

**“And Then There Was Light”: A Group of Compositions Inspired by the
Universe’s Creation, Its Present State, and Its Possible Fates.**

Mohammadreza Modarresi

A THESIS SUBMITTED TO
THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF ARTS

GRADUATE PROGRAM IN MUSIC
YORK UNIVERSITY
TORONTO, ONTARIO

April 2015

© Mohammadreza Modarresi, 2015

ABSTRACT

The work herein contained strives to express (vocally and musically) the creation of the cosmos; whilst adhering to the most prevalent artistic (philosophical and scientific) notions of the past, present, and future. Due to the complexity of the integral concepts, and my efforts to fashion the final product in a manner that would make it most relatable, the work has become a hybrid of the old and the new, the simple and the complex, and furthermore, macrocosm and microcosm.

DEDICATION

I dedicate this work to my dear brother Behrooz, and my beloved Lisa for their continuous support and dedication.

ACKNOWLEDGEMENTS

As it is often the case, to recount the name of every contributor to the final product of this effort would be impractical, if not impossible. The creation of “And Then There Was Light” was not only the culmination of my graduate education, but the fruits of many a scientist, physicist, musician (composer, conductor, performer, etc.), and philosophers’ efforts, were necessary to make it possible.

However, I wish to make note of those who have been influential and helpful. I had the privilege of instruction by, and the feedback of, Dr. Michael Coghlan and Dr. Lisette Canton throughout my graduate studies. Mr. Shahriar Haghighat-Jou was kind enough to contribute the lyrics (written by him and myself), used throughout the work. Last but not least, I wish to thank my dear parents and siblings for their continual support, and contributions of every kind, throughout my life.

Table of Contents

Abstract	ii
Dedication	iii
Acknowledgements	iv
 1. Scores	
Section I: “Before”	1
Section II: “And Then There Was Light”	2
Section III: “Cosmic Rays”	4
Section IV: Tonbak Section No. 1	5
Section V: “State Of Confusion”:	
a) “State Of Confusion Prelude”	6
b) “State Of Confusion”	8
Section VI: Tonbak Section No. 2	26
Section VII: “Deus Misereatur”	27
Section VIII: Tonbak Section No. 3	38
Section IX: “Future Unknown”	39
Section X: Tonbak Section No. 4	49
Section XI: “Destiny”	50
Section XII: Tonbak Section No. 5	58
Section XIII: “Microwaves’ Prelude” & “Microwaves”	59

2. Introduction	70
3. Thesis Statement.....	73
4. Compositions: the clarification of contents	
Section I: “Before”	75
Section II: “And Then There Was Light”.....	78
Section III: “Cosmic Rays”.....	82
Section IV: Tonbak Section No. 1.....	85
Section V: “State Of Confusion”.....	88
Section VI: Tonbak Section No. 2.....	95
Section VII: “Deus Misereatur”.....	96
Section VIII: Tonbak Section No. 3.....	101
Section IX: “Future Unknown”.....	102
Section X: Tonbak Section No. 4.....	111
Section XI: “Destiny”.....	112
Section XII: Tonbak Section No. 5.....	116
Section XIII: “Microwaves”.....	117
5. Conclusion	120
Bibliography	122
Discography	124
Appendices	126

Mohammadreza Modarresi

“And Then There Was Light”

Poem by: Shah H. Jou

Mohammadreza Modarresi

$\text{♩} = 100-120$

SOPRANO

fff And Then There was_ Light, *fff* By Cha-os'-s_ own might, *fff* There was or-der born of

ALTO

fff And Then There was_ Light, *fff* By Cha-os'-s_ own might, *fff* There was or-der born of

TENOR

fff And Then There was_ Light, *fff* By Cha-os'-s_ own might, *fff* There was or-der born of

BASS

fff And Then There was_ Light, *fff* By Cha-os'-s_ own might, *fff* There was or-der born of

Piano

fff *sf* *fff* *fff*

8

fff *ff* *dolce mf* *ff* *dolce mf* *fff*

strife, Thus all crea-tion, with life' Thus all crea-tion with life was rife.

fff *ff* *dolce* *dolce mf* *fff*

strife, Thus all crea-tion, with life' Thus all crea-tion with life was rife.

fff *ff* *dolce mf* *ff* *dolce mf* *fff*

strife Thus all crea-tion, with life' Thus all crea-tion with life was rife.

fff *ff* *dolce mf* *ff* *dolce mf* *fff*

strife, Thus all crea-tion, with life' Thus all crea-tion with life was rife..

fff *ff* *dolce mf* *ff* *dim. dolce* *mf* *cresc.....* *fff*

The musical score is for a vocal ensemble (Soprano, Alto, Tenor, Bass) and piano. It features a complex arrangement with multiple staves. The vocal parts have lyrics: "strife, Thus all crea-tion, with life' Thus all crea-tion with life was rife." The piano accompaniment includes dynamic markings such as *fff*, *ff*, *dolce*, *mf*, *dim. dolce*, *cresc.....*, and *fff*. The score is marked with a "3" in the top right corner, indicating a third ending or measure.

“Cosmic Rays”

Mohammadreza Modarresi

♩=121

mf sf f sf

5 mf sf f

8 cresc.....

11

14 f mf mf fff

Tonbak Section Number 1

(Section 4)

(After “Cosmic Rays” and before “State Of Confusion Prelude”)

Allegro

♩ = 121

Mohammadreza Modarresi

Tonbak

4

7

10

12

“State Of Confusion Prelude” begins (following the conductor's cue) shortly after the above Tonbak section is performed.

“State Of Confusion”

(Introduction/String Orchestra Prelude)

Mohammadreza Modarresi

 $\text{♩} = 100$

Violin I
(At least 2 1st Violins)

Violin II
(At least 2 2nd Violins)

Viola
(minimum 2 violas)

Violoncello
(Minimum 2 Cellos)

Contrabass
(Minimum 2 basses)

The first system of the musical score is for the introduction. It features five staves: Violin I, Violin II, Viola, Violoncello, and Contrabass. The key signature is two sharps (F# and C#), and the time signature is 4/4. The Violin I and II parts play a continuous eighth-note melody. The Viola part plays a similar eighth-note melody. The Violoncello and Contrabass parts play a half-note accompaniment. The system consists of two measures.

3

The second system of the musical score continues the introduction. It features the same five staves as the first system. The Violin I and II parts play a continuous eighth-note melody. The Viola part plays a similar eighth-note melody. The Violoncello and Contrabass parts play a half-note accompaniment. The system consists of three measures. The first measure is marked with a '3' above the staff, indicating a triplet. The second and third measures end with a double bar line and repeat dots.

6

11

*** The 'double-stops' are not meant to be performed on one instrument (even though they are possible, they have not been written to be played on a single instrument). Each melodic line should be performed by one of the strings, and all together, the strings make up a triad (chord).

“State Of Confusion”

Mohammadreza Modarresi & Shah H. Jou

Mohammadreza Modarresi

♩ = 100

Lead Vocals(Baritone)

Lead Vocal (Soprano)

Lead Guitar

Rhythm Guitar

Synth Pad 4 (Choir)

Pad 3 (Polysynth)

FX 4 (Atmosphere)

Bass Guitar

Drum Set

The musical score is for the piece "State Of Confusion" by Mohammadreza Modarresi & Shah H. Jou. It is in 4/4 time with a tempo of 100 beats per minute. The key signature has two sharps (F# and C#). The score includes parts for Lead Vocals (Baritone and Soprano), Lead Guitar, Rhythm Guitar, Synth Pad 4 (Choir), Pad 3 (Polysynth), FX 4 (Atmosphere), Bass Guitar, and Drum Set. The vocal parts are mostly silent in this section. The guitar parts feature a melodic line with eighth and sixteenth notes. The synth pads and FX provide a sustained harmonic background. The bass guitar plays a steady eighth-note pattern, and the drum set provides a consistent rhythmic foundation.

3

Bar.

Ld. Vox.

Lead Vocal (Soprano)

Lead

Rhythm

Pad 4

Pad 3

FX 4

Bass

Dr.

In a state_ of con fu____ sion,____ The world____ lives in il - lu - sion, Time..._____

In a state_ of con fu____ sion,____ The world____ lives in il - lu - sion, Time..._____

6

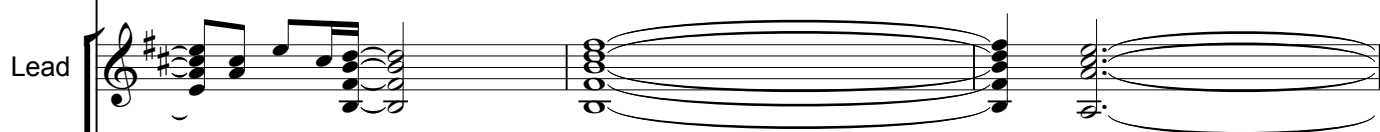


will bring a day, In a state of con fu sion, The world lives in il -

Ld. Vox.



will bring a day, In a state of con fu sion, The world lives in il -



9

Bar.

lu - sion, Time... will bring a day, When the world will

Ld. Vox.

lu - sion, Time... will bring a day, When the world will

Lead

Rhythm

Pad 4

Pad 3

FX 4

Bass

Dr.

12

Ld. Vox.

Bar.

turn to clay, _____

turn to clay, _____

Lead

cresc...

Rhythm

cresc...

Pad 4

Pad 3

FX 4

Bass

Dr.

The musical score is written for page 12 of a piece. It features eight staves, each representing a different instrument or vocal part. The key signature is one sharp (F#), and the time signature is 4/4. The staves are labeled on the left: Bar. (Bass clef), Ld. Vox. (Treble clef), Lead (Treble clef), Rhythm (Treble clef), Pad 4 (Treble clef), Pad 3 (Treble clef), FX 4 (Treble clef), Bass (Bass clef), and Dr. (Drum staff). The Bar. and Ld. Vox. parts have lyrics 'turn to clay, _____'. The Lead and Rhythm parts have a 'cresc...' marking. The Dr. part shows a consistent drum pattern throughout the page.

15

Bar.

Ld. Vox.

Na - ture__ will claim its due, by the e____ vil, in

Lead

Rhythm

Pad 4

Pad 3

FX 4

Bass

Dr.

18

Ld. Vox.

Bar.

I and you, _____ , We have to-xi-fied__ eve-ry__ thing

Lead

Rhythm

Pad 4

Pad 3

FX 4

Bass

Dr.

The musical score is written for measures 18 through 21. The key signature is D major, indicated by two sharps (F# and C#). The Baritone (Bar.) and Lead parts are in bass and treble clefs, respectively, and both have the lyrics: "I and you, _____ , We have to-xi-fied__ eve-ry__ thing". The Rhythm part is in treble clef and features a complex rhythmic pattern with many beamed notes. The Pad 4, Pad 3, and FX 4 parts are in treble clef and feature sustained notes and complex rhythmic patterns. The Bass part is in bass clef and features a steady eighth-note pattern. The Drums (Dr.) part is in bass clef and features a consistent drum pattern.

21

Ld. Vox.

Bar.

we have been gi - ven, and

Lead

Rhythm

Pad 4

Pad 3

FX 4

Bass

Dr.

24

Ld. Vox.

Bar.

we shall not_ be for_ giv-en,

Lead

Rhythm

Pad 4

Pad 3

FX 4

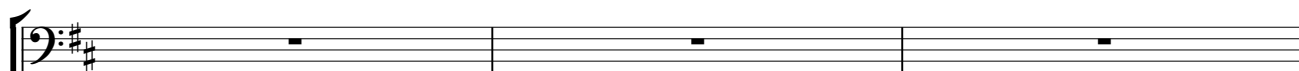
Bass

Dr.

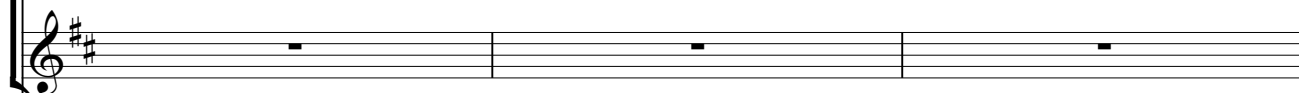
The musical score is written for measures 24, 25, and 26. The key signature is one sharp (F#) and the time signature is 4/4. The vocal parts (Bar. and Ld. Vox.) have lyrics: "we shall not_ be for_ giv-en,". The instrumental parts include Lead, Rhythm, Pad 4, Pad 3, FX 4, Bass, and Drums. Measures 24 and 25 show the vocal lines and the instrumental accompaniment. Measure 26 shows the continuation of the instrumental parts, with Pad 3 and FX 4 entering with a melodic line.

27

Bar.



Ld. Vox.



Lead



Rhythm



Pad 4



Pad 3



FX 4



Bass



Dr.



30

Ld. Vox.

Bar.

Lead

Rhythm

Pad 4

Pad 3

FX 4

Bass

Dr.

This musical score page contains measures 30, 31, and 32. The score is written for eight parts: Baritone (Bar.), Lead, Rhythm, Pad 4, Pad 3, FX 4, Bass, and Drums (Dr.). The key signature is two sharps (F# and C#), and the time signature is 4/4. Measures 30 and 31 are marked with a repeat sign. The Baritone and Lead parts are mostly silent, indicated by whole rests. The Rhythm, Pad 4, Pad 3, FX 4, and Bass parts feature complex, syncopated patterns with many beamed eighth and sixteenth notes. The Drums part features a consistent pattern of eighth and sixteenth notes. The score is written on a grand staff with a brace on the left side of the first four staves (Lead, Rhythm, Pad 4, Pad 3) and a brace on the left side of the last four staves (FX 4, Bass, Dr.).

33

Bar.

Bar. and Ld. Vox. staves. Both staves are empty, indicating no music is written for these parts in this section.

Lead

Lead staff. Treble clef, key signature of two sharps (F# and C#). The staff contains a melodic line with eighth and sixteenth notes, including a trill (tr) and a whammy bar effect.

Rhythm

Rhythm staff. Treble clef, key signature of two sharps (F# and C#). The staff contains a rhythmic line with eighth and sixteenth notes, including a trill (tr) and a whammy bar effect.

Pad 4

Pad 4 staff. Treble clef, key signature of two sharps (F# and C#). The staff contains a pad line with eighth and sixteenth notes, including a trill (tr) and a whammy bar effect.

Pad 3

Pad 3 staff. Treble clef, key signature of two sharps (F# and C#). The staff contains a pad line with eighth and sixteenth notes, including a trill (tr) and a whammy bar effect.

FX 4

FX 4 staff. Treble clef, key signature of two sharps (F# and C#). The staff contains a FX line with eighth and sixteenth notes, including a trill (tr) and a whammy bar effect.

Bass

Bass staff. Bass clef, key signature of two sharps (F# and C#). The staff contains a bass line with eighth and sixteenth notes, including a trill (tr) and a whammy bar effect.

Dr.

Dr. staff. Drum staff. The staff contains a drum line with eighth and sixteenth notes, including a trill (tr) and a whammy bar effect.

appassionato

36

f

Bar.

We've put all _____ life _____ un-der the knife, _____ To bombs

Ld. Vox.

*appassionato**f*

We've put all _____ life _____ un-der the knife, _____ To bombs

Lead

mp

Rhythm

mp

Pad 4

Pad 3

FX 4

Bass

Dr.

39

Bar. we('ll) give f - light, ___ All we've built ___ we('ll) des-troy in a night,

Ld. Vox. we('ll) give f - light, ___ All we've built we('ll) des-troy in a night,

Lead

Rhythm

Pad 4

Pad 3

FX 4

Bass

Dr.

42

Bar. *sf* *sf sf sf*
Why can't we wake, and see the sight?

Ld. Vox.

sf *sf sf sf*
Why can't we wake, and see the sight?

Lead

Rhythm

Pad 4

Pad 3

FX 4

Bass

Dr.

45

*cresc.**sf sf sf sf*

Bar.

No more he - roes__

to stand

and fight.

Ld. Vox.

*cresc.**sf sf sf sf*

No more he - roes__

to stand

and fight.

Lead

Rhythm

Pad 4

Pad 3

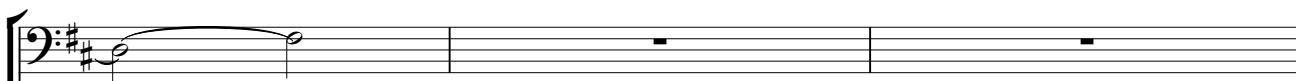
FX 4

Bass

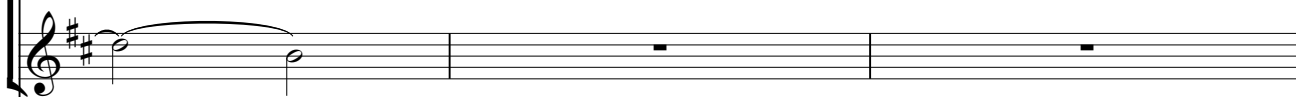
Dr.

48

Bar.



Ld. Vox.



Lead



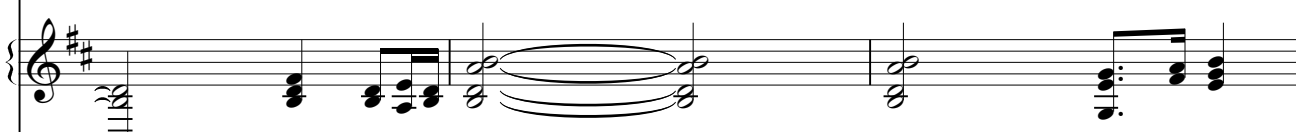
Rhythm



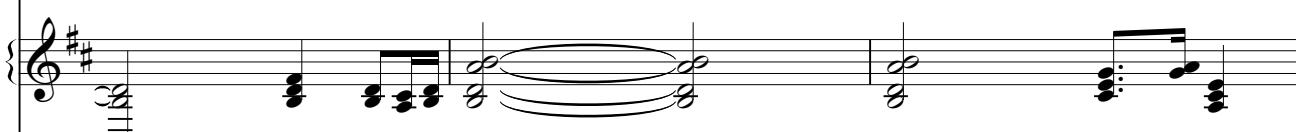
Pad 4



Pad 3



FX 4



Bass



Dr.



51

Bar.

in a state of con - f - u sion.

Ld. Vox.

in a state of con - f - u sion.

Lead

Rhythm

Pad 4

Pad 3

FX 4

Bass

Dr.

Tonbak section No. 2 (Section 6) (After “State Of Confusion” and before “Deus Misereatur”)

♩ = 100

Mohammadreza Modarresi



“Deus Misereatur” begins shortly after the above Tonbak section has been performed (following the conductor's cue).

“Deus Misereatur”

Lyrics: Shah H. Jou

Mohammadreza Modarresi

♩ = 100

The musical score is for the piece "Deus Misereatur" and consists of nine staves. The key signature is D major (two sharps) and the time signature is 4/4. The tempo is marked as ♩ = 100. The vocal soloists (Soprano, Alto, Tenor, and Bass) are in the first system, while the instrumental ensemble (Lead Guitar, Rhythm Guitar, Synth Pad, Bass Guitar, and Drum Set) is in the second system. The Soprano and Alto parts have the lyrics "Aaa" written below them. The instrumental ensemble includes a Lead Guitar, Rhythm Guitar, Synth Pad (New Age), Bass Guitar, and Drum Set. The score is written for a full band and vocal soloists.

Baritone Solo

Soprano

Alto

Tenor

Bass

Lead Guitar

Rhythm Guitar

Synth Pad (New Age)

Bass Guitar

Drum Set

Aaa

Aaa

4

Bar. Solo

S.

Aaa

A.

Aaa

T.

B.

Lead

Rhythm

Pad 1

Bass

Dr.

mp.....

mp.....

7

Bar. Solo

mf

A mo-ment of lost faith, a slip of judge - ment,

S.

f

Aaa

A.

f

Aaa

T.

B.

Lead

p *pp* *pp*

Rhythm

p *pp* *pp*

Pad 1

mp *mp*

Bass

Dr.

mp.....

The musical score is arranged in a multi-staff format. The vocal parts (Bar. Solo, S., A., T., B.) are at the top, with lyrics underneath. The instrumental parts (Lead, Rhythm, Pad 1, Bass, Dr.) are at the bottom. The score includes various musical notations such as notes, rests, and dynamic markings. The lyrics are: "A mo-ment of lost faith, a slip of judge - ment,". The dynamics range from *pp* (pianissimo) to *f* (forte).

10 *mf*

Bar. Solo

a few drops of poi-son, lead me to a sea of pain,
cresc.....

S.

A.

T.

B.

Lead

Rhythm

Pad 1

Bass

Dr.

14 *f*

Bar. Solo

now am-ong so - rrows' f - ri - gid waves, lost and with no aid I burn,

S.

A.

T. *f*

now am-ong so - rrows' f - ri - gid waves, lost and with no aid I burn,

B. *f*

now am-ong so - rrows' f - ri - gid waves lost and with no aid I burn,

Lead

Rhythm

Pad 1 *mf*

Bass

Dr.

17

Bar. Solo

But to turn these a - ccu____ sing eyes in - ward , I have no choice____

dolce

S.

A.

T.

But to turn these a - ccu____ sing eyes in - ward , I have no choice____

dolce

B.

But to turn these a - ccu____ sing eyes in - ward , I have no choice____

dolce

Lead

Rhythm

Pad 1

Bass

Dr.

21

Bar. Solo

no - where else to turn, for I am the ma - ker of

S.

A.

T.

B.

no - where else to turn, for I am the ma - ker of

Lead

Rhythm

Pad 1

Bass

Dr.

mf

mf

mf

25

Bar. Solo

my own_ fate, _____ and to the guil - ty

S.

A.

T.

my own_ fate, _____ Ouu - - - - and to the guil - ty

dim.....

B.

my own_ fate, _____ Ouu - - - - and to the guil - ty

dim.....

Lead

Rhythm

Pad 1

Bass

Dr.

29

Bar. Solo

no one wish(es) to re-late;

S.

A.

T.

no one wish(es) to re-late;

B.

no one wish(es) to re-late;

Lead

mf
cresc.....
f

Rhythm

mf
cresc.....
f

Pad 1

mf
cresc.....
f

Bass

mf
cresc.....
f

Dr.

Detailed description: This is a musical score for a page numbered 35, starting at measure 29. The score is written for a vocal ensemble and a band. The vocal parts are Baritone Solo (Bar. Solo), Soprano (S.), Alto (A.), Tenor (T.), and Bass (B.). The instrumental parts are Lead, Rhythm, Pad 1, Bass, and Drums (Dr.). The key signature is two sharps (F# and C#). The vocal parts have the lyrics 'no one wish(es) to re-late;'. The instrumental parts feature a crescendo from mezzo-forte (mf) to forte (f). The drums play a steady eighth-note pattern.

34

Bar. Solo

thus my one__ re - course__ is to con - fess my sins, _

S.

thus my one__ re - course__ is to con - fess my sins, _

A.

thus my one__ re - course__ is to con - fess my sins, _

T.

B.

Lead

mf

Rhythm

mf

Pad 1

Bass

Dr.

38

Bar. Solo

look hea-ven_ward, though un-sure, *tr* and pray De - us mi-se-re-a -tur.

S.

look hea-ven_ward, though un-sure, and pray De - us mi-se-re-a - tur.

A.

look hea-ven_ward, though un-sure, and pray De - us mi-se-re-a -tur.

T.

B.

Lead

Rhythm

Pad 1

Bass

Dr.

Tonbak section No. 3 (Section 8)

(After “Deus Misereatur” and before “Future Unknown”)

♩ = 100

Mohammadreza Modarresi

Tonbak

The image shows three staves of musical notation. The first staff is for the Tonbak, starting with a 4/4 time signature and a key signature of one sharp (F#). It contains a series of eighth and sixteenth notes, with some triplets and a final measure containing a triplet of eighth notes. The second staff is for Percussion 5, starting with a 5-measure rest, followed by a series of eighth notes and a triplet of eighth notes. The third staff is for Percussion 7, starting with a 7-measure rest, followed by a series of eighth notes and a triplet of eighth notes.

Perc. 5

Perc. 7

“Future Unknown” begins after the above Tonbak section has been performed, following the conductor's cue.

“Future Unknown”

Lyrics by: Mohammadreza Modarresi & Shah H. Jou

Mohammadreza Modarresi

$\text{♩} = 70-72$

(Adagio)

Baritone

Electric Guitar

Clean Tone (No distortion)

Synthesizer

Bass Guitar

4

Baritone

Guitar

Synth

Bass

7

Haun - ted by the memo - ries of a life time, des - tined to a fu - ture Un -

(8^{vb}) You may omit the 'ottava bassa' (at the octave below)
sign and sing this phrase where it is written if your voice permits

known, I li - sten to your heart - beats to the rhy - thm and tone, -
cresc.....

14

Haun-ted by the me-mo - ries of a life-time, des-tined to a fu__ture un - known,

This musical system covers measures 14 through 17. The vocal line (bass clef) features a melodic line with eighth and sixteenth notes, including accents and a fermata on the final note of measure 17. The piano accompaniment consists of four staves: two treble staves and two bass staves. The treble staves play chords, while the bass staves play a rhythmic pattern of eighth notes with accents.

18

Haun-ted by the memo - ries of a life-time, des-tined to a fu__ture so un - known,

This musical system covers measures 18 through 21. The vocal line (bass clef) continues the melodic line from the previous system, with similar rhythmic values and accents. The piano accompaniment remains consistent with the previous system, featuring chords in the treble and a rhythmic pattern in the bass.

22 *(8^{vb})*..... Lamentoso (sing mournfully) 42

I li-sten to your he-art beats— Ho-ping p-re-sent— would last, — though it's bi-tter swe-

26

et at best, —

Caught at the va-lley of this time wave, while my

Use Distortion Pedal here (for the chorus section)

This musical system contains measures 30 through 43. It features a bass line and two treble staves. The bass line begins with a whole rest in measure 30, followed by a series of eighth and sixteenth notes. The first treble staff contains a melodic line with many slurs and a final chord in measure 43. The second treble staff contains a complex, dense texture of chords and notes, with a specific instruction 'Use Distortion Pedal here (for the chorus section)' pointing to a section starting in measure 36. The system concludes with a final chord in measure 43.

hopes lay at the crest, the past, — and fu-ture they co -llide,

This musical system contains measures 33 through 43. It features a bass line and two treble staves. The bass line starts with a half note in measure 33, followed by eighth and sixteenth notes. The first treble staff contains a series of chords and notes, with a long, sustained note in measure 43. The second treble staff contains a complex, dense texture of chords and notes, with a long, sustained note in measure 43. The system concludes with a final chord in measure 43.

36

with me caught in between at rest,

39

Haun-tered by the me-mo - ries of a life time, des-tined to a fu__ture un - known,

Clean tone (No Distortion)

Haun - ted by the me - mo - ries of a life time, des - tined to a fu - ture so un -
 (Haun - ted by the night - mares of the night time,)

Lamentoso (sing mournfully)

known, I li - sten to your he - art beats Ho - ping p - re - sent would last,

Lamentoso

50

— though it's bi-tter swe - et at best, —

54

Caught at the va-lley of this time wave, while my hopes lay at the crest, the past,

58

— and fu-ture they co-llide, — with me — caught in between at rest,

ritardando.....

61

— with me — caught in between at rest, — with me —

rit....

64

caught in bet-ween at rest.

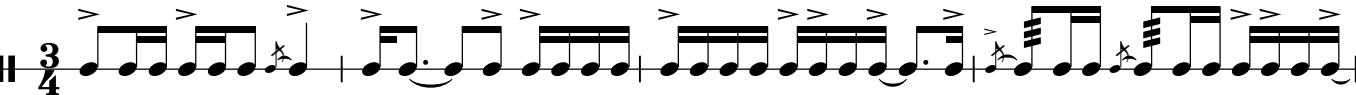
The musical score is written for a vocal line and a piano accompaniment. The vocal line is in the bass clef with a key signature of one sharp (F#). The piano accompaniment consists of three staves: two in the treble clef and one in the bass clef, all with a key signature of one sharp. The vocal line begins with a half note G4, followed by a quarter rest, then a quarter note A4, and a half note B4. The piano accompaniment features a complex texture with many beamed sixteenth notes and chords. The vocal line ends with a half note G4, followed by a quarter rest, and then a half note A4. The piano accompaniment continues with a similar texture of beamed sixteenth notes and chords.

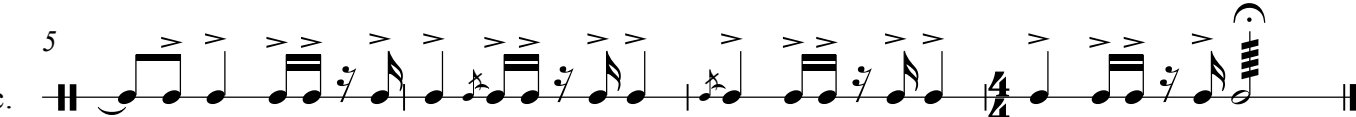
Tonbak section No. 4 (Section 10)

(After “Future Unknown”, and before “Destiny”)

Mohammadreza Modarresi

♩=85-88

Tonbak 

Perc. 

“Destiny” begins right after the above rhythm section is performed (following the conductor's/artistic director's cue).

Mohammadreza Modarresi

The musical score is arranged in four staves. The Baritone part is in the bass clef with a key signature of one sharp (F#) and a 4/4 time signature. The Electric Guitar, Synthesizer, and Piano parts are in the treble clef with the same key signature and time signature. The Electric Guitar and Piano parts feature a melodic line with eighth and sixteenth notes, often beamed together, and are marked with accents and a 'Ped.' (pedal) instruction. The Synthesizer part provides a harmonic foundation with sustained chords and a melodic line that enters later in the piece. The Piano part includes a bass line with sustained chords and a melodic line that mirrors the guitar. The score includes dynamic markings such as 'sf' (sforzando) and 'cresc.....' (crescendo).

5

f

How can I - know my des- ti-ny, —

mp *p*

sf *sf* *f*

sf *sf*

Ped.

8 *f*

How can I___ live the way you live,___ How can I___ do___ what you want

mp *p* *f* *f* *sf sf* *Red.* *cresc.....*

11 *sf* *mf*

___ me___ to do,___ How can I___ feel,___ the way you feel___

pp *Red.* *Red.* *Red.*

14

Measures 14-16 of a musical score. The score is written for four staves: a single bass staff at the top, and three staves (treble, piano, and bass) grouped together below. The key signature is one sharp (F#). Measure 14 begins with a treble clef and a key signature change to two sharps (F# and C#). The piano part starts with a forte (*f*) dynamic and a crescendo (*cresc.*) marking. The piano part features a complex, fast-moving melody with many slurs and accents. The bass part of the piano has a more rhythmic, dotted pattern. Measure 15 contains a repeat sign. Measure 16 continues the melodic development in the piano part.

17

Measures 17-19 of a musical score, continuing from the previous system. The notation remains consistent with four staves (bass, treble, piano, and bass). The piano part continues its intricate melodic line with numerous slurs and accents. The bass part of the piano maintains its rhythmic pattern. Measure 18 includes a repeat sign. Measure 19 concludes the section with a final melodic flourish in the piano part.

20

(Use Whammy bar
& and let it fade away)

Red.

This musical system contains measures 18 through 21. It features a guitar part in treble clef with a key signature of one sharp (F#) and a piano accompaniment in grand staff (treble and bass clefs). The guitar part includes a whammy bar instruction: "(Use Whammy bar & and let it fade away)". The piano part has a melodic line in the right hand and a supporting bass line in the left hand. The system concludes with a "Red." marking.

22

f cresc.....

Si-tting in the cor - ner, loo-king for a change, my rest-less heart's,

f cresc.....

This musical system contains measures 22 through 25. It features a guitar part in treble clef with a key signature of one sharp (F#) and a piano accompaniment in grand staff. The guitar part includes a dynamic marking: "*f cresc.....*". The piano part has a melodic line in the right hand and a supporting bass line in the left hand. The system concludes with a "Red." marking.

— bea-ting so s-trange, now I'm all a-lone,

This musical system covers measures 25 to 54. It features a vocal line in bass clef with lyrics, and three piano accompaniment staves (treble, right-hand, and left-hand). The key signature is one sharp (F#). The vocal melody consists of eighth and quarter notes with accents. The piano accompaniment includes chords, arpeggiated figures, and sustained notes. Measure 54 ends with a double bar line.

loo-king in the mi-rror, and I see no-one's face, no-one's-

This musical system covers measures 28 to 54. It features a vocal line in bass clef with lyrics, and three piano accompaniment staves (treble, right-hand, and left-hand). The key signature is one sharp (F#). The vocal melody continues with eighth and quarter notes, some with accents. The piano accompaniment includes chords, arpeggiated figures, and sustained notes. Measure 54 ends with a double bar line.

31

but my own, how can I _____ spend a-no-ther night with you?

This musical system covers measures 31 to 33. It features a vocal line in the bass clef, a piano accompaniment in the right hand (treble clef), and a piano accompaniment in the left hand (bass clef). The key signature has one sharp (F#). The vocal line includes lyrics: "but my own, how can I _____ spend a-no-ther night with you?". The piano accompaniment consists of chords and arpeggiated figures. Measure 31 ends with a repeat sign. Measures 32 and 33 continue the accompaniment.

34

Oh no I can't_ get rid of pain, It's all _____

This musical system covers measures 34 to 37. It features a vocal line in the bass clef, a piano accompaniment in the right hand (treble clef), and a piano accompaniment in the left hand (bass clef). The key signature has one sharp (F#). The vocal line includes lyrics: "Oh no I can't_ get rid of pain, It's all _____". The piano accompaniment consists of chords and arpeggiated figures. Measure 34 ends with a repeat sign. Measures 35, 36, and 37 continue the accompaniment.

38

— all — so in — vein, — It's all —

This musical system covers measures 38 to 40. It features a vocal line in the bass clef with lyrics, a piano accompaniment in the treble clef with chords, and a grand piano section with a treble and bass staff. The key signature has one sharp (F#). Measure 38 contains the lyrics 'all so in vein,'. Measure 39 contains 'It's all'. Measure 40 shows the vocal line continuing with a long note, while the piano accompaniment has a long rest.

41

all — so in — vein, —

This musical system covers measures 41 to 42. It continues the vocal line in the bass clef with lyrics, the piano accompaniment in the treble clef, and the grand piano section. The key signature remains one sharp (F#). Measure 41 contains the lyrics 'all so in vein,'. Measure 42 shows the vocal line continuing with a long note, while the piano accompaniment has a long rest.

43

It's all _____ all _____ so in _____ vein _____

The musical score is written for voice and piano. The voice part is in the top staff, with lyrics underneath. The piano accompaniment consists of three staves: a grand staff (treble and bass clef) and a separate treble staff. The key signature is one sharp (F#). The time signature is 4/4. The score includes various musical notations such as notes, rests, slurs, and dynamic markings.

Tonbak section No. 5 (Section 12)

(The second last movement, before “Microwaves”)

♩ = 130-138

Mohammadreza Modarresi

Tonbak

5

7

“Microwaves” begins after the above Tonbak section has been performed.

Though this rhythm section suggests a range for the tempo of the next movement (“Microwaves”), the final decision for choosing a satisfactory tempo is up to the conductor/performance director.

“Microwaves' Prelude” & “Microwaves”

Allegro
♩ = 133-138

Mohammadreza Modarresi

Piccolo

Flute 1.2.3

Alto Flute

Oboe 1.2.3.4

Cor Anglais 1.2

Clarinet in E♭

Clarinet in D

Clarinet in B♭ 1.2.3

Clarinet in A 1.2.3

Bassoon 1.2.3.4

Contrabassoon 1.2

Horn in F 1-8

Trumpet in D

Trumpet in C 1.2.3.4

Bass Trumpet in E♭

Trombone 1.2.3

Tenor Tuba in B♭ 1.2

Bass Tuba

Piccolo Timpani

Timpani 1.2

Timpani 3.4

Drums

Tam-tam

Triangle

Tambourine

Guiró

Antique Cymbals

Harp

Electric Guitar

Electric Piano

Violin I

Violin II

Viola

Violoncello

Double Bass

Allegro
♩ = 133-138

mf

f

dim. mf

f

dim.

dolce

[illegible]

19

Picc. 

Fl. 

A. Fl. 

Ob. 

C. A. 

E♭ Cl. 

D Cl. 

Cl. 

Bsn. 

Cbsn. 

Hr. 

D Tpt. 

C Tpt. 

Bass Tpt. 

Tbn. 

Tba. 

Bass 

Timp. 

Timp. 

Drum Set 

B. D. 

T.-L. 

Tri. 

Tamb. 

Gro. 

A. Cym. 

Hp. 

E. Gtr. 

E. Piano 

Vln. I 

Vln. II 

Vla. 

Vc. 

Db. 

Natural Harmonics
ad libitum

Natural Harmonics
ad lib

Ritardando.....

a tempo

Play a bit slower, until "Microwaves" begins
q=110

mp

q=110

[illegible]

This image shows a page from a musical score, likely for a symphony or concert piece. The score is written for a large ensemble, including various woodwinds, brass instruments, percussion, strings, and piano. The notation is complex, featuring multiple staves for each instrument group, with notes, rests, and dynamic markings such as *ff* (fortissimo) and *f* (forte). The score is organized into measures, with some measures containing multiple notes and others being rests. The overall style is classical, with a focus on intricate melodic and harmonic development. The page number "37" is visible at the top left corner.

44

Picc.

Fl.

A. Fl.

Ob.

C. A.

E♭ Cl.

D Cl.

Cl.

Cl.

Bsn.

Cbsn.

Hr.

D Tpt.

C Tpt.

Bass Tpt.

Tbn.

Tba.

Bass

Timp.

Timp.

Dr.

B. D.

T.-L.

Tri.

Tamb.

Gro.

A. Cym.

Hp.

E. Gtr.

E. Piano

Vln. I

Vln. II

Vla.

Vc.

Db.

51

Picc.

Fl.

A. Fl.

Ob.

C. A.

E♭ Cl.

D Cl.

Cl.

Cl.

Bsn.

Cbsn.

Hn.

D Tpt.

C Tpt.

Bass Tpt.

Tbn.

Tba.

Bass

Timp.

Timp.

Dr.

B. D.

T.-l.

Tri.

Tamb.

Gro.

A. Cym.

Hp.

E. Gtr.

E. Piano

Vln. I

Vln. II

Vla.

Vc.

Db.

Perform a slide whenever it is possible

f lacrimosa

56

Pic.

Fl.

A. Fl.

Ob.

C. A.

E♭ Cl.

D Cl.

Cl.

Cl.

Bsn.

Cbsn.

Hn.

D Tpt.

C Tpt.

Bass Tpt.

Tbn.

Tba.

Bass.

Timp.

Timp.

Dr.

B. D.

T-t.

Tri.

Tamb.

Gro.

A. Cym.

Hp.

E. Gtr.

E. Piano

Vln. I

Vln. II

Vla.

Vc.

Db.

Vibrato (Use the 'Whammy bar' second time around)

f grazioso

ff patetico

f grazioso

f grazioso

f grazioso

ff grazioso
Sul tasto

ff patetico

64

Picc. *f* *grazioso*

Fl. *f* *grazioso*

A. Fl. *f* *grazioso*

Ob. *f* *grazioso*

C. A. *f* *grazioso*

E♭ Cl. *f* *grazioso*

D Cl. *f* *grazioso*

Cl. *f* *grazioso*

Bsn. *f* *grazioso*

Cbsn. *f* *grazioso*

Hn. *f* *grazioso*

D Tpt. *f* *grazioso*

C Tpt. *f* *grazioso*

Bass Tpt. *f* *grazioso*

Tbn. *f* *grazioso*

Tba. *f* *grazioso*

Bass *f* *grazioso*

Timp. *f* *grazioso*

Timp. *f* *grazioso*

Dr. *f* *grazioso*

B. D. *f* *grazioso*

T.-t. *f* *grazioso*

Tri. *f* *grazioso*

Tamb. *f* *grazioso*

Gro. *f* *grazioso*

A. Cym. *f* *grazioso*

Hp. *f* *grazioso*

E. Gr. *f* *grazioso*

E. Piano *f* *grazioso*

Vln. I *f* *grazioso*

Vln. II *f* *grazioso*

Vla. *f* *grazioso*

Vc. *f* *grazioso*

Db. *f* *grazioso*

ff *grazioso* *Sul tasto* *ff* *patetico*

Repeated Whammy bar dip

74

Picc. - - - - -

Fl. - - - - -

A. Fl. - - - - -

Ob. - - - - -

C. A. - - - - -

E♭ Cl. - - - - -

D Cl. - - - - -

Cl. - - - - -

Bsn. - - - - -

Cbsn. - - - - -

Hn. *dim....*

D Tpt. *dim....*

C Tpt. *dim....*

Bass Tpt. - - - - -

Tbn. - - - - -

Tba. *dim....*

Bass *dim....*

Timp. - - - - -

Timp. - - - - -

Dr. *dim....*

B. D. - - - - -

T.-t. - - - - -

Tri. - - - - -

Tamb. - - - - -

Gro. - - - - -

A. Cym. - - - - -

Hp. - - - - -

E. Gtr. *dim....*

E. Piano *dim....*

Vln. I *dim....*

Vln. II *dim....*

Vla. *dim....*

Vc. *dim....*

Db. *dim....*

Wahmy bar dip & vibrato

79

Picc. - - - - -

Fl. - - - - -

A. Fl. - - - - -

Ob. - - - - -

C. A. - - - - -

E♭ Cl. - - - - -

D Cl. - - - - -

Cl. - - - - -

Cl. - - - - -

Bsn. - - - - -

Cbsn. - - - - -

Hr. - - - - -

D Tpt. - - - - -

C Tpt. - - - - -

Bass Tpt. - - - - -

Tbn. - - - - -

Tba. - - - - -

Bass - - - - -

Timp. - - - - -

Timp. - - - - -

Dr. - - - - -

B. D. - - - - -

T.-t. - - - - -

Tri. - - - - -

Tamb. - - - - -

Gro. - - - - -

A. Cym. - - - - -

Hp. - - - - -

E. Gtr. - - - - -

E. Piano - - - - -

Vln. I - - - - -

Vln. II - - - - -

Vla. - - - - -

Vc. - - - - -

Db. - - - - -

While dipping the Whammy bar,
let it fade out.

p

p

INTRODUCTION

Gravitation towards a specific subject for one's thesis/compositions could be the result of the composer's natural fascination, and/or opposition towards a topic (i.e. socio-political, scientific, artistic, moral, etc. beliefs). This composition titled: "And Then There Was Light", and the entire thesis, which is written as a complementary and explanatory part, are based on the idea of the birth of our universe, its present state, and its future (possible fates), which reflect what is known through modern scientific theories. Therefore for the most part, my interest in astronomy encouraged the idea of composing a piece inspired by the creation of the cosmos.

A necessary clarification concerns the existing relationship between this composition as a whole and the physical laws that govern the universe. Thus, out of necessity, I have gone to some length in order to ensure the readability of this paper.

Upon first discussing my proposal (with Dr. Canton), I found out that there had been previous attempts made by other composers, such as Joseph Haydn, who composed a work called "The Creation", which uses text from the Bible (Genesis), and is an indication of his interest in composing a piece representing the creation of the universe. This of course is not very surprising, since it has always been said of claims to true originality, that there is nothing truly new under the sun.

This work as a whole consists of a variety of timbral elements. For example the orchestra generates the sound medium for the pre-Big Bang occurrence ("Before"), whilst the choir ("And Then There Was Light": The first movement) produces the birth of the universe, through the employment of its more generic timbral effects; i.e. using Man's voice as an imitation of the sounds of nature.

I have chosen to use the word “section” instead of using the term “movement”, for this “brief” event within the piece (“Before”), since this section endeavors to delve into the implications of a period: timeless, mysterious, and undefined, preceding “Big Bang” (when and where time and space began); therefore, the reason behind the employment of the term “section” in describing this pre-singularity/singularity event.

The following pieces, however, are referred to as movements, not including the Tonbak (percussion) ‘intervals’, which connect certain progressive rock movements (songs) within the whole work. Each “progressive rock” movement consists of a specific lyrical or thematic idea. The Tonbak (percussive) sections in between (following “Cosmic Rays” which is composed for piano), add to the continuity of the whole work, by displaying the ever-changing, yet continuous nature of creation. The theoretical fates of the known universe are embodied within the whole composition.

Generally speaking, the lyrics in the work (written by myself and my friend Mr. Shah H. Jou, who is an artist), are meant to represent thoughts, feelings, and unique perceptions of a sentient being, living in any one of the three possible theoretical states of the universe (past, present, and future; each leading to its own particular fate, whether finite or infinite). These stages as they are, theoretical, can be equally possible as an outcome. Consequently I have composed the whole, wherein, the parts to be presented are dependent upon the choice of the conductor/performance director; thus, one or even two of the three universal fates represented can be omitted all together. Of course, the omission should include the Tonbak section that follows.

Thinking as a human (sentient being), could there be any other sort of thought processes, when empathic men and women witness the ills of the world's inhabitants? Yes, I suppose there could; however not if their experiences are similar to mine.

There are thematic reappearances of some of the more general concepts, throughout this work. The main example of this is how the composition culminates, in the last movement ("Microwaves" written for orchestra and electric guitar), through the revisitation of the major themes introduced throughout the production.

Aside from providing the score, in this work I have also presented most sections as an 'audio playback' using Sibelius program. Thereby, I have been obligated to use extra layering (for the playback purposes), which would have otherwise been unnecessary (with regards to performance of the given movement). This of course, does not apply to sections where this approach to instrumentation has been intentional.

THESIS STATEMENT

This piece was composed to include an expression of the continuous nature of creation. The wide range of instrumentation and expressive methods employed within this production, are indicative of my conception of the all-inclusive wholeness in creation. I have tried to keep the movements in the same order, as in that in which the different methods of mankind's expression have evolved. In other words man's first mode of expression was vocal, followed by the use of objects as instruments of sound production.

This is the sequence in which the composition progresses: a brief section called "Before" is followed by the sounding of the gong (when the note B natural is reached), which signifies man's first attempt at creating/imitating sounds that s/he heard in nature. The first movement, "And Then There Was Light" (a choral piece accompanied by a piano), follows the gong at the conductor's cue. Since voice has always been man's first instrument, I found choir to be the right choice for the first movement.

I have chosen "Cosmic Rays" (second movement) to follow the choir, since after the "Big Bang" there was a period of intense radiation which permeated the expansion of the matter, that is theorized to have been contained within the singularity.¹

¹ J. P. McEVOY, *A BRIEF HISTORY OF THE UNIVERSE* (Philadelphia: Running Press, 2010), 284, 291.

The third movement “State Of Confusion” is a progressive rock song (with an orchestral [String(s)] prelude). The movement is representative of the great chaotic confusion of the early universe, where “Super Giant” stars were born and died in unimaginable conflagrations; the remnants of which became the building blocks for our present universe.

The above-said is continued by another three lyrical Progressive Rock songs (“Deus Misereatur”, “Future Unknown”, and “Destiny”), which concur with the three theorized fates of the universe (“The ‘Big Rip’: infinite expansion of the universe, ‘Big Freeze’: reaching a static state, and ‘Big Crunch’: universe shrinking back into a singularity [which with the repeating of the cycle, becomes the theoretical basis for a fourth destiny of the universe known as ‘The Big Bounce’]). (Hawking 1988, 44)

Tonbak (a percussive Persian instrument), is utilized in between all the Progressive Rock songs, as a means of maintaining the continuity of the piece, which is a necessary outcome of the continuity of our universe. Also, these Tonbak segments represent the relatively empty expanses, as opposed to the stars and the galaxies which they are part of.

The final movement “Microwaves” (for orchestra and electric guitar) contains both new thematic materials, and also variations of some preceding themes. The composition’s general structure aims to revisit these thematic ideas in a varied manner. This is represented by the employment and development of different preceding themes introduced within the piece (aside from the newly introduced ones). Therefore it could be said that “Microwaves” (as the final movement) endeavors to represent the idea of a recurring, but varied cycle of creational possibilities for the universe.

Clarification of the work's contents:

I) "Before"

The body-proper of the work itself begins in a manner to represent the physical reaction that takes place before any forward progression; this is due to inertia: which stands for 'resistance to movement'. This is embodied as a backward motion before taking off.

The following are some of the reasons behind, and, the methods of expression, I have used throughout this section. The rhythmical divisions, lacking the equity that "bar-lines" represent, are synonymous with not having a time signature. Thus, "Before" displays the universe at a point, in which none of the physical rules of 'space' and 'time' applied, nor did reason or any logical facets. This is due to the section being a representation of a progressive phenomenon, which took place when time was not, and had no meaning, neither was there 'space' per-se. Therefore, this is a free passage which leads to the instant of the entire universe being born out of the singularity² (microcosm) that at the moment of 'Big Bang' begins birthing the universe (Macrocosm).

² Singularity: "A point in space-time at which the space-time curvature becomes infinite." (Hawking 1988, 186) Models describing an ever expanding universe which is supposed to have begun from a singularity (Hawking and Penrose) were first proposed by Edwin Hubble and later confirmed through further research done by Alexander Friedmann.

When the instrumentalists of the orchestra begin to perform “Before”, the conductor is only an observer, witnessing the event. The above mentioned ‘reaction before the action’ before the Big Bang, is represented musically through disconnecting the conductor from his/her role, during this section. This lack of the conductor’s touch (i.e. gestures, tempo, cueing, dynamics, etc.) is an indication of this chaotic state of affairs, before there was light, and the seeds of order were sown.

During this musical parody of pre-Big Bang section, each instrument (regardless of the ‘freely chosen’, starting note) works towards the common goal of achieving the note B (natural). So the conductor is guided by the orchestra instead; who as a whole, are reaching towards a unison (same note: these notes could have different frequencies/octaves), representing the ‘singularity’, coinciding with the sounding of the gong (*fortissimo*: very loud). The Tonbak (a type of percussion) accompanies the orchestra by playing a continuous roll using the glissando technique, leading to the sounding of the gong. This glissando (roll) does not follow a rhythmic structure; it is achieved by the Tonbak player’s fingers moving from the middle of the instrument (lower sounding section of the skin of the instrument), and shifting towards the edge (sharper sounding part of the instrument). The player repeats the said process until the mentioned unison is achieved. This creates a continuous and rotating effect, which replicates the rotation of the singularity, and concludes with the sounding of the gong.

This particular example of “Before” is one possible form of methodology (utilizing chromaticism: of the melody progressing semi-tonally) in composition, which ending in B natural (unison), displays the maturation of the singularity; after which the gong is sounded. Therefore, this approximately seven seconds long example of this section gives the impression of

traversing a circular progression. The singularity's spherical form (before it expanded in a bang) is implied through this progressive melodic passage.

II) First movement: “And Then There Was Light”

“And Then There Was Light”

Poem By: Shah H. Jou

And then there was light,

by chaos’s own might,

there was order,

born of strife,

thus all creation,

with life was rife.

It is through the infinite variety of possible combinations of matter, in every state, that the proper environ for life’s creation came into being. The universe as we know it has resulted from billions of years (theorized as being 13.7-13.8 billion years) of change, evolutionary and otherwise. This began from a very dense and spherical entity called a ‘singularity’; the explosion of which, known as the ‘Big Bang’, was the initial stage that has culminated into the present. The term ‘Big Bang’ is a model, or modern scientific belief system, describing the birth of the cosmos. (Hawking 1988, 50)

What follows is an in-depth musical analysis of “And Then There Was Light”. The ‘SATB’ choir (consisting of soprano, alto, tenor, and bass voices), begins performing this movement by singing the following: “And Then There Was Light”, “By Chaos’s own might”. Throughout this phrase, the term “Big Bang” is harmonically spelled, utilizing the following chord progression: Bb7, which is called I7 [which stands for the letter B]; Bb7 first inversion (I 6) [which stands for the letter “i”³]; G minor (vi) [the letter “g”]; A dim (vii o) [stands for the

letter “a”]; B dim (I o), which has the note B natural [stands for the letter “N”⁴ in the word “natural”], and finally another G minor (vi) chord [letter “g”].

The above is similar in terms of its methodology of spelling, to what Johann Sebastian Bach did (in many of his choral compositions), as a means to melodically spell and pronounce his own name.

In the first chord of the piece, one of the main notes of the Bb triad (it is really a Bb7 chord), the note F (natural) is written for the piano only; whilst the choir section’s harmony does not employ this note, which is one of the main notes of the Bb triad.

The twelve tones which exist naturally as the harmonic building blocks of Western music (i.e. the ‘harmonic series’ and foundations for musical acoustics), are embedded within the themes introduced throughout the music of the first movement (“And Then There Was Light”).

³ To represent the “i”, I have used the first letter of an inverted chord (called an inversion), as opposed to the rest, which utilize the actual musical notes (SOLFA Syllables) to express the letters in the spelling of ‘Big Bang’.

⁴ The letter “N” is represented by the first letter of the word ‘natural’, which points to the fact that the note B-natural was used at this point within the harmonic progression.

The presence of the complete array of semi-tones (twelve) displays the simultaneous presence of all the fundamental particles, which were the building blocks of matter in the universe.

The B natural note used in the fifth measure to represent the “n” in ‘Big Bang’ is used however unusually (in the key of Bb, which contains Bb instead of B natural in all its harmonic utilization) within this chord progression. This is a means to express the fact that at the beginning stages of the expansion of our universe all sub-atomic particles coexisted both equally and instantaneously. The reason the Bb note alone was not sufficient within the opening phrase was that the note Bb alone would not efficiently represent this duality and equal presence of the abovementioned ‘sub-atomic particles’ (i.e. ‘quarks’⁵ vs. ‘antiquarks’⁶) in the early universe. (Hawking 1988, 76)

The reoccurrence of the phrase fragment: “Thus all creation, with life”, is expressing the idea that since life on Earth has evolved in this present manner (in creating ‘sentience’), it is an indication of the propensity for similar occurrences elsewhere.

⁵ “Quark: A (charged) elementary particle that feels the strong force. Protons and neutrons are each composed of three quarks (page65).” (Hawking 1988, 186)

⁶ An antiquark is the ‘antiparticle’ of a quark (of same characteristics, though with opposite charge).

I have taken the liberty (so far as the aesthetics were not compromised) to alter certain notes (such as: Eb and E natural, D natural- Db), so as to complete the array of the twelve semitones I wished the piece to contain.

III) Second Movement: “Cosmic Rays”

The second movement “Cosmic Rays” is a solo piano piece in the key of G minor. This particular key signature is the relative minor key of Bb, which is the key signature belonging to the first movement “And Then There Was Light”; thus, the relation between the first and the second movements. The piece’s brief and abrupt nature points to the early stages in the creation of the universe; at which time the complete expanse of matter (what there was of it) was being created out of the present energy and radiation. (Hawking 1988, 41)

This movement is composed in duple meter (4/4), which is in divisions of two. The reason behind choosing this particular meter was that the nature of space at that point in time was uniform, in the sense that there was an equal amount of opposite energies. These energies were converted into the basic materials for creation of opposite sub-atomic particles (quarks and antiquarks, electrons and positrons, etc.). (Hawking 1988, 76)

The chosen meter has a symmetry which accords with the abovementioned uniformity at the period represented by this particular movement. Also, the melody is composed in the form of ‘call and response’, with each measure complimenting the one preceding it; which added onto its lively beat, is again reflective of that period of extreme cosmic radiation. (Hawking 1988, 76)

Also, the ‘minimalistic’ nature of this composition (with regards to its thematic content: both melodically, and rhythmically), points out to the simplistic nature of life and creation within the cosmos, and the idea that evolution, and life in general, ‘takes the path of least resistance’, and complex things in nature, are often the result of simple and most basic ingredients. One can view this movement as a composition mainly influenced by the ‘*avant garde*’ era of music,

during which minimalistic music was generated, and many pieces in this style appeared, by composers such as Terry Riley, Steve Reich, Philip Glass, etc.

Musically, “Cosmic Rays”⁷ begins with a G minor triad, from which the top voice begins its wavelike progression within the first measure; reflective of the wave-like behaviour of radiation which permeated the space at that point in time. (Sagan 1980, 246) This top melodic line (played by the pianist’s right hand) is accompanied with a bass melody (played by the left hand), which alternates between the main notes belonging to the key of G minor, and at some instances, notes belonging to the key of Eb (i.e. the second measure).

The note F#, which is considered the “leading tone” within the G minor scale, appears frequently within the composition. The appearance of this ‘leading tone’, assists the resolution of the melodic tension within the piece, and also aids the progression of the melodic content, by creating a cadence point towards the tonic (in this case the note G).

⁷ For more information regarding ‘cosmic rays’, please refer to the following book: J. P. McEVOY, *A BRIEF HISTORY OF THE UNIVERSE* (Philadelphia: Running Press, 2010), 284, 291.

Mid-point through the composition (measures 9-13), one can notice the development section of the subject matter (original motif), which at this point is looking for a resolution, back to the desired tonic. The reaffirmation of the tonic occurs during the ending line (measures 14-18), where the piece ends on a very loud incomplete G minor triad (three voices: G, D, and G; which together, make an incomplete G minor chord).

The gravitation towards the tonic (in this case the note G), is concurrent with the seeming propensity of the universe to create evermore substantial phenomena; from the original building blocks. This embodies the law of ‘conservation of energy’ (stating that matter or energy is never destroyed; only interchanged). (Hawking 1988, 184)

IV) Tonbak Section No. 1

This composition employs rhythmical sections which act as connective tissues between some of the movements. Tonbak is performed between all the progressive rock movements (songs), as a means of maintaining the continuity of the piece, which is a direct outcome of the continuity of our universe. Also, these segments represent the relatively empty expanses, as opposed to the stars and the galaxies. The silences as they are opposed to the beats, could be pointing to the ‘dark matter’ and ‘dark energy’ that fill the voids between visible light and matter. (Baumann et al. 2005, 9, 71, 73, 178)

The first two Tonbak sections of this work are written employing the format of ‘three-line’ staves, which have been used to notate rhythm traditionally (within Persian schools of music). However, there is a new approach to Tonbak notation (originated by Mr. Bahman Rajabi, from whom I had the honor of receiving some instructions), which only utilizes notation written over one-line staff (instead of three-line staff/staves). Since, the Sibelius notation program offered me only the three line format, I decided to notate the first two Tonbak sections in the traditional manner using three-lines, and in the latter segments, the more recent method by Mr. Bahman Rajabi (utilizing the one-line format, similar to sections written for non-musical percussion instruments within the Western orchestra).

In the three-line method, the notes which are written on the first line indicate the sound which is created by the performer’s hand hitting close to the center of the skin of the instrument (called ‘Tom’). Those notes written on the second line represent the middle section of the skin, and finally the ones on the last (third line of the staff), point to the sound created by the fingers of the hand hitting the extreme edge of the sound producing surface (which produces a much

sharper sound in comparison with the middle section of the skin of Tonbak). In all the Tonbak sections, details/signs regarding the Tonbak technique utilized by a Tonbak player have not been included in the scores, assuming the player is already familiar with his/her instrument, and will be able to perform the providing rhythm. However, the remaining Tonbak sections have been written based on the more recent method of notation (one-line staff), while as previously mentioned the particular techniques/signs common in Tonbak notation have not been included within the scores. Thus the performer has been given the right to choose freely between the techniques available, in order to perform these rhythm sections efficiently and based on his/her musical taste and interpretation of the work.

The first Tonbak section (with a 4/4 time signature) links the Second movement (“Cosmic Rays”) and the third (“State of Confusion”). The tempo provided, ranging from 108-121 beats per minute (moderato-allegro), is my personal choice, and thus can be altered according to the artistic interpretation of the conductor. This percussive segment utilizes different rhythmic patterns within each of its measures, with each measure having a value of four quarter notes length (4/4). Though the time signature remains constant, the majority of the given rhythmic patterns tend to differ, through the utilization of different note groupings and accents within each bar.

The employment of this particular percussive instrument, aside from its ‘bridging’ role, signifies the ever dynamic nature of the cosmos; also, there are vast expanses of empty space, between the galactic clusters.

The use of percussion embodies both of the preceding concepts, i.e. through the interplay between ‘sound’ and ‘silence’⁸ (stars/galaxies vs. void). The nature of the sound produced by this particular instrument is devoid of a specific pitch, which has been taken to coincide with the ‘sound’ representing a great variety of light sources (stars, galaxies, galaxy clusters, etc.). The remaining sections which are composed for Tonbak are similarly composed, and follow the same musical concepts.

⁸ The musical essence of ‘sound’ and ‘silence’ can be further delved into by reading: Christoph Cox and Daniel Warner, eds. *AUDIO CULTURE: READINGS IN MODERN MUSIC* (United States of America: The Continuum International Publishing Group Inc, 2010), 5-16.

V) Third Movement: “State Of Confusion”

a) “State of Confusion” Prelude

b) “State of Confusion” (Rock Composition)

“State Of Confusion”

Poem by: Reza Modarresi and Shah H. Jou

**In a state of confusion,
 the world lives in illusion,
 time will bring a day,
 when the world turns to clay;
 the nature will claim its due,
 by the evil in I and You,
 we’ve toxified everything we have been given,
 and we shall not be forgiven;
 we’ve put all life under the knife,
 to bombs we (will) give flight,
 all we’ve built we’ll destroy in a night,
 why can’t we wake, and see the sight?
 (Are there) no more heroes to stand (up) and fight?**

The following is the intellectual concepts upon which “State Of Confusion” was based:

Mankind exists in a world within which the most basic foundations of his beliefs, both as a creation and as an individual, are in constant strife. This arises, as mankind utilizes his/her interest, to lay out a path for him/her-self, whilst journeying through an environment seemingly totally dominated by chance, and happenstance. (Aurelius 1964, 9)

Religious, personal, and scientific doctrines, directed at mankind’s psyche in a constant stream, are ever pulling each person in an effort to exert their own systemization; and final end (regarding faith, and fate).

How could an average person defy all these forces brought to bear upon him? Each of the above systems is represented by forces, which control many a destiny, for some time, before losing their influence upon the affected population.

Most of the said populations have left their youth, and the majority of their adult lives, before they realize either “the truth” or their potential. Thus, ends humankind, fashioned from dust and ash of the stars, what he is born of, mired in, and goes back to. (Aurelius 1964, 11)

We keep on hearing how the world itself is an organism. Are not all organisms’ most basic trait expressed through self preservation? Thus, it is not a far cry to imagine Mother Earth taking revenge on her errant child. A child that continues to take all her blessings for granted, and worse yet, is destroying all her other children.

Mankind is destroying earthly creatures at an alarming rate; to the point that we are losing species every day. This we accomplish by affecting the very geography, atmosphere

conditions, and health of our oceans; down to local environmental issues of concentrated pollution; all this besides and beyond the wars and genocide on an international scale.

How shortsighted are we to destroy our own environs [the only one that can support our existence], and think that our actions will not come back to haunt us! (Aurelius 1964, 12)

Men communicate, communize, and enjoy the fruit of their co-operation. However, once faced with difficulties, the remedy, more often than not, leads to war and strife. Only through having a fundamental change of attitude towards other earthly creatures, respecting their rights and appreciating– most gratefully- every earthly blessing, can we begin to improve our situation. (Aurelius 1964, 12)

Of course, for people to move as one they need a uniting force, which many a time requires the existence of a leader willing to sacrifice his/her own hope, in giving others hope for a better future.

Description of the music, and its ‘physical relevance’

a) Prelude

“State of Confusion” begins with a string orchestra (quintet) prelude (in 4/4), in the key of B minor. It has a slightly rapid pulse, due to its utilization of consecutive combinations of sixteenth notes. The rapid rhythmic motif utilized, reflects the chaotic nature of this early epoch of the cosmic existence.

The string orchestra prelude acts as an introductory vehicle, to the lyrical part, which is performed in the progressive rock style. The fast pace of this orchestral prelude, defines the essential mood and rhythmic structure of the whole song. Thus, the movement presents two different styles of music (being divided into two sections, influenced by both classical and rock genres).

The dichotomy in my approach towards composition of this movement is a reflection of the duality of our universe; expressed through so many different phenomena of both animate and inanimate natures (i.e. day and night, cold and hot, monotheism and polytheism, Ying and Yang, and also classical and rock music).

As in all opposites, there is a point at which the distance from both extremes is the same; a middle ground, a compromise; that which we all strive for in terms of reaching equilibrium in our lives. I’ve tried to achieve a similar end, emotionally speaking, through the means of mixing, comparing, and superimposing different musical and creative ideas; not only within this particular movement, but also throughout the entire work. It is clear that without its counterpart, each single unit of the abovementioned pairs is not whole, with regards to its comprehensiveness.

To consider the subject aesthetically, counterpoint is a play between two phenomena, be they material or intellectual, that complement each other; in musical terms we can say that counterpoint is the science of controlling dissonance, between a ‘cantus firmus’ and its melodic counterpart.

The melodic movement is formed around an arpeggiated theme, which is repeated once, and continues through the sixth measure and ending in the beginning of the seventh. At the same time, the bass and cello parts perform elongated notes, which complement the arpeggiated string sections by adding a strong tonal direction to the harmonic structure of the melody.

One can feel a strong tendency towards the tonic within this orchestral section of the movement. This is achieved through cadential points which occur within certain measures (measures 8 and 9, 11 and 12, and the two concluding measures). This gravitation towards the tonic B (minor) in this particular ‘Strings’ section, provides a good foundation for the following progressive rock composition (also in B minor).

b) “State Of Confusion” (Rock Composition)

In this section, I decided to use commonly used musical instruments. The relatively extensive layering, with regards to instrumentation, aids in achieving an atmosphere of ‘fullness’; this along with the constantly changing rhythmic pattern of the lyrics, allows me to achieve a chaotic musical scene, reflecting ‘confusion’.

This seems like a suitable place to introduce the concept of ‘entropy’⁹. Although entropy represents the ever degrading state of any system, it does not represent ‘chaos’. Entropy is a contributor to chaos, ever present and regardless of external influence; it is an integral and eternal constituent of the creation.

The specific ‘post-Big Bang’ era under consideration at this juncture, and represented by this movement was a spasmodic epoch of motion and explosion; a giant nursery of ‘supergiant’ stars (such as: ‘red giants’, and ‘hypergiants’); forming through the re-accumulation of infinitesimal fractions, of its initial dispersed mass (of ‘The Singularity’). (Baumann et al. 2005, 132-133, 168, 179)

The self-dynamism of the era helped guide me to a ‘through-composed’ format of composition. Within this particular format, the body of the composition, containing different music (melodically and rhythmically) within each stanza, runs right through to the end. However in this case, there is an exception, wherein part of the first phrase (“In a state of confusion”) is repeated in the coda (‘outro’: the closing section of a composition).

⁹ “A precise statement of this idea is known as the second law of thermodynamics. It states that the entropy of an isolated system always increases, and that when two systems are joined together, the entropy of the combined system is greater than the sum of entropies of the individual systems.” (Hawking 1988, 102)

There is a recurrence of a slightly altered motif, used previously in the second movement (“Cosmic Rays”/first four measures), played by the lead and rhythm electric guitars (Measures 29-35), whose role is to act as a bridge within the song by providing a forward-like movement within the piece. This slightly altered motivic reemployment of an earlier theme provides a more thematic and connective constituent to the entire composition, with regards to its cohesion of main themes and their progression over the course of the composition (time). The theme/motif from “Cosmic Rays” also appears in other compositions within this work (i.e. returning, in their altered form/variation, within “Microwaves” and “Destiny”, and finally evolving into new melodic materials); once again, this embodies the continuity and the uniformity of creation, that exist along the short-lived and the multifaceted, as well as the ‘infinite’ and the ‘singular’.

VI) Tonbak Section No. 2

For discussions regarding this particular Tonbak section, please refer to the first Tonbak section for details involving the music written for the instrument.

VII) Fourth movement: “Deus Misereatur”

“Deus Misereatur”

Poem by: Shah H. Jou

A moment of lost faith,
a slip of judgment,
a few drops of poison,
lead me to a sea of pain;
now among sorrows' frigid waves,
lost and with no aid I burn,
but to turn these accusing eyes inward,
I have no choice, nowhere else to turn,
for I am the maker of my own fate,
and to the guilty no one wishes to relate;
thus my one recourse,
is to confess my sins,
look heavenward, though unsure,
and pray: Deus misereatur.

The following is the intellectual concepts upon which “Deus Misereatur” was based:

This movement endeavors to represent the ‘ever expanding universe’, which is considered to be one of the three theoretical fates of the cosmos. (Hawking 1988, 44)

Mankind’s life as a species, whether ruled by chance or providence (environs created by a higher power), yet with the power to choose, is mostly spent in turmoil. Although the power of choice may seem like an agent of order in an individual’s life, in most cases it has exactly the opposite effect. In truth, power of choice has ever acted as an agent of chaos; as one’s living circumstances change, fall farther away from the norm (i.e. one’s comfort zone), through agitation caused by choices erroneously made. The cause of the said error, may it be misconception, or miscomprehension, aids you or does not, according to the beliefs upon which the foundations of your character rest. To clarify, just as choices made to the best of our knowledge, and thus correctly, can lead to disastrous outcomes, so can erroneously made choices lead to beneficial ends. (Aurelius 1964, 24)

You can be absolutely certain of one fact: as your circumstances change, so does the nature of your relations with everyone whom you have ever been, either intimate friends, or barely acquainted with.

It is the timbre of fear in the face of tremendous exasperation, whilst one is confronted with an insurmountable and yet clear obstacle, the infernal nature of which makes one’s hope and resolve evaporate, that is the beginning of the end. For as fear grows, hope ever diminishes in men’s hearts; which is ever darkened as the positive aspects of one’s existence continue to disappear. (Nietzsche 1967, 60)

The final loneliness, when all hope is expended, defeat is imminent, and one is at the acme of despair, cannot be approached or even looked upon without external aid. And then God enters to soothe man faced with evil.

The preceding brings us to the point of convergence between lyrics, philosophy, art, and music; this feeling of loneliness, which does not seem so unnatural, when mankind is faced with the idea of infinity. The infinity of an ever expanding environ, filled with unknown forces. The mystery surrounding such phenomena allows great margin (actually nothing but, since there are no facts to go on, only theories) for flights of fancy. Of course as ever, our fears can be much graver than reality.

In looking to God for solace, one is looking to 'the infinite' force to sooth his/her feelings of inadequacy, in the face of infinite uncertainty, and thus the fear there from; which is another point of conjunction between this poem and this particular universal fate (the ever expanding universe).

Description of the music, and its material and intellectual relevance

“Deus Misereatur” (“May God have mercy”, in B minor), as a “rock” piece employing SATB choir, two electric guitars (lead and rhythm guitars), synthesizer/keyboards, bass guitar, drums, and a baritone voice (upon whose voice the melodic content of the song is based), has a comparatively leisurely tempo. It is the second ‘through-composed’ movement within the whole work.

The text’s sacred-like nature led me to choose musical notation (with the aforesaid choir accompaniment), that expresses, in a proper mode, this concept as I perceive and wish it to be presented.

The two guitars, with which the intro opens, double a melodic line which makes up the thematic/motivic outline for this movement. This motif is formed in the manner of ‘call and response’ in which one phrase responds to the previous one; with only one repetition (measures 1-4), and finally resolving within the last three bars (measures 5-7).

Since this piece was composed within a range associated with my voice (baritone), I decided to place this voice at the top of the score, followed with the back-up choir and the rest of the accompanying instruments.

The harmonic progression of this movement is based on the employment of these main chords: B minor, A, F# minor, G, and D; with a movement from F# minor towards the tonic (such as in bar 7 and other cadential instances within the piece).

Some melodic lines (instrumental layers) are displaced, with regards to their vocal counterpart, in an effort to use the echo-like effect as a means to complement the main voice;

while philosophically it expresses an understanding of an ever present alternative side to almost all (but the purest of) concepts/phenomena.

“Deus Misereatur” was composed in a manner to complement and reflect the text (by Shah H. Jou) musically. The ‘through-composed’ mannerism of the composition, and its dedication to enhance the text was in emulation of the Baroque period composers (a style of composition associated with Claudio Monteverdi, known as: ‘*stile moderno*’ or ‘*seconda pratica*’). (Schulenberg 2008, 40, 44-45) The ecclesiastical nature of the piece reaches back to The Middle Ages; although I have tried to modernize the instrumentation in this movement in pursuit of a more progressive mode.

As mentioned above, in this composition the lyrics dictate the composition, and the sacredness of the music is a reflection of a path to God and his mercy (both considered to be infinite; as is his vengeance), do so concur with the idea of an infinite universe. (Clegg 2003, 46) Therefore to achieve comprehension between the music and the particular fate which this movement strives to present (infinite expansion of the universe, known as the ‘Big Rip’), I have utilized the text (lyrics) as the driving force of this musical vehicle. (Hawking 1988, 44)

The top voice (baritone) is accompanied by two different voice groups during the composition. One more connection between the lyrics to this movement, and the infinity of the universe’s fate which it represents, can be shown through analyzing the choir’s gender grouping (mentioned above) within the course of its performance. The male and female distinction is in obvious reference to reproduction, and its inherent concept of continuity into an ongoing posthumous (therefore, eternal to one’s consciousness) cycle of re-creation.

VIII) Tonbak Section No. 3

This short percussive section (8 measures) uses the same rhythmic concepts as previously utilized within each Tonbak section. As mentioned before, the role of a percussive instrument is to represent the continuity of creation, by introduction of different rhythmic variables which could be performed by the player, in an improvisatory manner.

The utilization of different note groupings and accents aids in creating different rhythmic patterns through the evolution of one format into the next. This is an indication to the ever-changing behaviour of the cosmos, whether done by chance or by providence.

The example given can be enhanced and played for a longer period, if one wishes to do so, but it should not be considered as a major section within the work and exaggerated; its role only lies upon its imitation of a certain kind of permanence 'in variation', within the universe.

IX) Fifth movement: “Future Unknown”**(The Poem)****“Future Unknown”**

Poem: by Reza Modarresi and Shah H. Jou

**Haunted by the memories of a life-time,
destined to a future unknown,
I listen to your heartbeats,
to the rhythm, and tone;
Haunted by the memories of a life-time,
(Haunted by the nightmares in the night time),
destined to a future so unknown,
I listen to your heartbeats,
hoping present would last,
though it’s bitter-sweet, at best;
caught at the valley of this time wave,
while my hopes, lay at the crest,
the past, and future, they collide,
with me caught, in between at rest.**

“Future Unknown”

By: M. Reza Modarresi, and Shah H. Jou

Music by: M. Reza Modarresi

(Lyrics)**Chords:** E minor (i) D minor**Verse:** Haunted by the memories of a life-time,

E min D min

Destined to a future unknown,

E min D min

Haunted by the memories of a life-time,

E min D min

Destined to a future unknown,

A min

I listen to your heartbeats,

C (Major) E min (i)

To the rhythm, and tone;

E min D min

Verse: Haunted by the memories of a life-time,

E min D min

Destined to a future unknown,

E min

D min

Haunted by the memories of a life-time,

E min

D min

Destined to a future so unknown,

A min

I listen to your heartbeats,

D min

E min

Hoping present would last,

A min

E min

Though it's bitter-sweet at best;

G (Maj): arpeggiated

(Bridge section)

G (Major)

B (Maj)

Chorus: Caught at the valley of this time wave,

B (Maj) A min

B Maj

While my hopes, lay at the crest,

C Maj A min

The past and future, they collide,

A min B Maj (V/Dominant Major chord)

With me caught, in between at rest;

E min D min

Verse: Haunted by the memories of a life-time,

E min D min

Destined to a future unknown,

E min D min

Haunted by the memories of a life-time,

E min D min

Destined to a future so unknown,

A min

I listen to your heartbeats,

D min E min

Hoping present would last,

A min E min

Though it's bitter-sweet at best;

G (Major)

B (Maj)

Chorus: Caught at the valley of this time wave,

B (Maj) A min

B Maj

While my hopes, lay at the crest,

C Maj A min

The past and future, they collide,

A min

B Maj (V/Dominant Major)

With me caught, in between at rest;

A min

B Maj (V)

With me caught, in between at rest;

A min

B Maj (V)

With me caught, in between at rest.

The following is the intellectual concepts upon which “Future Unknown” was based:

The lyrics to “Future Unknown” recount clearly identifiable parts of mankind’s existence that are shaped by natural forces. Once again we see that out of the fear and confusion caused by the unknown is born organizational efforts; society unifying for the sake of the security, gained from the ‘feeling of community’, not to mention the increase in production and commerce that is synonymous with and to a great extent one of the main forms of human interaction. (Aurelius 1964, 8)

So far as humankind is concerned, there are different kinds of memory. There are the personal memories of individuals, the historical memories of a race, creed, or nation, and then an evolutionary memory concerned with the universe at large. This of course is an embodiment of the universal idea of ‘macrocosm vs. microcosm’.

In struggling to understand the parts of creation, which have amazed and/or terrified mankind, he has turned to forms of mysticism, from murderous cults to organized religion. However, there have also been those proponents of reason, who have, through a logical assessment of the facts, reached scientifically approved conclusions.

Whatever ‘the truth’ may be, it does not affect ‘the accepted truth’ of each person. It is this perception of the facts, be it conscious or not, that drives our imagination, fancies, and dreams (day dreams, dreams and nightmares).

Since what is known is supposed to be preferable to the unknown (better the evil you know than the one you don’t), the majority of people are seemingly happy to maintain the status-quo. Of course this means accepting the good parts as well as the bad, of the presently accepted system of beliefs.

As human beings we have to follow paths, which although open to choice, are shaped by phenomena such as social status, physical/intellectual/emotional characteristics, societal/religious/racial taboos/prejudices/moral beliefs, and many other variants.

Having to contend with innumerable forces, many of which seem colossal, in comparison to mankind as an individual, it is not a wonder that human existence is ever likened to being afloat in a rowboat upon the waves of a stormy ocean. Thus humanity ever suffers through the miscomprehension of past lessons, which make facing an unpredictable future much more anxiety ridden and necessarily more fraught with danger than if lessons of the past were well learned.

The idea of eternal motion (normalized, so far as mankind being accustomed to the nature of the motion) of his environs, which are so large as to be limitless and unchanging to our human senses, for all intents and purposes is very similar to being motionless.

Regardless of the above, one can be active within one's community or fill a passive role; which is to stand still and watch life go by. On the other hand, one species as a whole can be a participating constituent of its natural surrounding; or it can just exploit its natural habitat's resources without considering the consequences of its action upon itself (personified through future generations).

Having abandoned all but materialistic avenues of existence, and thus in favor of applying all his energies toward amassing material wealth, mankind has ever approached a state of stagnation; in so far as emotional interaction with his natural habitat is meant.

This 'static nature' is the point of contact (attachment, interaction, etc.) between this particular movement and a static universe, frozen in time and space. (Hawking 1988, 44)

Description of the music, and its material and intellectual relevance

“Future Unknown” (in E minor), is a Progressive Rock song which was written to be sung by a baritone (as it is with the other three Rock songs). Musically it represents an A, bridge, B, A’, B’ form (ABA’B’), which consists of a half-verse repeated throughout the A section [with a tonic of E (minor)/ i]; however, there are some slight variations.

Next, a short arpeggiated guitar bridge (in G major) is utilized to carry the harmonic structure (tonality) of the composition from E minor (i) in the first section to B major (V: which is the dominant major chord belonging to the key of E minor), the major key in which B section is represented, with the melody having a tendency towards the Dominant major key (B major), with respect to its harmonic resolution. Thus the verse (A section) is linked by this brief bridge, to the chorus section, through the utilization of the abovementioned chords.

The bridge only occurs once through the composition. The single occurrence of the bridge section, along with repeated melodic content for consecutive stanzas, points to the ‘strophic’ form of this movement, unlike the two previous ‘through-composed’ songs (“State of Confusion”, and “Deus misereatur”).

The harmonic progressions in this song consist of the following simple chords: E minor (i), D minor (vii), A minor (iv), B (V), C (VI), and G (III). The intentional use of simple chords reflects the simplicity that ever lies just beneath the grace with which creation achieves its ends. The lyrics to this movement have been provided along with the chords mentioned above. This style of song-writing is popular within the modern song books, where they do not necessarily include musical notation (a score).

To express the pessimistic mood of today's world, with all its inherent suffering, in musical terms, I have chosen to use certain chords normally termed 'joyous' (i.e. B, C, or any major chord, erroneously considered 'happy' in general), to produce a mournful and depressed effect. Here the confusion in man's existence is pointed out by the opposition in the harmonic progression of the music, as opposed to the lyrical order, in terms of time. Thus, in the lyrics (of the chorus) the order of the past, present and future are preserved, whilst musically the chord C accompanies the word "past", and the chord A minor accompanies the word "Future". It is obvious that the linguistic progression is the opposite of the musical direction. Thus, the idea of time, as perceived by man, based upon arbitrarily chosen concepts, of direction and measurement, are not necessarily parallel to that of an omnipotent intelligence's comprehension.

A point of convergence existing between this movement and the specific fate ('Big Freeze': destined to become static) that it represents, is the outro's gradual *ritardando/rallentando* (the gradual decrease in tempo) accompanying the final phrase, "with me caught in between at rest" (sung three times), also pointing to the abovementioned destiny for the universe. (Hawking 1988, 44)

A demo recording of this song (sung and performed by myself, and recorded by a friend at his home studio), has been attached to this work as a means of representation regarding the performance and production of all the rock compositions within this work.

X) Tonbak Section No. 4

For discussions regarding this particular Tonbak section, please refer to the first Tonbak section for details involving the music written for the instrument.

XI) Sixth movement: “Destiny”**“Destiny”**

Poem by: Reza Modarresi and Shah H. Jou

How can I know my destiny?**How can I live the way you live?****How can I do what you want me to do?****How can I feel the way you feel?****Sitting in the corner****looking for a change****my restless heart's****beating so strange****Now I am all alone****looking in the mirror****and I see no one's face****No one's but my own****How can I spend another night with you?****Oh no, I can't get rid of pain****It's all so in vain.**

The following is the intellectual concepts upon which “Destiny” was based:

The lyrics to this movement once again reiterate the ever present confusion and the suffering that mankind faces within his existence. Social life, calling upon us to be one of many, sounds like a call to uniformity, which is at odds with our drive towards individuality; yet mankind has an integral characteristic, which necessitates him to seek and engage in social relationships of varying intimacies; now I ask, should I be confused?

‘The confused’ lives the life of ‘the lost’; lonely and afraid, restless, yet weary of change, and overwhelmed by all these opposing forces, how can one ever hope to maintain, not only his/her momentary composure, but an even keel throughout his/her life?

An honest reflection upon one’s personal experiences (actions, reactions, victories, losses, satisfactions, regrets, etc.) provides the only path to a sensible assessment of the self. Knowing thyself is the only possible path to true salvation, in terms of freedom from imaginary boundaries, and only through surpassing these restrictions (inhibitions) we may be able to see our way clear of all the snags we create for ourselves.

Having said the preceding, mankind can yet not ever forget that his life is ever a part of much more complicated fabric; of which his life is only one thread. One note in a symphony. The self searching of man, looking back, and going to the beginning, in an effort to see his/her path clear to greater growth, provides the common denominator, necessary for true representation of the particular universal fate which this movement embodies. Regarding cosmic creation, this could be viewed as the universe going back into a ‘singularity’. (Clegg 2003, 229)

Description of the music, and its material and intellectual relevance

The sixth movement “Destiny” (in E minor), is a through-composed Rock composition (with the exception of the outro section, which is a variation of the first), which is represented as having the form ABCA’ [first verse, first chorus, second chorus, and finally the second verse]. The A’ or the outro, utilizes different lyrics and harmonic structure than the A section, but it still mimics the A section’s personality and shape with regards to the vocal melody sung by the baritone. Though, one may refer to it as a new section (D), its briefness does not make it a good candidate to be considered a new section on its own. Thus, what we have here is really a thematic variation of the A section, which is unique in itself regarding its harmonic structure; and yet it employs a rhythmic structure similar to the A section.

As mentioned above, this piece is composed for a male voice (baritone), accompanied by electric guitar, piano, and synthesizer. However a bass guitar and drums can always be added; the reason for such instrumental consideration is to provide the performance director a choice, that although may not be necessary, could provide a certain amount of freedom and variety to the performance. When the piano as a more versatile instrument (having melodic, harmonic and rhythmic qualities), could replace the bass guitar and drums.

“Destiny” is the last movement within this work which employs lyrics. The tonal centre revolves around the key of E minor, while like the previous movement “Future Unknown”, the song resolves in its dominant major key (B major: V).

Part of an earlier theme (from “Cosmic Rays” movement: bar 19-21) reappears again as a short bridge section, which also contains some new thematic material (measure 15-18) in its structure (beginning at bar 15th and continuing till measure 21st). The presentation of an earlier

theme, combined with newly constructed material, is done in a manner that reflects the particular fate in which our known universe returns to a singularity (“big Crunch”) again, thus becoming very dense and small.¹⁰ (Hawking 1988, 44)

¹⁰ “Some cosmological theories put forward an end of the universe in a Big Crunch, an inverse of the Big Bang where all matter is brought together and annihilated, a point at which it is possible that time might end, just as it might have begun with the Big Bang.” (Clegg 2003, 229)

XII) Tonbak Section No. 5

For discussions regarding this particular Tonbak section, please refer to the first Tonbak section for details involving the music written for the instrument.

XIII) “Microwaves”

Description of the music, and its material and intellectual relevance

There are various reasons for my choice of the title “Microwaves” for the final movement. The first of these is the fact that the reverberations of the Big Bang explosion remain to this day and are currently detectable as “microwave background radiation”. (Hawking 1988, 41-42, 48, 108, 140, 185)

My reasoning continued with the consideration of ‘entropy’ (the thermo dynamical law of ever-increasing disorder), which directed me to choosing the key of Eb (Eb, “Microwaves” section: measures 36-85/end), and in the beginning part of “Microwaves’ Prelude” in Bb: measures 1-35), in composing this movement. (Halliday and Resnick 1970, 409, 414)

There may be some contention with the above said line of reasoning, since Eb is historically employed to signify ‘victory’¹¹, which in the case of creation would be the victory of order over chaos.

¹¹ For example Beethoven’s Piano Concerto No. 5, Op. 73 (Emperor Concerto), and the well-known Eroica Symphony (Symphony No. 3, known as the “Heroic Symphony”) have all been written in the key of Eb which represents music associated with terms such as “heroism” and “victory”. (Burkholder et al. 2010, 584, 579)

However this is the very reason, for this particular choice; for although order is pointed at, there is no denying ‘entropy’ as an always present phenomenon within the universe. Even in the most ordered of systems the degradation is ever present. No matter how perfect a given machine performs (even if we disregard the weathering process: rusting) as soon as we begin to utilize the machine, the components begin to deteriorate. Thus entropy is the final victor. (Hawking 1988, 102)

The final movement “Microwaves” begins in Bb, progresses to Eb, and ends in Cm: the relative minor key of Eb. The piece is written for electric guitar and the orchestra, and could be perceived as a complete composition on its own. It embodies thematic characters from previous movements within the work. These reoccurrences consist of the introductory theme from the first movement “And Then There Was Light”, and the theme from “Cosmic Rays”. The composition, however does add to the preexisting motivic materials by the introduction of new thematic formation within its beginning section (Microwaves’ “Prelude”); and in the closing section (“Microwaves”), within which “Microwaves” theme is introduced, by the electric guitar.

The reoccurrence of earlier themes (mentioned above), married to the newly introduced melodic and harmonic contents, aim to represent the possibility of the universal rebirth and the likelihood of the utilization of similar processes. Specially, since our universe’s present construct can be used as a clue to the propensity of the universe to act in a similar fashion, throughout its cycles of birth and death. This relates only to the one theoretical fate of the universe, in which the universe does repeat the cycle (or as previously mentioned, some variation of its mode of progression through time and space), which is itself a new and varied form of the ‘Big Crunch’ theory (‘Big Bounce’ theory). (Kragh 1999, 348)

Thus, this final movement aims to show our acknowledgement of the fact that whatever the end may or may not be, in human terms it will appear as an infinite cycle or some variation of this cycle. (Clegg 2003, 229)

There may be many instances in this work where examples are seen of connections between the lyrical, musical, philosophical, and astronomical ingredients of the final concoction that this work has developed into. However, I have seen it as unnecessary to point out concepts and other common repetitions as often as they appear. This may also explain the brevity of the conceptual analysis sections as the work nears its conclusion.

Conclusion

To conclude, this composition as a whole, aims to represent one's perception of the reality of existence (so far as creation of the universe is concerned) through a musical and lyrical medium. As previously pointed out, the astrophysical phenomena discussed are based on theoretical views held by the majority of the scientific society.

This work has been affected to a great extent by scientific and philosophical readings on my part. Therefore, the composition coincides with, and was written to logically and musically satisfy, the said theoretical views.

The concepts employed within the work are the most fundamental, so far as the scientific theory of creation is concerned. These are exemplified by: 'singularity', 'variety', 'duality/dichotomy', 'expansion', 'entropy' (the universal rule of increase in disorder with respect to time). However, there are many other possible interpretations that can be readily deduced. These deductions can be as varied as particular comprehensive sensibilities.

Much of the content in this creation is a reflection of my personal life experiences, including my education, both academic and social. Therefore, my approach cannot be directly referenced, but supported by both scholarly and non-scholarly writings, as cited within the bibliography.

One of the main issues I had to deal with, in composing a work such as "And Then There Was Light" (while also considering the use of text), was the immensity of the subject and thus the difficulty in achieving cohesion in the representation of the many integral elements, which needed to be included in the work. Therefore, I approached the work, from both points of view,

as in imagining the whole (macrocosm), as well as considering the minor constituents (microcosm), to achieve a comprehensive representation of the subject matter.

Bibliography

Aurelius, Marcus, and George Long. *Meditations*. New York: WASHINGTON SQUARE PRESS, 1964.

Bach, Johann Sebastian, and Hans-Joachim Schulze. "*Jesu, Meine Freude*" *Motette Für Fünfstimmigen Gemischten Chor BWV 227*. Breitkopf 7227 ed. WIESBADEN . LEIPZIG . PARIS: Breitkopf & Härtel. 1-14.

Baumann, Hopkins, Nolletti, and Soluri. *WHAT'S OUT THERE: Images from Here to the Edge of the Universe*. London: Duncan Baird Publishers, 2005.

Benacchio, L. *The Great Atlas of the Universe*. Newton Abbot: David and Charles, 2007.

Burkholder, J. Peter, Donald Jay Grout, and Claude V. Palisca. *A History of Western Music*. Eighth ed. W. W. Norton, 2010.

Clegg, Brian. *A BRIEF HISTORY OF INFINITY: The Quest to Think the Unthinkable*. First ed. Constable & Robinson, 2003.

Cox, Christoph, and Daniel Warner. *Audio culture: readings in modern music*. New York: Continuum, 2004.

Forsyth, Cecil. *Orchestration*. 1982. Reprint, New York: Dover Publications, 1982.

Halliday, David, and Robert Resnick. *Fundamentals of Physics*. 2nd ed. John Wiley & Sons, 1970.

Hawking, S. W.. *A brief history of time: from the big bang to black holes*. Toronto: Bantam Books, 1988.

Kennedy, Michael, and Joyce Kennedy. *OXFORD CONCISE DICTIONARY OF MUSIC*. Fifth ed. London: Oxford University Press, 2007.

Kragh, Helge. *Cosmology and Controversy: The Historical Development of Two Theories of the Universe*. Second ed. NJ, USA: Princeton University Press, 1999.

Lessing, Gotthold Ephraim . *Laocoon: An Essay on the Limits of Painting and Poetry (Johns Hopkins Paperbacks)*. Baltimore, Maryland: Johns Hopkins University Press, 1984.

Malin, David. *Heaven & Earth: Unseen by the Naked Eye*. London: Phaidon, 2004.

McEVOY, J. P. *A BRIEF HISTORY OF THE UNIVERSE: FROM ANCIENT BABYLON TO THE BIG BANG*. Philadelphia: Running Press Book Publishers, 2010.

Nietzsche, Friedrich Wilhelm, and R. J. Hollingdale. *Thus spoke Zarathustra: a book for everyone and no one*. Harmondsworth, England: Penguin Books, 1961.

Nietzsche, Friedrich Wilhelm. *The birth of tragedy, and the case of Wagner*.. [1st Vintage ed. New York: Vintage Books, 1967.

Penrose, Roger. *The road to reality: a complete guide to the laws of the universe*. New York: A.A. Knopf, 2005.

Robinson, Ray, and Allen Winold. *The Choral Experience: Literature, Materials, and Methods*. Prospect Heights, Ill.: Waveland Press, 1992.

Ross, Alex. *The Rest Is Noise: Listening to the Twentieth Century*. New York: Picador, 2008.

Schulenberg, David. *MUSIC OF THE BAROQUE*. Second ed. Oxford University Press, 2008.

Smith, Marcia S. *Life beyond Earth*. Toronto: COLES PUBLISHING COMPANY LIMITED, 1978.

Temperley, Nicholas. Haydn: *The Creation*. Cambridge [etc.: Cambridge University Press, 1991.

Discography

The Alan Parsons Project. *The Collection*. SONY MUSIC, CD. 88697808482.

Ars Nova. Lassus: *Lagrime Di San Pietro (Spiritual Madrigals)*. Conducted by Bo Holten. Naxos, 1995, CD. 8.553311.

Camel. *Breathless*. Decca Record Company Limited, CD. 820 726-2.

Camel. *I Can See Your House From Here*. Decca Record Company Ltd., 1979, CD. ECLEC 2158.

Camel. *NUDE*. Decca Record Company Limited, CD. 810 880-2.

Camel. *RAIN DANCES*. Decca Record Company Limited, CD. 820 725-2.

Camel. *The Single Factor*. Decca Record Company Ltd., CD. ECLEC 2156.

Camel. *The Snow Goose*. Universal Music, CD. 8829302.

Camel. *Stationary Traveller*. Decca Record Company Limited, CD. 820 020-2.

Deep Purple. *Rapture of the Deep*. Eagle Records, 2005, CD. ER 20083-2.

Genesis. *Selling England by the Pound*. Atlantic, CD. CD 82675.

Hayward, Justin. *In Search of the Lost Chord*. The Moody Blues. Decca Music Group Ltd., CD. B0011211-02.

Jimi Hendrix. *The Ultimate Experience*. MCA Records, Inc., CD. MCAD-10829.

Latimer, Andrew, and Colin Bass. *Harbour of Tears*. Camel. Camel Productions, 1996, CD. Cp-006cQ.

Latimer, Andrew, Peter Bardens, Andy Ward, and Doug Ferguson. *Mirage*. Camel. Universal Music, CD. 8829292.

Latimer, Andrew, Peter Bardens, Doug Ferguson, and Andy Ward. *CAMEL*. Camel. MCA Records, 1973, CD. 8829252.

Latimer, Andrew, Peter Bardens, Doug Ferguson, and Andy Ward. *Moonmadness*. Camel. Decca Record Company Ltd., CD. 8829312.

Ottawa Bach Choir. *Jesu, Meine Freude*. Conducted by Lisette Canton. 2008, CD. OBC2008CD.

Oxford Camerata. Giovanni Pierluigi Da Palestrina: *Missa Papae Marcelli*. Conducted by Jeremy Summerly. Naxos, 1992, CD. 8.550573.

Oxford Camerata. Josquin: *Missa L'homme Armé*. Conducted by Jeremy Summerly. Naxos, 1998, CD. 8.553428.

Robin Trower. *Bridge of Sighs*. Chrysalis/Capitol, 1999, CD. 7243 5 20811 2 7.

Waters, Roger, and Rick Wright, writers. *A Saucerful of Secrets*. Pink Floyd. EMI, 1994, CD. E2 7243 8 29751 2 0.

Waters, Roger, David Gilmour, Nick Mason, and Richard Wright. *Meddle*. Pink Floyd. EMI, CD. E27243 8 29749 2 5.

Waters, Roger, David Gilmour, Nick Mason, and Richard Wright. *Dark Side of the Moon*. Pink Floyd. Capitol, 1994, CD.

Waters, Roger, David Gilmour, Richard Wright, and Nick Mason. *ATOM HEART MOTHER*. Orchestrated by Ron Geesin. Pink Floyd. EMI, CD. 7243 8 31246 2 6.

Waters, Roger, David Gilmour, Richard Wright, and Nick Mason. *THE WALL*. Orchestrated by Michael Kamen. Pink Floyd. EMI, CD. 7243 8 31243 2 9.

Waters, Roger, Richard Wright, David Gilmour, and Nick Mason. *ANIMALS*. Pink Floyd. EMI, CD. 7243 8 29748 2 6.

Waters, Roger, Syd Barrett, Richard Wright, and Nick Mason. *Relics*. Pink Floyd. EMI, CD. 7243 8 35603 2 5.

Appendices

Appendix I:

Section I: “Before”

Appendix II:

Section II: “And Then There Was Light”

Appendix III:

Section III: “Cosmic Rays”

Appendix IV:

Section IV: Tonbak Section No. 1

Appendix V:

Section V: “State Of Confusion”:

a) “State Of Confusion Prelude”

b) “State Of Confusion”

Appendix VI:

Section VI: Tonbak Section No. 2

Appendix VII:

Section VII: “Deus Misereatur”

Appendix VIII:

Section VIII: Tonbak Section No. 3

Appendix IX:

Section IX: “Future Unknown”

Appendix X:

Section X: Tonbak Section No. 4

Appendix XI:

Section XI: “Destiny”

Appendix XII:

Section XII: Tonbak Section No. 5

Appendix XIII

Section XIII: “Microwaves’ Prelude” & “Microwaves”