra pro no - bis.

Figure 2.14.1: Monteverdi's *Vespers*, *Sonata sopra Sancta Maria*, mm. 48-50.

Figure 2.14.2: Monteverdi's *Vespers, Sonata sopra Sancta Maria*, mm. 54-58.

The four chords that accompany the first seven notes of “Last Night Was the End of the World” (see Figure 2.12) are also structurally significant in *Grand Stage*.

Beginning in m. 37, each chord within the progression (G major: I, V^7/vi , $ii6$, ii) is treated as an arrival point marked by the entrance of the contrabass and low piano. The anchoring quality of the bass register, avoided thus far in the movement, underscores the pillar-like quality of the chords, and the terminal itself. Here mixtures of aleatoric and fully notated melodic flourishes give rise to a complex texture. Looking for a fuller and more open-ended series of sonorities, I revised the harmonic implications of each chord by inserting additional diatonic pitches. Figure 2.15 shows the resulting altered chords.



Figure 2.15: *Grand Stage* arrival chords, m. 37, m. 45, m. 53, m. 67.

After an extended solo string passage in measures 61-63, the original four chords from “Last Night Was the End of the World” are presented in quick succession. However, the D# in the B dominant 7th unexpectedly hangs through the remaining chords, creating a dissonant clash. This method alludes to the universality and permanence of unrequited love and its history within the Grand Concourse.

The musical score for measures 64-65 shows the following details:

- Cl. (Clarinet):** Starts with a *p* (piano) dynamic, followed by a *non cresc.* (non crescendo) instruction.
- Bn. (Bassoon):** Starts with a *p* dynamic, followed by a *non cresc.* instruction.
- Tbn. (Trombone):** Features a *harmon mute* instruction and a dynamic range from *pp* (pianissimo) to *f* (forte).
- Vibraphone:** Starts with a *p* dynamic, followed by a *non cresc.* instruction.
- Perc. II (Percussion II):** Starts with a *p* dynamic, followed by a *non cresc.* instruction.
- Vn. I (Violin I):** Starts with a *p* dynamic, followed by a *non cresc.* instruction.
- Vn. II (Violin II):** Starts with a *p* dynamic, followed by a *non cresc.* instruction.
- Va. (Viola):** Starts with a *p* dynamic, followed by a *non cresc.* instruction.
- Vc. (Violoncello):** Starts with a *p* dynamic, followed by a *non cresc.* instruction.

The score is marked with measure numbers 64 and 65 at the bottom.

Figure 2.16: Final statement of chords, mm. 64-65.

The movement ends with an unaltered clip of Henry Burr singing the entire chorus. In the final cadence of the quotation, a dramatically high G is digitally time stretched over the fourth “arrival” chord (A minor 11). This sonority is distributed over the ensemble using a strict canon for upper winds and strings. A lonely solo horn matches this G in the final measure, followed by a single fermata of silence. The ephemerality of both love and music reveals itself in this moment of repose.

2.5 Movement IV: *Iron Horse*

The title of the final movement refers to the nickname given to steam locomotives in the early industrial revolution when machines began replacing commonly horse-powered tasks. As such, it is energetic and fast-paced. The age of steam in America is often associated with the rise of standardization and mechanization. Thus, the movement uses a limited amount of material and is rife with layered ostinati and motives inspired by the sounds of railroading.

One such motive is a brass and chimes quarter note ostinato, which evokes the sound of a steam locomotive's bell:

The image shows a musical score for measures 6, 7, and 8 of the 'Bell' motive. The score is written for four staves: Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), and Percussion I (Perc. I). The Horn, Trumpet, and Trombone parts are marked with 'brassy' and 'f' (forte). The Percussion I part is marked with 'Chimes' and 'ff' (fortissimo). The notation includes quarter notes and rests, with a 'Ped.' (pedal) marking under the first measure. The measures are numbered 6, 7, and 8 at the bottom.

Figure 2.17: “Bell” motive, Brass and Percussion, mm. 6-8.

Train whistles are used to communicate with other railroad workers on a train or around the rail yard. Different combinations of long and short whistles each have their own specific meaning. For example, when a train approaches a grade crossing the standard

protocol is “long, long, short, long.” Many sections of *Iron Horse* utilize the “long, short” of this rhythmic grouping. Figures 2.18.1-2.18.3 provide three examples:

C

Ob. *ffp* *sfz* *f* soli

Cl. *ffp* *sfz* *f*

Hn. stopped muted *fp* *sfz*

Tpt. *fp* *sfz* senza sord.

27 28 29

Figure 2.18.1: “Whistle” motive, Winds and Brass, mm. 27-29.

E

Tbn. *fp* *f* *mf*

Vc. *ffp* *ff* *f*

Cb. *ffp* *ff* *f*

45 46 47 48

Figure 2.18.2: “Whistle” motive, Trombone and Low Strings, mm. 45-48.

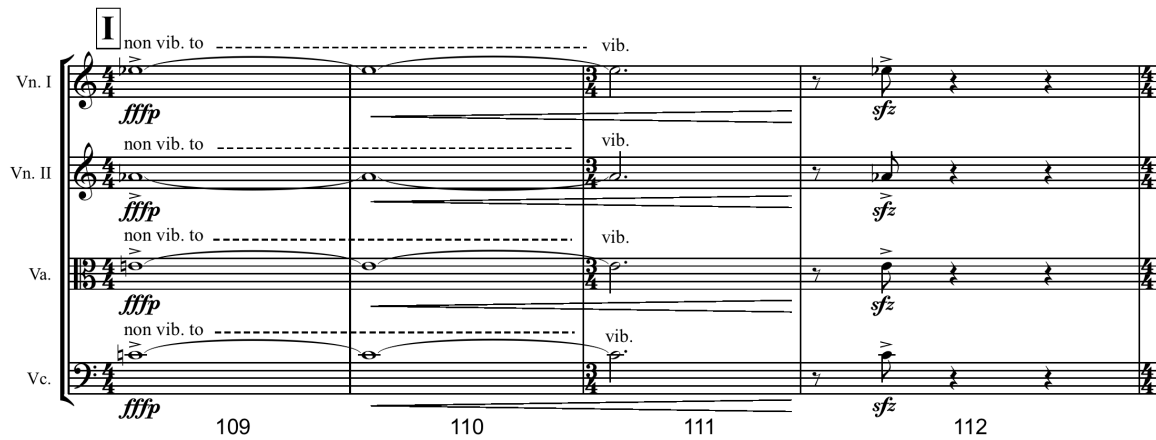


Figure 2.18.3: “Whistle” motive, Strings, mm. 109-112.

The basic ostinato figure that is frequently used as both foreground and background material in *Iron Horse* is extracted from the words “Grand Central” [G, A \flat , D, C, E, A]. Unlike the previous movements, this musical cryptogram is only presented horizontally as a melodic structure.

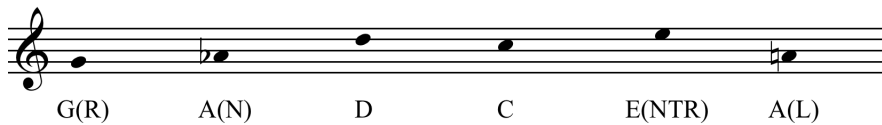


Figure 2.19: “Grand Central” musical cryptogram.

This motive is harmonized triadically and presented in a series of variable sequences throughout the movement. Figure 2.20 illustrates a typical instance of the pattern. The “Grand Central” cryptogram is nested in the violoncello.

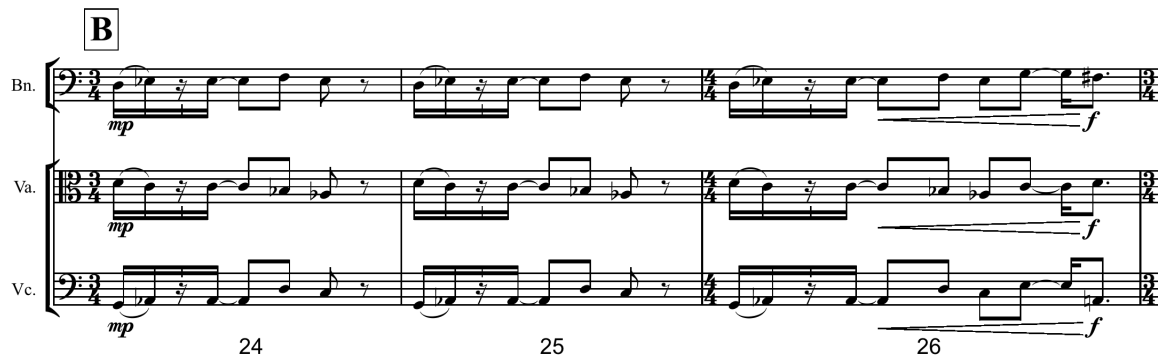


Figure 2.20: “Grand Central” harmonized. Bassoon, Viola, and Violoncello, mm. 24-26.

Iron Horse begins with a roaring introduction. After the basic material is presented, the first theme appears in the violins and upper winds in measure 25. This theme can be divided into two discrete A and B sections (mm. 25-30 and mm. 34-41). The highly syncopated B section takes on a more important role as the movement progresses, especially rehearsal J (m. 135), where the theme is employed in an imitative contrapuntal texture.

The overall form of *Iron Horse* is guided by the arrangement of thematic material associated with the “Grand Central” cryptogram in several contrasting transpositions, including starting on C (mm. 45-71), A (mm. 74-80), and as a polytonal simultaneity consisting of three transpositions: A, C#, and E (mm. 165-168, see Figure 2.21). Besides assisting me in creating the formal architecture, these modulations allow for the continued use of limited material without compromising harmonic variety.

Fl. *ffp* *ff*

Ob. *ffp* *ff*

Cl. *ffp* *ff*

Bn. *ffp* *ff*

Hn. *fp* *f* *gliss.*

Tpt. *fp* *f* *gliss.*

Tbn. *fp* *f*

Perc. II *sfz* *sfz* *sfz* *p* *f*

Pno. *ffp* *ff*

Vn. I *ffp* *ff*

Vn. II *ffp* *ff*

Va. *ffp* *ff*

Vc. *ffp* *ff*

Cb. *ffp* *ff*

165 166 167 168

Figure 2.21: Polytonal “Grand Central” musical cryptogram, mm. 165-168.

The coda (mm. 169-209) presents several of the movement's thematic ideas in a wash of sound. Process again plays a role in the organization: the material is sequenced by thirds and the rhythm of the bass layer is subjected to systematic diminution:



Figure 2.22: Diminution of rhythm, Contrabass, mm. 169-192.

After one final climatic section full of registral and rhythmic density, the work comes to a dramatic close in the unexpected key of B \flat major.

2.6 Conclusion

In many ways, *Grand Central* is a summation of my compositional career and philosophies. It uniquely combines my interests in electro-acoustic music with my desire to embody a programmatic subject using adaptable processes. At the same time, the use

of video is a relatively unexplored addition to my portfolio, and I enjoyed the challenge of finding expressive ways to integrate moving images and live sound.

Perhaps even more meaningful for me is that *Grand Central* was commissioned by my undergraduate alma mater, The San Francisco Conservatory of Music. It has now been ten years since I first decided to take the plunge and study music composition. I've never regretted a single moment.

Grand Central

for chamber orchestra, live audio processing, and video projections

I. Solari Di Udine

II. Whisper

III. Grand Stage

IV. Iron Horse

Total Duration: ca. 20 minutes

Completed: April 2012

Instrumentation: 1111 – 1110 – 2 perc. – pno. (+MIDI ctrl.) – 1111

I A N D I C K E

GRAND CENTRAL

(2012)

*for chamber ensemble,
live audio processing, and video projections*

Instrumentation

Flute/Piccolo

Oboe

B^b Clarinet

Bassoon

Horn in F

Trumpet in C

Trombone

Percussion (two players, instruments are not shared):

1. Snare Drum, Tambourine, Suspended Cymbal, Crotales, Chimes, Egg Shaker
2. Brake Drum, Four Wood Blocks (high to low), Marimba, Vibraphone, Triangle, Pedal Bass Drum, Suspended Cymbal, Tambourine

Piano/MIDI Keyboard Controller

Strings (1.1.1.1.1.)

Duration: ca. 20'

Concert Score

Hardware and Software

Any Mac or Windows computer running the program Max/MSP Runtime (freeware download: <http://cycling74.com/downloads/>); a computer with at least 2GB of RAM is recommended

Video Projector and Projection Screen (placed behind ensemble)

VGA, DVI, or HDMI video adapter

USB MIDI Keyboard Controller (3 octaves)

USB or Firewire Audio Interface (one input, stereo output); do not use the computer's internal soundcard (!)

Two Dynamic or Condenser Microphones and Boom Stands

Two 1/4" TRS Cables and Two XLR Microphone Cables

Powered Stereo Speakers; two high quality speakers positioned at least 20 feet apart

I. Solari di Udine	pg. 1
II. Whisper	pg. 31
III. Grand Stage	pg. 39
IV. Iron Horse	pg. 60

GRAND CENTRAL

*commissioned and premiered by the
SAN FRANCISCO CONSERVATORY OF MUSIC*

IAN DICKE
(2012)

I. Solari di Udine

Video Introduction

Flute

Oboe

Clarinet in Bb

Bassoon

Horn in F

Trumpet in C

Trombone

Percussion I
solo playing position

Percussion II

Electronic Media
Solari Video, ca 8"

MIDI Controller
Movement I Initialization

Piano

Video Introduction

Violin I

Violin II

Viola

Violoncello

Contrabass

1

A ♩ = 92

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

E. M.

Pno.

Snare Drum, brushes
x = play on rim

mf sempre

head

rim

head

simile

Video frames controlled
by Snare Drum attacks

etc...

A ♩ = 92

Vn. I

Vn. II

Va.

Vc.

Cb.

2

3

4

5

Fl. *mp* \longrightarrow *f*

Ob. *mp* \longrightarrow *f*

Cl. *mp* \longrightarrow *f*

Bn.

Hn.

Tpt. *p* \longrightarrow *mf* harmon mute

Tbn.

Perc. I

Perc. II

Pno.

Vn. I *f* behind the bridge

Vn. II *f* behind the bridge

Va. *f* behind the bridge

Vc. *f* col legno

Cb. *pizz.* ϕ

6 7 8 *f* 9

Fl. *mp* *f* *mp*

Ob. *mp* *f* *mp*

Cl. *mp* *f* *mp*

Bn.

Hn.

Tpt. *p* *mf* *p*

Tbn.

Perc. I

Perc. II

Pno. *f*

Vn. I

Vn. II

Va.

Vc.

Cb.

10 11 12

Fl. *f* *mp* *f* *mp*

Ob. *f* *mp* *f* *mp*

Cl. *f* *mp* *f* *mp*

Bn.

Hn.

Tpt. *mf* *p* *mf* *p*

Tbn.

Perc. I

Perc. II

Pno. *8va*

Vn. I *arco, sul pont.* *p* *f* *pizz.* *sfz* *arco, sul pont.* *p* *f*

Vn. II

Va.

Vc.

Cb.

13 14 15

B

Fl. *f* *mp* *ffp* *f*

Ob. *f* *mp* *sfz*

Cl. *f* *mp* *sfz*

Bn.

Hn.

Tpt. *f* *mp* *sfz*

Tbn.

Perc. I

Perc. II

Pno.

Vn. I *p* *f* *pizz.* *sfz* *arco, ord., off the string* *fp* *f*

Vn. II *pizz.* *sfz* *arco, off the string* *fp* *f*

Va. *pizz.* *sfz* *arco, off the string* *fp* *f*

Vc.

Cb. *arco, behind the bridge* *arco, behind the bridge*

Fl. *p* *f* *p* *f* *mp* *f*

Ob. *f* *p* *f* *mp* *f*

Cl. *f* *p* *f* *mp* *f*

Bn. *p* *f*

Hn. *p* *mf* senza sord.

Tpt. *p* *mf*

Tbn. *p* *mf*

Perc. I *f* *p* *f*

Perc. II *f* *p* *f*

Pno. *f*

Vn. I *fp* *f* *mp* *f*

Vn. II *fp* *f* *mp* *f*

Va. *fp* *f* *mp* *f*

Vc. *p* *f*

Cb. *f* *pizz.* *arco, behind the bridge* *pizz.* *arco*

19 20 21

C

Fl. *mf* *ff* *ff* 6

Ob. *mf* *ff* solo 7 *ff* 5

Cl. *mf* *ff*

Bn. *p* *ff* *mf*

Hn. *p* *f* *mp*

Tpt. *p* *f* *f*

Tbn. *mp* *f* *mp*

Perc. I *f*

Perc. II Brake Drum *mf*

Pno.

C

Vn. I *mf* *ff* *f* non vib.

Vn. II *mf* *ff* *f* non vib.

Va. *mf* *ff* *f* non vib.

Vc. *p* pizz. *ff* pizz. arco

Cb. *ff*

22

23

24

Fl. *ff* *7* *solo*
 Ob. *f*
 Cl. *f*
 Bn. *ff* *f* *sfz*
 Hn. *f* *mf* *sfz*
 Tpt. *mf* *p*
 Tbn. *f*
 Perc. I *mf sempre*
 Perc. II *mf* *ff* *Marimba*
 Pno. *ff* *f*
 Vn. I *pizz.* *arco, ord., off the string* *ff*
 Vn. II *pizz.* *arco, ord., off the string* *ff*
 Va. *pizz.* *arco, ord., off the string* *ff*
 Vc. *p* *f* *sfz*
 Cb. *ff* *f* *sfz*

25 26 27

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

Wood Blocks

straight metal mute

f

sfz

mf

p

28

29

30

Fl.
 Ob. *ff* *solo* *7*
 Cl.
 Bn. *f* *sfz*
 Hn. *mf* *sfz* *f*
 Tpt.
 Tbn. *sfz*
 Perc. I
 Perc. II *ff* *Marimba* *Wood Blocks* *mf*
 Pno. *f*
 Vn. I *ff* *f*
 Vn. II *ff* *f*
 Va. *ff* *f*
 Vc. *f* *sfz* *f*
 Cb. *f* *sfz* *arco* *pizz.* *f*

31 *f* *sfz* 32 *sfz* 33 *sfz* *f*

D

Fl. *ff* 3 6

Ob.

Cl.

Bn. *sfz*

Hn. *sfz*

Tpt. *p* *mf* *sfz* 3

Tbn. *p*

Perc. I

Perc. II

Pno.

D

Vn. I 3

Vn. II 3

Va. 3

Vc. *sfz*

Cb. *sfz*

34

sfz

35

[illegible]

Piccolo

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

f

ff espr.

fff

3

f

sfz

mf

sfz

f espr.

p

sfz

Marimba

Wood Blocks

ff

mf

8va

ff

ff

ff

f

3

f

3

f

3

f

sfz

arco

pizz.

sfz

f

sfz

sol

molto vib.

39

40

41

Picc. *f*
 Ob. *f*
 Cl. *sol* *ff espr.* *fff*
 Bn. *f* *sfz* *ff espr.* *fff*
 Hn. *mf* *sfz* *f* *sfz*
 Tpt. *f*
 Tbn.
 Perc. I to normal playing position
 Perc. II
 Pno. *f* *sfz*
 Vn. I *f* *sfz* *f* *sfz*
 Vn. II *f* *sfz* *f* *sfz*
 Va. *f* *sfz* *f* *sfz*
 Vc. *f* *sfz* *f* *sfz*
 Cb. *f* *sfz* *f* *sfz*

42 43 44

E

Picc. *f* *mf* 7 6

Ob. *p* *distantly*

Cl. *f*

Bn. *sfz*

Hn. *mf* *sfz*

Tpt. *p* *distantly*

Tbn. *p* *sfz* *p*

Perc. I

Perc. II

Pno. *f* *8va* *8va* *8va*

Vn. I solo *ff* *espr.* *fff* *molto vib.*

Vn. II *ff* *espr.* *fff* *molto vib.* 3

Va. *p* *distantly*

Vc. *f* *sfz*

Cb. *f* *arco* *pizz.* *sfz*

45 46 47

Picc. *ff* *f* *ff*
 Ob. *f*
 Cl. *ff aggressively* *f* *ff*
 Bn. *f* *sfz*
 Hn. *mf* *sfz*
 Tpt. *f*
 Tbn. *sfz* *p* *sfz* senza sord.
 Perc. I Marimba
 Perc. II *ff aggressively*
 Pno. *8va*
 Vn. I *ff aggressively*
 Vn. II *ff aggressively*
 Va. *f*
 Vc. *f* *sfz*
 Cb. *arco* *pizz.* *arco* *sfz* *ff*

48 49 50

Picc.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

f
sfz
f
mf
sfz
mf
p
sfz
 Tambourine
p \leq *f*
f
8va
8va
8va
f
sfz
f
pizz.
f
sfz
sfz
f
arco
pizz.
f

51 52 53

to Flute

Picc.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

54

55

56

57

F

Picc. *f* 5 *ff* *f*

Ob. *mf* *f* *ff* *f*

Cl. *mf* *f* *ff* *f*

Bn. *ff* *mf* *ff* *f*

Hn. *mp* *f* senza sord.

Tpt. *mp* *f*

Tbn. *f* *mp* *f* *mf*

Perc. I Suspended Cymbal, mallets *p* choke *f* simile *mf*

Perc. II Brake Drum *mf* Wood Blocks *f* Pedal Bass Drum *mf*

Pno. *ff* *mf* *f* *ff* *f*

F

Vn. I *mf* *f* non vib. to ----- vib. 5 *ff* *f*

Vn. II *mf* *ff* *f*

Va. non vib. to ----- vib. 5 *ff* *f*

Vc. non vib. to ----- vib. *ff* *f*

Cb. *ff* *mf* 58 59 60

This musical score page contains measures 61 through 64. The instrumentation includes Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bn.), Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), Percussion I (Perc. I), Percussion II (Perc. II), Piano (Pno.), Violin I (Vn. I), Violin II (Vn. II), Viola (Va.), Violoncello (Vc.), and Contrabass (Cb.). The score is written in 2/4 time, with a key signature of one sharp (F#). Measures 61 and 62 are in 2/4 time, while measures 63 and 64 are in 4/4 time. The woodwinds and strings play complex rhythmic patterns, often with accents. The brass section is mostly silent in measures 61-63, with the Trombone playing a melodic line in measure 64. Percussion I plays a rhythmic pattern of eighth notes, and Percussion II plays a pattern of quarter notes. The Piano part features a complex rhythmic pattern in the right hand and a simpler pattern in the left hand. The Violins and Viola play a complex rhythmic pattern, while the Violoncello and Contrabass play a simpler pattern. The score is marked with a *p* (piano) dynamic in measure 64. The page number 60 is centered at the bottom.

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

61 62 63 64

60

G

Fl. *mf* *f* *ff*

Ob. *mf* *ff*

Cl. *mf* *f* *ff*

Bn. *ff* *mf* *ff*

Hn. *mp* *gliss.*

Tpt. *mp* *gliss.*

Tbn. *f* *mp* *f*

Perc. I *f* l.v. Brake Drum

Perc. II *f*

Pno. *ff* *mf* *ff*

G *2^{do}*

Vn. I *mf* *f* *ff*

Vn. II *mf* non vib. to vib. *ff*

Va. *mf* non vib. to vib. *ff*

Vc. *mf* non vib. to vib. *ff*

Cb. *ff* *mf* *ff*

65 66 67

Fl. *ff* *f*

Ob. *ff* *f*

Cl. *ff* *f*

Bn. *mp* *ff* *f*

Hn. *fp* *f*

Tpt. *fp* *f*

Tbn. *p* *f* *mf*

Perc. I Suspended Cymbal *p* *f* *mf* Wood Blocks

Perc. II *f* *mf*

Pno. *mp* *ff* *f*

Vn. I *ff* *f*

Vn. II *ff* *f*

Va. *ff* *f*

Vc. *mp* *ff* *f*

Cb. *mp* *ff* *f*

Fl.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

p \leftarrow *f*
ff
f
gl.
f
p \leftarrow *f*
f
mf
p
f
mf
p \leftarrow *f*
ff
f
ff
f
ff
f
p \leftarrow *f*
ff
f

71 72 73 74

H

Fl. *fff* *f*

Ob. *fff* *ff* *p*

Cl. *fff* *f*

Bn. *fff* *ff*

Hn. *ff* *mf*

Tpt. *ff* *mf*

Tbn. *ff* *mf*

Perc. I l.v. to solo playing position *f*

Perc. II *f*

Pno. *fff* (*fff*) *f*

Vn. I *fff* (*fff*) *f*

Vn. II *fff* non vib. *ff* (free bowing)

Va. *fff* non vib. *ff* (free bowing)

Vc. *fff* non vib. *ff* (free bowing)

Cb. *fff* non vib. *ff* (free bowing)

79 80 81

Fl. *mf*
 Ob. *f espr.* solo *mf*
 Cl. *mf*
 Bn.
 Hn.
 Tpt. *pp*
 Tbn.
 Perc. I
 Perc. II
 Pno. *mf*
 Vn. I *mf*
 Vn. II *mp* to -----
 Va. *mp* to -----
 Vc. *mp* to -----
 Cb. *mp*

82 83 84

I

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

E. M.

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

con sord.

mp

sfz

p

mf

p

sfz

solo playing position

Snare Drum, brushes

mf sempre

Video frames controlled by Snare Drum attacks

etc...

sffz

mf

8va

I

molto vib.

f

molto vib.

f

molto vib.

f

pizz.

arco

pizz.

mf

sffz

sfz

non vib.

mp

non vib.

mp

non vib.

mp

sfz

85

86

87

88

to solo playing position

lunga attacca

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

MIDI Ctrl.

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

Record Event #1

Recording 2"

to

molto vib.

non vib.

to

molto vib.

non vib.

molto vib.

non dim.

arco

pizz.

93

94

95

96

97

69

II. Whisper

♩ = 72

(solo playing position)

The musical score is for a piece titled "Movement II Initialization". It is written for a woodwind quintet (Flute, Oboe, Clarinet, Bassoon, Horn) and a MIDI Controller. The score is divided into four measures, numbered 1 through 4 at the bottom. The time signature changes from 4/4 to 3/4 in measure 3 and back to 4/4 in measure 4. The dynamics range from *p* (piano) to *mp* (mezzo-piano). The MIDI Controller part is marked with a box labeled "Movement II Initialization" and contains a single note in the first measure, followed by rests in the subsequent measures.

Fl. (solo playing position)
Ob.
Cl.
Bn.
Hn. (con sord.)
Tpt. straight metal mute
Tbn.
MIDI Ctrl. Movement II Initialization

1 2 3 4

This musical score is for measures 5, 6, and 7 of the piece 'The Rose Tree'. The score is written for a full orchestra and includes a MIDI Control track. The key signature is one sharp (F#), and the time signature changes from 5/4 to 4/4 in measure 6 and back to 5/4 in measure 7. The instruments and their parts are as follows:

- Flute (Fl.):** Rests in all three measures.
- Oboe (Ob.):** Plays a melodic line in 5/4 and 4/4, with a triplet in measure 7.
- Clarinet (Cl.):** Plays a melodic line in 5/4 and 4/4, with a triplet in measure 7.
- Bassoon (Bn.):** Plays a melodic line in 5/4 and 4/4, with a triplet in measure 7.
- Horn (Hn.):** Plays a melodic line in 5/4 and 4/4, with a triplet in measure 7.
- Trumpet (Tpt.):** Plays a melodic line in 5/4 and 4/4, with a triplet in measure 7.
- Trombone (Tbn.):** Plays a melodic line in 5/4 and 4/4, with a triplet in measure 7.
- MIDI Ctrl.:** Rests in all three measures.

The dynamics are marked *p* (piano) and *mp* (mezzo-piano). The score is divided into three measures, with measure numbers 5, 6, and 7 indicated at the bottom.

A

8 9 10



Flute solo I

11 12

A tempo

B

Fl. *mf*

Ob. *p*

Cl. *mp* solo

Bn. *p* *mp* *p* *mp* *p* *mp*

Hn. *p*

Tpt. *p*

Tbn. *p* *mp* *p* *mp* *p* *mp*

MIDI Ctrl.

13

14

15

16

Fl. *p* *mp* *f* *3* *6*

Ob. *f* *p* *f* *fp*

Cl. *p* *3* *f* *fp*

Bn. *3* *f* *p* *3* *f* *fp*

Hn. *f* *p* *f* *fp*

Tpt. *3* *f* *p* *3* *f* *fp*

Tbn. *3* *f* *p* *3* *f* *fp*

MIDI Ctrl.

17

18

19

20

C

Fl. *mp* *tr.*

Ob. *p sub.*

Cl. *p sub.*

Bn. *p sub.* *mp* *p* *mp* *p* *mp*

Hn. *p sub.*

Tpt. *p sub.*

Tbn. *p sub.* *mp* *p* *mp* *p* *mp*

MIDI Ctrl.

21 22 23 24



Fl. *f* *tr.* *(f)*

Ob. *mf*

Cl. *mf*

Bn. *p* *mf*

Hn. *mf*

Tpt. *mf*

Tbn. *p* *mf*

MIDI Ctrl. *Delay Event #1*

25 26

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

MIDI Ctrl.

27



Flute solo II

800 ms
freely

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

MIDI Ctrl.

28

D A tempo (♩ = 72)

Fl. *mp* solo

Ob. *mp*

Cl. *p*

Bn. *p* *mp* *p* *mp* *f*

Hn. *p* *f*

Tpt. *p* *f*

Tbn. *p* *mp* *p* *mp* *f*

MIDI Ctrl.

29 30 31



Fl. *pp* *mp* *mf* Delay Shift

Ob. *pp*

Cl. *p* *pp*

Bn. *p* *pp*

Hn. *p* *pp*

Tpt. *p* *pp*

Tbn. *p* *pp*

MIDI Ctrl. Delay Event #2

32 33 34

Fl. *f* *tr* *6*

Ob. *p* *mf* *6* *4* *♯* *o.*

Cl. *p* *mf* *6* *4* *o.*

Bn. *p* *mf* *6* *4* *o.*

Hn. *p* *mf* *6* *4* *o.*

Tpt. *p* *mf* *6* *4* *o.*

Tbn. *p* *mf* *6* *4* *o.*

MIDI Ctrl. *6* *4*

35

36

350 ms

Fl. *350 ms*

Ob.

Cl.

Bn.

Hn. *senza sord.*

Tpt. *senza sord.*

Tbn. *senza sord.*

E. M.

MIDI Ctrl.

37

Delay Shift

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

MIDI Ctrl.

Delay Event #3

6

6

3

4/4

4/4

4/4

4/4

4/4

4/4

4/4

4/4

38

0 ms

Recording 2"

E

to normal playing position

lunga attacca

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

E. M.

MIDI Ctrl.

Flute Loop

Record Event #2

Loop Event #1

p

mf

mf

mf

mp

pp

mp

pp

mp

pp

n.

p

39

40

41

42

43

44

III. Grand Stage

Timeless, ♩ = 44

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

E. M.

MIDI Ctrl.

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

Vibraphone, bowed, l.v.

(bowed)

Flute Loop (p)

Violoncello Loop

Loop Event #2

Movement III Initialization

ppp

p

mp

n.

Red. →

pp espr.

mp

pp

mp espr.

pp

mp

1 2 3 4 5

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

E. M.

MIDI Ctrl.

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

"Last Night Was the End of the World"

p espr., legato

ppp

p

mp

mp

mp

pp

pp

mp

p

vib.

vib.

6 7 8 9 10

A

[illegible]

A

Violins I and II: Rest in all measures.

Viola: *mp* in measures 1 and 2, *p* in measure 3, *p* in measure 4.

Violoncello: *mp* in measure 1, *p* in measure 2, *pp* in measure 3, *pp* in measure 4.

Contrabasso: Rest in all measures.

Fl. *p* \leq *mf* 6 3 *mp*
 Ob.
 Cl. *p* \leq *mf* 6 3 *mp*
 Bn. *mp*
 Hn.
 Tpt.
 Tbn.
 Perc. I (p)
 Perc. II (*mp*)
 E. M.
 MIDI Ctrl.
 Pno. (*mp*)
 Vn. I
 Vn. II
 Va. *p* *mp*
 Vc.
 Cb. *ppp*

15 16 17 18

B

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

E. M.

MIDI Ctrl.

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

"Last Night Was the End of the World"

p espr., legato

pp

p

mf

p

ppp

7

8va

loco

8va

6

6

6

3

19

20

21

22

Fl. *p* ≤ 6 *mp* ≤ 6 ≤ 6

Ob.

Cl. *p* ≤ 6 *mp* ≤ 6 ≤ 5

Bn. *mp*

Hn. *pp* *p*

Tpt.

Tbn. *pp* *p*

Perc. I *mp*

Perc. II *mf*

E. M. *Loops Fade Out* *n.*

MIDI Ctrl. *Loop Event #3*

Pno. *p* *mf*

Vn. I *mp espr.* *mf*

Vn. II *mp espr.* *mf*

Va. *mp espr.* *mf*

Vc. *pp* *mp* *f*

Cb. *p*

23 24 25 26

C

Fl. *p* \leq \geq \leq \geq \leq \geq

Ob. *pp*

Cl. *p* \leq \geq \leq \geq \leq \geq

Bn. *pp* *mp*

Hn.

Tpt. *sfz* *mp* *mf* *gliss.*

Tbn. *pp* *p espr., legato* *mp*

Perc. I *mp*

Perc. II *mf*

MIDI Ctrl.

Pno. *sfz* *mf*

Vn. I

Vn. II

Va.

Vc. *mp* *mf* *molto vib.*

Cb.

C

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

MIDI Ctrl.

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

34

35

36

37

D

mp

mf

p

f

mp unsynchronized, as fast as possible, randomize order of pitches (harmon mute)

senza sord.

Crotales

Chimes

unsynchronized, as fast as possible,
randomize order of pitches

Fl. *mp* *rit.* *f* *mp*

Ob. *mp* *rit.* *f* *mp*

Cl. *pp* *tr* *mp*

Bn. *p* *mf espr.* 3

Hn. *f* *rit.*

Tpt. *mf* *p*

Tbn. *p*

Perc. I

Perc. II

MIDI Ctrl.

Pno. 6 6 6 *p*

Vn. I *pp* 5 5 *mf* 3 *pp* *p* *mf*

Vn. II *pp* 3 *mf* 3 *pp* *mf*

Va. *pp* 6 6 5 *mf* 5 3 *pp* *mf*

Vc. *pp* *mp*

Cb. *pp*

Fl. *mp* 5 6 3
 Ob. *mp* 6 5 *p* *mf*
 Cl. (tr) *mf*
 Bn. *p* *mf*
 Hn. *sfz* *pp* *gliss.*
 Tpt. *sfz* *pp*
 Tbn. *p* *mp*
 Perc. I Crotales *mp* Chimes *mp* Crotales *mp*
 Perc. II *mf*
 MIDI Ctrl.
 Pno. *mf* *f*
 Vn. I
 Vn. II *p* *mp*
 Va. *p* *mp*
 Vc. *mf* *mp*
 Cb. *f*

Eunsynchronized, as fast as possible,
randomize order of pitches

Fl. *mp* *rit.* *f*

Ob. *mp* *f*

Cl. *mp* *rit.* *f*

Bn. *mp* *f*

Hn. open *mp* *p espr., legato*

Tpt. *mp* *f*

Tbn. *mp*

Perc. I

Perc. II

MIDI Ctrl.

Pno. *mf* *p*

"Last Night Was the End of the World"

E

Vn. I *pp* *mf*

Vn. II *pp* *mf*

Va. *pp* *mf*

Vc. *f*

Cb.

Fl. *mp*
 Ob. *p*
 Cl. *mp*
 Bn.
 Hn.
 Tpt. *mp*
 Tbn.
 Perc. I (Crotales) *mp* Chimes *mp*
 Perc. II *mf*
 MIDI Ctrl.
 Pno. *mf*
 Vn. I *pp* *mf*
 Vn. II *pp* *mf*
 Va. *pp* *mf*
 Vc.
 Cb.

The score is written for measures 49, 50, 51, and 52. The time signature changes from 4/4 to 2/4 and back to 4/4. The key signature has one sharp (F#). The woodwinds (Flute, Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone) and Percussion I (Crotales) play a melodic line starting in measure 49 and continuing through measure 52. The Percussion II part plays a rhythmic pattern of eighth and sixteenth notes. The MIDI Controller and Piano parts play a complex rhythmic pattern. The Violins and Violas play a sustained harmonic line. The Violoncello and Contrabass parts are mostly silent.

Funsynchronized, as fast as possible,
randomize order of pitches*rit.*.....

Fl. *mp* *f*

Ob. *mf* *mp*

Cl. *mp* *f*

Bn. *mp*

Hn. *mf* *mp*

Tpt. *mf* *mp*

Tbn. *mp*

Perc. I *mf*

Perc. II *f*

MIDI Ctrl.

Pno. *f* *mf* 6 6 6 6 6 6 6 6 6 6

Vn. I *mp* 3 *f* *espr.*

Vn. II *f*

Va. *f*

Vc. *f*

Cb. *f*

53 54 55

G

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt. senza sord.

Tbn.

Perc. I

Perc. II

MIDI Ctrl.

Pno.

G

Vn. I

Vn. II

Va.

Vc.

Cb.

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

MIDI Ctrl.

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

p

non cresc.

harmon mute

pp *f*

p

molto vib.

f

p sub.

to non vib.

p

non cresc.

p

non cresc.

p

non cresc.

62 63 64 65

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn. senza sord.

Perc. I

Perc. II

E. M. "Last Night Was the End of the World"
Voice *rall.*
My dream is o'er, to live no more, Last night was the end of the

MIDI Ctrl.

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

H A tempo (♩ = 44)

Fl. *mp* *f*

Ob. *mp*

Cl. *mp* *f*

Bn.

Hn. *p* *mf*

Tpt. *p*

Tbn.

Perc. I

Perc. II

E. M. world.

MIDI Ctrl.

Pno. *f* 8^{vb}

H A tempo (♩ = 44)

Vn. I *mp* *f*

Vn. II *mp*

Va. *f*

Vc. *f*

Cb. *f*

Fl.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 E. M.
 MIDI Ctrl.
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

Musical score for measures 69 and 70. The score includes parts for Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bn.), Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), Percussion I (Perc. I), Percussion II (Perc. II), Electric Music (E. M.), MIDI Control (MIDI Ctrl.), Piano (Pno.), Violin I (Vn. I), Violin II (Vn. II), Viola (Va.), Violoncello (Vc.), and Contrabass (Cb.).

Measure 69 features a complex woodwind and string texture. The Oboe, Clarinet, and Bassoon play rapid sixteenth-note passages. The Flute plays a melodic line. The Horns and Trumpets play sustained notes with dynamic markings *p* and *mf*. The Trombone plays a sustained note. The Percussion I and II parts are marked with rests. The Electric Music part plays a sustained note. The MIDI Control part plays a sustained note. The Piano part plays a sustained note. The Violin I and II parts play rapid sixteenth-note passages. The Viola, Violoncello, and Contrabass parts play sustained notes.

Measure 70 continues the woodwind and string texture. The Oboe, Clarinet, and Bassoon play rapid sixteenth-note passages. The Flute plays a melodic line. The Horns and Trumpets play sustained notes with dynamic markings *p* and *mf*. The Trombone plays a sustained note. The Percussion I and II parts are marked with rests. The Electric Music part plays a sustained note. The MIDI Control part plays a sustained note. The Piano part plays a sustained note. The Violin I and II parts play rapid sixteenth-note passages. The Viola, Violoncello, and Contrabass parts play sustained notes.

attacca

Fl. *mp*

Ob. *non dim.*

Cl. *mp*

Bn.

Hn. *p* *mf* *p*

Tpt. *mf* *p*

Tbn. *non dim.*

Perc. I dampen

Perc. II *f* dampen

E. M.

MIDI Ctrl.

Pno. dampen

attacca

Vn. I

Vn. II

Va. *non dim.*

Vc. *non dim.*

Cb. *non dim.*

IV. Iron Horse

$\text{♩} = 126$

Fl. *ff* *mf* *ff* *mf*

Ob. *ff* *mp* *ff* *mp*

Cl. *ff* *p* *ff* *p*

Bn. *fff* *fffp* *fff* *fffp*

Hn. *f*

Tpt. *f*

Tbn. *f*

Perc. I Brake Drum

Perc. II Pedal Bass Drum *f*

MIDI Ctrl.

Pno. *ff* *(ff)*

Movement IV Initialization

$\text{♩} = 126$

Vn. I *ff* *mf* *ff* *mf*

Vn. II *ff* *mp* *ff* *mp*

Va. *ff* *p* *ff* *p*

Vc. *fff* *fffp* *fff* *fffp*

Cb. *ff* *(ff)*

1 2 3 4

Fl. *mf* *fff*
 Ob. *mf* *fff*
 Cl. *fff* *fffp*
 Bn. *fff* *fffp*
 Hn. *f* *brassy*
 Tpt. *f* *brassy*
 Tbn. *f* *brassy*
 Perc. I *ff* *Chimes*
 Perc. II *ff*
 Pno.
 Vn. I *ff* *mp* *fff*
 Vn. II *ff* *mp* *fff*
 Va. *fff* *fffp*
 Vc. *fff* *fffp*
 Cb. *fff* *fffp*

Measures 5, 6, 7, and 8 are indicated at the bottom of the score.

Fl. *mf* *tr* *3* *ff* *ffp* *tr* *ff* *ffp*

Ob. *mf* *3* *ff* *ffp* *tr* *ff* *ffp* *tr*

Cl. *ff* *ffp* *tr* *ff* *ffp* *tr*

Bn. *ff* *ffp* *ff* *ffp*

Hn. *f*

Tpt. *f*

Tbn. *f*

Perc. I *ff* *Ped.*

Perc. II

Pno.

Vn. I *tr* *3* *ff* *ffp* *tr* *ff* *ffp*

Vn. II *tr* *3* *ff* *ffp* *tr* *ff* *ffp*

Va. *ff* *ffp* *ff* *ffp*

Vc. *ff* *ffp* *ff* *ffp*

Cb.

9 10 11 12

Fl. A
 Ob.
 Cl. flt.
 Bn. *p*
 Hn. *ff*
 Tpt. *ff*
 Tbn. *mp*
 Perc. I
 Perc. II
 Pno.
 Vn. I A
 Vn. II *ff*
 Va. *ff*
 Vc. *ff*
 Cb. *mp*

13 14 15 16

Fl. *f*
 Ob.
 Cl. *mp*
 Bn. *f*
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II *mp*
 Vibraphone *f*
 Pno. *mp*
 Vn. I *mp*
 Vn. II *mp*
 Va. *mp*
 Vc. *mp*
 Cb. *f*

17 18 19 20 21

B

Fl. *f* *fff* *mp*

Ob. *f* *fff*

Cl. *f* *fff*

Bn. *f* *mf* *fff* *mp*

Hn. *mp* *ff*

Tpt. *p* *tr* *mf* *ff*

Tbn. *mp* *ff*

Perc. I

Perc. II

Pno. *mf* *fff*

B

Vn. I *f* *sol*

Vn. II *f* *sol*

Va. *f* *mp*

Vc. *f* *mp*

Cb. *f* *mf* *fff*

22 23 24 25

Fl. *(tr)*
 Ob. *ffp* *sffz*
 Cl. *ffp* *sffz*
 Bn. *f* *mp* *f* *mp*
 Hn. *stopped muted* *fp* *sfz*
 Tpt. *fp* *sfz* *senza sord.*
 Tbn. *straight metal mute* *f* *senza sord.*
 Perc. I
 Perc. II
 Pno. *ff*
 Vn. I *off the string* *f*
 Vn. II *off the string* *f*
 Va. *f* *mp* *f* *mp*
 Vc. *f* *mp* *f* *mp*
 Cb. *pizz.* *ff*

C *sol.* *f*
 C *sol.* *f*
 C *senza sord.*
 C *senza sord.*
 C *ff*

26 27 28 29

Fl. *f* *non dim.*
 Ob. *ff*
 Cl. *f* *non dim.*
 Bn. *ff*
 Hn. *open* *f*
 Tpt. *f*
 Tbn. *fp* *f*
 Perc. I
 Perc. II
 Pno. *ff*
 Vn. I *ff*
 Vn. II *ff*
 Va. *ff*
 Vc. *ff*
 Cb. *ff* *arco*

30 31 32

D

Fl. *solo*
f *ff* 6

Ob.

Cl.

Bn.
mp *f* *mp* *mp* *f* *mp*

Hn.
mp *f*

Tpt.
mp *f*

Tbn.
mp *f*

Perc. I

Perc. II

Pno.

D

Vn. I *soli*
f

Vn. II *soli*
f

Va.
mp *f* *mp* *mp* *f* *mp*

Vc.
mp *f* *mp* *mp* *f* *mp*

Cb.

33

34

35

36

Fl. *f* 5 6 *ffp* *ffp*

Ob. *mp* *ff*

Cl. *mp* *ff*

Bn. *mp* *f*

Hn. *mf*

Tpt.

Tbn.

Perc. I Chimes *f*

Perc. II Triangle *p* *f* *p*

Pno. *ff*

Vn. I *ffp* *ffp*

Vn. II *ffp* *ffp*

Va. *mp* *ffp* *ffp*

Vc. *mp* *f* arco

Cb. *f*

42 43 44

E

Fl. *ff* *ff*

Ob. *f* *ff* *f* *ff*

Cl. *ff* *ff*

Bn. *f* *ff* *f* *ff*

Hn. *open* *mf* *f* *mf* *f*

Tpt.

Tbn. *fp* *f* *mf*

Perc. I

Perc. II *f*

Pno. *solo* *ff*

E

Vn. I *ff* *ff*

Vn. II *ff* *ff*

Va. *ff* *ff*

Vc. *ffp* *ff* *f*

Cb. *ffp* *ff* *f*

Fl. *ff*
 Ob. *f* *ff* *f*
 Cl. *ff* *ff*
 Bn. *f* *ff* *f*
 Hn. *f* *ff* *f*
 Tpt. *p* solo
 Tbn. *fp* *f* *mf*
 Perc. I
 Perc. II
 Pno. *ff* *ff* *ff*
 Vn. I *ff* *ff*
 Vn. II *ff* *ff*
 Va. *ff* *ff*
 Vc. *ffp* *ff* *f*
 Cb. *ffp* *ff* *f*

49 50 51

Fl. *ff*
 Ob. *f* *ff* *f*
 Cl. *ff*
 Bn. *f* *ff* *f*
 Hn. *mf* *f* *mf*
 Tpt. *ff* *ff* *f*
 Tbn. *fp* *f* *mf*
 Perc. I
 Perc. II
 Pno.
 Vn. I *ff*
 Vn. II *ff*
 Va. *ff*
 Vc. *ffp* *ff* *f*
 Cb. *ffp* *ff* *f*

56 57 58

F

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

Marimba soli

F

59

60

61

Fl. *mf* *f* *mf*

Ob. *mf* *f* *mf*

Cl. *mf* *f* *mf*

Bn. *p espr.* *sol*

Hn. -

Tpt. -

Tbn. -

Perc. I -

Perc. II *ff* *f*

Pno. *ff* *f*

Vn. I *f* *p espr.* *sol*

Vn. II *f* *mp* *f*

Va. *f* *mp* *f*

Vc. *f* *mp* *f*

Cb. *pizz.* *ff*

62 63 64 65

Fl.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

Musical score for measures 66-70. The score includes parts for Flute, Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone, Percussion I, Percussion II, Piano, Violin I, Violin II, Viola, Violoncello, and Contrabass. The key signature is one flat (B-flat), and the time signature is 3/4. The score features various dynamics including *f*, *ff*, *mp*, and *f*. The piano part has a complex rhythmic pattern with many sixteenth notes. The string parts are also active, with the Violin II, Viola, and Violoncello parts showing a consistent rhythmic pattern. The woodwinds and brass parts are mostly silent, with some activity in the Clarinet and Bassoon parts.

66

67

68

69

70

Fl. *f* *ffp*
 Ob. *f* *ffp*
 Cl. *ff* *f* *ffp*
 Bn. *f*
 Hn. *ffp* stopped +
 Tpt.
 Tbn. *mf*
 Perc. I *f* Triangle
 Perc. II *p*
 Pno. *ff*
 Vn. I *ff*
 Vn. II *ff*
 Va. *ff*
 Vc. *f* arco
 Cb. *f*

71 72 73

G

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

solli

open

mf

ff

f

mf

G

74 75 76 77

Fl.
 Ob. *mf*
 Cl. *ff* *mf* *ff* *mf*
 Bn. *ff* *mf* *ff* *mf*
 Hn. *f* *f*
 Tpt. *f* *f*
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I *mf*
 Vn. II *mf*
 Va. *ff* *mf* *ff* *mf*
 Vc.
 Cb.

78 79 80

H

Fl. *ff*

Ob. *ff*

Cl. *ff*

Bn. *ff*

Hn. *ff*

Tpt. *ff*

Tbn. *f* *fp*

Perc. I

Perc. II

Pno. *ff*

Ped.

H

Vn. I *ff*

Vn. II *ff*

Va. *ff*

Vc. *ff*

Cb. *ff* *ffp*

81 82 83 84

120

Fl.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

Marimba
ff
ff
ff
ffp
ff

85 86 87 88

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

brassy

ff

f

ffp

Chimes

ff

ff

ffp

ff

ffp

89 90 91 92

This musical score page contains measures 93 through 96 of a symphony. The instrumentation includes Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bn.), Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), Percussion I (Perc. I), Percussion II (Perc. II), Piano (Pno.), Violin I (Vn. I), Violin II (Vn. II), Viola (Va.), Violoncello (Vc.), and Contrabass (Cb.).

Measure 93: The woodwinds (Fl., Ob., Cl., Bn.) play a rhythmic pattern of eighth and sixteenth notes. The brass (Hn., Tpt., Tbn.) plays sustained notes. The percussion (Perc. I, II) and piano (Pno.) provide a steady accompaniment. The strings (Vn. I, Vn. II, Va., Vc., Cb.) play a rhythmic pattern of eighth notes.

Measure 94: The woodwinds continue their pattern. The brass (Hn., Tpt., Tbn.) plays sustained notes. The percussion (Perc. I, II) and piano (Pno.) provide a steady accompaniment. The strings (Vn. I, Vn. II, Va., Vc., Cb.) play a rhythmic pattern of eighth notes.

Measure 95: The woodwinds continue their pattern. The brass (Hn., Tpt., Tbn.) plays sustained notes. The percussion (Perc. I, II) and piano (Pno.) provide a steady accompaniment. The strings (Vn. I, Vn. II, Va., Vc., Cb.) play a rhythmic pattern of eighth notes.

Measure 96: The woodwinds continue their pattern. The brass (Hn., Tpt., Tbn.) plays sustained notes. The percussion (Perc. I, II) and piano (Pno.) provide a steady accompaniment. The strings (Vn. I, Vn. II, Va., Vc., Cb.) play a rhythmic pattern of eighth notes.

Dynamic markings: *ff* (fortissimo) is marked at the beginning of measure 93. *ffp* (fortissimissimo) is marked at the beginning of measure 95. *ff* (fortissimo) is marked at the end of measure 96.

Fl.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

97 *ff*
 98
 99
 100
 101

Fl. *ff* *ffp* *ff*
 Ob. *ff* *ffp* *ff*
 Cl. *ff* *ffp* *ff*
 Bn. *ff*
 Hn. *f* brassy
 Tpt. *f* brassy
 Tbn. *f*
 Perc. I *ff* Ped.
 Perc. II *ffp*
 Pno. *ffp* *fff*
 Vn. I *ff* *ffp* *ff*
 Vn. II *ff* *ffp* *ff*
 Va. *ff* *ffp* *fff*
 Vc. *ff* *ffp* *ff*
 Cb. *ff*

102

103

104

105

106

I

Fl. *tr*

Ob. *tr*

Cl. *tr*

Bn. *p* *mp*

Hn. *gliss.* *ff*

Tpt. *gliss.* *ff*

Tbn. *ff*

Perc. I *ff*

Perc. II *p* *f*

Pno. *mf*

Vn. I *tr* *non vib. to* *vib.* *fff* *p* *sfz*

Vn. II *non vib. to* *vib.* *fff* *p* *sfz*

Va. *tr* *non vib. to* *vib.* *fff* *p* *sfz*

Vc. *tr* *non vib. to* *vib.* *fff* *p* *sfz*

Cb. *mf* *pizz.*

107 108 109 110 111 112

Fl.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

solo
f espr.
mp
f
 7
 3
 non vib.
fp
sfz
p
 non vib.
p
 non vib.
p

113

114

115

116

117

Fl.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

118 119 120 121 122

p *mf*
mp *f*
p *mf*
 harmon mute, stem out solo
mf espr.
 vib. *fp* vib. *sfz* non vib. *p*
 vib. *fp* vib. *sfz* non vib. *p*
 vib. *fp* vib. *sfz* non vib. *p*
sfz *p*

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

123

124

125

126

pp

f

mf

fp

sfz

vib.

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

127

128

129

130

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

f

f

f

mp

p

non cresc.

131

132

133

134

J

A page from a musical score showing measures 135 through 138. The instruments listed are Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bn.), Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), Percussion I (Perc. I), Percussion II (Perc. II), Piano (Pno.), Violin I (Vn. I), Violin II (Vn. II), Viola (Va.), Violoncello (Vc.), and Contrabass (Cb.). The time signature changes from 4/4 to 3/4 between measures 136 and 137. Dynamics include fortissimo (f) and fortissimissimo (ff). Performance instructions like "Marimba" and "arco" are present. A section marker "J" is located at the beginning of measure 135.

Fl.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

Musical score for measures 139-142. The score includes parts for Flute, Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone, Percussion I, Percussion II, Piano, Violin I, Violin II, Viola, Violoncello, and Contrabass. The key signature is one flat (B-flat), and the time signature is 4/4. The score features various dynamics including *ff* (fortissimo) and *f* (forte). The woodwinds and strings play melodic lines, while the brass and percussion provide harmonic support. The piano part features a rhythmic pattern in the right hand and a more active line in the left hand.

139

140

141

142

Fl. *ff* *f* *ff*
 Ob. *ff* *f* *ff*
 Cl. *ff* *f* *ff*
 Bn. *f* *f* *f* *f* *f*
 Hn. *mf* senza sord.
 Tpt. *mf*
 Tbn. *mf*
 Perc. I
 Perc. II *f* *ff*
 Pno. *ff* *f*
 Vn. I *ff* *f* *ff*
 Vn. II *f* *f* *f* *f* *f*
 Va. *f* *f* *f* *f* *f*
 Vc. *f* *f* *f* *f* *f*
 Cb. arco pizz. arco

143

144

145

146

Fl.
 Ob.
 Cl.
 Bn.
 Hn.
 Tpt.
 Tbn.
 Perc. I
 Perc. II
 Pno.
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

Musical score for measures 147-150. The score is written for a full orchestra. The woodwinds (Flute, Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone) and strings (Violin I, Violin II, Viola, Violoncello, Contrabass) are marked with *f* (forte) or *mf* (mezzo-forte). The percussion (Perc. I, Perc. II) and piano (Pno.) are marked with *f* or *ff* (fortissimo). The contrabass (Cb.) is marked with *pizz.* (pizzicato) and *arco* (arco). The score is in 4/4 time, with a key signature of one flat (B-flat). The measures are numbered 147, 148, 149, and 150.

Fl. *f* *ff*
 Ob. *f* *ff*
 Cl. *f* *ff*
 Bn. *f* *ff*
 Hn. *mf*
 Tpt. *mf*
 Tbn. *mf*
 Perc. I
 Perc. II *ff* *f* *ff* *f*
 Pno. *ff* *f* *ff* *f*
 Vn. I *f* *ff*
 Vn. II *f* *ff*
 Va. *f* *ff*
 Vc. *f* *ff*
 Cb. *f* *arco* *ff*

151 152 153 154

K

Fl.
Ob.
Cl.
Bn.
Hn.
Tpt.
Tbn.
Perc. I
Perc. II
Pno.
Vn. I
Vn. II
Va.
Vc.
Cb.

155 156 157 158

Fl. *ffp* *ff* *fff* *tr* *tr* *tr* *tr* *tr* *tr*

Ob. *ffp* *ff* *fff* *tr* *tr* *tr* *tr* *tr* *tr*

Cl. *ffp* *ff* *fff* *tr* *tr* *tr* *tr* *tr* *tr*

Bn. *ffp* *ff* *fff*

Hn. *fp* *f* *ff*

Tpt. *fp* *f* *ff*

Tbn. *fp* *ff*

Perc. I *ff*

Perc. II *fp* *sfz* *sfz* *sfz*

Pno. *ffp* *ffp* *fff*

Vn. I *ffp* *ff* *fff* *tr* *tr* *tr* *tr* *tr* *tr*

Vn. II *ffp* *ff* *fff* *tr* *tr* *tr* *tr* *tr* *tr*

Va. *ffp* *ff* *fff* *tr* *tr* *tr* *tr* *tr* *tr*

Vc. *ffp* *ffp* *fff*

Cb. *ffp* *fff*

159 160 161 162 163

Fl. *ffp* *ffp* *ff*
 Ob. *ffp* *ffp* *ff*
 Cl. *ffp* *ffp* *ff*
 Bn. *ffp* *ffp* *ff*
 Hn. *fp* *fp* *f* *gliss.*
 Tpt. *fp* *fp* *f* *gliss.*
 Tbn. *fp* *f*
 Perc. I
 Perc. II *fp* *sfz* *sfz* *sfz* *p* *f*
 Pno. *ffp* *ffp* *ff*
 Vn. I *ffp* *ffp* *ff*
 Vn. II *ffp* *ffp* *ff*
 Va. *ffp* *ffp* *ff*
 Vc. *ffp* *ffp* *ff*
 Cb. *ffp* *ffp* *ff*

164 165 166 167 168

L

Fl. *sol*
ff

Ob. *sol*
ff

Cl. *sol*
ff

Bn. *fff*
ff

Hn. *ff*
mf

Tpt. *ff*

Tbn. *ff*
mf

Perc. I

Perc. II

Pno. *fff*
ff
8^{va} loco

L

Vn. I *fff*
ff

Vn. II *fff*
ff

Va. *fff*
ff

Vc. *fff*
ff

Cb. *fff*
ff

169 170 171 172 173
140

Fl. *sol*
 Ob. *sol*
 Cl. *tr*
 Bn. 7
 Hn.
 Tpt. *sol* straight metal mute
 Tbn.
 Perc. I
 Perc. II
 Pno. *8^{va}* *loco*
 Vn. I
 Vn. II
 Va.
 Vc.
 Cb.

174 175 176 177 178

This musical score page contains measures 179 through 183. The instrumentation includes Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bn.), Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), Percussion I (Perc. I), Percussion II (Perc. II), Piano (Pno.), Violin I (Vn. I), Violin II (Vn. II), Viola (Va.), Violoncello (Vc.), and Contrabass (Cb.). The score is written in a key signature of one flat (B-flat) and a common time signature of 4/4. The woodwind and brass sections feature complex rhythmic patterns, including triplets and sixteenth notes. The piano part provides harmonic support with chords and arpeggios. The string section includes a variety of note values and rests. The percussion parts are marked with rests, indicating they are not playing in these measures.

179

180

181

182

183

Fl. *sol*
ff
 Ob. *sol*
ff
 Cl. *sol*
ff
 Bn.
 Hn. alternate fingering trill
p *ff*
 Tpt. *sol*
ff
 Tbn. *gliss.*
p *f*
 Perc. I
 Perc. II
 Pno.
 Vn. I *fff*
 Vn. II *fff*
 Va. *fff*
 Vc. *fff*
 Cb. *fff*

Musical score for measures 184-188. The score includes parts for Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bn.), Horn (Hn.), Trumpet (Tpt.), Trombone (Tbn.), Percussion I (Perc. I), Percussion II (Perc. II), Piano (Pno.), Violin I (Vn. I), Violin II (Vn. II), Viola (Va.), Violoncello (Vc.), and Contrabass (Cb.). The key signature is one flat (B-flat major or D minor). The time signature is 4/4. The score features various musical notations including dynamics (*ff*, *f*, *p*, *fff*), articulation (*sol*, *gliss.*), and performance instructions (alternate fingering trill). The piano part includes complex chordal textures and arpeggiated figures. The string section plays a rhythmic pattern of eighth notes.

184

185

186

187

188

Fl. *ff*
 Ob. *ff*
 Cl. *ff*
 Bn. *ff*
 Hn. *f*
 Tpt. *f*
 Tbn. *f* *gl.*
 Perc. I *f* Egg Shaker
 Perc. II *ff*
 Pno. *ff*
 Vn. I *ff*
 Vn. II *ff*
 Va. *ff*
 Vc. *ff*
 Cb. *ff*

193 194 195 196

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Chimes

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

ff

197

198

199

200

This musical score page contains measures 197 through 200. The instrumentation includes Flute, Oboe, Clarinet, Bassoon, Horn, Trumpet, Trombone, Chimes, Percussion I and II, Piano, Violin I and II, Viola, Violoncello, and Contrabass. The woodwinds and strings play melodic lines with various articulations like accents and slurs. The brass section provides harmonic support with sustained notes and glissandos. Percussion I plays a steady eighth-note pattern, while Percussion II plays a more complex rhythmic pattern. The piano accompaniment features dense chords in the right hand and sustained bass notes in the left hand. The score is marked with a forte (*ff*) dynamic at the beginning of measure 197.

Fl.

Ob.

Cl.

Bn.

Hn.

Tpt.

Tbn.

Perc. I

Perc. II

Pno.

Vn. I

Vn. II

Va.

Vc.

Cb.

201

202

203

204

Fl. *fffp* *fff*
 Ob. *fffp* *fff*
 Cl. *p* *fff*
 Bn. *p* *fff* *f* *fff*
 Hn. *ffp* *ffp* *ffp* *gliss.* *fff*
 Tpt. *ffp* *ffp* *ffp* *ffp* *gliss.* *fff*
 Tbn. *p* *mf* *fff*
 Perc. I *ff* dampen
 Perc. II *p* *f* dampen
 Pno. *fff* *mp* *fff* *8va*
 Vn. I *fffp* *fff*
 Vn. II *fffp* *fff*
 Va. *p* *fff*
 Vc. *p* *fff* *f* *fff*
 Cb. *f* *fff*

205 206 207 208 209

Bibliography

- Adlington, Robert. *Louis Andriessen: De Staat*. Aldershot: Ashgate Aldershot, 2004.
- Belle, John and Maxine R. Leighton. *Grand Central: Gateway to a Million Lives*. New York: W.W. Norton & Co., 2000.
- Kurtzman, Jeffrey. *The Monteverdi Vespers of 1610: Music, Context, Performance*. Oxford and New York: Oxford University Press, 1999, pp. 297-303.
- Monteverdi, Claudio. 1994. *Vespro Della Beata Vergine 1610, SV 206*. Mainz: Ernst Eulenburg & Co., GmbH.
- Reich, Steve and Paul Hillier. *Writings on Music 1965–2000*. New York: Oxford University Press (US), 2000.
- Ross, Alex. "American Sublime." Editorial, *The New Yorker*, June 19, 2006.
http://www.therestisnoise.com/2006/06/morton_feldman_.html (accessed March 21, 2012).
- Schlichting, Kurt. *Grand Central Terminal: Railroads, Architecture and Engineering in New York*. Baltimore: Johns Hopkins University Press, 2001.

Vita

The music of American-born composer Ian Dicke (b. 1982, Trenton, NJ) includes works for orchestra, wind ensemble, chamber ensembles, and electronic media. Heralded by the San Francisco Classical Voice as “colorful, well-designed, and deftly scored,” Dicke’s works often explore contemporary social-political culture through a mixture of pungent and triadic harmonies, dance-like rhythms, and intricately layered textures.

Dicke’s music has been performed by many ensembles and festivals around the world, including the ISCM World New Music Days, the Cabrillo Festival Orchestra, Music X, Redshift, the Atlantic Coast Center Band Director’s Association, and the SCI National Conference. Dicke has received awards and recognition from the Fulbright Program, San Francisco Conservatory of Music, Meet the Composer Foundation, ASCAP, and BMI, among others. He was recently awarded two summer 2012 artist residencies: The Atlantic Center for the Arts in New Smyrna Beach, Florida, and Art342 in Fort Collins, Colorado.

In 2010, Dicke co-founded and directed Fast Forward Austin, an all day new music festival in Austin, TX. The festival pairs local and international cutting-edge artists in a “welcomingly relaxed venue...[that] taps into what is so great about the Austin vibe: a community of people who are artistically curious, non-doctrinaire, and unpretentious” (NewMusicBox).

Dicke holds degrees from the University of Michigan and the San Francisco Conservatory of Music. He is currently pursuing a doctoral degree at The University of Texas at Austin.

Permanent email: iandicke@gmail.com

This treatise was typed by the author.