Marc Estibeiro

The Sea Turns Sand to Stone

For Flute, Bass Clarinet, Piano and Live Electronics

Approximate Duration: 7’40”

Score at Concert Pitch
Guide to Notation

General marks

Ordinary articulation (cancels previous articulation)

Tremolo, always played as fast as possible

Trill, always to the indicated note

Senza vibrato – no vibrato

Ordinary vibrato

Very wide vibrato

Crescendo dal niente

Diminuendo al niente
Flute

Jet whistle

Harmonic

Whistle tone

Tongue ram

Flutter-tongue

Bass Clarinet in B♭

Unpitched air notes

Flutter-tongue
Multiphonic (fingering indicated in example)

Tremolo between two multiphonics

Move freely between air note and half embouchure

Slap tongue

Piano

Bounce a brass guitar slide off the strings near the indicated pitch. Pedal as indicated

Scrape the brass guitar slide along the indicated string, then touch the indicated harmonic
Scratch the indicated string with the edge of the brass guitar slide around the node for the indicated harmonic.

Play the indicated note with the left hand and touch the appropriate node on the string with the right hand to produce a harmonic at the indicated pitch.
**Guide to the Electronics**

The electronic part consists of a three-channel granular synthesiser. A broad overview of the software performance environment is shown below.

The level of the electronic part should be balanced to match the level of the acoustic instruments.

A small mixing desk is necessary in order to make minor adjustments to the levels during the performance.

The acoustic instruments should only be amplified if necessitated by the size of the performance space.

The electronic part requires a computer running Max v. 6 or above (www.cycling74.com), a suitable digital to analogue convertor, a mixing desk and amplification appropriate for the room. The Max patch is available from the composer on request.

Each of the three channels is followed by identical signal processing chains consisting of a delay modulation effect, a pitch shifter and a spectral delay. There is also a process which reorders elements within the soundfile (not shown in schematic). Each channel carries out real-time granulation of a soundfile. The soundfile is a pre-recorded gesture taken from the acoustic part. The first channel processes sounds from the bass clarinet, the second channel processes sounds from the piano, and the third channel processes sounds from the flute. These gestures should be recorded before the performance and edited to eliminate silence and discontinuities at the beginning and end of the recording. The recordings should match, as far as possible, the ambience of the room in which the performance will take place.
An example of the acoustic gestures used in the electronic part is shown below:

Pre-composed events are triggered manually from the software environment using numbered cues. These are indicated on the score as shown in the example above.

Although the events are pre-composed, all processing takes place in real time and there will be subtle but significant differences between performances. The timings shown on the score are for guidance only.
The pre-recorded sound-files processed by the three channels of the electronic performance environment are shown below:

**Bass clarinet**
- F2 senza vibrato
- F2 senza vibrato
- Trill
- Slap tongue
- Multiphonic

**Piano**
- Chord
- Iterative gesture
- Pushing agitated gesture
- Harmonic

**Flute**
- F#6 harmonic
- Timbral trill
- Ord. to flz
- Short staccato flutter tongue
- Senza vibrato
Bass Clarinet high flutter tongue

Bass Clarinet unpitched air notes

Piano scraping gesture then harmonic

Flute tongue ram

Flute pizzicato

Piano slide bouncing off strings

Flute wind tone to ord.

Flute whistle tone

Flute high flutter tongue

Flute jet whistle
Guide to Notation (Electronic Part)

A system of graphic notation has been used to indicate the electronic processes used and their resulting textures. Examples from the system are described below. The soundfiles are usually heavily processed and so any notated pitch references in the electronic part are for reference only. The processes are triggered automatically with the appropriate cue number so the graphics are representational only – they do not serve any performance function. A more detailed schematic appears after the main score.

Trigger cue number

Grain size. Changing from small to large in example

Play back speed – time stretching effect. Playback speed decreasing in example.

Reorder elements in soundfile

Grain density. Becoming less dense in example

Delay Modulation (comb filtering) effect

Pitch shift. Decreasing in example

Spectral delay effect
The figure below shows a broad schematic that was used during the compositional process to structure the composition. The acoustic part moves from a state of disorder ("dissonance" in the schematic) to a state of order ("consonance"). The electronic part mirrors the acoustic part by moving in the opposite direction. The acoustic part has been written using a hierarchy of gestures that move from "noisy"/disordered towards "pure-sound"/ordered. A similar hierarchy has been used for the source material of the electronic part. It is important to note that the terms "consonance" and "dissonance" have been used here in a very broad sense to refer to a sensory consonance and a sensory dissonance rather than the more traditional use of the terms in the context of tonality. It should also be noted that the timings shown are for guidance only and will vary between performances. They should be considered as approximations rather than absolute values.
**Instruments**

- Flute in C
- Bass Clarinet in B♭
- Piano (with Brass Guitar Slide)
- Live Electronics
  (Computer running Max 6 or higher, audio interface, suitable microphones where appropriate, mixing desk and amplification)
The Sea Turns Sand to Stone

- **Flute**
  - Intenso, Espressivo
  - mf

- **Bass Clarinet in B**
  - mf

- **Piano**
  - mf
  - Unpitched air notes

- **Electronics**
  - B.C., Piano, Flute
  - mf

- **Cue 1**
  - Time Stretch

- **Cue 2**
  - Time Stretch

- **Notes**
  - mf
  - Sim 7:4
  - mp → p
  - Time Stretch
  - Time Stretch
  - mf
Quickly scrape the edge of the guitar slide ALONG the E string then touch the string at the 7th harmonic.

Scratch the E string with the edge of the brass guitar slide around the point of the 7th harmonic.

Move freely between air note and half embouchure.

Quickly scrape the edge of the guitar slide ALONG the E string then touch the string at the 7th harmonic.
\[\begin{align*}
&6'45'' \quad \text{s.v. vibrato} \\
&6'50'' \quad \text{whistle tone} \\
&6'55'' \quad \text{ord. whistle tone} \\
&7'00'' \quad \text{flz} \\
&7'05'' \quad \text{ord. whistle tone} \\
&7'10'' \quad \text{ord. 15 icons}
\end{align*}\]
Cue 16
Detailed Schematic for Electronic Part

The following pages show a more detailed overview of the electronic events triggered by the cues in the score. The schematic is for information only – all the events unfold autonomously when the appropriate cue number is selected.

The table below shows a list of the abbreviations for the electronic processes used, together with an explanation where appropriate:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fd</td>
<td>Fade level (dB)</td>
</tr>
<tr>
<td>Pbs</td>
<td>Play back speed (1 = normal speed)</td>
</tr>
<tr>
<td>Gs</td>
<td>Grain Size (milliseconds)</td>
</tr>
<tr>
<td>Gd</td>
<td>Grain Density (milliseconds)</td>
</tr>
<tr>
<td>Pitch</td>
<td>Transposition (Hz)</td>
</tr>
<tr>
<td>Partials</td>
<td>Add partials to source</td>
</tr>
<tr>
<td>Spectral Delay</td>
<td>Add spectral delay to source</td>
</tr>
<tr>
<td>Reorder Elements</td>
<td>Reorder elements in sound file</td>
</tr>
</tbody>
</table>
**Channel One**  
*(Bass Clarinet)*

- **pbs 1**
- **gs 100**
- **gd 100**
- **CLOSE**
- **fd -25**
- **fd -90**
- **gs 30**
- **gd 1000**

**Channel Two**  
*(Piano)*

- **pbs -2**
- **pitch -200**
- **fd -15**
- **fd -90**

**Channel Three**  
*(Flute)*

- **pbs 0.1**
- **pitch -400**
- **fd -15**
- **fd -30**
- **spectral delay 0.4**

**Electronics Frame 1**

- **order**
- **disorder**
- **90°**
- **70°**
Channel One
(Rasen Clarinet)

Channel Two
(Piano)

Channel Three
(Flute)

Electronic
s Frame 2

Order 81°

Disorder
Channel One
(Bass Clarinet)

Channel Two
(Piano)

Channel Three
(Flute)

Electronic Frame 3

Cue 7

Cue 8

pbs -0.1

gs 1 1500

fd -15

gd 1 2000

reorder elements

pitch 100

gs 1000 ← fd -15

gd 5000

spectral delay 0.2

gs 100

gd 5000

partials

fd -90

fd -15

pitch 0

spectral delay 0.2

40"

32"

72"

order

disorder
Channel One
(Basset Clarinet)

- 4' 0" cues
- Reorder elements off

Channel Two
(Piano)

- 5' 0" cues
- Reorder elements off

Channel Three
(Flute)

- 4' 0" cues
- Reorder elements off

Electronic Frame

- 28" order
- 63" disorder
Channel One
(Bass Clarinet)

Channel Two
(Piano)

Channel Three
(Flute)

tongue ram

Electronic
Frame 5

order 5 0” 5 10” 5 20” 5 30” 5 40” 5 50” 6 0”

Cue 11

gs 200

Cue 12

spectral delay 0.4

pitch -800

fd -15

fd -90

gd 4000

fd -90

fd -15

Channel Two
pitch -200

fd -90

fd -15

partials

Channel Three
(Flute)

pitch 200

fd -90

fd -15

pbs -0.1

partials

Electronic
Frame 5

18”

36”

5 4

order disorder