Extended Techniques and Electronic Enhancements: A Study of Works by Ian Clarke

Christopher Leigh Davis

University of Southern Mississippi

Follow this and additional works at: https://aquila.usm.edu/dissertations

Recommended Citation
Davis, Christopher Leigh, "Extended Techniques and Electronic Enhancements: A Study of Works by Ian Clarke" (2012). Dissertations. 634.
https://aquila.usm.edu/dissertations/634

This Dissertation is brought to you for free and open access by The Aquila Digital Community. It has been accepted for inclusion in Dissertations by an authorized administrator of The Aquila Digital Community. For more information, please contact aquilastaff@usm.edu.
EXTENDED TECHNIQUES AND ELECTRONIC ENHANCEMENTS:

A STUDY OF WORKS BY IAN CLARKE

by

Christopher Leigh Davis

Abstract of a Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Musical Arts

December 2012
ABSTRACT

EXTENDED TECHNIQUES AND ELECTRONIC ENHANCEMENTS:
A STUDY OF WORKS BY IAN CLARKE

by Christopher Leigh Davis

December 2012

British flutist Ian Clarke is a leading performer and composer in the flute world. His works have been performed internationally and have been used in competitions given by the National Flute Association and the British Flute Society. Clarke’s compositions are also referenced in the Peters Edition of the Edexcel GCSE (General Certificate of Secondary Education) Anthology of Music as examples of extended techniques.

The significance of Clarke’s works lies in his unique compositional style. His music features sounds and styles that one would not expect to hear from a flute and have elements that appeal to performers and broader audiences alike. Clarke is helping to usher in a new era in flute literature by creating works for the more advanced performer which employ extended techniques, pop, blues and electronics to create a distinct sound. Meanwhile, his well-defined notational style and clear melodies appeal to relatively inexperienced players who find the works more accessible and entertaining to play.

This document will propose a new approach to performance practice using “Electronic Enhancements” to add to and alter the sound of the flute to create distinct and unusual effects. Included in this discussion will be the use of guitar and vocal pedal effects. Although Clarke does not use these electronic effects, he encourages such experimentation. I will further discuss other aspects of playing with electronics, including different types of microphones that could be used with these types of effects,
monitors, amplifiers, and mixers and how these components function in an entire set up, and how they may be applied to Clarke’s music.
ACKNOWLEDGMENTS

I owe a great amount of thanks to Dr. Danilo Mezzadri for his constant support and guidance through my doctoral program. He has allowed me to explore my own musical ideas, and without his dedication and patience, I would not have completed this degree. I would also like to thank the members of my graduate committee, Dr. Edward Hafer, Dr. Jonathan Holden, Dr. Joseph Brumbeloe, and Dr. Kimberly Woolly for taking the time to read this document and offer positive criticism.

I wish to extend a special thank you to Ian Clarke for taking the time to sit and talk with me, supporting my ideas and lending his music for this project, and for his overall encouragement. He has truly been an inspiration to me. I am also greatly indebted to Brandon Alanis, one of the most talented musicians I know, for his help in not only writing the last chapter of this document, but for helping to make a lifelong dream a reality. He has broadened my musical horizons farther than I thought possible and for that I am truly grateful.

I would especially like to thank my family for their constant support and encouragement, chiefly my mother for her tireless efforts scanning, reading and editing this document. I do not think I would have gotten through this without her.
# TABLE OF CONTENTS

ABSTRACT ........................................................................................................... ii

ACKNOWLEDGMENTS ......................................................................................... iv

LIST OF TABLES .................................................................................................. vii

LIST OF ILLUSTRATIONS ................................................................................... viii

LIST OF MUSICAL EXAMPLES ........................................................................... ix

LIST OF DIAGRAMS ............................................................................................ xiv

CHAPTER

I. INTRODUCTION .............................................................................................. 1

Biography of Ian Clarke

II. EXTENDED TECHNIQUES AND NOTATION .............................................. 6

Extended Techniques
Notational Considerations

III. WITHIN ........................................................................................................... 18

Overview
Analysis
Extended Techniques

IV. HATCHING ALIENS ..................................................................................... 47

Overview
Analysis
Extended Techniques

V. ELECTRONIC ENHANCEMENT ................................................................... 99

Electroacoustic Music
Notation and Electroacoustic Music
Limitations of Electroacoustic Music
Beyond Amplified Flute
Creating an Electronic Setup for Use in Performance
Other Types of Effects Pedals
Cost-Effective Alternatives
LIST OF TABLES

Table

1. Analysis, *Within*... .............................................................................................................20
2. Recommended Flute Choir Seating for *Within*... ..........................................................34
3. Range of Pitch Bends.........................................................................................................42
5. Analysis, *Hatching Aliens*, II .........................................................................................57
7. Vocoder Functions .............................................................................................................116
LIST OF ILLUSTRATIONS

Figure

1. Barcus Berry 6100 Electret Mic.................................................................111
2. Pickup inserted in head joint........................................................................111
3. Cable connecting pickup to preamp...............................................................111
4. Pedal effects board.........................................................................................119
# LIST OF MUSICAL EXAMPLES

Example

<table>
<thead>
<tr>
<th>Example</th>
<th>Title</th>
<th>Movements</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Higdon, <em>Rapid Fire</em>, Overblown notes</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>1b</td>
<td>Higdon, <em>Rapid Fire</em>, Overblown notes</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>1c</td>
<td>Clarke, <em>Hatching Aliens</em>, mm. 104-105, Overblown notes</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>1d</td>
<td>Clarke and Higdon notation</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>2a</td>
<td>Ferneyhough, <em>Unity Capsule</em>, Singing While Playing</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>2b</td>
<td>Dick, <em>Lookout</em>, mm. 41-44, Singing While Playing</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>2c</td>
<td>Clarke, <em>Hatching Aliens</em>, mm. 188-207, Singing While Playing</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>3a</td>
<td>Clarke, <em>Hatching Aliens</em>, mm. 129-134, Whistling</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>3b</td>
<td>Holliger, <em>Sonate (in)solit(air)e</em>, XI, Whistling</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>Clarke, <em>Within</em>..., mm. 1-9, opening flute solo, motive 1</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>Clarke, <em>Within</em>..., mm. 10-13, tertian harmonies</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>6</td>
<td>Clarke, <em>Within</em>..., mm. 4-9, solo accompaniment (breath noises)</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>7</td>
<td>Clarke, <em>Within</em>..., mm. 25-29, motive 3 (percussive effect)</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>8</td>
<td>Clarke, <em>Within</em>..., mm. 30-32, motive 4 (flicks and trills)</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>9a</td>
<td>Clarke, <em>Within</em>..., mm. 33-38, motive 5 (quarter tones)</td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>9b</td>
<td>Clarke, <em>Within</em>..., from mm. 10-16, original flute solo</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>10</td>
<td>Clarke, <em>Within</em>..., mm. 36-41, motive 5</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>11</td>
<td>Clarke, <em>Within</em>..., mm. 46-51, motive 8 (quartertone figure)</td>
<td></td>
<td>29</td>
</tr>
<tr>
<td>12</td>
<td>Clarke, <em>Within</em>..., mm. 55-57, closing of B section</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>13a</td>
<td>Clarke, <em>Within</em>..., mm. 58-61 and mm. 10-13, return of section</td>
<td></td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>A material (motive 2 variation)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13b. Clarke, *Within…*, mm. 10-13, motive 2 .................................................................31
14. Clarke, *Within…*, mm. 83-86, first variation of motive 1 .................................32
15. Clarke, *Within…*, mm. 91-98, second variation of motive 1 ............................33
16. Clarke, *Within…*, mm. 4-9, residual breath tones ...........................................35
17. Clarke, *Within…*, mm. 26-27 ...............................................................................37
18. Clarke, *Within…*, mm. 30-32, articulated breath tones .....................................38
19. Clarke, *Within…*, mm. 30-32 .............................................................................38
20. Clarke, *Within…*, mm. 36-38, flicks and trills with harmonic bursts ...............39
21. Clarke, *Within…*, mm. 46-51, quarter tone ......................................................40
22. Clarke, *Within…*, m. 8, pitch bend ....................................................................41
23. Clarke, *Within…*, mm. 41, pitch bend (finger slide) ...........................................43
24. Clarke, *Hatching Aliens*, I, mm. 1-12, introduction ..........................................49
25. Clarke, *Hatching Aliens*, I, mm. 13-18, first theme (flute line) ......................50
27a. Clarke, *Hatching Aliens*, I, mm. 28-29, second theme ....................................51
27b. Clarke, *Hatching Aliens*, I, m. 22 .....................................................................51
30. Clarke, *Hatching Aliens*, I, mm. 59-64, Section B ............................................54
31. Clarke, *Hatching Aliens*, I, mm. 81-84, statement of first theme ....................55
32. Clarke, *Hatching Aliens*, I, mm. 98-105, Coda ..................................................56
33. Clarke, *Hatching Aliens*, II, mm. 106-112, first motive .................................58
34. Clarke, *Hatching Aliens*, II, mm. 112-120, second motive .............................59
35. Clarke, *Hatching Aliens*, II, mm. 121-124, third motive ........................................60
36. Clarke, *Hatching Aliens*, II, mm. 125-128, fourth motive .................................61
37. Clarke, *Hatching Aliens*, II, mm. 129-140, piano interlude ..............................62
38. Clarke, *Hatching Aliens*, II, mm. 140-151, return motives from A ..................63
40. Clarke, *Hatching Aliens*, III, mm. 163-172, introduction part 1 .......................66
41. Clarke, *Hatching Aliens*, III, mm. 173-186, introduction part 2 .......................68
42. Clarke, *Hatching Aliens*, III, mm. 188-195 .....................................................69
43. Clarke, *Hatching Aliens*, III, mm. 213-221 ....................................................70
44. Clarke, *Hatching Aliens*, III, mm. 222-230 ....................................................70
45a. Clarke, *Hatching Aliens*, III, mm. 251-260 ....................................................71
45b. Clarke, *Hatching Aliens*, I, mm. 28-31 (flute line) .......................................71
45c. Clarke, *Hatching Aliens*, I, mm. 37-40 (piano line) .....................................72
46. Clarke, *Hatching Aliens*, III, mm. 287-299, B section ...................................73
47. Clarke, *Hatching Aliens*, III, mm. 302-312, closing B section .........................74
48a. Clarke, *Hatching Aliens*, III, mm. 337-344 (flute line) ................................75
48b. Clarke, *Hatching Aliens*, I, mm. 47-52 (flute line) .....................................75
48c. Clarke, *Hatching Aliens*, III, mm. 337-344 (piano line) ...............................76
48d. Clarke, *Hatching Aliens*, I, mm. 32-33 (piano line) ....................................76
49a. Clarke, *Hatching Aliens*, III, mm. 345-348 (flute line) ................................76
49b. Clarke, *Hatching Aliens*, I, mm. 34-35 (flute line) ....................................77
50. Clarke, *Hatching Aliens*, III, mm. 349-365, coda ........................................78
51. Clarke, *Hatching Aliens*, I, m. 1 ..................................................................80
52. Clarke, Hatching Aliens, I, m. 2 ................................................................. 81
53. Clarke, Hatching Aliens, I, m. 3 ................................................................. 81
54. Clarke, Hatching Aliens, I, m. 5 ................................................................. 82
55. Clarke, Hatching Aliens, I, m. 8 ................................................................. 82
56. Clarke, Hatching Aliens, I, m. 12 ................................................................. 83
57. Clarke, Hatching Aliens, I, m. 6 ................................................................. 83
58. Clarke, Hatching Aliens, I, m. 9 ................................................................. 84
59. Clarke, Hatching Aliens, I, m. 10 ................................................................. 85
60. Clarke, Hatching Aliens, I, m. 11 ................................................................. 85
61. Clarke, Hatching Aliens, I, mm. 9-12 .......................................................... 86
62. Clarke, Hatching Aliens, I, mm. 9-13 .......................................................... 87
63. Clarke, Hatching Aliens, I, m. 17 ................................................................. 88
64. Clarke, Hatching Aliens, II, mm. 125-128 .................................................... 89
65. Clarke, Hatching Aliens, III, mm. 267-270 ................................................. 91
66. Clarke, Hatching Aliens, I, mm. 49-61 ........................................................ 91
67. Clarke, Hatching Aliens, I, m. 34-35 .......................................................... 92
68. Clarke, Hatching Aliens, I, m. 65-66 .......................................................... 93
69. Clarke, Hatching Aliens, III, mm. 222-233 ................................................. 96
70. Clarke, Hatching Aliens, II, mm. 129-134 .................................................... 97
71a. Dick, Techno Yaman, timing cues .............................................................. 101
71b. Dick, Techno Yaman, timing cues .............................................................. 102
71c. Clarke, TRKs, mm. 1-12, sound effects cues ........................................... 103
72. Clarke, Tuberama, mm. 1-4, opening pre-recorded flute ............................. 121
73. Clarke, *Tuberama*, mm. 5-16, main theme (reverb) .................................................. 122
74. Clarke, *Tuberama*, mm. 25-32, contrasting material (delay) ...................................... 123
75. Clarke, *Tuberama*, mm. 98-101, final note (delay) ...................................................... 123
76. Clarke, *Hatching Aliens*, I, mm. 52, 54 and 56 (vocoder) ........................................ 124
77. Clarke, *Hatching Aliens*, I, mm. 59-66 (vocoder) ..................................................... 125
78. Clarke, *Hatching Aliens*, I, mm. 104-105 (vocoder) ................................................... 125
79. Clarke, *Hatching Aliens*, II, mm. 125-128 (reverb) ................................................... 126
80. Clarke, *Hatching Aliens*, III, mm. 281-285 (distortion) ............................................. 126
81. Clarke, Ian Clarke, *Within. . .*, mm. 38-51 (distortion) ............................................ 128
82. Clarke, *TRKs*, mm. 27-34 .......................................................................................... 129
LIST OF DIAGRAMS

Diagram

1. Signal Path Chain........................................................................................................................................113
CHAPTER I
INTRODUCTION

British flutist Ian Clarke is a leading performer and composer in the flute world. His works have been performed internationally and have been used in competitions given by the National Flute Association (Young Artist Competition) and the British Flute Society. Clarke’s compositions are also referenced in the Peters Edition of the *Edexcel GCSE (General Certificate of Secondary Education) Anthology of Music* as examples of extended techniques.¹

The significance of Clarke’s works lies in his unique compositional style which has been described as “high energy, funky, explosive,” and “sort of, but not, Pink Floyd for flute.”² His music features sounds and styles that one would not expect to hear from a flute and have elements that appeal to performers and broader audiences alike. Clarke is helping to expand flute literature by creating works for the more advanced performer which employ extended techniques, popular styles, blues, and electronics to create a distinct sound. Meanwhile, his well-defined notational style and clear melodies appeal to relatively inexperienced players who find the works more accessible and entertaining to play.

The first chapter of this document will provide biographical information about the composer including his education and early training in music, and his major musical influences. Chapter II will survey the types of extended techniques typically employed

---


by the composer and an evaluation of notation and ease of comprehension as compared to other 21st-century composers such as Robert Dick, Jennifer Higdon and Heinz Holliger.

Chapters III and IV will begin with a brief examination of the background and concept of two of Clarke’s compositions: *Within...* for seven flutes (1999) and *Hatching Aliens* for Solo Flute and Piano (2010). While his works may seem somewhat unconventional, my analysis will demonstrate that there are several “traditional” aspects related to form, key, and thematic material. Each chapter will also pay particular attention to the extended techniques employed in these works.

Chapter V will propose a relatively new, expanded way of thinking about the flute. It is not just as an orchestral or band instrument, but one that can be adapted to other genres, like rock and pop, through an approach to performance practice using “Electronic Enhancements” to add to or alter the sound of the flute to create distinct and unusual effects. I will discuss the use of guitar and vocal pedal effects. Although Clarke does not use these electronic effects, he encourages such experimentation. This chapter will further explain other aspects of playing with electronics including different types of microphones that could be used with these types of effects, monitors, amplifiers, and mixers and how these components function in an entire set up and how they may be applied to Clarke’s music.

---

3 Ian Clarke’s music is published through IC Music/Just Flutes Edition. www.justflutes.com
Biography of Ian Clarke

Born in Broadstairs, Kent in southeastern England in 1964, renowned flutist and
composer Ian Clarke began his music studies at age six. His earliest musical influences
were his parents. His mother taught piano and cello privately and also sang in a choir in
London, and his father had been a double bass player in the National Youth Orchestra of
Great Britain in his younger years. Clarke also credits his first music teacher for
introducing him to classical music.

Clarke’s first instrument, the recorder, helped him to establish a solid musical
foundation. At about age eight he began piano lessons, but his real interest was the flute.
For his tenth birthday his parents presented him with a secondhand flute, that according
to him “was probably a pile of junk, but I was just in heaven and couldn’t put the thing
down.” 4 Although he had some lessons on the flute he did not receive proper training
from a flute professor until he entered the Guildhall School of Music and Drama in
London when he was about sixteen. There he studied with Simon Hunt and Averil
Williams. 5

In his teen years, Clarke became influenced by his friends who were taking up
rock instruments and “listening to lots of progressive rock and roll,” like Yes, Motorhead,
Black Sabbath, and Pink Floyd. 6 Clarke and his friends formed a band for which he
learned to improvise and compose songs. “Being creative with my mates started to push

---

4Ian Clarke, personal interview with Chrissie Davis, October 10, 2011.

5Jessica Dunnavant, “Composer and Flutist Ian Clarke,” Flute Talk, 28, no. 7

6Clarke, interview.
me outside the normal classical track. It was through this experience that I discovered what a blues scale was.\textsuperscript{7}

Although Clarke continued to study classical flute with Kate Lukas at Guildhall, his college studies took a non-musical route. He attended The London School of Economics and Political Science to pursue a degree in mathematics.\textsuperscript{8} After transferring to Imperial College in London, Clarke earned his degree in mathematics in 1986, graduating with honors, while also teaching flute, playing in the London University and Imperial College orchestras and continuing to play with his friends in their band.\textsuperscript{9}

In the same year, Clarke’s band was offered an opportunity to record an instrumental album for a music library company.\textsuperscript{10} The band’s first recording was \textit{Hypnosis}, one of Clarke’s compositions of which he said, “at that time was a quasi-structured improvisation.”\textsuperscript{11} During the recording session Clarke began experimenting with non-traditional flute sounds, taking cues from the sounds his band mates were producing with their guitars and synthesizers. He experimented with pitch bending, timbral differences, and other types of extended techniques.\textsuperscript{12} Clarke recalled that “it was sort of new-age with lots of flute.”\textsuperscript{13} These effects would figure prominently in his future compositions.

\textsuperscript{7} Dunnivant, 6-8.

\textsuperscript{8} Monier, 3.

\textsuperscript{9} Dunnivant, 6-8.

\textsuperscript{10} Monier, 3.

\textsuperscript{11} Ibid., 3.

\textsuperscript{12} Ibid., 3.

\textsuperscript{13} Dunnivant, 6-8.
Later, Clarke and bandmate Simon Painter formed a writing partnership when they began getting requests to write music similar to Indy-rock for television.¹⁴ At the time, Clarke and Painter thought they “had arrived,” but it did not take long for them to realize how hard it was to be successful in the music business.¹⁵ Their collaboration eventually evolved into Diva Music, a music writing and producing company. The duo wrote and produced Clarke’s first solo album *Within…*, released in 2005. Clarke credits his compositional style, which can be heard in this album, to other composers and musicians including flutist Robert Dick, Karlheinz Stockhausen, rock-flutist Ian Anderson of the band Jethro Tull, and American jazz singer Bobby McFerrin.¹⁶ Since the release of *Within…*, Clarke has written a number of pieces for flute and piano as well as for multiple flutes.¹⁷

Today, Clarke is Professor of Flute at the Guildhall School of Music and Drama. He also travels extensively giving master classes which focus on extended techniques, such as multiphonics, singing and playing, and note-bending. He has been a guest performer at conventions in the United States, Italy, Slovenia, Hungary, the Netherlands and for the British Flute Society.¹⁸

---


¹⁵Dunnavant, 6-8.

¹⁶Monier, 4.

¹⁷Clarke, “Flautist/Composer.” ianclarke.net.

¹⁸Ibid.
CHAPTER II
EXTENDED TECHNIQUES AND NOTATION

Ian Clarke is known, in part, for his use of extended techniques. In this chapter I will demonstrate how Clarke is able to use a clear style of notation, making extended techniques more accessible, even to those flutists who have little experience with them.

Extended Techniques

Extended techniques are often seen as being outside the standard flute pedagogy. Flutists are not typically required to study these techniques unless faced with a piece that uses them. According to Linda Lancaster in her doctoral dissertation, after surveying fourteen college flute professors regarding the teaching of extended techniques, she found that eight teachers did not incorporate these techniques into daily lessons or require their students to play avant-garde music. In response to these results Lancaster says, “This practice may prove to be a disservice to students who someday might be faced with having to teach this body of repertoire.”

There is ample reason to practice some extended techniques. Techniques such as singing while playing and multiphonics can help to enhance the muscles of the throat used during playing, and increase control of the embouchure, air speed and diaphragm. With the lack of emphasis on extended techniques, they are often considered to be difficult, when many times they are no more complicated than any “standard” technique practiced on a daily basis. In fact, they may already be used by a flutist without realizing it is an “extended technique.” Pitch bending, for example, is often used when tuning the

---

instrument and is frequently found in music that employs extended techniques. Just as it is important to study and practice standard flute techniques like vibrato, double and triple tonguing, it is also important to gain some familiarity with extended techniques. As composer Richard Karpen contends, “Extended techniques are not only a natural extension of the flute’s language, but necessary to expanding this language.”

There are several resources for those who wish to venture into the world of extended techniques which provide detailed descriptions of these techniques, methods of execution, and etudes in which to apply them. Linda Holland’s *Easing into Extended Techniques* is a series of books that provide a good starting place for the beginner. This set of books and companion CD includes instruction and short sample pieces using such techniques as singing while playing, harmonics, multiphonics, pitch bends, microtones, and finger glissandi. *A Modern Guide to Fingerings for the Flute* by James J. Pellerite includes basic elements, for instance standard fingerings, harmonics, trill and tremolos, but also provides numerous alternate fingerings which will modify the pitch, color, timbre, and volume of a given note. He further examines other aspects of 20th-century music, such as quarter tones and quarter tone trills, as well as a discussion and diagrams of multiphonics, and detailed explanations concerning embouchure placement and breath

---


21 Linda Holland’s *Easing into Extended Techniques* series (2000) is available from Con Brio Music Publishing Company, Santa Barbara, CA.

support. Pellerite’s book is an invaluable resource for flutists wanting to acquire a better understanding of these techniques.

Robert Dick’s definitive book *The Other Flute: A Performance Manual of Contemporary Techniques*, described as a “comprehensive presentation of the flute’s sonic possibilities,” and his *Tone Development through Extended Technique*, are good for flutists who have more experience with, and wish to learn more about the technical workings of extended techniques, and use them to help improve all aspects of playing. Included are daily studies to help flutists produce optimal resonance and a developed embouchure for more effective execution of extended techniques.

Another valuable resource, especially for flutists who are new to extended techniques, comes from Ian Clarke’s website ianclarke.net. Here the composer has provided online tutorials to demonstrate some of the techniques used in his works. Not only are these demonstrations helpful in playing his music, but they also can pertain to many works by other composers. It is beneficial to actually observe the execution of a particular technique, since written instruction or simply listening to a piece does not always shed light on how to perform them.

---


Notational Considerations

Although Clarke employs several of the more “traditional” techniques, including quarter tones, pitch bending, overblown notes, multiphonics, singing while playing, and residual breath tones, his notation differs significantly from that of his contemporaries such as Robert Dick, Jennifer Higdon, Brian Ferneyhough, and Heinz Holliger. Because there are no standard conventions for indicating extended techniques, the actual scores can vary significantly from one composer to another and it is important to consider these differences. Nancy Toff demonstrates this in The Flute Book, in which she cites examples of avant-garde notation from fourteen different sources including flutists Robert Dick, Sheridan W. Stokes, Richard Condon, John Heiss, Thomas Howell, and Gardner Read. With so many different notational styles, interpretation can become confusing. Clarke simplifies this with his notational style. His notation is quite specific to his intents, readily understood, and relatively user-friendly. Let us consider several examples.

Overblown Notes

As notation styles can differ greatly, one composer may use different notations for the same technique, even within a single piece. One such difference can be seen in the notation of overblown notes in Jennifer Higdon’s Rapid Fire. Example 1a shows Higdon’s notations, in which she uses a sharp, jagged line, and additional notes at the bottom of the page to describe how to execute the technique.

\[26^\text{Nancy Toff, The Flute Book (New York: Charles Schribner’s Sons, 1985), 219; Davis, 55.}\]

Even within the same piece, Higdon notates the same technique differently. In this example, she uses a heavy peaking and sloping line to indicate that the written pitches should be overblown to reach random harmonic pitches.


Clarke notates this technique quite differently, using actual note heads (see Example 1c). These overblown notes are produced, similarly to Higdon’s, by fingerling low B natural and randomly flicking the keys and using explosive breaths to reach the higher notes indicated in the score. While he does write specific notes, they are not intended to be played exactly; rather they serve more as a guide.
Example 1c. Clarke, *Hatching Aliens*, mm. 104-105, Overblown notes.

Example 1d demonstrates the similarities between the two types of notation by overlaying Higdon’s peaking and sloping line onto the example of Clarke’s overblown notation. Clarke’s use of traditional note heads, particularly for those who are not as familiar with extended techniques, may be more recognizable and less intimidating than Higdon’s notation. Clarke also provides instructions for execution directly above the technique. Higdon provides written notes as well, however, they only appear at the bottom of the page. This can be rather difficult, especially when first learning the piece, to have to continually refer to the bottom of the page for instruction.

Example 1d. Clarke and Higdon notation.
Singing While Playing

Performers may also be asked to sing while playing. Brian Ferneyhough’s *Unity Capsule* gives examples of this technique. Ferneyhough uses three separate staves for the regular flute line, key noises, and the vocal sounds. Example 2a shows this multi-staff notation. The unpitched vocal line frequently appears in a different rhythm from the flute line. The notation is extremely difficult and visually confusing.


The next two examples from Robert Dick’s *Lookout* and Ian Clarke’s *Hatching Aliens*, demonstrate the notation of singing while playing. While Ferneyhough’s notation is very hectic, Dick’s and Clarke’s are much more succinct. Both Dick and Clarke
choose similarly to incorporate the vocal line with the flute line, but in such a way that is
visually clear. Dick notates singing while playing with square note heads, shown here in
red in Example 2b, illustrating that the voice should sing the same pitch as the flute.

Clarke, on the other hand, stacks the note to be sung and the note to be played (Example 2c). In this form it can at first appear to be a multiphonic; however, he includes
instructions above the pitches to indicate that the performer should sing and play.

Example 2b. Dick, Lookout, mm. 41-44, Singing While Playing.
According to *Flute World*, these three works share a similar degree of difficulty, between a grade four and a grade five, even though the notation of Ferneyhough’s *Unity Capsule* looks considerably more difficult.\(^{27}\)

**Whistling**

Whistling into the flute poses additional notational challenges.\(^{28}\) I have only encountered this technique in three pieces: *Hatching Aliens* by Ian Clarke and *Sonate (in)solit(air)e* and *t(aire)e*, both by Heinz Holliger. In all three works, this technique involves whistling into the flute with the embouchure closed, exhaling and inhaling, producing a soft “whistle” glissando.

---


\(^{28}\) Whistling should not be confused with whistle tones which are very faint sounds made by blowing very gently into the embouchure hole with the flute in normal playing position.
The composers’ notation for this effect is quite different. Clarke’s directions for *Hatching Aliens* are very clear. When listening to Holliger’s *Sonate (in)solit(air)e*, shown in Example 3b, the effect sounds similar to Clarke’s; however, Holliger’s notation for the same technique appears to be quite daunting. Even with the written instructions and the familiar use of note heads, his objective is still rather ambiguous. The composer indicates at the bottom of the page that the small notes in the middle of the staff are to be “nearly inaudible,” while the larger open notes at the bottom of the staff are to be played “without any interruption.”²⁹ Besides these few instructional notes, there is no other information. It is difficult to discern whether the larger open notes are meant to be fingered and the smaller notes are meant somehow to be whistled as they are written, if the open notes should be whistled and the performer should whistle, sweeping through various harmonics, or if all written notes should be fingered as the performer is whistling into the flute. Clarke, on the other hand, takes a more minimalist approach in notating this relatively undemanding technique to produce much the same result, giving clear written instruction as to how to perform the technique.

---

Example 3b. Holliger, (in)solit(air)e, (continued).

In the following chapters I will examine in more detail concept, form and the use of some of the previously mentioned techniques, as well as others found in two of Clarke’s works, *Within...* and *Hatching Aliens.*
CHAPTER III

WITHIN...

Overview

*Within*... appears in two versions, the original for seven flutes and another for flute and CD backing. On Clarke’s website it is described as “a unique evocative work…a new experience.” Approximately seven minutes long, *Within*... makes use of progressive, yet accessible extended techniques, and features a melodic line that develops through the piece and appears in all voices. The flute choir version is scored for seven flutes: four C flutes, piccolo, alto, and bass. In the solo version with CD, the flute takes the majority of the solo lines, alternating between an open holed C flute with a B foot, piccolo, and alto flute, with the remaining parts on the CD backing.

Clarke began working in 1999 and completed the work in 2003 after being approached by Clare Southworth, a professor of flute at the Royal Academy of Music, who was seeking repertoire for a flute choir of prominent London flutists. Southworth commissioned Clarke for a new piece; however, the elite choir never actually came together.

After finishing the work in 2003, Clarke performed the solo version with CD backing at the Just Flutes International Summer School at the Guildhall School of Music and Drama in Woldingham. In 2004, Clarke was invited to teach at the Stratford-upon-

---

30 Ianclarke.net, “Ian Clarke Flautist/Composer.”

31 Monier, 47.
Avon Flute Festival, where the full flute choir version of his new piece received its premiere by participants in his class.32

On his website, Clarke explains his inspiration for and creation of *Within…*:

The personal musical inspiration, character, soul of the piece is rather difficult to describe; this is reflected in the title perhaps. Some mileage may be made out of the fact that the original sketch was made in the same year as the solo flute piece *Zoom Tube* was completed and, of course, it postdates *Orange Dawn*. Therefore musical explorations of the flute and former influences were probably at play. In a technical sense there can be some subtle and more obvious parallels drawn with these pieces should the listener be familiar; which is not at all a requirement.33

Analysis

*Within...* is in a relatively straightforward rounded binary form with a return of the A section at the end of the piece as represented in Table 1.

---


33 Clarke, “Flautist/Composer.” ianclarke.net.
### Table 1

*Analysis, Within...*

<table>
<thead>
<tr>
<th>Form</th>
<th>Measure</th>
<th>Key</th>
<th>Thematic material</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1-25</td>
<td>bm</td>
<td>Motive 1 (1-9)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>em</td>
<td>Motive 2 (10-25)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AM</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>26 - 70</td>
<td>em</td>
<td>Motive 3 (26-29)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Motive 4 (30-33)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Motive 5 (34-37)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Motive 6 (38-41)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bm</td>
<td>Motive 7 (42-45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Motive 8 (46-51)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>em</td>
<td>Motive 2¹ (58-70)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Motive 2² (71-78)</td>
</tr>
<tr>
<td>A¹</td>
<td>71-102</td>
<td>EM</td>
<td>Motive 1¹ (79-90)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Trans. (91-94)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c#m</td>
<td>Motive 1² (95-102)</td>
</tr>
</tbody>
</table>

The opening A section, beginning with a flute solo in b minor, contains melodic material that is developed throughout the piece and passed between solo parts (Example 4).

*Example 4. Clarke, Within..., mm. 1-9, opening flute solo, motive 1.*
Shelly Monier discusses aspects of the harmonic language of *Within...* that are also characteristic of many of Clarke’s works, in particular his use of tertian harmonies with added $11^{\text{th}}$ or $13^{\text{th}}$'s, just as one finds in the jazz and popular music that so strongly influenced Clarke.\(^{34}\) These harmonies happen frequently throughout the piece, for example, m. 11 (Example 6) where Clarke notates an e minor ninth chord with an added $11^{\text{th}}$. Clarke has written an e minor and a d minor chord together creating the e minor with an added $11^{\text{th}}$, which happens frequently throughout the piece.

*Example 5.* Clarke, *Within...*, mm. 10-13, tertian harmonies.

Clarke develops the opening motive heard in mm. 1-9 for motive 2, repeating it up an octave in m. 10, also shown in Example 5. With this line, Clarke introduces extended techniques such as pitch bends and quarter tones. Flute 4/piccolo, alto flute 1,

\(^{34}\)Monier, 50.
and bass flute accompany the solo flute with breath noise by blowing fast, unfocused air across the embouchure hole without actually producing a note. He notates this with an open note head with a slash through it, shown in Example 6.

Example 6. Clarke, *Within*..., mm. 4-9, solo accompaniment (breath noises).

The B section is comprised of a series of motives in four bar phrases: mm. 26-29, 30-33, 34-37, 38-41 and 42-45. Here, Clarke integrates several extended techniques in almost all parts. The first four bar section, motive 3, begins in e minor with flute 2 creating breathy tones, notated with an open note head with a slash through it as previously notated, while creating percussive effects by using an “unformed embouchure in speech position producing staccato percussive effects.” Example 7 demonstrates the composer’s intentions for the percussive effects which are a series of “choo chi cha ke choo” sounds. Flute 4/piccolo and alto flute 1 continue with the breathy tones from the previous twenty-one measures, creating a rushing air sound without the normal flute tone, starting from *piano* and increasing to *forte* by the end of the measure, with a precise

---

35 Clarke, *Within*...
rhythmic pulse. Flute 3 also has this figure; however, instead of a residual breath tone, an actual note is played.
Example 7. Clarke, *Within*..., mm. 25-29, motive 3 (percussive effect).
For motive 4 in m. 30, Clarke not only expands the rhythmic idea from the third motive in m. 26 in the second flute, but he also incorporates several different types of extended techniques which include residual tones, percussive vocal effects, dampened notes, and a rather difficult passage in the fifth flute/alto 2 part which involves playing a rhythmic pattern, while simultaneously trilling a note. Here, Clarke indicates that the player should briefly flick the A and G keys to sound B and G while trilling with the F key.

Example 8. Clarke, Within..., mm. 30-32, motive 4 (flicks and trills).

The next motive, which Monier calls a variation of the first flute’s solo at the beginning of the piece, starts with a solo in flute one with quarter tones, as well as the addition of singing while playing.\footnote{Monier, 50.} Example 9a demonstrates this variation, while 9b shows the original first flute’s solo.
Example 9a. Clarke, *Within...*, mm. 33-38, motive 5 (quarter tones).
Explosive harmonies, notes achieved by forcefully blowing air through the flute to reach upper partials, in the alto 2 part continue into the next motive from mm. 38 to 41. Flute 1 continues the same rhythmic pattern, shown in Example 9a, and quarter tones from the previous four measures with the addition of singing at the octave while playing.

The motive 5 in mm. 42 acts as a transition back to the original key of b minor. Flute 3 has a tremolo, flicking the A and B keys independently of the tremolo with “harmonic bursts” punctuating the end of the measure. Again, Clarke presents the option of simplifying this part by giving flute 5/alto 2 part of the rhythm (Example 10). Meanwhile, the bass is playing steady eighth notes on each beat. In m. 44, the alto flute joins the bass on the off beats.
Example 10. Clarke, *Within...*, mm. 36-41, motive 5.

The last two motives in this section are made up of two six-bar phrases rather than the four-bar phrases previously seen. Clarke develops the sixteenth-note pattern that is
heard earlier in m. 34 in the first flute. Starting at the pickup to m. 46, flute 2 and flute 3 alternate playing the section of the melody that contains quarter tones and singing while playing. Flute 1 joins them with a pickup into m. 50. During this exchange, the alto flute and bass continue the syncopated eighth-note pattern that was started in the previous section. Flute 5/alto 2 begins a repetitive sixteenth pattern on a low B natural in m. 48, punctuating the short quarter tone figure in m. 50 played an octave lower in flute 3.

Example 11. Clarke, *Within...*, mm. 46-51, motive 8 (quarter tone figure).

In the last six bars of the B section, Clarke thickens the texture to include all seven players, adds voice to the figure being played by flutes 1 and 2, and alto flute 2, as
well as adding the piccolo at the pickup to m. 54. The intensity escalates as the B section comes to a close with an ascension in pitch and a vocal effect in flute one saying “shoo sha shi shah.”

Example 12. Clarke, *Within...*, mm. 55-57, closing of B section.

The return of the A section is marked by a slight variation of the quarter tone material found in motive 2, between the piccolo and alto flute 1, shown in Example 13a and 13b.
Example 13a. Clarke, *Within...*, mm. 58-61, return of section A material (motive 2 variation).

Example 13b. Clarke, *Within...*, mm. 10-13, motive 2.

The other parts continue on with recurring figures: a mordent trill in flutes 1 and bass, a descending triplet mordent trill in flute 3 and an ascending eleventet b minor figure in flute 5, all of which culminate in a sudden bar of silence at m. 70. Clarke writes another variation of the opening quarter tone flute 1 solo in the bass at the pickup to m. 71, accompanied by residual breath tones in the other parts. The solo is then continued by the alto flute at m. 76, this time without accompaniment.

At m. 79 Clarke introduces timbral trills, a trill between two notes of the same pitch, in the alto as the line is passed to the bass at the pickup to m. 83, now in the key of
c# minor (Example 14). The line is stated a final time by the piccolo. During the transformation of this quarter tone line between the three parts, Clarke calls for residual breathy tones in the other parts which grow and decay every two bars.


After the last statement of the quarter tone figure, there is a four-bar phrase in which all parts play residual breathy tones, some in a sixteenth-note pattern and others in whole notes. The work closes with a final variation of the opening theme in the first flute in c# minor.\(^{38}\)

\(^{38}\)Monier, 58.
Example 15. Clarke, *Within...*, mm. 91-98, second variation of motive 1.
Extended Techniques

Clarke employs eight different types of extended techniques, for which he provides clear, detailed performance notes in the score’s introduction. Before beginning a discussion of these techniques, we must consider the placement of performers on stage for this piece. In a rehearsal with the Nebraska Flute Choir, the composer suggested an unusual placement of the ensemble to allow related lines to be heard more readily. Monier demonstrates the composer’s suggested unusual placement of the ensemble, seen here in Table 2.³⁹

Table 2

*Recommended Flute Choir Seating for Within...*

---

Monier further suggests that when initially learning this piece with flute choir, it is beneficial to take out any solo lines and work on the accompaniment separately. The solo lines in flute one, piccolo, alto and bass should be practiced individually, as they require the more difficult techniques such as quarter tone passages and note bending.⁴⁰

³⁹Monier, 59-60.

⁴⁰Ibid.
It is important to understand that not every technique has a well defined description. In *New Sounds for Woodwinds*, Bruno Bartolozzi affirms that some techniques, such as multiple trills or “smorzato,” are difficult to translate and teach because they defy technical description. “Every player would need to have identical physical characteristics. Every instrument and reed would have to be precisely similar.” Because every player does not have identical physical characteristics and every instrument is not the same, experimentation and trial and error is often the best method for learning these types of techniques.

*Residual Breath Tones*

The residual breath tones should be an initial focus at the outset when rehearsing the accompaniment parts in this piece. Not only are they the first technique presented in the accompaniment, but they are also one of the easier techniques to master. The first residual breath tone occurs in m. 4 in flutes 4 and 5, alto flute 1, and bass. They are joined by flute 2 in m. 10 and by flute 3 a bar later.

*Example 16.* Clarke, *Within…*, mm. 4–9, residual breath tones.

---

Clarke notates residual breathy tones with an open note head with a slash through it. In the performance notes to this piece he suggests that, “bringing the jaw up and forward so the bottom teeth almost touch in front of the top teeth may facilitate this effect. Although loosening the embouchure is sometimes helpful, it is counter productive when tying to produce long phrases.”

Robert Dick describes residual tones as “noise-like resonances of the tube of the flute, usually consisting of a very weak fundamental and a few higher partials, and are often heard with natural harmonics.” They also have a full range of dynamics from $ppp$ to $ff$. Residual tones can be produced easily with any fingering, with the flute in normal playing position and with a much more relaxed embouchure than would take to produce a normal note. Dick suggests forming a wide opening and directing a relatively unfocused air stream across the embouchure hole to achieve the proper sound. Because there are multiple ways to produce this technique, the performer should research and experiment with different options in producing a result that best suits his or her preference and ability.

In playing Within..., I have found keeping a relaxed and open embouchure, as Dick suggests, pushing the middle of the tongue upward against the roof of the mouth, slightly obstructing the air stream, and using a soft “shhh” sound, produced the best result. Performing this technique in this way allowed for a greater dynamic range. When

---

42Clarke, Within....


44Ibid.
listening to other flutists perform the same technique without the obstruction of the
tongue, I noticed that the volume of the effect was more muted.

After this technique has been mastered and applied to the phrasing, articulation,
and dynamics, the solo flute line can be added. Players should pay particular attention to
any phrasing and dynamic markings and perform them clearly, as they are key
components in creating the overall mood and effect of this piece.

*Articulated Breath Tones*

In the B section, mm. 26-27, Clarke calls for articulated breathy sounds in the
second flute.

---


He suggests that the embouchure be in speech position and the flute in normal
playing position to produce the variety of percussive sounds called for in the music.
Having the embouchure hole turned too far in or out will dampen the sound and the effect
will be lost. The best resonance for this effect will be produced with this positioning of
the flute. He also mentions that it is important to take note of the consonants and vowels,
as they are different for each note of the passage.\(^{45}\) On his album *Within...*, Clarke
performs an accelerando here, though it is not written in the score. Because this motive is
the driving force behind the section, it is important the performer keep strict rhythm in
addition to playing the breathy tones as in the previous section and incorporating the

\(^{45}\)Clarke, *Within...*
spoken syllables. If struggling with integrating these elements, the player must practice them separately.

Clarke varies this technique at m. 30 with constant sixteenth-notes. This section uses the same percussive technique as the previous measures while integrating dry, dampened articulations intermittently throughout the gesture. He notates the effect with a note-stem without a head.

Example 18. Clarke, *Within...,* mm. 30-32, articulated breath tones.

**Flicks and Trills**

Clarke extends the accompaniment to include a trill and key flicks at m. 30, first in the flute 5 part, and flute 4 at m. 36. A sustained trill on E is to be played while simultaneously flicking the A and G keys to produce the pitches B and G. Bartolozzi would describe this as a “pedal key effect,” a trill that “functions as a pedal sound, influencing all the notes of the phrase.”


---

46Bartolozzi, 57.
According to Clarke, “The hands work independently, with the right hand trilling and the left hand very briefly fingering the staccato upper line. It is useful to practice the trill/tremolo line first and then try the upper line in strict time making the notes very short.” At m. 36 Clarke includes a harmonic outburst in this figure on beat four in the flute 5 part, later occurring on all four beats in m. 40.

Example 20. Clarke, Within..., mm. 36-38, flicks and trills with harmonic bursts.

Clarke suggests trying to play only the trills and tremolos into the overblown harmonics in strict time, leaving out the key flicks in the middle. When practicing this section, breaking down each element is the better approach to learning it; start by first establishing the rhythm. When the player is comfortable with this, they can begin to include flicking the A and G keys. If this passage is too difficult for one player, Clarke has written the option to have flute 1, and later flute 4, play the rhythmic figure, while flute 5 plays the trills/tremolos and the harmonic outbursts.

*Quarter Tones*

Clarke incorporates quarter tones, a type of microtone interval that is smaller than a half-step, throughout the piece, most notable in the B section at m. 46.

Here, flutes 1, 2 and 3 have ascending quarter tone gestures, which lead to a culmination of this section at m. 57. This quarter tone passage is then overtaken by the piccolo and alto flute 1 who have a variation of the b motive from section A, which leads to the climax of the piece in m. 70, where there is an abrupt full measure of rest in all parts.

For the quarter tone notes, Clarke provides fingerings above the note; however, he points out in the performance notes that these fingerings are not definitive and should the performer find a variation that works better, he or she should use it instead. I have found that Clarke’s fingerings generally work well and are very logical and may only require the addition or removal of one finger to go from one quarter tone to the next. I would suggest that the player study these fingerings carefully so that the proper quarter tone is produced. If the student wishes to gain more experience and practice with quarter tones, Robert Dick’s *The Other Flute: A Performance Manual of Contemporary Techniques*
provides quarter tone scales for both closed and open-hole flutes and includes fingerings for every pitch.\textsuperscript{48}

\textit{Pitch Bending}

Another extended technique found in \textit{Within...} is note bending. Bending the pitch on the flute is actually a regular part of playing in tune. As we struggle with out of tune notes on the instrument, we often find ourselves rolling the flute in or out to help correct the pitch, so this technique should not seem too foreign. Clarke notates this technique with the following symbol:

\begin{center}
\includegraphics[width=0.5\textwidth]{pitch_bend.png}
\end{center}

\textit{Example 22.} Clarke, \textit{Within...}, m. 8, pitch bend.

Robert Dick defines pitch bends as, “the change of pitch without change of fingering.”\textsuperscript{49} Generally, rolling the flute in or tipping the head down to lower the pitch, and rolling the flute out or tipping the head up to raise the pitch produces a bent note. Dick also mentions that the bending range of any given pitch depends on the length of the vibrating air column, with the shortest lengths being the most flexible. He describes the bending ranges in the following table.\textsuperscript{50}

\begin{footnotesize}
\footnotesize
\begin{enumerate}
\item \textsuperscript{48} Dick, \textit{The Other Flute}, 140.
\item \textsuperscript{49} Robert Dick, \textit{Tone Development Through Extended Technique} (New York, NY: Multiple Breath Music Company, 1986), 25.
\item \textsuperscript{50} Dick, \textit{The Other Flute}, 140.
\end{enumerate}
\end{footnotesize}
Table 3

Range of Pitch Bends

<table>
<thead>
<tr>
<th>Pitch Range</th>
<th>Upwards</th>
<th>Downwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>B^3 to F^4</td>
<td>¼-tone</td>
<td>½-tone</td>
</tr>
<tr>
<td>F#4 to C#5</td>
<td>¼-tone</td>
<td>½-1-tone</td>
</tr>
<tr>
<td>D^5 to F^5</td>
<td>¼-tone</td>
<td>¼-½-tone</td>
</tr>
<tr>
<td>F#5 to A#5</td>
<td>¼-tone</td>
<td>½-3/4-tone</td>
</tr>
<tr>
<td>B^5 to E^6</td>
<td>¼-tone</td>
<td>½-tone</td>
</tr>
<tr>
<td>F^6 to B^6</td>
<td>¼-tone</td>
<td>¼-tone</td>
</tr>
<tr>
<td>C^7 to F#7</td>
<td>Negligible</td>
<td>Negligible</td>
</tr>
</tbody>
</table>

Another good resource for learning and practicing this technique is *Easing into Extended Techniques*, by Linda Holland. When practicing pitch bending, Holland suggests beginning with the note A in the first octave.

Play a sustained note with good tone, starting in the regular “in-tune” position. Very slowly roll the flute in listening to the pitch drop as you do so. Try to keep the rate of the drop in pitch constant, and sustain the sound as long as you can until it cuts out. Dropping your jaw as you roll out will probably help extend the span of the pitch bend. Repeat this exercise, working to keep the pitch bend even and controlled, and striving to create as wide a bend as possible.\(^5\)

The same technique is used in bending the pitch upward, this time by rolling the flute out. Holland and Dick both point out that it is not possible to raise the pitch to the same extent that it can be lowered. To achieve a wider upward bend, Holland advises to

---

start from a rolled-in position rather than a normal playing position.\textsuperscript{52}

Clarke includes another type of pitch bend that may be better classified as a finger slide. In Example 21, Clarke indicates this type of bend with fingerings and arrows that indicate the movement from covered holes to rings and vice versa.

\textit{Example 23.} Clarke, \textit{Within...,} m. 41, pitch bend (finger slide).

This type of pitch alteration produces a wider interval range than rolling the flute in and out. Holland suggests practicing a second octave F, and without releasing pressure on the key, gradually sliding the first finger of the right hand off the hole while sustaining the tone. This will cause the pitch to rise by roughly a half-step. Repeat this process to practice creating a smooth slide from one pitch to the next.\textsuperscript{53} She also says that sliding the fingers back off the keys rather than sideways will produce the best results. This is another instance where the player should experiment with pulling the fingers off and sliding the fingers on the keys to find what works best for them. Most of the time, I prefer sliding the fingers off the keys; however, there have been occasions when slightly rolling the fingers up off of the keys and away from the hand has been an easier alternative. Keeping loose fingers, wrists and hands will help to smoothly transition from one fingering to the next. If a player is finding this difficult or is having issues with

\textsuperscript{52}Holland, \textit{vol 4}, 3.

\textsuperscript{53}Ibid.
gripping the flute too tightly, applying a small amount of cork grease to the finger tips will allow the fingers to slide easily from the keys. Once the flutist is comfortable with this feeling and pressure on the keys required to produce the technique, they should be able to produce this effect without the cork grease.

_Singing While Playing_

Singing while playing is a technique that was forged by jazz musicians and later developed by composers wishing to employ the flute as a polyphonic instrument.\(^5^4\) Because the flute is unique to other wind instruments in that it involves an open embouchure, the player may vocalize a pitch while simultaneously playing the instrument.\(^5^5\) Singing while playing makes it possible to create multiple sonorities on the flute, the intervals of which depend on the pitch and timbre of the note being played, as well as the player’s voice. The resulting sonorities tend to be rough and noisy, with a buzzing quality that can be felt by the player.\(^5^6\)

On a physiological level, practice of simultaneous singing/playing will enhance the flutist’s ability to control the muscles of the throat used in playing. In terms of general musicianship, the technique demands that the player control two independent musical lines with respect to pitch, rhythm, and volume—something many flutists have little experience with.\(^5^7\)

Singing while playing is also invaluable in helping to develop a player’s sense of intonation. Dick refers to this as “throat tuning” and explains it in terms of a

---


\(^{56}\) Ibid., 3.

\(^{57}\) Ibid., 2.
vibraphone’s many resonator tubes, each at the correct length to amplify a given note.

These tubes and the throat, he says, function in much the same way.

The vocal chords are held in the same position they would be if one were preparing to sing the note about to be played on the flute. To understand this sensation, play a note on the piano or other fixed-pitch instrument. Then, prepare to sing it. Before the note is sung, there is a change in the throat when the vocal chords are brought to the correct position to sing the pitch. When the vocal chords are held in position to sing a given pitch, the throat is in position to resonate that pitch best.\(^{58}\)

I practice throat tuning by starting on middle C and descending three notes at a time until I reach low C. First, with a tuner, play the first three pitches (C, C\(^\#\), D), trying to keep them as in tune as possible. Next, repeat the same three pitches, this time singing them while playing, again, watching the tuner closely. Repeat the same notes one last time, without the voice. The player should find that these notes are much more in tune and with much less effort. The process of singing while playing helps to relax the throat and create more resonating space which in turn, affects the intonation. After reaching low C, I start again on middle C, this time ascending by three notes. The player should be sure not to exceed his or her vocal range when singing and playing in the higher registers, as the vocal cords could easily become strained.

Flutists may come across singing and playing notes in unison or at the octave, as seen in *Within…*, or multiple pitches. The previous exercise will help in practicing singing and playing pitches in unison and at the octave. The challenge for some flutists may be in producing the sung pitch and the air stream required to support the tone on the flute; however, with a little practice, this technique becomes quite easy. Singing and playing multiple sonorities can be rather challenging, whether it is playing a sustained pitch and changing the sung note or singing a sustained pitch while changing notes on the

\(^{58}\)Dick, *Tone Development Through Extended Technique*, 9.
flute. Dick explains that if the pitches of the voice and the flute are close together, the
difference tone created will produce audible “beating,” and these combinations of pitches
are hard to sustain.\(^{59}\) He also points out that not only is it incredibly difficult to sing and
play multiple pitches, but the resulting dynamic of the played pitched is reduced to a
range of approximately \(mp-f\).\(^{60}\)

When practicing singing and playing multiple sonorities, Linda Holland suggests
beginning singing and playing in unison on low D. Next, gradually perform glissando up
a half step in the voice to E, hold the note and then slide back down to D, making sure the
low D’s have good intonation. First playing each pitch separately on the flute can help to
get them in player’s ear. Next, start on the same unison note and slide down a half step to
C\(^#\).\(^{61}\) This same exercise can be used in practicing other intervals as well.

*Within...* is a unique work for a solo performer or flute choir. The avant-garde,
yet accessible extended techniques used in the work, along with a developing melodic
line produce an interesting layered and ethereal quality, helping to make the work truly
“unique and evocative.”\(^{62}\)

\(^{59}\) Dick, *The Other Flute*, 143.

\(^{60}\) Ibid.

\(^{61}\) Holland, *vol. 5*, 4.

\(^{62}\) Clarke, *Within....*
CHAPTER IV

HATCHING ALIENS

Overview

_Hatching Aliens_ is a unique work for solo flute and piano in three movements: _Something is there!, Alien Chill Out/Blue Alien, _and_ The Fear Returns-Battle Tempo_.

This work makes use of a multitude of extended techniques, such as quarter tones, various types of jet whistles, key clicks, and tongue stops, and has been described as “a journey of the imagination.” In the preface to the music, Clarke explains that _Hatching Aliens_ was created “off the page” and “in the imagination.” It was not modeled on any previous work, either by him or any other composer, although the “primal explorations” of the work harkens back to Stravinsky and the _Rite of Spring_. The piece also takes some inspiration from the 1979 science fiction horror film “Alien.” Clarke has also said that the work searches for “some resolutions, dialogue and empathies in, and with, the unknown.” Clarke goes on to say:

As with other works it has an existential dimension; certainly it reaches into origins, corners and twists of reality with, for example, the quarter tones being used partly as a metaphor for peering in between. Our world can be curiously alien, frightening and strangely beautiful. _Hatching Aliens_ themselves would presumably be fascinating, alluring and earth shatteringly scary all at once...what would we learn about ourselves? 

_Hatching Aliens_ was previewed by Clarke at the flute courses in St. Andrew’s, Scotland and Woldingham, England in the summer of 2008. The work received its

---


64 Ian Clarke, _Hatching Aliens_, (Surrey England: Just Flutes, 2010).

65 Ibid.
official premiere at the British Flute Society Convention in Manchester in August of that same year. Its premiere in the United States took place at the National Flute Association’s Convention in New York City in August 2009 by Ian Clarke and pianist Tim Carey.66

Analysis

Once again referencing traditional form, the first movement of *Hatching Aliens* is in rounded binary form with an introduction and a coda.

Table 4

*Analysis, Hatching Aliens, I*

<table>
<thead>
<tr>
<th>Sections</th>
<th>Themes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td></td>
<td>1-13</td>
</tr>
<tr>
<td><strong>A</strong></td>
<td>Theme 1 mm. 13-27</td>
<td>14-46</td>
</tr>
<tr>
<td></td>
<td>Theme 2 mm.28-35</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transition material mm. 37-46</td>
<td></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Development of theme 2 from section A</td>
<td>47-70</td>
</tr>
<tr>
<td><strong>A¹</strong></td>
<td>Theme 1 mm. 71-88</td>
<td>71-97</td>
</tr>
<tr>
<td></td>
<td>Theme 2 mm. 89-96</td>
<td></td>
</tr>
<tr>
<td><strong>Coda</strong></td>
<td>Return of material found in section B</td>
<td>98-105</td>
</tr>
</tbody>
</table>

The introduction is 13 bars long and begins with flute alone, displaying several

---

66 Clarke, Flautist/Composer, “Publications.”
types of extended techniques. The piano enters at bar 9 with chords that alternate between effects heard in the flute. This introduction and the techniques used in it hold the “seeds” upon which the rest of the work is built.67

Example 24. Clarke, Hatching Aliens, I, mm. 1-12, introduction.

The A section begins at m. 14 and introduces the main quarter tone melody in a four bar phrase. In bar 19, the theme is presented again a tri-tone higher, beginning on F♯, and is slightly altered by the end of the phrase. This alteration will serve as the basis for the second theme in section A.

---

67 Clarke, Hatching Aliens.

The last presentation of this theme occurs at m. 23. This statement is not only at a different pitch level, but the contour of the line has also been varied. Notice in the previous example, for instance, how beat one of m. 19 begins on an F sharp and jumps down a major 6th to A natural. This is followed by A naturals neighboring an A quarter tone flat. Next, on beat three, there are ascending sixteenth-notes, followed by another descending quarter tone neighbor group. In Example 26, we can see that Clarke has varied this by reversing the contour.


The second theme in this section is a development of m. 22, and makes extensive use of quarter tones, portamenti and flutter tonguing. Compare the first line of the second theme with m. 22. The rhythmic pattern and quarter tone neighbor group used can be
seen in Example 27a and 27b.


Example 27b. Clarke, *Hatching Aliens*, I, m. 22.

Through the A section, a pattern of $5^{th}$s and $3^{rd}$s emerges. Starting at m. 14, there is a primary tone of C natural which leads to G natural in m. 19, which then leads to B natural in m. 23. This pattern continues through the rest of the section.
Example 28. Clarke, *Hatching Aliens*, I, mm. 14-23, pattern of 5\(^\text{ths}\) and 3\(^\text{nds}\).

Section A ends with a *Grand Pause* at m. 36, followed by a 9 bar transition. This transition consists of trills and falls in the flute line which is accompanied by an ostinato on D flat and A flat in the piano until the last 6 bars of the transition in which the piano tacets.

The B section begins at m. 47, and is a development of the descending quarter tone pattern found in the second theme of the A section. This section is rounded out with a series of tremolos followed by an ascending minor 2\textsuperscript{nd} sixteenth-note pattern. This is accompanied by the piano which also has a variation of the flute’s second theme in section A.
Example 30. Clarke, *Hatching Aliens*, I, mm.59-64, Section B.

The return of the A section occurs at m. 71, with fragments of the first theme. A full statement of the first theme happens at m. 81, a half step below the original statement of the melody.
Example 31. Clarke, Hatching Aliens, I, mm. 81-84, statement of first theme.

At m. 89 there is an exact restatement of the second quarter tone theme from the first A section. During this section the piano accompaniment takes up the descending half-step figure heard earlier in the flute in mm. 63-64 (shown in Example 30). After a Grand Pause, the Coda begins at m. 98 (Example 32). Clarke uses a technique similar to that seen in Within... of flicking to upper notes while trilling a separate note. There is also a return of the ascending tremolo figure previously heard in the B section, during which the piano outlines a fully diminished F# seventh chord. The movement ends with an explosive breath and random finger flicks to reach sporadic notes which decay into silence.
Example 32. Clarke, Hatching Aliens, I, mm. 98-105, Coda.

The second movement of *Hatching Aliens* has an improvisatory feel and makes frequent use of quarter tones, non-traditional notes, and other traditional as well as
unusual extended techniques, and at times, displays Clarke’s jazz influence. This movement is a sort of binary form, although it does not follow the rules of binary form exactly.

Table 5

*Analysis Hatching Aliens, II*

<table>
<thead>
<tr>
<th>Sections</th>
<th>Themes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Motive 1 mm. 106-112</td>
<td>1-128</td>
</tr>
<tr>
<td></td>
<td>Motive 2 mm. 113-120</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motive 3 mm. 121-125</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motive 4 mm. 126-128</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Slight development of Motive 1 in piano interlude</td>
<td>130-140</td>
</tr>
<tr>
<td>A¹</td>
<td>Motive 4 mm. 141-143</td>
<td>141-157</td>
</tr>
<tr>
<td></td>
<td>Motive 2 mm. 143-145</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motive 1 mm. 143-151</td>
<td></td>
</tr>
<tr>
<td>Coda</td>
<td>Development of Motives 3 and 4 from A section</td>
<td>158-162</td>
</tr>
</tbody>
</table>

The A section begins at bar 106 and introduces the first motive, a melody consisting of non-traditional notes, notated with smaller diamond shaped note heads, and portamenti in the flute line. I use the term motive rather than theme, because there is not a real development of the ideas found in this first section. Rather, they seem to be several ideas strung together and then either restated or varied slightly at various points throughout the movement.
Clarke’s use of altered chords such as $D^7\flat 5$ in the piano helps give this movement a particular “jazzy” feel (Example 33). The second motive of this section, a series of triplet figures, begins at m. 113. It is, again, accompanied by a succession of block chords in the piano. Clarke continues the use of portamenti in this theme, and augments it with the use of harmonics.

Example 34. Clarke, *Hatching Aliens*, II, mm. 112-120, second motive.

The third motive in section A is a lamenting chromatic quarter tone figure. The lilting grace notes which occur on the first two notes of the triplet figures on beats one and three also contribute to the jazzy, improvisatory feel of the movement.

The last motive occurs at m. 126, and could be considered a variation of the opening theme. Again, Clarke uses non-traditional notes with portamenti to create melody with a distinct sound reminiscent of an Asian bamboo flute. The piano accompaniment ends on a quintal harmony, also found in jazz music.
The B section, beginning at m. 129, is the start of a jazzy piano interlude. The piano briefly quotes the opening theme played by the flute, shown in red, before moving on to new material, although using similar harmonies to the opening lines of the movement. This brief statement of the opening flute motive makes it difficult to call this a true “B section,” but because the motive is not developed further and new material introduced after this statement, I would label this section as B. The flute accompanies the piano in the section with the unusual technique of whistling into the flute to sweep through various harmonics.

At m. 141, there is a return of motives heard in the opening A section, slightly altered and in reverse order from that of the A section. It begins with a direct statement of motive 4 followed by a two measure repetition of the first measure from motive 2. The final motive to appear in this section is a variation of theme 1. This entire section is accompanied by arpeggiated chords in the pianos. This accompaniment is new (the accompaniment in the rest of the movement consisting mostly of block chords) and helps to give a sense of momentum and direction (Example 38).

Example 38. Clarke, *Hatching Aliens*, II, mm. 140-151, return motives from A.
The pickup to bar 153 marks the beginning of the coda in which Clarke uses a variation of the triplet quarter tone material found in the third motive in section A. It is again accompanied by block chords in the piano. The movement ends with a solo in the flute, a final statement of theme 4 at m. 158, beginning on C# instead of D. The flute ends the movement alone; however, Clarke has indicated that in the event the movement should be played alone the piano should add a “gentle chord” consisting of D, F# and C half way through the last bar.


Movement 3 is yet another example of rounded binary form with an introduction and coda. It is highly programmatic and is built largely upon motives from the previous movements, as well as a couple of new ideas.
Table 6

*Analysis Hatching Aliens, III*

<table>
<thead>
<tr>
<th>Sections</th>
<th>Themes</th>
<th>Measures</th>
</tr>
</thead>
</table>
| **Introduction** | Part 1- *Fear Returns*: material from intro of Movement 1  
Part 2- *Battle Tempo*: chromatic figures in piano | 163-187 |
| **A** | Theme 1 mm. 188-212  
Transition material mm. 213-221  
Theme 2 mm. 222-250  
Theme 3 mm. 251-286 | 188-286 |
| **B** | *Meno Mosso*  
New multiphonic material | 287-312 |
| **A₁** | Theme 1 mm. 313-328  
Movement 1, B material mm. 329-336  
Movement 1, sec. A  
Theme 2 material mm. 345-349 | 313-349 |
| **Coda** | Movement 1 material mm. 358-363 | 350-365 |

It begins with a long, programmatic introduction which is in two sections. The first, called *Fear Returns*, begins immediately after movement 2 at m. 163. Clarke returns to the Jet Whistle and breath effect motives heard in the introduction of the first movement. During this, the piano also has material reminiscent of the first movement, and then begins a cadenza at m. 169, which consists of an octatonic scale.
Example 40. (continued).
The next section of the introduction, called *Battle Tempo*, begins at m. 173. Throughout this section the performer is to finger a low C♯ while trilling various keys and singing into the flute with the embouchure hole covered. Clarke notates arrows above the staff indicating that the pitch of the sung notes should rise and fall gradually. Clarke calls this “alien whaling.” It ends with the optional exclamation “Shhiaow!” This is accompanied by ascending chromatic eighth notes in the piano. The introduction comes to a close with a rest in both parts.

The A section starts at m. 188. This is a rather long section that brings back ideas heard previously in the work. It begins with a new theme which alternates between measures of singing and playing and passes through several keys, starting on F# major, B-flat major, G major, and finally a minor (Example 42). This theme will return at the end of the piece. It is followed by a short transition at m. 213 (Example 43), in which the piano contains a variation of the accompaniment from the first movement (mm. 28-29). Clarke introduces a new technique, multiphonics, in the second theme in m. 222.

Example 42. Clarke, *Hatching Aliens*, III, mm. 188-195.
Example 43. Clarke, *Hatching Aliens*, III, mm. 213-221.

The third theme begins at m. 251 in c\# minor, and is a restatement of material from the first movement. The piano accompanies with an ostinato on C\# and G, which also comes from the first movement, but here is spelled enharmonically. As shown in Example 45a-c, the material in this section comes directly from movement 1.

Example 45a. Clarke, Hatching Aliens, III, mm. 251-260.

Example 45b. Clarke, Hatching Aliens, I, mm. 28-31 (flute line).

This is followed by a flutter tonguing breath effect in the flute which accompanies an undulating chromatic figure in the piano. There is again a reference back to the first movement at m. 281 with random breath notes. This was first seen in the Coda in movement 1. The piano also has a similar figure here in which Clarke instructs the pianist to “improvise hitting lower strings inside piano using flat hand or fingers.” This gradually fades out in both parts, leading to a measure of rest before the B section.

At the B section, which begins in m. 287, there is a sudden shift in tempo and mood, which Clarke notes should be free and other worldly. This section is marked *meno mosso*, with a series of minor third multiphonics in the flute line. The piano has chords built on major 7ths, with D natural and C# in the right hand and B natural and A# in the left hand at m. 287.

---


The section ends with a rippling effect, first in the flute with some non-traditional notes, and echoed by the piano until the end of the section, ending on a cluster chord consisting of C natural in three octaves, G natural, and D flat.
The A section returns at m. 313 with a full statement of the first theme from section A, now in G major. Half way through this section Clarke brings back material from the B section in the first movement in the flute, while the piano has similar to that found in the A section in movement 1, as seen in Example 48a and 48b.

Example 47. Clarke, *Hatching Aliens*, III, mm. 302-312, closing B section.


Example 48d. Clarke, *Hatching Aliens*, I, mm. 32-33 (piano line).

Again, Clarke brings back material from the second theme of section A in the first movement. It is spelled enharmonically in the third movement.

A short Coda begins at m. 350, where again, Clarke refers to material in the first movement, with the chromatically descending trills in the flute, which is sung and played throughout this section. The piano helps to intensify this closing section with its descending passage, which descends down to E⁰ in the left hand. After a measure of rest between both parts, the flute ends with an explosive breath which sounds various simultaneous harmonics, while the piano plays a *sforzando* cluster chord consisting of F♯, E, D, C, B, and A, bringing the piece to close.
Extended Techniques

*Hatching Aliens* makes extensive use of several types of extended techniques, for which Clarke provides extensive performance notes in the preface to the work. As an overview of the techniques, Clarke notes that the score is intended to be self-sufficient, and that as any work that makes use of extended techniques, it can look more complicated than it actually may be to perform. He also adds, “Most of the techniques used here are used in previous works, both by myself and other composers, so there is a context and body of knowledge from which to draw.”

*Jet Whistles*

The introduction of *Hatching Aliens* alone uses several extended techniques, the first being the Jet Whistle. The composer does not only use the standard Jet Whistle, but a number of variations of it. Measure 1 begins with the basic Jet Whistle, notated with an open, downward facing, triangular note head. The effect is produced by simply blowing fast air directly into the flute. He describes this action as being similar to blowing air into the instrument to warm it up. Clarke has expanded the technique by requiring the player to rotate the flute inward to entirely cover the embouchure hole. Although the Jet Whistle is typically produced by blowing hard and fast air through the instrument to create a loud, harsh sound, a softer and more gentle effect is the goal for this passage.

---

69 Clarke, *Hatching Aliens.*

70 Ibid.
Measure 2 holds the second variation of this technique. Again, Clarke notates it with an open, triangular note head; however, this time the triangle is pointed upward. This, along with the written note above the measure, indicates that the Jet Whistle is to be played on an inhale, rather than an exhale as is done with the basic form of this technique. Clarke also includes a vowel effect on this note, specifying that the player should “manipulate the ‘woosh’ of the Jet Whistle” by creating the vowel sound “heee” while inhaling. The player should note that the vocal chords are not activated in creating this affect. The sound is produced in the mouth and can be performed by simply raising the font of the tongue in the mouth, causing less air to be able to pass through, creating the closed off “heee” sound. This can be practiced without the flute, as it is not necessary in producing the effect, but rather helps to amplify it.

Example 51. Clarke, Hatching Aliens, I, m. 1.

71 Clarke, Hatching Aliens.
In measure 3, Clarke writes the third variation of the Jet Whistle, again, notated in the same manner; however, notice that the note head is once again pointing down indicating that the player should perform this on an exhale as in m. 1. The flutist is instructed to slightly rotate the flute, similar to m. 1, but this time the flute is to be rotated outward, picking up partials above the note. Clarke explains that this effect can be done to a greater or lesser degree and control over the technique can be achieved through experimentation with it. He adds, “At its extreme, the embouchure hole is no longer turned towards the player as in the basic Jet Whistle, but is facing back up; it will come into contact with the inside of the top lip.” Clarke indicates the approximate angle of the flute with a series of “U” shapes turned at an angle as shown in Example 53. Example 54 demonstrates this same technique, only with a greater rotation of the flute to achieve higher partials.

Example 52. Clarke, Hatching Aliens, I, m. 2.

Example 53. Clarke, Hatching Aliens, I, m. 3.

---

72 Clarke, Hatching Aliens.
The next form of the Jet Whistle in the opening section of this piece is a Jet Whistle with a breath effect. This occurs in m. 8, an inhaled Jet Whistle with a whispered “oowid!” (Example 55) breath effect, and again in m. 12, this time with a whispered “shhht” (Example 56). Clarke recommends experimenting with loud whispered “oowid” and “shhht” sounds, first without the flute, and then with the flute in the Jet Whistle playing position. He also suggests experimenting with uncovering the embouchure hole and angling the flute slightly at the end of the gesture which may help to increase the intensity of the effect. The flutist should keep in mind that these almost sound like reversed sound effects, as Clarke indicates above the measure.\footnote{Clarke, *Hatching Aliens*.}

\begin{example}
\begin{music}
\begin{musicnote}
\end{musicnote}
\end{music}
\end{example}

\textit{breath effect as if reversed}


This type of Jet Whistle with breath effect happens three more times in the opening lines of the piece. In m. 6 Clarke write an ascending chromatic sixteenth-note run with an inhaled Jet Whistle, as well as a “dekedekede…” whispered breath effect.


Notice also the slashes over each note stem, indicating that each note is to be double tongued, adding another layer to the effect. As there are several elements in this one measure alone, I would strongly recommend that anyone attempting this piece break this measure down into individual parts to make it more manageable. Because it is a chromatic scale, the notes should not be too difficult to master; I would suggest that the flutist first tackle this measure by securing the rhythm playing the actual written notes, and making sure to follow the indicated dynamics. Once the flutist is comfortable with the rhythm and double tonguing, adding the Jet Whistle should be the next step. Clarke indicates that this should be done on an inhale; however, I have experimented with playing this passage on an inhale as well as an exhale, as I found the inhale to be rather
uncomfortable. I would suggest the flutist experiment with both scenarios and choose the one that is not only more comfortable to perform, but that will also allow the effect to be heard clearly and with the proper intensity.

Finally, practice with adding the “dekededeke…” breath effect. It may be helpful to practice this without the instrument and the flutist may find that this effect comes rather naturally. Once comfortable with this, add the flute and put all of the elements together.

The last three examples of the manipulated Jet Whistle are all played like the basic Jet Whistle with slight alterations. First, in m. 9 (Example 58) Clarke writes a basic Jet Whistle, but includes the playing of random notes. As in the first few measures of the piece, this Jet Whistle is to be played with a less intense air stream. In the next measure (Example 59), we have a more traditional Jet Whistle in the sense that this version is to be played with harder and faster air than previous examples; however, he has added a breath effect with a “hoo wid!” sound.

Finally in m. 11, (Example 60) we have another less intense version of the basic Jet Whistle with the addition of low growl into the flute. Rather than using the voice to create a growling sound, I would suggest to make a static sound at the back of the throat and with the flute rotated inward.

Clarke restates these Jet Whistle effects later on the piece at the transition from the second and third movement.

![random notes](image)

*Example 58. Clarke, *Hatching Aliens*, I, m. 9.*
It should be said, that while playing the first several bars of the opening of *Hatching Aliens*, the player should pay close attention to the dynamics marked in the score, as they are very important in creating the eerie atmosphere of this section and which sets the tone for the rest of the work. Remember, “Something is there!”

*Tongue Stops*

The next extended technique to appear in *Hatching Aliens* is the percussive effect tongue stops, or tongue rams. This technique appears three times in the opening lines of the piece. These are notated with a “TS” above the note.

---

74 Clarke, *Hatching Aliens.*
Tongue stops are fairly easy to produce by turning the flute inward as if to play a Jet Whistle, and thrusting the tongue through the embouchure hole of flute, stopping the sound of the air through the instrument with the tongue, creating a “plop” sound. A flutist can get an idea of what this effect should sound like by tapping the embouchure hole with the finger. Another way to think about playing this is by saying the “httt” while rapidly thrusting the tongue toward forward in the mouth.

Clarke mentions that with practice, producing a percussive pizzicato-like effect by simply “tapping” the embouchure hole with the tongue will become possible. He adds that the quality of the sound is “a major 7<sup>th</sup> below the fingered note,” and that this interval “forms some of the thematic DNA of the piece.”  

*Example 61.* Clarke, *Hatching Aliens*, I, mm. 9-12.

**Key Clicks**

The next technique, key clicks, is also found in the opening of the work. These sounds are short, pitched resonances of the tube of the flute, and can be used to articulate sonorities such as single pitches, multiphonics, whisper tones, residual tones and jet whistles and can be combined with percussive effects produced by the tongue.  

---

75 Clarke, *Hatching Aliens.*

76 Dick, *The Other Flute*, 136.
clicks are usually produced by using one key as a striker while fingerling the preferred pitch.

These key clicks appear with both a closed and an open embouchure hole. When the embouchure hole is to be uncovered, the technique isnotated with a stemmed “x.” This is to be played without a breath sound. When the embouchure hole is to be covered it is notated with a stemmed “(x).” The resulting sound will be approximately a major 7th below the given pitch, which is notated under the “(x).” In order to get the major 7th roughly in tune, Clarke says that it is necessary to only partially cover the embouchure hole, or keep the flute near the mouth.77

As shown in Example 62, these two types of key clicks follow the previously mentioned tongue stops. After the flutist has played the tongue stop, the tongue should remain covering the embouchure hole while clicking the keys to achieve the major 7th below the given note. The next key click is with an uncovered embouchure hole. The player should unstop the hole and click the keys as normal.


77 Clarke, *Hatching Aliens*. 
Glissando/Portamento

These are used extensively throughout the work, especially in the second movement “Alien Chill Out.” Glissandi first appear at m. 17 and various other places in the first movement. In these instances, fingering sequences are given to facilitate the glissando.

Example 63. Clarke, Hatching Aliens, I, m. 17.

Somewhat surprisingly to me, this technique was rather difficult to master. When practiced slowly, the flutist will notice a skip in the sound at the point when the rings of the keys are either opened or closed; however, during the open holed point of the transition, a smooth change in pitch will be heard. In the performance notes, Clarke proposes that this technique may be further developed by attempting a very slightly staggered approach to the open holes. By this he means that the holes are “opened in an overlapping sequence from bottom to top if going up, or top to bottom if gliding down.” Both methods will work to produce the effect, and the flutist should experiment with which method creates the smoothest transition from one pitch to the next. Moreover, being aware of the point at which the holes actually open or close can further increase the players feel for and understanding of the technique and the composer suggests that this be practiced by slowly opening and closing individual keys to obtain a bend. During a master class at The University of Southern Mississippi, Clarke made the analogy of the
fingers being like an airplane taking off and landing. Keeping this in mind can help to understand the motion required to create a smooth glissando. Also, keeping the fingers and wrists flexible will help in achieving this technique. For further information and demonstrations of this technique, ianclarke.net provides guide videos for *Touching the Ether* which employs this same technique.\(^{78}\)

Glissandi are also widely used throughout the melody of the second movement. As shown in Example 64, alternative fingerings are provided, many of which use only the rings of the keys. Also note that many of the glissandi slide to diamond shaped notes, which also use non-standard fingering. The effect is a beautiful, unearthly, “singing alien” sound that is reminiscent of an Asian bamboo flute.

\[\text{Example 64. Clarke, *Hatching Aliens*, II, mm. 125-128.}\]

Some of these notes can be a bit difficult to produce, and I have found that the best way to not only achieve a smooth glissando, but also to clearly and audibly produce the diamond shaped notes is to have “soft” hands and a loose embouchure. If either holds any tension, the technique will become much more difficult and the notes may either be pinched or will not sound at all.

\(^{78}\) Clarke, *Hatching Aliens*. 
Quarter Tones

Clarke makes extensive use of quarter tones in Hatching Aliens. They appear in every movement, and are the basis for several motivic ideas throughout the work. Just as in Within..., the composer provides suggested fingerings for each quarter tone above the note, although, only for the initial appearance of the note. Clarke does this because he feels that it is “more efficient for the learning process if [the fingerings] are assimilated without referencing the diagrams more than is necessary.”

Having to learn several new fingerings may at first seem like a daunting task, but the player will quickly find that these quarter tone notes are repeated frequently throughout the work, and the fingerings soon become second nature. Again, as with Within..., the composer’s fingerings are very logical, and may involve no more than the addition or subtraction of a single finger to produce the next note.

When practicing the quarter tones found in Hatching Aliens, Clarke suggests that each fingering be “taken off the page” and experiment with them in a variety of ways. As mentioned in Chapter 3, Robert Dick’s book The Other Flute: A Performance Manual of Contemporary Techniques, is an excellent resource for studying quarter tones. Many of the fingerings Clarke provides in the score and those found in Dick’s book are the same. However, there are some differences in fingerings of certain notes, and if one provided in the score by Clarke cannot be produced easily, The Other Flute may have an alternate fingering that the performer could use. In some instances, Clarke does provide alternate fingerings for certain notes as in Example 65.

---

79 Clarke, Hatching Aliens.
80 Ibid.
Because quarter tones, along with several other types of extended techniques, appear on almost every page of the work, breaking the piece down into manageable sections is highly recommended. There are many visual cues between sections that can help the flutist to break the work down into smaller, less overwhelming segments as demonstrated in Example 66. Practicing this piece in this fashion will make faster work of learning the work and techniques it uses.
Flutter Tonguing

Clarke employs a couple of types of flutter tonguing techniques in *Hatching Aliens*. Flutter tonguing is one of the oldest and most extensively used extended techniques, and can be dated back to Gustav Mahler’s *Symphony No. 2* and *Don Quixote* by Richard Strauss.\(^{81}\) It can range from a slight pulsation in the tone to very loud, buzzing sounds. Flutter tonguing can be applied to any sonority that is produced through air movement through the instrument, including single tones, multiphonic, jet whistle, etc.\(^{82}\)

The first instance of flutter tonguing in *Hatching Aliens* is the standard version of this technique, shown in Example 67. The next time this appears, Clarke adds the voice, which he says should have an even more dark and powerful sound.\(^{83}\)

---

\(^{81}\) Dick, *The Other Flute*, 136.

\(^{82}\) Ibid.

\(^{83}\) Clarke, *Hatching Aliens*. 
Flutter tonguing can be produced in two ways. The first is by rolling the tongue to make an “rrrr” sound with the tip of the tongue. The other is by making this “rrrr” sound by using the uvula at the back of the throat. This method of flutter tonguing can be difficult for some flutists, but it can be achieved over time with practice. A good way to practice the uvular flutter tongue is by gargling with water and then applying this action to the flute. Robert Dick suggests that the best way to become proficient at this type of flutter tonguing is by practicing for only two or three minutes a day for as many weeks as necessary.\(^\text{84}\)

Dick also explains that uvular flutter tonguing can be performed on all single pitches, but is especially useful with multiphonics, extended timbres, such as diffused and “bamboo” tones, residual tones and whisper tones. Flutter tonguing which uses the tongue is best suited to jet whistles, loud residual tones and when audible noise in the sound is wanted.\(^\text{85}\) When practicing the flutter tonguing with singing while playing section in Clarke’s piece, I would recommend using the tip of the tongue to produce the flutter, as using the throat could hinder the singing; using the tip of the tongue will allow the throat to be more open.

\(^{84}\) Dick, *The Other Flute*, 136.

\(^{85}\) Ibid.
Multiphonics

Clarke also makes use of simultaneous sounding multiple sonorities, otherwise known as multiphonics, and is a new technique to most flutists. This technique of producing between two to five notes simultaneously on the flute goes back to the 19th century with the Dutch flutist Georg Bayr, and in the 20th century was well established by the Italian flutist Severino Gazzelloni. The first multiphonic to appear in a modern work was in 1958 in Luciano Berio’s *Sequenza*.86

Because of the way in which multiphonics are produced, there is often noise in the sound and individual pitches do not sound as clearly as they would on a chordal instrument like the piano or violin.87 There are thousands of possible combinations of pitch, each with its own fingering. They can have an interval range from less than a semitone to larger than a twelfth.88

Robert Dick provides a detailed explanation of how multiphonics work in his book *Tone Development through Extended Technique*. In this book he explains that playing multiphonics is similar to over blowing natural harmonics, the difference being that, “the air stream is broadened vertically to reach the target area of each pitch, and the air speed is mediated between the velocities needed to play the notes individually.”89

---

86 Dick, *The Other Flute*, 83.


89 Ibid.
Due to the flexibility needed to produce multiphonics, practicing them will increase control of the embouchure, air speed, and diaphragm. Additionally, it will benefit the player by making him or her more acutely aware of nuances in intonation.

The prescribed technique for practicing multiphonics is the same amongst many flutists. Both Linda Holland, in *Easing Into Extended Techniques vol. 3*, and Robert Dick recommend beginning by playing each note of the multiphonic separately, getting each pitch in the ear and to become aware of the force needed to produce each note. Next, while holding the lower pitch, gradually shift the embouchure into position to reach the upper note. It is during this shift in embouchure that both pitches will sound simultaneously. Once the position of the embouchure at which both pitches will sound has been established, the flutist must work to stabilize the multiphonic to the point that both pitches will sound immediately.\(^9^0\)

For further information on multiphonics, Robert Dick’s *Tone Development through Extended Techniques* and *The Other Flute* provide exercises which will help to understand and hone the technique. Another resource for multiphonics is Linda Holland’s *Easing Into Extended Techniques vol. 3* *Multiphonics* not only explains multiphonics, but also supplies etudes in which to apply them.

Example 69 is an excerpt from *Hatching Aliens* using multiphonics. I would suggest that any flutist attempting this piece practice this section in the method laid out by Dick and Holland. The difficulty of this section is compounded by the very fast tempo (quarter note equals 190). Practicing this section slowly and working up to a faster tempo is really the only option. Not only can the multiphonics be difficult to produce,\(^9^0\)

\(^9^0\) Dick, *Tone Development*, 36.
but with some pitches changing twice per measure at 190 beats per minute, the section can be rather exasperating.


Overall, when practicing multiphonics, there are several points that a flutist should keep in mind to better assist in the production of the technique: first establish each note of the multiphonic, use a flexible embouchure, use a wider air stream, and do not try to focus the sound, rather, think of “splitting” the air stream to reach higher and lower pitches, and begin from the lowest pitch before adding the upper pitches.

*Whistling*

One of the more interesting techniques used in this piece is whistling into the flute. I have, as mentioned in Chapter II, only seen this used by one other composer. The technique is found in the second movement of *Hatching Aliens*, shown here in Example 70.
Example 70. Clarke, *Hatching Aliens*, II, mm. 129-134.

The flutist is to whistle into the flute, and in doing so, will sweep through various harmonics. The best way I can describe the effect produced by this technique is that of a transistor radio. In the performance notes, Clarke advises:

Whistle normally and then try to maintain this whilst whistling directly into the embouchure hole. It may help to very loosely touch the lips onto the embouchure hole. Sweep down and up and notice that the flute will emphasize the harmonics of a D so the flautist will find themselves moving up and down a D major triad.\(^{91}\)

The resulting note is a D rather than the notated C\(^\#\) because the embouchure hole is covered, causing the pitch to drop by approximately a major 7\(^{\text{th}}\), similarly to what happens during a covered key click or tongue ram.

In performing this piece, I found it helpful to slightly roll the flute inward. Clarke recommends whistling into the flute; however, I found it easier to whistle somewhat across the top of the embouchure hole, similar to blowing across the top of a bottle. Whistling into the flute tended to stop the sound altogether, while whistling across the embouchure hole yielded a better response. I came to this conclusion simply by experimenting with the technique, and anyone playing the piece should do the same.

---

\(^{91}\)Clarke, *Hatching Aliens*. 
After finding the best position and practicing it several times, setting the flute and the embouchure to the correct position to play it should become second nature.

These unusual techniques, along with a dynamic program, make *Hatching Aliens* a challenge for the performer and delight for the audience.
CHAPTER V
ELECTRONIC ENHANCEMENT

In the early 1950s musicians began experimenting with distortion effects by using amplifiers built for electric guitars that would produce distortion when their volume was increased beyond their design limit.92 Pedals designed to produce such effects as reverb, fuzz, and wah-wah began to be manufactured in the 1960s with the wider availability of transistors. “The whole deal just got a lot easier,” says Dave Hunter, guitar effects aficionado.93 With these new electronics, musicians began to broaden the scope of some common aspects of music, incorporating them into the repertoire to achieve such effects as extremes in range, dynamics, speed, breath, and so on, as well as the use of extended techniques like multiphonics, harmonics, flutter-tonguing, percussive effects, and unusual techniques.94 In this chapter I will discuss how performers and composers are using electronic effects to expand the flute repertoire, as well as some aspects of notation of electroacoustic music, equipment needed to perform it, my own ideas of performance, and how to apply the equipment to works by Ian Clarke.

Electroacoustic Music

Experimentation with and use of electronics, such as CD or tape backing tracks, keyboards, or drum machines are becoming more common in modern flute performance in works by Ian Clarke, Mark Volker, Mario Davidovsky and Robert Dick. Their music has been described as “electroacoustic” and is an accessible addition to the standard flute repertoire, especially for those flutists seeking to broaden their scope and be challenged

---


93Hunter, 10.

94Bassingthwaigte, 1.
in new and exciting ways. Electroacoustics provides almost limitless possibilities to the

types of sounds composers are able to incorporate into new music, creating a whole new
dimension of creative capabilities.

According to Sarah Louise Bassingthwaighe, electroacoustic music can be

defined as:

A very general term meaning the use of electricity for the
creation, processing, manipulation, storage, presentation,
distribution, perception, analysis, understanding or cognition
of sound. It is the superset of the field, including both live
and “fixed” (as on tape or CD) pieces.\footnote{Bassingthwaighe,5.}

Subsets of the field including electronic music, musique concrete, acousmatics,
radiophonics, electroacoustic music, and computer generated music are just a few of the
terms that have been applied. Several works by Ian Clarke, \emph{Within…}, \emph{TRK’s}, and
\emph{Tuberama} for example, all fall into the electroacoustic category, as they all require a live
performer on an acoustic instrument accompanied by electronic means.

\textbf{Notation and Electroacoustic Music}

As extended techniques have helped to expand the language of the flute, so are
electronics and the two often go hand-in-hand. The repertoire that uses these elements is
rapidly growing. Dick’s \emph{Techno Yaman}, Vokler’s \emph{Deep Winter}, and Clarke’s works all
employ some sort of electronic accompaniment, from a CD backing track, drum machine
or interactive computer software.

Just as pieces that use extended techniques implement non-standard and
unconventional notation, so too does electroacoustic music. Typically, the flute score
will include the notation or description of aspects of the electronics being used. This can
include CD cues, descriptions of sounds written in words or timings. Robert Dick uses
timing cues in *Techno Yaman*. He places weights on the keys of an electric keyboard to create a drone. Dick indicates that two seconds after the first note of the drone is played, the second should sound, and eight seconds later the third note of the drone should be played, as shown in Example 71a. He also specifies that the flute should enter fifteen seconds after the drone begins.


Later in the same work, Dick marks several bracketed passages, indicating the duration of the passage in seconds.
Another example of timing cues is in Ian Clarke’s TRKs (Example 71c) in his notation of cues for the prerecorded accompaniment. He uses a triangle to indicate sound effects that correspond to audible cues in the CD accompaniment. These cues are especially helpful in this work since the piece starts with an almost inaudible wall of sound, making it difficult to discern where measure one begins.
Limitations of Electroacoustic Music

There are a few obstacles and drawbacks with this type of music. One obstacle is simply the teaching of electroacoustic music. This type of music has not quite made its way into the “standard” practices. It has been “reserved for those who are involved in advanced degrees at various institutions or those involved in non-academic experimental music.” With the lack of education in the genre comes the obstacles of unfamiliar and difficult notation, as well as the unfamiliar tools and technology necessary to perform such works; however, upon studying and becoming familiarized with these techniques, the student may come to realize that they are no more difficult than those used in the standard repertoire. They are simply unfamiliar and often times intimidating, but entirely within the reach of the performer.

Example 71c. Clarke, TRKs, mm. 1-12, sound effects cues.

---

96Bassingthwaighe, 15.
As far as the electronics required in these pieces are concerned, depending on the piece or the desired affect by the performer, the lack of knowledge in the use of electronic equipment could at first be a bit daunting, but the only electronics that might be necessary for any given electroacoustic piece may simply be a CD player or computer and a set of monitors (speakers). In some cases, it might be necessary to amplify the flute, in which case a microphone would be necessary, but easily obtainable. As Bassingthwaighte again points out such little equipment needs means that any flutist can practice these works in their own home and can perform them almost anywhere. She also mentions that often times it is probably easier to find a stereo system than it is to find an accompanist.\footnote{Bassingthwaighte., 5.}

Not only can producing the necessary equipment to perform electroacoustic music be a bit of a drawback, but the practice of performing with a fixed accompaniment, like CD or tape, can sometimes prove to be a troublesome task as well. Elizabeth McNutt describes this type of accompaniment as a “temporal prison.” She sites that playing with a fixed accompaniment:

> Is like working with the worst human accompanist imaginable: inconsiderate, inflexible, unresponsive and utterly deaf. While the performer commands the audience’s attention, she is in an ironically submissive relationship to her chamber music partner, focusing most of her attention on coordinating with her accompanist—since she has full responsibility for keeping the ensemble together!\footnote{Elizabeth McNutt, “Performing Electroacoustic Music: A Wider View of Interactivity,” \textit{Organized Sound}, 8, no. 3 (21 April 2004): 299. http://cemi.music.unt.edu/may/4680/McNutt_performing_EA_music.pdf (accessed 28 July 2012).}

While I agree that playing with a fixed accompaniment, such as Ian Clarke’s \textit{Tuberama}, can feel somewhat rigid, I do not agree that this should always be the case.
How often do we find ourselves in an ensemble of live performers who are having difficulty staying in time? The same risks are present when playing with fixed accompaniment. The solution, I believe, comes in knowing the part; not only knowing the flute part, but knowing the pre-recorded accompaniment as well. Just as it is essential to be familiar with what is happening in an accompanying piano part, where the performer can have a better understanding of how the two parts fit together, hear audible cues, make conscious performance decisions, etc., it is just as important to know and understand the accompaniment that comes in the form of a CD or taped backing track. I believe that it is with this knowledge and understanding that the performer can break free from the “temporal prison” and enter into the realm of expressiveness.

On the Technical Side

When performing a piece with a live flutist, at the very basic level, the only electronics that may be necessary are a CD player. Although very few electronics may be required in performing electroacoustic works, later I will present another approach that is slightly more complicated, but highly effective in performance. The performer may also find it necessary to include a few more items, such as a set of monitors, microphone, and a mixing board. These items may not be necessary; however, based on my own experimentation with equipment, I would recommend it as it will better help the sound of the flute blend with the electronic sounds. This will not only generate a mixed sound of flute and electronics, creating more balance between the two parts, but will also allow the performer to hear more clearly the electronic sounds, in turn giving the performer more control. 99

99 Bassingthwaighe, 225.
When it comes to the microphone, there are a few different options to consider. One option is a clip microphone. This works well because the performer is able to maintain mobility and move about the stage. These microphones simply clip to the mouthpiece or in whatever position best suits the needs of the performer, although I have found this to be quite cumbersome. Not only can they be difficult to position in such a way that does not pick up any extraneous breath or key noise, but they can also create a sense of imbalance in the weight of the instrument.

Another option is to use a microphone stand. A microphone stand is good because the performer is not limited to the use of only a few microphones designed specifically for use with a flute. Any microphone that can handle the signal of the flute may be used, as the mounting options for microphone stands were standardized over 50 years ago. Just as a flutist may use several different head-joints made of different types of materials, all of which can have a different affect on the sound produced, so do different types of microphones. The microphone stand is also a good option because it will not tend to pick up any extra sounds such as key clicking; it does obviously impede the performer’s mobility, however.

A third option for amplifying and processing the sound of the flute is the use of a contact pickup. The pickup is incorporated into the head-joint of the instrument and then runs into a preamp and then a mixer, which processes and amplifies the sound and puts it out through a set of monitors. I find this to be a better option because, not only does it amplify the flute’s sound, but it also allows for the addition of almost any effect, as will be discussed later. Whatever type of microphone the performer chooses to use, flutist and composer Linda Antas advises to “find a placement that works with the particular
hall, mic, mic stand, and flutist you have at a given time, making the appropriate trade-off between key noise and breath noise. Also, probably most important to the flutist, is that the mic or boom not interfere with reading the music.\textsuperscript{100}

When choosing a microphone, an important factor to consider is whether a wired or wireless mic would be the best option. If a performer plans to move around the stage, a microphone on a cable stand might not be the best choice. On the other hand, if a performer wishes to use a mic on only one or two pieces, they may prefer a mic that is not attached directly to the instrument, in which case the stand mic would be the better option.

A lack of knowledge in the technical requirements of playing electroacoustic music should not deter a student from attempting it. Flutist Elizabeth McNutt considers having technical support an important aspect in the success of performing this type of music. Antas says, “Technical support involves two things: people and equipment. If you as a flutist are not familiar with the set-up of equipment, I don’t advise dealing with it while trying to mentally prepare for the performance. Leave it to the people who find this job easy and/or enjoy it.” She goes on to add that you will almost always want someone at the mixer during the performance to help maintain a good balance between the live flutist and the pre-recorded sounds.\textsuperscript{101}

\textbf{Beyond Amplified Flute}

Although the use of electronics, such as synthesizers, pre-recorded sounds, or interactive computer programs in flute music is rapidly becoming more mainstream, something that is not often seen or written into new music is the use of what I will refer

\textsuperscript{100}Bassingthwaighte, 228.

\textsuperscript{101}Ibid., 226.
to as “electronically enhanced” flute. Whereas use of amplification is certainly not a new concept, employing electronics such as digital processors and analog effects pedals typically used in rock and roll guitar playing, like reverb and delay, are not commonly seen. These effects can substantially alter the sound of the flute and create a unique performance experience.

One of the real pioneers of this type of flute performance is Ian Anderson of the British rock band Jethro Tull. Throughout his forty-four years as a professional rock and roll flutist, Anderson has been faced with the difficult task of amplifying his flute so that it would be audible above the levels produced by traditional rock and roll instruments. Through his experimentation and the advancement of technology, he has been able to come up with his own successful method of amplification and use of effects.

Anderson’s approach with Jethro Tull and his solo endeavors includes a mix of clip on microphones and stand mounted microphones. While he is quick to point out the advantages of many different stand microphones and placements, he still chooses to use a Shure Beta58 dynamic microphone, which has long since been used as a staple for live vocals. He combines this microphone with a Countryman Isomax cardiod wireless clip on microphone. In addition, he also adds echo and reverb, along with a number of pre-programmed effects, to the sound through a rack-mounted multi-effects unit which he controls by a midi foot pedal.\(^\text{102}\) My use of electronics in flute performance is similar to that of Anderson’s, as I strive to achieve a more “classic rock” type of sound; however, my approach and the electronics I use are somewhat different than that of Anderson, and will be discussed in more depth later in this chapter.

Flutist and composer Anne La Berge has taken another approach to the amplified flute. She has “worked with new lip techniques, breathing, and use of the microphone, developing the amplified flute as an instrument in its own right.” She has also worked with interactive computer systems and techniques for digital processing in live performance. La Berge lives in Amsterdam, The Netherlands, where she organizes weekly electroacoustic improvisation sessions as well as playing regularly in an electroacoustic group consisting of flute, violin, keyboards, bass and drums, called Aardvark. La Berge also co-founded Kraakgeluiden. Kraakgeluiden is an improvisation series which explores the combinations of acoustic instrument, electronic instruments and computers. She is also a composer, her pieces being described as “percussive, noise-filled, microtonal, and sometimes aggressively physical.”

In a 2005 interview in Amsterdam, La Berge talked about her start in playing amplified flute:

My first experience with making electronics work in a personal way was when I played the Berio recorder piece [Gesti] at the Schoenberg Institute in LA. There’s one place in the piece where you’re supposed to sing, and so I played the piece miked because the instrument’s so small, and then sang full voice into this mike, opera style, and the audience was blown away. And I thought: this is new music! This is taking Berio a step further. David Dramm and I also had this electric guitar and flute duo in LA with a dancer, where I had to be miked. I was using more and more mouth sounds. At UCSD I took electronic music courses just to see how much I could understand of FM synthesis math. I took an electronic studio 101, cutting tape, and all that. When we got to Amsterdam I was playing amplified most of the time, but it wasn’t until we got here when the live electronic thing really started to go strongly, with the Kraakgeluiden. That was when I understood that if I was going

---


to play with the guys I had to play loud enough. Amplified flute is not loud enough, but with filtered, amplified flute with effects you can be up there with the rest of the boys.\textsuperscript{105}

La Berge uses quite an extensive and complicated set-up. Her full set-up includes a Mackie 1202 mixer, Shure 4.1 microphone on a boom stand, Digitech Studio Quad effects unit, Boomerang loop sampler, Flashback Fuzz guitar pedal as a plug-in in the mixer, Clavia Micro Modular Digital Synth, and a CD player.\textsuperscript{106}

Although Ian Anderson and Anne La Berge both make use of extended techniques and electronics in performance, La Berge’s style of music is decidedly different from that of Anderson. While Ian Anderson is very well known for the use of the flute in rock and roll music, La Berge makes use of extended techniques and electronics to create a much more avant-garde sound. “I use amplified flute articulation as percussion in many of my works. I also use the more noisy extended techniques. Most of my structures sound improvisational. Compared to the classical and jazz flute traditions my music both sonically and structurally sounds raw and aggressive to many ears. Others think it has its own style of energy that relates more to electronic music.”\textsuperscript{107}

Creating an Electronic Setup for Use in Performance

Because amplified flute is largely uncharted territory, there is no manual for the use of the equipment or techniques needed to apply them to the instrument. Not surprisingly, through my own experimentation I have made many mistakes and purchased multiple pieces of equipment that were either superfluous or ultimately failed when applied to the flute. I have found that to achieve the best results, it is necessary to convert

\textsuperscript{105}Anne La Berge, interview-Gilmore.

\textsuperscript{106}Anne La Berge, interview-Rodgers.

\textsuperscript{107}Ibid.
the acoustic wave form of the flute into a low level guitar signal. With this converted signal the flute is then exposed to a world of possibilities in terms of amplification and applied effects. With such a vast array of effects, I have chosen to start with some of the “standards” in modern electric guitar playing.

Before diving into the individual effects it is important to explain the basic signal path from the flute to the speakers. In order to convert the acoustic wave form of the flute the first thing needed is some type of pickup. For this I use a Barcus Berry 6100 Electret Mic because of its dynamic range and clean reproduction of the original sound. The pickup is coupled with the 3000AE preamplifier, or preamp, which is necessary in order to convert the acoustic wave. With the pickup alone it is possible to plug into any guitar amplifier, but in order to get a more studio quality sound, I use the preamp which allows the use of traditional studio monitors (speakers).

![Figure 1. Barcus Berry 6100 Electret Mic.](image1)

![Figure 2. Pickup inserted in head joint.](image2)

![Figure 3. Cable connecting pickup to preamp.](image3)

An important requirement of the studio monitors is they must have enough power to rise above the original acoustic signal of the flute in order for the effects to be heard. I use the KRK Rokit Powered 8 because it is a two way speaker with a low frequency...

---

108 A preamplifier is an electronic amplifier that prepares a small electrical signal for further amplification or processing. It is used to boost the signal strength to drive the cable to the main instrument without significantly degrading the signal-to-noise ratio.
driver capable of handling 90w of continuous power per side and 140w of peak power. What this means is that the speakers can produce 90w of power for an extended period of time, allowing for occasional peaks of up to 140w. Peaks are caused by loud accents on any given instrument, such as playing a note in the top register of the flute. According to Brandon Alanis, “In the case of the flute it is necessary to have plenty of available peak power. This is due to the fact that the upper range of the flute tends to overdrive the signal, causing stress to the speakers.” When considering the low end frequencies, the Rokit 8, with a frequency range of 44 Hz (equal to F\textsuperscript{1}) up to 20 kHz (equal to D\textsuperscript{#}/E\textsuperscript{10}), needs a little reinforcement. Therefore, it is important to supplement the low end depending on which effects are being used and the complexity of any backing tracks being used. To lighten the load, I use the KRK 10s subwoofer, which extends the low frequency range down to 34 Hz (equal to C/C\textsuperscript{#1}) and is capable of running at 150w of continuous power.

When working with effects, there are a few rules to follow in order to maximize the performance of the effects. One aspect to consider is the order in which the effects are placed. “There is an understood order when building an effects pedal board. This order is based off of multiple factors, the most important being the type of effect represented by each individual pedal.” The most common ordering of effects is as follows: effects that deal with dynamic range, EQ (equalization), drive, modulation, and time-based effects. The reason for this specific ordering is that each pedal provides its

---

109 Brandon Alanis is a touring rock and roll musician, professional instrument technician with professional rock and roll bands, as well as the owner and engineer of a professional recording studio.


111 Alanis, interview.
own color to the audio signal. The pedals are placed in this order so the signal goes from
the least alteration of the original signal to the most. This reduces the likelihood that the
effects introduced at each point in the signal path will cancel out the preceding effects.\textsuperscript{112}

Diagram 1 demonstrates the proper ordering of effects pedals.

\begin{center}
\includegraphics[width=\textwidth]{signal_path_chain.png}
\end{center}

\textit{Diagram 1.} Signal Path Chain.

When it comes to choosing effects pedals it is helpful to have a certain sound or
effect in mind. I have chosen to use two standard guitar effects, reverb and overdrive, as
well as a vocal effects processing pedal. In addition to these effects pedals I also use a
Peterson Strobostomp strobe tuner, which is accurate within .01 cents.

The first pedal in the signal chain is the Electro-Harmonix V256 Vocoder.

Vocoder is short for “voice coder,” and is an analysis/synthesis system, mostly used for
speech and is often heard in hip hop music. The vocoder analyzes speech, transforms it
into electronically transmitted information, and recreates it, removing any human aspects,
creating a robot or alien-like sound.

\begin{footnotesize}
\begin{enumerate}
\end{enumerate}
\end{footnotesize}
While it has a futuristic sound, the vocoder was actually invented in the 1930s by Homer Dudley, a Bell Labs physicist. He invented the vocoder as a means to compress voice data over low bandwidth telephone lines. With the vocoder, the human voice could be converted into control signals, which were analyzed and converted back into audible speech.\footnote{Tom Hughes, \textit{Analog Man’s Guide to Vintage Effects}, For Musicians Only Publishing, 2004: 11-12.}

Before it made its way to the music scene, the vocoder was used by the U.S. Department of Defense during World War II to encode and decode voice transmissions. It was not until the 1970s that the vocoder was first used in electronic music by Wendy Carlos for the soundtrack of \textit{A Clockwork Orange}. Carlos used the vocoder to create the “singing” synthesizers for the “Ode to Joy” section of Beethoven’s \textit{Ninth Symphony}.\footnote{Ibid.}

After its introduction into the music world, the vocoder quickly became popular and was the “effect du jour” during the 1970s and 1980s. Some notable examples of the use of vocoder include ELO’s “Mr. Blue Sky,” The Buggles “Video Killed the Radio Star” and “Mr. Roboto” by Styx.\footnote{Ibid., 11-12.}

This pedal has several controls, making it possible to drastically alter the sound of the instrument. The first control is BLEND, which controls the saturation of the effect by mixing it with the original dry signal. Fully counterclockwise results in an entirely dry signal, while fully clockwise produce the effect exclusively.

The BANDS control controls the rate at which the pitch changes from one note to another. This ranges from the slowest change in pitch, which will create the most natural


\textsuperscript{114} Ibid.

\textsuperscript{115} Ibid., 11-12.
sound, to notes that change instantaneously with no vibrato, or to notes that are abrupt, but retain more of the original vibrato. In a traditional sense, the TONE control emphasizes either lower frequencies or higher frequencies; however, it also has special assignments depending on the mode of the pedal. For instance, in vocoder mode it adds harmonic overtones to the signal creating a fuller and richer sound. In Robo mode it creates a frequency multiplication of the internal synthesizer.

The GENDER BENDER function adjusts the amount of acoustic resonance, or formant\textsuperscript{116}, which is applied to the signal. Shifting the formant upward, which is comparable to the shortening of the vocal tract, sounds more female. Likewise, shifting the formant downward, comparable to the lengthening of the vocal tract, will create a more male sound. Finally, the PITCH controls the pitch of the internal synthesized voices. These effects are shown in Table 7.

\textsuperscript{116}Formant is the range and number of partials present in a tone of a specific instrument, represent it timbre.
The next pedal I use is a resurrection of a standard in guitar effects, the MXR Classic Distortion. The Classic Distortion is a modern spinoff of the original 1973 MXR Distortion + which was one of the first commercially available distortion/overdrive pedals on the market.\textsuperscript{117} Although it is labeled as distortion, there is some confusion between distortion, overdrive, and fuzz, and in fact, they are closely related. Overdrive does two things: it provides a boost in the gain\textsuperscript{118} to drive the sound into distortion, or it approximates the distorted sound of an overdriven tube amp. If the basic overdrive is

\begin{table}[h]
\centering
\begin{tabular}{|l|l|}
\hline
\textbf{CONTROL} & \textbf{DESCRIPTION} \\
\hline
Blend & Controls the saturation of the effect by mixing with the original dry signal \\
\hline
Bands & Controls the rate of pitch change \\
\hline
Tone & Emphasizes certain frequencies to create a rich or more synthesized sound \\
\hline
Gender Bender & Controls male/female aspects of the effects signal \\
\hline
Pitch & Controls the pitch of the programmed synthesized voices \\
\hline
\end{tabular}
\caption{Vocoder Functions}
\end{table}


\textsuperscript{118}Gain is the amount of increase or change in signal level. An increased gain is shown as +dB; reduction is shown –dB; and no change as 0dB.
turned up toward the max, self-generated distortion will result. When enough distortion
is generated, the sound will become “fuzzy.”

The Distortion + employs a single operational amp, or opamp, and a pair of
germanium diodes which delivers a smooth drive and light clipping to produce a
“warm” or “gritty” sound. What makes this pedal so interesting in combination with
the flute is that it closely mimics the sound of a distorted guitar making for a rather
aggressive sound on an otherwise delicate instrument.

Finally, I use the Electro-Harmonix Stereo Memory Man delay pedal. This pedal
is another modern spin on a classic effects pedal. Through the invention of analog delay
chips, what used to require recording to tape could now be done in a single small circuit.
Original tape echoes (delay) employed traditional reel tape and multiple playback and
recording heads to receive, delay, and then retransmit the newly recorded signal with the
original signal. With the invention of analog delay, this meant the effect became less
bulky, more user friendly and much more reliable.

The Memory Man is a digital delay pedal with three different types of echo as
well as a full-fledged looper all of which work in true stereo. Some of the more notable
features of this pedal include up to three seconds of delay time, a multi-tap delay which
allows for the setting of the exact number of echo repeats, a full-featured looper which

---

119 Hunter, 26.
120 An operational amplifier is an integrated circuit that works as a voltage amplifier.
121 Germanium diodes were the first diodes used in guitar effects pedals. They are more aggressive
and “gritty,” with heavier clipping.
122 Clipping is the term used to describe the way a signal is cut off when it runs into distortion.
123 Dunlop, “Electronic : MXR
124 Hughes, 86.
gives the ability to record a loop up to thirty seconds in length, as well as the ability to record overdubs over the original loop at any time to create a layering effect, and the ability to reverse the loop.

Another feature of this pedal is the Reverse Echo, which is an intelligent reverse delay that monitors the sound to create an optimal reverse delay of the notes being played. The Memory Man also has a Low Pass or High Pass filter to process the delayed or looped signals. What this means is that when Low Pass is engaged, any frequency below the frequency of the filter (i.e. the note being played) will be allowed to pass through, while any frequency above will not be applied to the effect. Likewise, when High Pass is engaged, any frequency above the filter will be applied to the effect, while any frequency below will be ignored by the processor.

There are a few advantages to having this type of pedal in any live setup. One advantage is the pedal’s ability to mimic the characteristics of a livelier room by adding reverb and/or echo to the original signal. “There are multiple factors when it comes to creating a proper “live” room, so to expect every room you encounter to have perfect acoustic response and ample resonance would be futile. In many instances rooms have no tonal personality because the proper dimensions and angles are not present for the sound waves to fully develop. In other instances the room might be too small to even attempt to develop the waves, resulting in a very dry, dull sound. These issues may be caused by previously installed sound dampening products, bad construction, or just flawed acoustic design.”

---

125 Alanis, Interview.
Another advantage of this pedal is simply the compact nature of it. Many studio reverb units are either too large or too fragile to transport, so to be able to have multiple types of reverb in one compact pedal is very convenient. In addition, to own the number of reverbs that are stored in one reverb pedal would cost well into the thousands.

![Pedal effects board. (From top to bottom: Voodoo Lab ISO 5 Power Supply, Peterson Strobostomp Tuner, Barcus-Berry 3100 AE Preamp, Electro-Harmonix Stereo Memory Man Reverb/Delay, MXR Classic Distortion, Electro-Harmonix V256 Vocoder)](image)

Other Types of Effects Pedals

In order to have a relatively small pedal board, I have chosen to use only three to five effects at a time; however, there are multiple types of effects pedals that can be used and that will fit any budget. One can also use as few or as many pedals as they like; although, too many pedals can burden the signal chain, which may require buffering. Some general types of effects can include tremolo, vibrato, phasers, flangers, wah-wah pedals, octave pedals compressor/sustainer and equalizers.
Cost Effective Alternatives

Playing with guitar effects pedals can certainly enhance the sound of the flute, but it can also be a costly endeavor. If a flutist is interested in playing with effects, there are simpler, more cost effective alternatives. Rather than using a pedal for each individual effect, multiple effects processors can be purchased. Instead of having one pedal that specializes in one effect, a multiple effects processor combines many effects into one unit, sometimes containing more than one foot switch. Multi-effects processors can have as few two effects with a relatively small footprint, while some larger units can have upwards of twenty-five different effects and be close to three feet long. If the idea of a full scale sound system seems daunting and expensive, any line level combo amplifier, such as guitar or bass amps, can be used as a substitute as long as the amp has enough power to rise above the original flute signal. Options for flute pickups are very limited and fairly expensive. If the flutist desires, they can use any standard microphone and use a vocal multi-effects processor through any high level amplifier, such as keyboard amps or small PA’s. It should be noted, however, that with the use of any combo amp, the option for stereo outputs is lost, as most amplifiers produce a mono signal.

Applying Electronic Effects to Works by Ian Clarke

Because they are often programmatic in nature, the music of Ian Clarke lends well to electronic enhancement. Applying these effects to his works can add another dimension to these already interesting pieces. One of my favorite pieces to apply effects to is Tuberama for solo flute and backing CD. This is a high energy piece that uses singing and playing throughout, and some articulated breath effects. After listening to the piece on Clarke’s album, in which you can hear such studio effects as reverb and
delay, I wanted a way to recreate that sound in a live performance. I felt that this would not only make the piece more effective, rather than playing unamplified and accompanied by a CD player, but also make the piece more exciting and enjoyable for the audience.

Although the reverb and delay heard on Clarke’s album were not created through effects pedals, using reverb and delay pedals throughout the piece helps to mimic those studio effects in live performance. The piece opens with four bars of pre-recorded flute playing the main theme with some added reverb (Example 72).

Example 72. Clarke, *Tuberama*, mm. 1-4, opening pre-recorded flute.

To keep this a cohesive sound, I begin by adding reverb when the flute comes in at m. 5, and continue with that effect through the entire section. The singing while playing, which occurs throughout the piece, is also enhanced by the reverb, adding to the overall effect. Each time this main theme is presented throughout the piece, reverb is applied to the section. This happens three times: mm. 5-16, 33-40, and 61-76.
Example 73. Clarke, *Tuberama*, mm. 5-16, main theme (reverb).

The next eight bars are pre-recorded flute, this time with a light delay applied to the sound. Again, in order to keep a more cohesive sound and replicate the effect on the album and on the backing track, I use delay from mm. 25-32. For each section of contrasting material, I add delay. I also choose to end the piece using delay, from mm. 77-101. Not only does this help to fill out the sound and add greater energy in this climactic section, but it, not surprisingly, delays the final note, hanging on to the sound of the glissando, much like the sustain pedal on a piano. Without this effect, the note would end abruptly. With delay, the note continues on and on in an echo effect that a player could not produce without artificial means, and helps to add another dimension to the sound.
Another option is to also add distortion to the reverb. When distortion is applied to the flute, the resulting sound is very similar to that of an electric guitar. Because this piece has a bit of a rock and roll feel, adding distortion can intensify this. Although it can be used during each section of reverb, I feel that adding at the climax of the piece, around m. 77, can really help drive this piece home.

These effects can also be applied to *Hatching Aliens*. Considering the program behind *Hatching Aliens*, I thought the addition of the vocoder and the alien-like sounds it can produce would help add to the eerie effects written into the music. As mentioned previously, this pedal cancels out any human aspects of the sound, and in the case of the flute, that means pitch and inflection. This can make using this pedal rather tricky; however, there is a way around this problem: by setting the pedal to “Reflex-tune.”
In this mode the pitch will be hard corrected to a chromatic scale. This is perfect for the trilled chromatic passage in the first movement at m. 37, and really adds an interesting robot-like sound to this section. This same setting can also be used off and on throughout this section, such as at mm. 52, 54, and 56; however, for these measures I would make sure to turn BANDS knob more counterclockwise, which creates a much more gradual pitch correction and more natural sound, which will allow the nuances of the quarter tones to be heard, while still applying the effect.

Example 76. Clarke, *Hatching Aliens*, I, mm. 52, 54 and 56 (vocoder).

This same effect can be used again for the tremolos which occur from mm. 59-62, as well as the measures of ascending sixteenth-notes which follow. For this section I would turn the BANDS knob back clockwise to get more of the effect. It can be used similarly at m. 100, where this tremolo figure returns. This robotic, mechanized effect also adds interesting atmosphere to the explosive and decaying breath accents in the final two measures of the movement.


Because the intended mood of the second movement is “strange and beautiful,” and because the extended techniques used can be somewhat delicate and easily covered up by any outside effects, they should be used sparingly. The only instance I would use any effects would be from mm. 126-128 and again from mm. 158-162 when this theme returns. These lines use non-traditional notes and glissandi which create a sound similar to a bamboo flute. I have found that adding light reverb to this section can really enhance the hollow sound produced through the non-traditional notes, and give more of a ghostly, “wondrous” quality.

In the case of the Memory Man, setting the echo to “300 mS + Mod,” or 300 millisecond plus modulation, and the DECAY knob turned fully counterclockwise, allows the natural sound of the flute to come through, while adding just enough reverb to

---


127 Ibid.
slightly alter and enhance the sound and feel of the line.

\[ \text{Example 79. Clarke, Hatching Aliens, II, mm. 125-128 (reverb).} \]

I also like to keep the effects in the third movement to a minimum; partly because there is already so much going on in the music that adding any outside effects might be overbearing. One of the places I do like to add effects is at m. 281. Here, Clarke reiterates an idea previously heard in the first movement: random breathy notes. Although using the vocoder can add a robot-like sound, applying distortion to this section can create even more of harsh, metallic sound.

\[ \text{Example 80. Clarke, Hatching Aliens, III, mm. 281-285 (distortion).} \]

When using effects on Within..., I would recommend playing the version for solo piccolo, flute and alto flute and CD backing due to the fact that it would be too difficult to add effects with a group of seven people. It would be unlikely that the all seven
players would be able to be amplified, so amplifying only one flute would upset the
balance of the group.

For the opening solo I think amplification alone is enough. Although Clarke
likely was not considering any Native American influence when he wrote this piece, it
nonetheless has that quality, and should not be covered up by any outside effects. A
place that I think effects would be appropriate is at m. 38. This section is strikingly
different from the previous, with more of a jazz/blues feel to it. This section also
employs singing while playing, which on its own can create a sound similar to that of an
overdrive/distortion pedal. I think, then, that it is appropriate to include the distortion
pedal in this section.
Example 81. Clarke, Within..., mm. 38-51 (distortion).

Clarke’s electroacoustic work TRKs is also a good piece to apply effects to.

This piece is studio track that is accompanied by CD, and has been described as “sort of, but not, Pink Floyd for flute.” The track features processed flute, guitar, and drum sounds. Adding light reverb, similarly to the second movement of Hatching Aliens, can

---

Ian Clarke, “Flautist/Composer.”
help to fill out the sound. I have found that this effect works well from mm. 27-34. With flute alone, the sound is quite thin and almost tinny sounding; but with reverb the sound is full and lush.

![Musical notation]

*Example 82.* Clarke, *TRKs*, mm. 27-34.

In the final lines of the piece, the atmosphere Clarke wants to convey is that of an ethereal “afterglow” and a waning “distant afterthought.” By adding a delay effect here, I can achieve what I feel more closely resembles those ideas. This effect helps to give the sense that the sound is fading into the distance.

The use of these and other pedals is in no way limited to the works mentioned in this dissertation. This equipment can be applied to any type of music, not just music in the standard flute repertoire. I would even recommend that a flutist learn the melody to his or her favorite rock or pop tune and apply the effects to those songs.

---

129 Ian Clarke, *TRKs* for flute and CD backing (Surrey England: Just Flutes, 2005.)
Further Reading


Paul Trynkal et al., *Rock Hardware*, 1996.

Online References

http://www.pedalarea.com/articles.htm

http://www.pedalsnake.com
CHAPTER VI

CONCLUSION

Whereas extended techniques for the flute are not inherently difficult, they can sometimes seem daunting to even the more experienced flutist; but understanding that there are techniques that are used routinely, beneficial to the performer, and incorporated into regular pedagogy, may help ease the flutist’s anxiety about learning them.

Although there has been much written regarding compositions which employ avant-garde techniques, this document sought to explore those used in the unique works by Ian Clarke, and his distinct and unambiguous style of notation. Clarke is successfully helping to demystify extended techniques and making avant-garde music more accessible to a broader range of players, from the relatively inexperienced to the seasoned performer.

For the flutist wishing to push the envelope further, this document has also presented a new idea in performance practice with the use of “electronic enhancements,” with such pedal effects as reverb and delay. Because his music is often programmatic, Clarke’s works lend well to this type of modification and imparts another dimension to these already captivating pieces.
Chrissie Davis: What sort of music did you listen to growing up and how and if that had any influence on what you do now? I understand that your music has been compared to that of such groups as Pink Floyd; did music like that have an influence on the types of music you write?

Ian Clarke: Yeah, I think it has had an influence. I did listen to Pink Floyd and I have been to Pink Floyd concerts several times. My mom was a music teacher, she played piano, she played cello, taught middle school, and she sang in a choir in London. My father played double bass, not when I was kind of growing up, but when he was younger. So as a result, there was classical music around me from of my parents and I was interested in the music my mom was doing up in London, so she would often play big orchestral, choir things like Carmina Burana or Verdi’s Requiem and that kind of stuff. And I would hear, at first, recordings of that, because they would be broadcast; she was in the choir, not a soloist, and later on would tag up to London with her and go to the concerts. So, traditional kind of classical, typical, you know, yes my parents introduced me to classical music and I had all that. I learned to play the piano, all my brothers and sisters learned to play musical instruments, and I did too. So, but, that’s not the music my friends were listening to. You know, I used to love listening to the Planets by Holst, and I remember my music teacher playing me the Rite of Spring when I was about twelve years old, and I thought “Wow!” and I remember the moment in the room going, “That’s amazing!” But that’s all fairly typical I guess, of somebody who’s a classically trained musician, but
my friends weren’t listening to it. They were listening to lots of progressive rock and roll, you know Yes and Motorhead and Black Sabbath and all that kind of thing. And a lot of that I found ok, the heavy rock stuff I wasn’t that in to, but the first thing that switched me on, which was my older sister who I think played it for me, was Pink Floyd Dark Side of the Moon, and went, “That’s amazing!”

**CD:** What was is about that that you liked?

**IC:** It was more musical, I think is one of the things, and you know the concept albums, it wasn’t all singing, it wasn’t all heavy guitar, and when it was guitar it was melodic, you know, Dave Gilmore playing these guitar solos, and he’s actually quite an intelligent musician. And who could fail to sit down and listen to Dark Side of the Moon, with the music turned up, you know this was in the days where there weren’t the distractions there are now, you know we kind of listen to something for two minutes, we’re bored and want to do something else. So, you’d go around to friends’ houses and listen to music, you listen to music. Stop and listen. So, Dark Side of the Moon, you know, Wish You Were Here, Animals, you know, when Brick in the Wall came out, the album, in 1980 or whenever it was, we were in anticipation, running around, “Have you heard it?,” who’s got the album first, and I went to see the show and all this kind of thing. So, I was attracted by the narrative of it, and a lot of it was instrumental. So, a lot of the more instrumental bands I was more in to and the progressive rock bands I was in to because I liked that there was a guitar solo or a sax solo or a keyboard solo, or the effects that Floyd were using, it put you in a whole other world, which I thought was really cool. So, the answer is yes.
CD: What drew you to your particular style of writing?

IC: Well it’s not always conscious; I don’t decide to write like I write. I don’t think. It’s very difficult and disentangled, your conscious, your subconscious and what you think you decide to do and what you end up doing. I find it very difficult to disentangle. But that thread of being interested in non-classical and having a classical background, because at the same time listening to music with my friends, as I was saying earlier, they took up rock instruments, and I started jamming with them and their rock instruments. I was playing in the school orchestra, county orchestra, a lot of my friends at school, there were a whole host of people who were going up to music college in London, so that traditional thing, I was being influenced by. So, my peer group were both normal guys who liked both rock and roll, because that’s what you were into then, and my peer group, instrumentally, were going to music college. And I think I was influenced by my piano teacher more than I previously realized, because she was quite good at sort of giving me foundations, not the blues scale, but, you know, her instincts. But, because I started writing songs with the bands I was playing in, and really I just wanted to play the flute, and the flute wasn’t the first rock instrument you’d think of, I am aware of Ian Anderson and Jethro Tull, but I was often on the keyboards. But, we’d write songs and sing bad backing vocals and I’d write songs as well, but that meant the creativity was up and running, because we’d just be creative. We’d just do stuff. And, of course, one or two of the musicians I was with were quite into more jazz as well. I was getting into jazz too, obviously because it was instrumentally interesting and a lot of rock has its limitations, instrumentally, to virtuosity at least. So, that meant
that when I started writing, that was a thread that came out. One of the first big breaks we got was us playing, *Hypnosis* became a track we played in the group, and this was a university by now, and we were doing gigs in London. And people said have you thought of doing library music, which is background music for film and TV that you put on a disc, and we said no, we have no idea what you’re talking about. But, through that thread, the band turned into, basically, a writing partnership, with writing incidental music for TV. So you’d get briefs, write some wildlife music for TV, write some music that was sort of Indy rock, this kind of thing, it wasn’t generally write some music that sounds like Brahms, you know, it would normally be contemporary music, not classical contemporary, but as in contemporary of our age. Or, you know, descriptive music, it would be nature music, or whatever, or drama. And that’s important, because think of *Orange Dawn*, being an early piece I wrote, that came out of being briefed trying to write some music for East Africa and a wildlife program on East Africa. So that was inspired by that idea and what I was discovering, and at the same time I was discovering Robert Dick and my whole contemporary influence and classical contemporary and avant-garde was also going along in sort of parallel and crossover, so *Orange Dawn* came out of that imagery. You know, I’m into imagery in my pieces. So *Orange Dawn* was inspired directly by that thread.

**CD**: How would you compare the earlier works that you’ve written to your more recent ones?

**IC**: Well, several of the very recent works like *Hatching Aliens* and another work with piano and three flutes are both three movement longer works. By definition, I
try to contrast earlier works, so try not to write *Zoomtube* again because I’ve already written *Zoomtube*. *Zoomtube* was interesting to write after *The Great Train Race*. You want a kind of short unaccompanied piece with singing and playing that doesn’t sound like the last one you wrote. Hopefully it doesn’t, I mean, it does, but it doesn’t. I guess it’s just a lot more experience that goes into everything now. You know, I’ve written so much music for TV, hundreds of pieces, I’ve played the flute so much, I know so much more repertoire, I’ve taught flute, I’ve performed the flute so much, I’ve integrated so much more into my playing, and whereas when I wrote *The Great Train Race*, I could see direct links to Robert who was influencing me quite strongly at the time, because I was going, wow there’s a multiphonic, wow, you can do some bright tones or some bamboo fingerings. Of course his influence is always going to stay with me, but I don’t use him as a touchstone at all, particularly now. You know, I don’t go to the latest thing he’s done and try to do something just like it. I didn’t then, I was trying to do my own thing. But, there have just been many, many more influences, I’ve been through a longer journey musically with everything I write.

**CD:** How would you compare what you’re doing, as far as extended techniques and things like that, to other composers who do similar kinds of things, like Robert Dick or whoever else, whether it’s extended techniques or use of electronics and things like that?

**IC:** I don’t consciously try to define what I do by what other people are doing. I try to do something that sounds good, means something and comes from some place that’s genuine, or explores something. I’m trying not to look over my shoulder. I think
about my audience. I think that’s, again, something that comes through my musical path. I think if I were just on a classical path and through an academic path as a composer, you know, if I had studied composition at music college, perhaps I would be thinking about measuring my composition technique to impress my academic peers, whereas I generally think do I like this, will the audience like this, is it going to be fun to do, will it be moving or entertain, or just worthwhile somehow. I’ve been in A and R offices with songs, I’ve written for corporate applications, for TV, where they have to like it and it has to work for what it’s going to do. They don’t muck around going, “Well, it’s very clever, based on the Fibonacci sequence and it’s using so and so technique.” They go, “So, I don’t like it.” So it’s very brutal. Do they like it? And I’m not trying to impress musicians necessarily or academics you’re trying to impress the people who want to use the music for a reason, you want the piece of music to work. So, I can’t escape from the fact that I’m aware of, to a certain extent, whether I think it would appeal. But, the first person I want to appeal to when I’m writing a piece of flute music is me. Do I think this sounds any good? Do I want to stand up and play it, or am I going to feel like an idiot standing there playing it? It’s so hard to put into words, but I’m doing something, artistically, I feel has something about it, is worth it, will stand the test of time. Now that’s just saying how I write. I don’t know how Robert writes. That’s for you to compare. But, I think there are a lot of classical contemporary writers, whatever you want to call them, who have a slightly different mindset, because they can say yeah that’s very clever and I’ve done this and I’ve done that, but there seems to be less of a connection with the audience. I’m not talking about Robert, I’m not going to go
there, but in general, I think certainly in the 60s and 70s, there was even less of a connection. They were more interested in being intellectual in a kind of left brained way. I try hard to write something that I think connects, but not trying to, sort of, lower the standards to do that. I go back to the *Rite of Spring* as a twelve year old, I went “Wow!,” I had no idea what was going on, it just sounds great. So, a piece of music like that is able to be radical, deep, complex and all very simple. It’s just earthy. And rhythmic. And textual, and there’s a narrative. You know, I would have loved to have written that piece of music, as everybody would have. So, I think if you can do both things, connect on a number of different levels, which great pieces have done.

**CD:** In an article that I read in *Pan* of a review of *Within…*, it slightly criticized the piece *Within…* for the fact that you played all the parts yourself on the album.

**IC:** What did you think about that?

**CD:** I thought it was kind of ridiculous. First of all, they said “Using other professional players to perform the other parts is a much more natural way to make music and ultimately creates a more musically rewarding performance as other players can inspire those around them and spark off ideas,” but later on they say, “It’s very interesting to hear a composer perform his own material. Not only do we hear how the extended techniques should sound in the context of the piece, but we hear his musical process.” I thought that was interesting because so many people do that. It’s not an unusual thing to have one artist play everything. I mean, Prince, for example, does that all the time.

**IC:** So you’re comfortable with it because you see it happening in the non-
classical world. And he’s kind of contradicted himself in that critique. I remember reading that. He was quite a young guy, quite a good flute player and I think when he was writing it he was thinking, how can I criticize this because I’m doing a critique? And you actually read it and it’s just reproducing a kind of cliché, yes, you can interact with performers and play live, I completely agree.

**CD:** I think a studio setting is kind of different though.

**IC:** Well, there are a number of things to say about it. On a practical level, that would mean I would have to hire and rehearse up six other professional flute players or a comparable standard to play a piece that was, in general, lying outside everybody’s comfort zone. To this day, whenever I’ve played it with professional players, it’s difficult to find a complete set of professional players for whom it’s in their comfort zone. So, it’s not like a normal gig where you all pitch up and play a piece of whatever it might be and they all get it. This is outside their comfort zone. Now, that might be possible, in 2011. This was recorded in about 2003, and I did ask myself the question, do I rerecord this with live players? Will it sound better? And I think there are two answers. I’m not sure it will sound better because I’ve got to find people who can play what I want when they don’t know what I want unless I play it to them. I would love to react live in it, but it’s got to be rehearsed so well with people who can play it that well outside their comfort zone. So, it’s going cost me a lot of money to record this piece and it’s likely not necessarily going to sound as good as how I do it. So, artistically we’re back to the Prince thing. This is what I want, it’s outside the comfort zone, it’s new, I can’t think of any other flute choir piece from that time that sounded anything like it, so I was kind of making an
an artistic, I know it sounds a bit precocious, I wasn’t trying to make an artistic statement, but it sounds like this, I know it can be played live, but to reproduce this it wouldn’t be straightforward just walking into a recording studio with other players and play it live. We’d have to perform it live, we’d have to do all that, and in the end, I don’t know that I would have achieved something much better than what I had. And, now would be an interesting time to play it live with six other players; that I would track. So, I don’t agree with his criticism. I agree that it’s better playing live with live players, but in the case of that piece I don’t know that I would have gotten a better result at the same time, and I don’t know he’d say the same thing now. I think he was a young man thinking, why didn’t you play it with live players, because I don’t think he realized that I’d played that piece with lots of top names around the world, and they don’t all get it.

**CD:** I would agree with that, too. I thought, well what a ridiculous thing to say.

**IC:** Well, yeah. And that was one person’s opinion. And he was a young man writing it, and I think he kind of missed the point, to be honest, and I think you’re right. And I’ve got the same problem again. I’ve got a piece for three flutes and piano. Do I record that with live players or me? I think it would be interesting to do it with live players. I think there are live players that I could play it with now. I’m interested to know what would happen when I do it, and I’m interested to know what would happen if I did it with live players. So, it’s almost like, for its first recording, I wonder what it would sound like if I multi-tracked it, so that’s the kind of starting point. And like *Within...*, I want that to be the start of its life, it’s not the end. I multi-tracked it to sound like that, yes it will sound great live, but then that’s a kind
of starting point to play it live from. Because everybody knows, oh it sounds like that, that’s what he wanted. Could you play me your part, could you play me your part? Well I might as well play them all and then do it. And *Curves* is a little bit the same, although, actually it’s quite a long time later in the flute community, I could possibly do it, but I’m still slightly facing the same problem just not as radically. And I’ve got an additional problem, which is a silly one, I’ve got so many lovely players I know, I wouldn’t know which two to choose. So, it’s almost, from an artistic point of view, kind of, I’m going to try doing it…if it sounds any good I’ll…but I won’t put it out there if I don’t think its somewhere near what I imagined it could be, and I’ve played it live now, unlike *Within*… Although it was written for a group of professional people for whom I wrote it. So, it’s, it’s just more complex than all that. But, like you, I’m quite comfortable with the fact that people do their own backing vocals in the studio. It’s quite normal. It doesn’t necessarily mean it has to sound bad. And recording is a different thing to live. It’s a whole different game. It’s not the same.

**CD:** Have you ever written anything more “traditional,” or perhaps a better term would be neo-classical or neo-romantic?

**IC:** For film and TV, yeah?

**CD:** But not for yourself?

**IC:** No, well I haven’t set out to write anything neo-classical, I don’t think. Do you mean “neo-classical” as in “classical,” as in pre-20th century?

**CD:** Yes
IC: No, I haven’t set out to do that. I’ve done that, as I said, for film and TV when they wanted something that sounded a bit like Vivaldi or something. So I’ve done that but not something I go, hey that’s great, I must go around playing that because it sounds a bit like Vivaldi, you know. A new concerto I’m writing is inspired by Bach and Michael Nieman, but it doesn’t sound like either. But, I don’t think it really falls into that, I mean, I haven’t really tried to write a dance suite or a formal sonata.

CD: So my next part of that question is, if you did try to go that route, do you think it would be as well received as what you do now, or are you ever afraid that you might be somewhat pigeon holed into the kind of music you’re writing now and if you were to step outside of that maybe it wouldn’t be as well received because that’s not what people are used to hearing from you?

IC: Well, to a certain extent, when I program my recitals…it’s difficult to be black and white because it’s so contextual why I’m doing it and have I been there before and who am I playing to? I try to introduce some non-Clarke repertoire because I genuinely like playing non-Clarke repertoire, I genuinely teach it, and I’m ok doing it. I will play Prokofiev, I will play Poulenc, I will play Bach, because, I do, and that’s ok. And also I play other contemporary people because I’ve been brought up doing that and I enjoy that, so I feel connected to all that stuff. In terms of writing, if I’m going to write anything that’s inspired by any traditional composer, one’s always going to put their own twist on it, so you’re kind of back to where you started from. So, I’m thinking of something you haven’t heard that I’m writing, and in some ways, for several bars you’re thinking, well that’s actually quite
traditional, but sooner or later my twist comes in. Not that I purposely put a twist in, I’m just looking for something interesting and I don’t want to copy. I’m trying to do something that, you know, might have a heritage, but it seems a pointless exercise writing something that sounds just like another Mozart symphony. I go, it sounds like another Mozart symphony, I’m not Mozart, and we’re not in that age anymore. So, I don’t not write it because I’m worried that people won’t receive it well, and I don’t put extended techniques in because people expect me to use extended techniques. I don’t think of myself as an extended technique person. I just, use them. And that’s a different mindset, and I have got piece that don’t use extended techniques. I do generally use them now because I don’t even realize, when I pick up the flute, the boundary, I don’t really perceive a boundary. What, bending a note is an extended technique? What?! Is it illegal?! Again, you go back to non-classical music, world music. I mean, one of the things I’ve been influenced by is world music, obviously. It’s not extended technique to bend a note! It’s just what we do. It’s not extended technique on the saxophone; you’re bending a note-yeah, why wouldn’t I? I’m playing guitar, I’m bending a note. Why wouldn’t I? Why is it on the flute an “extended technique?” It’s not extended technique, people have been doing it in every other world culture for a donkey’s years, we just think, oh it’s very clever. It’s not really. So, it has this label that, again, are extended techniques extended? They’re just more techniques we forgot to use for a while.

**CD:** You’ve talked about “play” a lot, so I was wondering how far you take that outside of improvising and things like that? Do you ever play around with the more
studio side of things or different effects that you could possible throw into the mix, other than extended techniques, that will change the sound? Do you ever consider using those more electronic aspects of music that are generally seen as being meant for rock and roll?

IC: There are numerous pieces of music, many more pieces of music than I’ve published as a flute player, where I’ve used a flute in the studio. Written more pieces in the studio using penny whistles and bamboo flutes than I’ve published as a flute player. And very frequently they’re using all sorts of processing, sometimes they’re not, sometimes they are. I haven’t yet tried to write a live piece that uses effects. No, I haven’t. And, I haven’t had the urge to just yet, partly for practical reasons. Usually when I’m playing and I pitch up to a place, I barely have enough time to rehearse with a pianist and get in a hall, let alone, “Hey let’s set up a complex PA with some effects unit and see if we can make it sound any good without a sound engineer or my own gear because I’m in America or Europe and I haven’t got a truck and an entourage who’s going to set up my stuff.” So it probably won’t work. And I was burned, I don’t know if you saw me in San Diego, I came along and played Tuberama and TRKs and all these things and was mic-ed up, a lapel mic or whatever I had, and it didn’t work! So I flew thousands of miles, had a big concert and it didn’t work. So since then I’ve been slightly disillusioned with PAs because generally when I’m playing concerts I don’t have much control over the PA their using, unless it’s in the UK, near enough for me to drive there with some gear in the back. And I’m very often not near enough to drive there with some gear in the back. It’s not out of the question I might do it.
It’s not out of the question. The other thing is I’m interested in using distortion and all that kind of processing, I haven’t figured out quite how I’m going to get that across without a straight flute sound coming straight through. Because I can’t mask a straight flute sound; I can’t switch it off. So, it’s going to have to have to be echoes and loop stations and all that kind of stuff. But I’m familiar with it all. I’ve got a student with a bunch of plug-ins as long as your arm. And I work with a guitarist who is doing it all the time, so it’s not technology I’m unfamiliar with or afraid of. I use it all the time.

**CD:** When was it that you started to find success in what you’re doing and what sort of criticisms have you faced?

**IC:** Well, success is a weird thing because I think other people perceive me as successful and I’m just carrying on being me. People asked me the other night what it’s like being famous and said well I don’t know. I’m really….I mean, it’s a dream come true that I’m playing the flute and people are interested in what I’m doing and I get to stand up and play the flute. I just want to play the flute, always have. I was a little boy at five years old, loved playing the recorder. I quietly dreamed, in my early 20s, maybe if I carry on doing music I might be able to make a living. Maybe I should go get a proper job with my math degree, but… But, it’s been stages. You know, a friend of mine asked me to go and do this flute day and I played the *Train Race* and people liked it. Then some more people asked me to come and play at some flute days and things and people liked it. All of a sudden I won some composition prize. And then people became more and more interested in what I was doing, and then the British Flute Society said would you come and
play at the British Flute Society with all these big names and I was going, “What, me?” Half scared to death. And more people liked it, and I was asked to go to music colleges and do things. And then the Americans have chosen Zoomtube to put on their competition piece! Really?! Ok! “Will you record a CD? Will you record as CD? Will you record a CD?” “Yes!” Finally I gave in and recorded one. And then, you know, people liked it and started buying it and being the number one seller on Flute World and all this stuff. And then you get invited to a convention without putting a proposal in. And then other countries, and then it’s on exam syllabuses, and somebody rings up from music college and says will you come and teach here and you go, “I must be doing something right.” So, I guess it started with Orange Dawn and Great Train Race, but then I trace it back to Hypnosis when that guy came up and said, “have you ever thought of doing library music?” So it’s a continuum; it’s a series of steps. I don’t drive around in a Ferrari, got a mansion with a swimming pool. People might perceive that I do, but, you know…no. My brother does, but anyway… I’m not even joking. He has a Ferrari and a swimming pool.

CD: What does he do?

IC: Well nothing anymore. He was a venture capitalist, so he did the thing in the city. It was very hard for me being a very poor musician for years and years and years. And you don’t know quite when you’re successful. Nobody knocks at the door and says, “Ian you’ve made it,” except Jimmy did call one day and said, “Ian, I love your CD and I love your flute playing.” I thought, ok, maybe that’s the nearest I’ll get to a knock at the door. And when I was standing there playing with
Ian Anderson of Jethro Tull on stage, I thought, this is right.

**CD:** So, you played *Tuberama* with him?

**IC:** I played *Tuberama* with him and I played some of his songs with him?

**CD:** Was that intimidating?

**IC:** It was just…extraordinary. I tried not to be intimidated. I tried to be relaxed, but part of me was going, “Oh my God, what am I doing?! That’s Ian Anderson. He’s sold 65 million records! He’s a legend!” And I played *Zoomtube*, on my own, to his audience. In a rock concert; proper. With a PA and drums and everything.

**CD:** And?

**IC:** It was fantastic. I said, “can I go on tour now please?” Fantastic, loved it. They loved it, I loved it. And I can’t go on tour because they’ve already got a flute player. I got on with him very well. It was a lifetime experience.

**CD:** There’s a short clip of it on YouTube.

**IC:** Horrible clip. I’ve seen it. It doesn’t do it justice at all. There’s a clip somewhere of me playing *Zoomtube* from that concert. I’ve just kept it quiet. It’s on YouTube somewhere, but it’s not labeled very well so no one knows it’s there.
Chrissie Davis: When choosing studio monitors to be used with an instrument with such a high range as the flute, what are some aspects that are important to consider?

Brandon Alanis: In the case of the flute it is necessary to have plenty of available peak power. This is due to the fact that the upper range of the flute tends to overdrive the signal, causing stress to the speakers.

CD: You have used and built several pedal boards and worked with multiple types of pedals. Is there a particular order in which the pedals must be placed in order for them to function properly?

BA: There is an understood order when building an effects pedal board. This order is based off of multiple factors, the most important being the type of effect represented by each individual pedal. The order is called the Keeley effects chain. Of course you can experiment with the order of pedals, but for a beginner or someone who has no desire to constantly move around effects, Keeley’s order is recommended.

CD: Why is this ordering important?

BA: The reason for this specific ordering is that each pedal provides its own color to the audio signal. The pedals are placed in this order so the signal goes from the least alteration of the original signal to the most. This reduces the likelihood that the effects introduced at each point in the signal path will cancel out the preceding effects.
**CD:** Why do you think a reverb type pedal is so important for anyone using effects pedals?

**BA:** There are multiple factors when it comes to creating a proper “live” room, so to expect every room you encounter to have perfect acoustic response and ample resonance would be futile. In many instances rooms have no tonal personality because the proper dimensions and angles are not present for the sound waves to fully develop. In other instances the room might be too small to even attempt to develop the waves, resulting in a very dry, dull sound. These issues may be caused by previously installed sound dampening products, bad construction, or just flawed acoustic design. A quality reverb pedal can mimic the resonance of bigger better sounding rooms and the consistency and portability is there
GLOSSARY OF TERMS

**Amplifier** - Electrical circuit designed to increase the level of a signal; but more usually, an audio system for boosting sound before transmission to a loudspeaker.

**Amplification** - making a signal bigger (may refer to voltage, analogous to signal level and loudness, or current). General term for amps, speakers and associated gear.

**Clipping** - the term used to describe the way a signal is cut off when it runs into distortion.

**Compression** - reduces the volume of loud sounds or amplifies quiet sounds by narrowing or “compressing” an audio signal’s dynamic range.

**Distortion** - signal degradation caused by the overloading or intentional manipulation of audio systems (such as guitar amplifier). Often used deliberately to create a harsher and grittier or sweeter and more compressed sound.

**Equalization (EQ)** - active tone control that works by emphasizing or de-emphasizing specific frequency bands. General term for tone control.

**Flanger** - an effects unit which mixes two identical signals together, with one signal delayed by a small and gradually changing period, producing peaks and notches in the resultant frequency spectrum.

**Formant** - the range and number of partials present in a tone of a specific instrument, represent it timbre.

**Frequency** - number of cycles of a vibration occurring per unit of time; the perceived pitch of a sound, measured in Hertz.

**Gain** - the amount of increase or change in signal level. An increased gain is shown as +dB; reduction is shown –dB; and no change as 0dB.

**Germanium diode** - the first diodes used in guitar effects pedals. They are more aggressive and “gritty,” with heavier clipping.

**Impedance** - Electrical resistance to the flow of alternating current, measured in Ohms. Impedance matching is important to avoid loss of signal and tone. Also commonly encountered with speakers, where it is important to match a speaker’s impedance to that of the amplifier’s speaker output.

**Phaser** - an audio signal processing technique used to filter a signal by creating a series of peaks and troughs in the frequency spectrum. The position of the peaks and troughs is
typically modulated so that they vary over time, creating a sweeping effect. For this purpose, phasers usually include a low-frequency oscillator.

**Preamplifier (Preamp)**- an electronic amplifier that prepares a small electrical signal for further amplification or processing. It is used to boost the signal strength to drive the cable to the main instrument without significantly degrading the signal-to-noise ratio.

**Reverb (Reverberation)**- ambience effect combining many short echoes; can be imitated digitally in pedals and studio effects units.

**Operational Amp (Opamp)**- an integrated circuit that works as a voltage amplifier.

**Overdrive**- a type of distortion which produces “warm” overtones at quieter volumes and harsher distortion as gain is increased.

**Wah-Wah**- a type of guitar effects pedal that alters the tone of the signal to create a distinctive effect, mimicking the human voice. The pedal sweeps the peak response of a filter up and down in frequency to create the sound, known as the “wah effect.”
INSTITUTIONAL REVIEW BOARD NOTICE OF COMMITTEE ACTION

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.

Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 12050901
PROJECT TITLE: Three Works by Ian Clark: His Influence on Extended Techniques and a New Take on Flute Performance in the 21st Century
PROJECT TYPE: Dissertation
RESEARCHER/S: Chrissie Davis
COLLEGE/DIVISION: College of Arts & Letters
DEPARTMENT: Music
FUNDING AGENCY: N/A
IRB COMMITTEE ACTION: Exempt Approval
PERIOD OF PROJECT APPROVAL: 06/07/2012 to 06/06/2013
Lawrence A. Hosman, Ph.D., Institutional Review Board Chair
APPENDIX E

INSTITUTIONAL REVIEW BOARD NOTICE OF COMMITTEE ACTION

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 12090605
PROJECT TITLE: Three Works by Ian Clark: His Influence on Extended Techniques and a New Take on Flute Performance in the 21st Century
PROJECT TYPE: Dissertation
RESEARCHER/S: Chrissie Davis
COLLEGE/DIVISION: College of Arts & Letters
DEPARTMENT: Music
FUNDING AGENCY: N/A
IRB COMMITTEE ACTION: Exempt Approval
PERIOD OF PROJECT APPROVAL: 09/26/2012 to 9/25/2013
Lawrence A. Hosman, Ph.D., Institutional Review Board Chair


Interviews


Brandon, Alanis. Personal Interview. September 14, 2012

Online Resources


Scores


__________. *Tuberama*. The Guildhall School of Music and Drama (2008).

__________. *Within...*. The Guildhall School of Music and Drama (2004).


Discography