

Listener's Score for:

In the Natural Doorway I Crouch.

Paul Dolden

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Short program notes to be used for public programs:
In the Natural Doorway I Crouch.

In the Natural Doorway I Crouch is inspired by the interaction of two distinct sound worlds: plucked metal strings and wind instruments. The multi-track studio allows for the build-up of these sound worlds to create unique sonic effects without having to resort to electronic effects or processing. The composition is divided into three sections of three, five and seven minutes, each of which explore the relationship between the sound worlds as they are constantly changing. This movement in sound is evoked by the title which suggests the transformations from one state to another as in a doorway which acts as a passageway between areas of sound. In most cases the crouching is only momentary as we spring from one area to another.

The composition was commissioned by Groupe de Musique Expérimentale de Bourges, (G.M.E.B.), Bourges France. Research for the composition was completed in the G.M.E.B. studios and at the EMS in Stockholm, Sweden. Production of the composition occurred primarily at the composers' private studio and at the Sonic Research Studio, Simon Fraser University, Vancouver, Canada.

The composer requests that only a digital copy of the digital master be used for public performances or serious audition sessions.

In the Natural Doorway I Crouch was premiered in Mexico City, Mexico on Jan. 31 1988 at the Festival: In Torno a Los Sonidos Electronicos.

~~Digital recordings of In the Natural Doorway I Crouch is available from the Canadian Music Centre or directly from the composer. The composition appears on two Compact Discs: 1) Winners of the XVIIth International Electro Acoustic Music Composition, Bourges, France, on the Harmonia Mundi label. 2) On the composers first solo Compact Disc entitled: The Field of Deafening Silence on the Tronika Disc label and distributed by Underwhich Editions of Toronto, Canada.~~

For a number of years I have been fascinated with two sound types: plucked metal strings and wind instrument multiphonics. Both sounds are related in that there is a disturbance or distortion of the harmonic series. In the case of the multiphonics the multiple frequencies contained within each sound creates different types of fused inharmonic timbres. The inharmonicity of metal strings is more subtle but still occurs particularly in lower pitched tightly stretched strings. The harmonics of these tones are in fact stretched so that often by the tenth harmonic a sharpening of forty cents has occurred. Hence the sound, in the right musical context, can appear like an inharmonic metal-type sound. In order to emphasize this effect all the plucked string work in the composition are low pitched strings on piano or guitar played back at twice and sometimes quadruple tape speed.

The first section (2'50") can be understood as "a small sound contained within a large sound." The large sound of Section one are chords created through the extensive multitracking of a single recorder and oboe multiphonic and their closest normal pitched note. The chords crossfade between the normal tone and inharmonic multiphonic. The chords are tuned to various Just tunings in which the higher numbered harmonics are systematically brought down to lower octaves in order to create different types of fused and unfused timbres, or in other words, different types of spaced chords. Even when most of the tracks are articulating the inharmonic multiphonics, the integer related Just tuning tends to give an inner logic to the sound so that the composer is in fact controlling the type and degree of perceived noise in the sound. This method of tuning inharmonic sounds to Just tuning was suggested by recent research which proposes that the harmonic series acts like a template in our perception with which we measure different gradations of sound/timbre.

The "small sound" of section one is plucked guitar in which the stereo space is divided into two channels. On each channel fifteen note chords tuned to the harmonic series are pitted against each other in long polyrhythmic figures (i.e. 22 against 15, 13 against 8, etc.). The multitracking of thirty plucked strings in this section, and in particular the next section creates an acoustic situation first exploited extensively in Veils. This effect is that the more subtle aspects of the sound become reinforced through multitracking so that they become a more pronounced sound. For example the sound of the pick becomes a continuous stream of sound seemingly detached from the pitched part of the sound.

In section two (2'50"-8'00") the "small sound" of plucked strings becomes the large or dominant sound. This is accomplished by switching from the three foot string length and resonating box of guitar to the nine foot grand piano. The piano tracks continue the type of polyrhythmic figures established in section one. Pitted against these piano rhythms are various wind instrument multiphonics and their most closely related normal tone. These smaller sized chords usually begin on notes in the piano chords and slowly crossfade to the inharmonic multiphonic. During the last part of section two the two sound worlds of metal strings and wind multiphonics change proportions in relation to each other. As the metal strings become "smaller" (through the increasing use of the higher range of the piano) the wind

instruments become large or dominant again (through extensive multitracking to create large chords).

In Section three (8'00"-15'00") the double bass, at twice its normal speed, acts as a timbral intermediary between plucked strings and wind instruments. (The double bass has aspects of both sound types.) The double bass continues the polyrhythmic figures as the relationships between the three sound types changes fairly quickly. The last three and one-half minutes is based on the idea of Shepard tones: that is a sound which seems to be both moving up and down simultaneously. This effect is accomplished here by having the sound move down in pitch while moving up in timbral space i.e. for the strings from normal to ponticello. For the winds a crossfade from recorders to oboes to oboe multiphonics, each of which have a "brighter" sound, or more energy in the higher partials. The reverse direction is also possible: to have sounds move up in pitch while down in timbral space. For example, ponticello to normal on the strings and multiphonics to oboes to recorders in the winds. Both types of Shepard tones are used at the same time to produce a dynamic effect. The final ending is based on a thinning out of the materials until the rhythmic and melodic seed of the composition is exposed.

B.

B.

Three staves of musical notation for 'The Rose Tree' in G major, 2/4 time. The notation includes treble and bass clefs, a key signature of one sharp (F#), and a 2/4 time signature. The melody is written in the treble clef, and the bass line is in the bass clef. The music consists of three staves, each with a treble and bass staff. The first staff contains measures 1-19, the second staff contains measures 20-37, and the third staff contains measures 38-73. The melody is a simple, folk-like tune, and the bass line provides a steady accompaniment. The piece ends with a double bar line and repeat dots.

ings are marked below each system just above the time scale. Other dynamic markings parts.

ns guitar or piano played back at twice the speed they were recorded at. Guitar 4X or piano played back at four times the speed they were recorded at. In both cases the tempo e final sounding tempos.

based on the crossfading between a woodwind multiphonic and its closest normal or s) note. In the score multi. refers to the multiphonic tone and norm. to the normal tone. ten multiphonics used and their names that are referred to in the score. The spectrum of ten out horizontally with the loudest partials starting on the left. In each case the e pitch used as a fundamental for the normal tones. Analysis of the multiphonics was : 2 bandpass filters, 2 graphic equalizers, and 2 parametric equalizers, connected in a art of the spectrum. Not all partials of each multiphonic are notated. In addition, a beating pattern (less than 15 Hertz apart) an averaging was taken of the two tones.

Handwritten musical score for Recorder A, Recorder B, Recorder C, Recorder D, Recorder E, Recorder F, Saxophone G, Saxophone H, Oboe I, Oboe J, Oboe K, and Bassoon L + M. The score is written on ten staves, each with a treble clef and a key signature of one flat (B-flat). The notation includes various musical symbols such as notes, rests, and accidentals, along with handwritten annotations like "8va" and "8va7". The staves are labeled as follows:

- Recorder A
- Recorder B
- Recorder C
- Recorder D
- Recorder E
- Recorder F
- Saxophone G
- Saxophone H
- Oboe I
- Oboe J
- Oboe K
- Bassoon L + M

Production Notes

All sounds were recorded using a Sony PCM 601 or Sony PCM F1 digital recorder with two AKG C414 B-ULS microphones. The woodwind sounds were multitracked with themselves four times in the digital domain. They were then transferred to analog tape (1/2 track stereo-30 ips or 78 cm/sec.), and then speed up or down to the desired pitch. The chords for the string work were built up in the digital domain, one layer or note at a time. This technique of digital multi-tracking using one PCM recorder and two video machines is an unknown recording technique at the time of this writing. Once the chords had been built up they were transferred to analog tape to be played back at the desired speed, either 2X or 4X normal speed.

All the string work was performed by myself. Clemens Rettich performed the recorder multiphonics and normal tones. Ken Newby performed the Oboe, soprano saxophone and Bassoon multiphonics and normal tones.

Research and composition of the piece occurred between June and December 1986 at my private studio, the G.M.E.B. (Groupe de Musique Experimentale de Bourges) in Bourges France, and at the EMS Stockholm Sweden. I would like to gratefully acknowledge the people of these centers who provided great patience and help with what I was trying to do. Production of the composition took 775 man hours and occurred between February and July 1987 at my private studio and the Sonic Research Studio, Simon Fraser University Vancouver, Canada. The score and final master were done in August 1987.

I request that only a digital copy of the digital master of the composition be used for public performances or serious audition sessions.

The composition was commissioned by G.M.E.B. in Bourges, France.

Recording History of Work.

Paul Dolden
August 1987

This work was originally produced during the 1980s and/or 90s on the audio gear detailed in the score introduction. The work was first published on the Tronja label disc called: "The Threshold of Deafening Silence." In 1990, or on the double CD: "L'ivresse de la vitesse" published on empreintes DIGITALes in 1994 (IMED 9417-18) and re-released in 1999 (IMED 9917-18). All my works were remixed using the original recordings, processed, and mastered in the period 2000-2002. This work remastered appears on one of the following three CDs, all of which are on empreintes DIGITALes:

- 1) Seuil de silences. (IMED 0369)
- 2) L'ivresse de la vitesse 1. (IMED 0317)
- 3) L'ivresse de la vitesse 2. (IMED 0318)

It is very important to be listening to the remastered version because of their increased clarity and depth of sound. During the 1980s and 90s I had to use gear that was insufficient audio quality for mixing several hundred tracks of audio together. With the new masters I was able to achieve the balance between voices that I had so carefully notated in the original scores. I invite you to discover many new levels of meaning and clarity in the new masters, which are much closer to my original artistic thought.

For the tape part of a mixed work (mixed work works for live instrument(s) and tape), you can obtain a copy of the tape portion, (the 2000-2002) remastered tape parts, from:

- 1) The Canadian Music Center In Toronto. (20 St Joseph St.,)
- 2) From me: you can obtain my email address at the web site for empreintes DIGITALes. I love to hear from people who are playing my music.
- 3) I have left copies of the tape part with my publisher, empreintes DIGITALes.

You should only be using a digital copy of the digital master.

Paul Dolden
Born 1956, Ottawa, Canada

Paul Dolden begins his career at age 16 as a professional electric guitarist, violinist and cellist. Excited by the possibilities offered by recording technologies, Paul Dolden turns to contemporary modes of production and dissemination in the creation of his music. At age 29, he wins the first of a string of European awards that establish him as a composer. Now the winner of over twenty international awards, Paul Dolden's music is performed in Europe and North America to wildly enthusiastic audiences.

In a career spanning over twenty five years, Paul Dolden has perfected his unique approach to audio technology, using it as a platform from which to launch or capture otherwise impossible musical performances. In this way, he makes his computer behave like a new, virtual orchestra and manipulates it with as much sensitivity as he would a traditional one. His compositions are characterised by a maximalist aesthetic in which hundreds of digitally recorded instrumental and vocal performances are combined in multiple layers.


Paul Dolden's music has been described as the "missing link" between jazz and rock and the high-brow concert tradition. Critics have called it "music for the information age, enlisting noise, complexity and beauty in its quest for excess," and characterised it as "apocalyptic hyper-modernism."

The early works employ a unified approach to timbral and harmonic variation. Under the influence of post-modernism, Paul Dolden's concerns have shifted to include the juxtaposition and superimposition of disparate musical styles evident throughout the *Resonance Cycle* of works (1992-96). Always working to surpass himself, with the *Twilight Cycle* of recent years Paul Dolden boldly investigates the forbidden fruit of contemporary new music—melody and dance rhythms.

G harmonic series (pitches from harmonics of a low G)

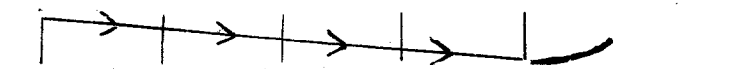
A harmonic series

Guitar 2X ♩=240. Panned to the left side of the stereo image.


5/4 
pont.....norm Note stem in reverse direction indicates
pitches are 200¢ lower. Begin gliss to Chord 2.

Chord 1 without layers (w.l.) 20-18,3-1

Gliss ends on notes of Chord 2.
w.l. 20-18,5-1

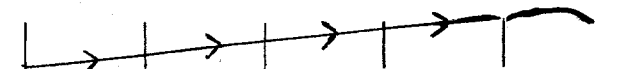

With pick scrape wound strings.
Start at bridge and end at 1st fret.

Guitar 2X ♩=336. Panned to the right side of the stereo image.

7/4 
pont.....norm Note stem in reverse direction indicates
pitches are 200¢ higher. Begin gliss to Chord 2.

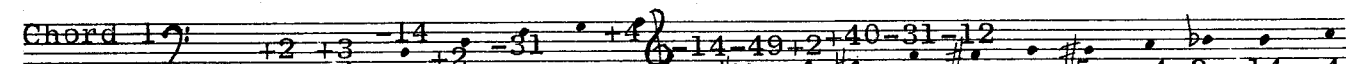
Chord 1 w.l. 20-18,3-1

Gliss ends on notes of Chord 2.
w.l. 20-18,5-1


With pick scrape wound strings
Start at 1st fret and
end at bridge.

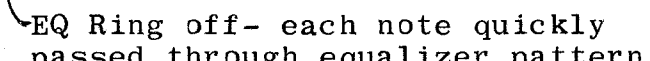
Wind instruments. Throughout Section A each note multitrapped
four times. Oboe J and Recorder D are used to generate the
pitches below middle C. Oboe K and Recorder C are used to
generate the pitches above middle C.

Oboe normal tones.

Chord 1 
Layer number: 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Chord 2 
Layer number: 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Gliss ends on Chord 2 w.l. 3-1

Chord 1
w.l. 3-1 All notes gliss up 200¢

Each note starts with a Vibraphone, Chime
and Gamelan instrument note at the same pitch.

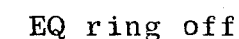

EQ Ring off- each note quickly
passed through equalizer pattern
emphasizing a middle partial of
the sound.

Oboe multiphonics

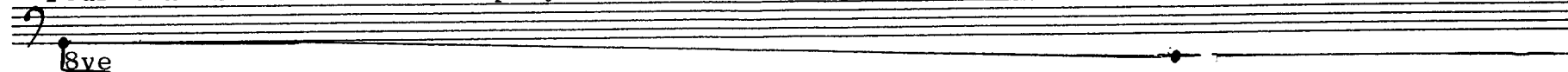
Chord 1
w.l. 20-16 All notes gliss up 200¢

Gliss ends on Chord 2 w.l. 20-16

5"-10" Each layer changes from oboe multi
to oboe normal tone.
Each note starts with a Vibraphone, Chime
and Gamelan instrument note at the same pitch.


EQ ring off

Four tracks of double bass played back at half speed.



ff
0"

5"

10"

15"

20"

25"

30"

Oboe normal tones. Each note starts with a vibraphone note. (at the same pitch)

Chord 2 w.l. 3-1

37"-42"-Gliss to Chord 3

Chord 3

Layer number: 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Oboe normal tones-each note starts with a vibraphone note. (at the same pitch)

Chord 2 w.l. 20-16

51"-Layer 4-6 EQ R.O. 55"-Layer 10-12 EQ R.O.

32"-37"-Each layer changes from 37"-42"-Gliss to Chord 3

53"-Layer 7-9 EQ R.O.

Oboe normal to Oboe multi tones.

49"-Layer 1-3 EQ R.O.-EQ ring off and decresc. to silence over 5". EQ pattern emphasizing a mid and high pitched partial.

57"-Layer 13-15 EQ R.O. (decresc. over 7")

f decres poco a poco.....ppp
32" 35" 40" 45" 50" 55" 1'00" 1'04"

Guitar 2X ♩=264 Note stem in reverse direction indicates pitches are 300¢ lower

C harmonic series

Chord 3 w.l. 20,19,3-1. Begin gliss to Chord 4

Gliss ends on Chord 4 (without layer 21,20 and 7-1)

1st natural harmonic. 2nd nat. harm. 3rd nat. harm.

Guitar 2X ♩=370 Note stem in reverse direction indicates pitches are 300¢ higher

Chord 3 w.l. 20,19,3-1. Begin gliss to Chord 4

Gliss ends on Chord 4 (without layer 21,20 and 7-1)

Oboe normal tones 1'08"-1'13"-Each layer crossfade to recorder normal

Gliss +300¢

Chord 3 w.l. 3-1. Each note starts with Vibraphone, Chimes and Gamelan instrument at the same pitch.

Oboe multiphonics 1'08"-1'13"-Each layer crossfade to recorder normal

Gliss +300¢

1'13"-1'18"-Each layer crossfade to recorder multi

1'18"-Gliss ends on Chord 4 (without layer 1-3)

1'23"-EQ R.O.

Chord 4

21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

1'18"-Gliss ends on Chord 4 (without layer 21-17)

1'23"-EQ R.O.

Chord 3 w.l. 20-16. Each note starts with Vibraphone, Chimes and Gamelan instrument at the same pitch.

Double bass. 1/2 speed.

8ve

ff

1'05"

1'10"

1'15"

1'20"

1'25"

Recorder Norm. Each note starts with a Chime note (at the same pitch)

1'42"-Chord 5 (without layer 3-1)

Chord 4 (without layer 3-1)

1'37"-1'42"-Gliss to Chord 5

1'46"-1'54"-layers end one at a time

Recorder Multi. Each note starts with a Chime note (at the same pitch)

Chord 4 (without layer 21-17)

1'37"-1'42"-Gliss to Chord 5

1'42"-Chord 5 without layer 20-16 1'46"-1'54"-layers end one at a time

1'32"-1'37"-Each layer changes to recorder norm. tone.

Chord 5

Layer number: 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

mf decresc poco a poco.....

1'32"

1'35"

1'40"

1'45"

1'50"

ppp

Guitar 2X ♩=286 Each layer begins on 1st natural harmonic.

5 4

Chord 5 (without layers 20,19,3-1)

At each new bar 3 layers change to open strings. (Always starting with lowest pitched layers)

At each new bar 3 layers change to Chord 4

Each new bar- 3 layers to 1st harm.

7 4

norm.....pont.....norm.....pont.....norm.....pont.....

(playing instructions and chord tunings apply to both guitar parts)

Recorder norm.-Each note starts with a Vibraphone, Chimes and Gamelan instrument at the same pitch.

Chord 5 without layer 3-1

2'00"-05"-Each layer to Oboe norm.

2'10"-15"-Layers gliss to Chord 4

Recorder norm.-Each note starts with a Vibraphone, Chimes and Gamelan instrument at the same pitch.

Chord 5 without layer 20-16

2'00"-05"-Each layer to Oboe multi

2'05"-10"-Each layer to Oboe norm.

2'10"-15"-Layers gliss to Chord 4

1'55"-2'00"-Each layer to Recorder multi.

Double Bass. 1/2 speed.

8ve

ff

1'55"

2'00"

2'05"

2'10"

2'15"

At each new bar 3 layers change to Chord 6

At each new bar 3 layers change to 3rd harmonic

At each new bar one layer drops out.

norm

2'20"-25"-Layers gliss to Chord 6

2'15"-20"-Each layer to Rec. norm.

Chord 6

2'20"-25"-Layers gliss to Chord 6

2'15"-20"-Each layer to recorder norm.

2'36"-47"-Layers end one at a time.

2'20"

2'25"

deces. poco a poco

2'30"

2'35"

n

2'40"

2'47"

2'50"

2'52"

Ab harmonic series

Chord 1 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Chord 2 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Chord 3 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Chord 1. Start with layer 1.
Every 5 beats add a new layer.

Piano 2X ♩=122 Plectrum used inside of piano. 1st natural harmonic. On right side of stereo image. Reverse stem direction indicates pitch is 200¢ lower.
ppp cresc. poco a poco

Piano 2X ♩=122 Same performance instructions and chord tunings.
On left side of stereo image. Reverse stems = pitch 200¢ higher.

Every 3 beats add a new layer.

Play open strings on each beat and then touch node point to produce 1st harmonic. Start with layer 1 and every two beats add the next layer.

norm. Crossfade to multis

Every 2 beats beginning with layer 15 change to Chord 2.

norm. Crossfade to multis

norm. Crossfade to multis

Every 2 beats begining with layer 1 change to chord 3.

♩=264
22/4

Every 3 beats begining with layer 1 change to playing note at keyboard.

♩=218
15/4

♩=320
22/4

Rec. C
Rec. A
Rec. D multis. Crossfade to norm.
decresc. poco a poco.....p

1'16" 1'21" 1'25"

Every 2 beats begining with layer 1 change to chord 2.

♩=320
22/4

Rec. F
Rec. C
Rec. A
Rec. D norm. Crossfade to multi.
p cresc. poco a poco.....mf

1'30" 1'34"

♩=250
15/4

♩=368
22/4

Every 2 beats begining with layer 1 change to Chord 1.

Hold pedal down and stop touching node point.

1'38"

♩=368 Hold pedal down

22
4

Every 4 beats beginning with
layer 15 pluck inside of piano.

to pont. poco a poco

simili

simili

♩=184

Sax G Crossfade to multi

Sax H

Double Bass

Double Bass 1/2 speed

8ve sempre

1'42" 1'46" 1'50" 1'53"

pont.

norm.

Start on Chord 1 +700¢ and
gliss down about 300¢

Start on Chord 1
+1200¢ and gliss
down 300¢ over one
bar and up 300¢
over next bar.

Rec. F multi

Crossfade to
normal tones

2'00" 2'04" 2'08"

Handwritten musical score for the first system. It consists of five staves. The top two staves contain rhythmic notation with slanted lines and the word "simili" written above them. The third staff is a grand staff with a treble and bass clef, containing a melodic line with the lyrics "8ve sempre". The bottom two staves also contain rhythmic notation. Time markers "2'15''" and "2'22''" are placed below the staves.

Rolls on various cymbals
 n. cresc poco a poco

Handwritten musical score for the second system. It consists of five staves. The top two staves contain rhythmic notation with slanted lines and the word "simili" written above them. The third staff is a grand staff with a treble and bass clef, containing a melodic line with the lyrics "8ve sempre". The bottom two staves also contain rhythmic notation. Time markers "2'26''", "2'30''", "2'33''", and "2'37''" are placed below the staves. Additional markings include "Piano 4X", "J=552", "33/4", "J=368", "22/4", and "Every 4 beats two layers move to Chord 2.+1200c".

Handwritten: 5

$\text{♩} = 368$

22/4 *simili*

Every 4 beats a layer ends.
Beginning with Layer 15.

22/4 *simili*

Wind instruments

Double bass

Double Bass
1/2 speed

$\text{♩} = 138$

8ve sempre

2'44"

Oboe I All tones are multisi

Sax G

Bassoon M

Oboe J+ Rec. D

Sax H

Each tone combined with itself at 2X normal speed. This tone glisses up.

Rec. F

Oboe K + Rec. C

$\text{♩} = 640$

33/4

All layers begin again. Every 5 beats
change to Chord 3. +1200¢

$\text{♩} = 426$

22/4

Handwritten: Fams Various

8ve

8ve

2'52"

$\text{♩} = 640$

22/4 *simili*

22/4 *simili*

All tones are multisi. Each tone
combined with itself 2X normal speed

$\text{♩} = 160$ This tone glisses down.

8ve

8ve

3'01"

$\text{J}=736$
 $\frac{33}{4}$

$\text{J}=490$
 $\frac{22}{4}$

Every 8 beats 2 layers change to Chord 1+1200¢ (which will be called Chord 1A)

Various tams

8ve
3' 08"

Over 3 bars gliss +700¢
simili

Start on Chord 1A+700¢ and over 3 bars gliss -700¢
simili

Winds. Oboe K or Recorder D used to generate pitches above middle C and Oboe J or Recorder C used for pitches below middle C. Begin with Oboe multis with Vibes, Chimes and Gamelan notes at same pitch.

Winds and Metal come in at a faster successive rate in 2001 master

Double Bass

Begin gliss -700¢



All wind tones begin gliss +300¢
Begin crossfade to Rec. normal.



3' 15"

3' 41"

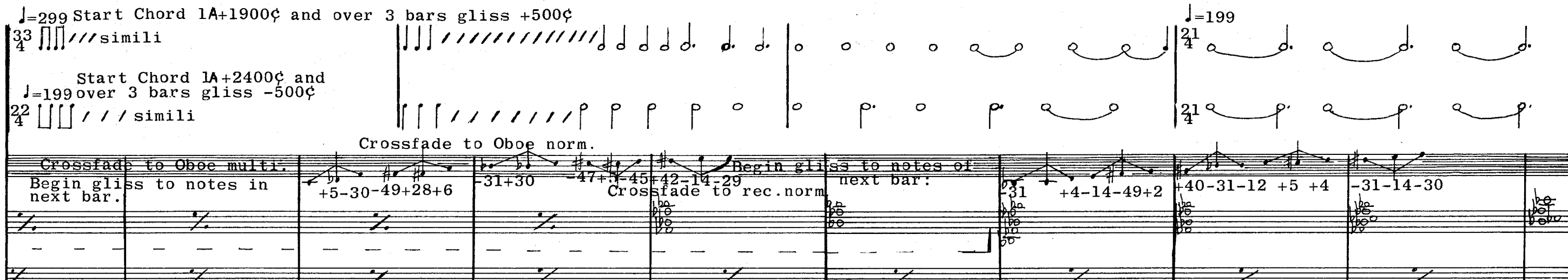
3' 43"

Winds and Metal come in at a faster successive rate in 2001 master.

♩=299 Start Chord 1A+1900¢ and over 3 bars gliss +500¢
 33  // simili
 4  // simili

Start Chord 1A+2400¢ and
 ♩=199 over 3 bars gliss -500¢
 22  // simili
 4  // simili

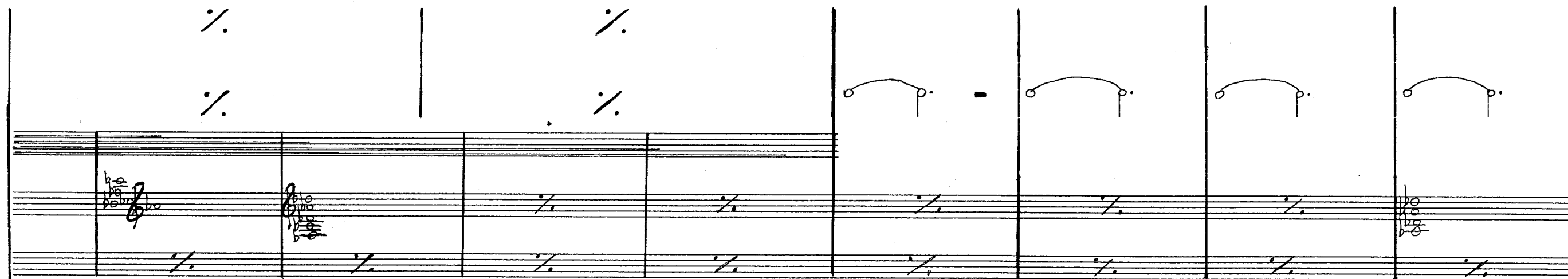
Crossfade to Oboe norm.
 Crossfade to Oboe multi.
 Begin gliss to notes in next bar.
 +5-30-49+28+6 -31+30 -47+4 -45+42-14-29
 Crossfade to rec.norm.
 Begin gliss to notes of next bar:
 -31 +4-14-49+2 +40-31-12 +5 +4 -31-14-30



3'58"

decre. poco a poco

4'17"



4'34"

4'42"

Double Bass

4' 52"

5' 00"

Detailed description: A musical staff for Double Bass. The staff has five lines. The first measure contains a whole note chord consisting of two notes: one on the first line (F2) and one on the second line (C3). The second measure contains a whole note chord with two notes: one on the second line (C3) and one on the second space (D3). The third measure contains a whole note chord with two notes: one on the second space (D3) and one on the third line (E3). The fourth measure contains a whole note chord with two notes: one on the third line (E3) and one on the third space (F3). The fifth measure contains a whole note chord with two notes: one on the third space (F3) and one on the fourth line (G3). The sixth measure contains a whole note chord with two notes: one on the fourth line (G3) and one on the fourth space (A3). The seventh measure contains a whole note chord with two notes: one on the fourth space (A3) and one on the fifth line (B3). The eighth measure contains a whole note chord with two notes: one on the fifth line (B3) and one on the first line of the next staff (F4). The time markers '4' 52"' and '5' 00"' are placed below the staff at the end of the fourth and eighth measures, respectively.

In Section C the 1st or lowest line indicates open strings (the notated chord pitches)
2nd line = 1st natural harmonic-one octave higher.
3rd line = 2nd natural harmonic-one octave and a perfect 5th higher.
4th line = 3rd natural harmonic-two octaves higher.

Ab harmonic series

Chord 1 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Chord 2 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Chord 3 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Chord 4 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Double Bass 2X ♩=184. Chord 1.
Reverse stem direction indicates pitches are 200¢ higher.

Double Bass 2X ♩=303. Chord 1.
Reverse stem direction indicates pitches are 200¢ lower.

Guitar ♩=92

f

0" 6"

Chord 2 Gliss to Chord 3 Chord 3 Gliss to Chord 1

Chord 2 Gliss to Chord 3 Chord 3 Gliss to Chord 1

Chord 2 Chord 3 Chord 2

13" 20" 27" 33"

Chord 1

$\text{♩} = 184$

Chord 1

$\text{♩} = 92$

Each wind instrument has marimba at same pitch playing:

Double Bass

$\text{♩} = 144$

norm.....pont.

$\text{♩} = 237$

norm.....pont.

norm.

Every 2 beats begining with layer 14 to pont.

norm.

Every 2 beats begining with layer 1 to pont.

All notes to multis

40" 47" 55"

$\text{♩} = 237$

$\text{♩} = 184$

Every 2 beats begining with Layer 14 to pizzicato

Every 2 beats begining with Layer 14 to pizzicato

Gliss to Chord 2

Gliss to Chord 2

400¢ higher 500¢ higher

400¢ lower 500¢ lower

Each wind instrument has Chimes at the same pitch playing:

To normal tones

multi multi multi multi

$\text{♩} = 72$

1'04" 1'13" 1'20"

decresc poco a poco.....mp

1' 26"

1' 47"

2' 07" Chord 1

2' 13"

2' 21"

2' 26" 2' 32" 2' 39"

♩=210
♩=105

32/4 20/4 10/4 16/4

2' 44" 2' 50" 2' 56"

♩=336
♩=184
♩=210
♩=105

32/4 32/4 32/4 20/4 16/4 10/4

Chord 1 +50¢ Chord 1 +150¢
Chord 1 -50¢ Chord 1 -150¢

3' 0" 3' 08" 3' 14"

♩=368 C harmonic series
Chord 5 = Chord 1 +400¢
Chord 5
Chord 5
Chord 5

♩=368
♩=184
♩=184

32/4 32/4 16/4 16/4

Chord 1 +250¢
Chord 1 -250¢ Chord 5 cresc poco a poco

Oboe K used to generate the pitches above middle C and Oboe J below middle C. All pitches begin with Oboe multi. Each note starts with a Vibraphone, Chime and Gamelan note at the same pitch.

ff Winds and Metal come in at a faster successive rate in 2001 master.

All wind notes begin to gliss +200¢

Gliss ends on Chord 6 = Chord 1 +800¢ (E harmonic series)

Gliss ends on Chord 7 = Chord 1 + 100¢ (A harmonic series)

Gliss ends on Chord 7

Gliss ends on Chord 6

Gliss ends on Chord 7 +1200¢

Gliss ends on Chord 6 +1200¢

Gliss ends on Chord 7 +2400¢

Gliss ends on Chord 6 +2400¢

Each note changes to Oboe normal tone.
Gliss ends on A harmonic series.

3'45" 3'51" 3'57"

(Guitar) %

(Piano) %

(Guitar 2X) %

(Piano 2X) %

(Winds)

4'07" 4'13" Chord 7 played backwards

Db1. bass 2X $\text{♩} = 224$ Chord 7

Db1. bass 2X $\text{♩} = 140$ Chord 7 Begin gliss +300¢

Guitar $\text{♩} = 70$ Chord 7 Begin gliss +300¢

Piano $\text{♩} = 112$ Chord 7

Guitar 2X $\text{♩} = 140$ Chord 7 +1200¢ Begin gliss +300¢

Piano 2X $\text{♩} = 224$ Chord 7 +1200¢

Guitar 4X $\text{♩} = 280$ Chord 7 +2400¢ Begin gliss +300¢

Piano 4X $\text{♩} = 448$ Chord 7 +2400¢

Winds $\text{♩} = 70$ A harmonic series
 Oboe multis-with Vibes, Chimes and Gamelan notes.
 All wind notes begin gliss +300¢

Db1. Bass $\text{♩} = 70$

4'20" 4'24" 4'28" 4'32"

Winds and Metal come in at a faster successive rate in 2001 master.

Gliss ends on Chord 9 (Chord 1 -300¢ - F harmonic series)

Gliss ends on Chord 9

Gliss ends on Chord 9

Gliss ends on Chord 9

Gliss ends (C harmonic series)
All notes to Rec. multi.

4' 40" 4' 43" 4' 47" 4' 51"

Guitar

Piano

4' 55" 4' 59" 5' 03"

Double Bass 2X 16 $\text{♩} = 132$ Chord 10

Double Bass 2X 10 $\text{♩} = 82$ Chord 10

Guitar 8 $\text{♩} = 66$ Chord 10

Piano 5 $\text{♩} = 41$ Chord 10

Guitar 2X 16 $\text{♩} = 132$ Chord 10 +1200¢

Piano 2X 10 $\text{♩} = 82$ Chord 10 +1200¢

Guitar 4X 32 $\text{♩} = 264$ Chord 10 +2400¢

Piano 4X 20 $\text{♩} = 164$ Chord 10 +2400¢

Winds $\text{♩} = 7-14-36-30-52-31-37-10-49-11$
Recorder norm. with Vibes, Chimes and Gamelan.

Double Bass 7 $\text{♩} = 66$

Every beat beginning with Layer 15 change to 1st natural harmonic.

Every 1/2 beat beginning with Layer 15 change to 1st natural harmonic.

Every 1/2 beat beginning with Layer 15 change to 1st natural harmonic.

Every beat beginning with Layer 15 change to 1st natural harmonic.

Every beat beginning with Layer 15 change to 1st natural harmonic.

Every 2 beats beginning with Layer 15 change to 1st nat. harm.

Every 2 beats beginning with Layer 15 change to 1st nat. harm.

Crossfade to recorder multi over 5". Crossfade to Oboe multi. Crossfade to Oboe normal. Begin gliss to notes in next bar.

5'09" Winds and Metal come in at a faster successive rate in 2001 master. 5'10" 5'17" decresc. poco a poco 5'24"

Chord 10 - C harmonic series

Layer number: 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

+2 . . (4+2) 31 +4-14-49 +2
+40-31-12

	/ / simili		%
As before-change to 3rd nat. harm.		Every 2 beats begining with Layer 15 change to pitch of Layer 1	
	/ / simili		%
		Every 2 beats begining with Layer 15 change to pitch of Layer 1	
			%
As before-change to 3rd nat. harm.		Every beat begining with Layer 15 change to pitch of Layer 1	
			%
As before-change to 3rd nat. harm.		Every beat begining with Layer 15 change to pitch of Layer 1	
	/ / simili		%
As before-change to 2nd nat. harm.	As before-change to 3rd nat. harm.		Every 2 beats begining with Layer 15 change to pitch of Layer 1
	/ / simili		%
As before-change to 2nd nat. harm.	As before-change to 3rd nat. harm.		Every 2 beats begining with Layer 15 change to pitch of Layer 1
	/ / simili		%
As before-change to 2nd nat. harm.	As before-change to 3rd nat. harm.		Every 4 beats begining with Layer 15 change to pitch of Layer 1
	/ / simili		%
As before-change to 2nd nat. harm.	As before-change to 3rd harm.		Every 4 beats begining with Layer 15 change to pitch of Layer 1
-29-14 -45 +5 	+30-31+6 +28-49-30 	-30 -14 -31 +4 +5 -12-31 	+40 +2-49-14
Crossfade to recorder norm.	Begin to gliss to notes in next bar.		

5' 32"

5' 39"

5' 46"

5' 54"

The main musical score consists of 10 staves. The first 9 staves are grouped together, and the 10th staff is separated by a large gap. Each of the first 9 staves contains a double bar line with a slash (/) and a dot (.), indicating a measure. The 10th staff contains a double bar line with a slash (/) and a dot (.), indicating a measure. Below the staves, there are time markers: 6'02", 6'09", 6'16", 6'24", and 6'24".

Guitar

Piano

Only one layer used

Fine

6'32" 6'40" 6'50" 7'00"

The Guitar and Piano staves are shown at the bottom of the page. The Guitar staff has a double bar line with a slash (/) and a dot (.), indicating a measure. The Piano staff has a double bar line with a slash (/) and a dot (.), indicating a measure. The text "Only one layer used" is written between the staves. The word "Fine" is written at the end of the Guitar staff. Time markers 6'32", 6'40", 6'50", and 7'00" are placed below the staves.