

CONTEMPORARY IRISH AND SCOTTISH BASSOON MUSIC: AN ASSESSMENT  
OF SELECTED WORKS FOR UNACCOMPANIED BASSOON AND BASSOON  
WITH ADDITIONAL EFFECTS

by

KELLY CUNNINGHAM

A LECTURE-DOCUMENT

Presented to the School of Music and Dance

of the University of Oregon

in partial fulfillment of the requirements

for the degree of

Doctor of Musical Arts

June 2022

“Contemporary Irish and Scottish Bassoon Music: An Assessment of Selected Works for Unaccompanied Bassoon and Bassoon with Additional Effects,” is a lecture-document prepared by Kelly Cunningham in partial fulfillment of the requirements for the Doctor of Musical Arts degree in the School of Music and Dance. This lecture-document has been approved and accepted by:

Steve Vacchi, Chair of the Examining Committee

April 29, 2022

Committee in Charge:       Dr. Steve Vacchi, Chair  
  Prof. Melissa Peña  
  Dr. Jacqueline Cordova-Arrington

Accepted by:

Leslie Straka, D.M.A.  
Director of Graduate Studies, School of Music and Dance

© 2022 Kelly Cunningham

## CURRICULUM VITAE

NAME OF AUTHOR: Kelly Cunningham

PLACE OF BIRTH: Reno, NV

DATE OF BIRTH: March 23, 1989

### GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

University of Oregon

University of Idaho

University of Nevada, Reno

### DEGREES AWARDED:

Doctor of Musical Arts, 2022, University of Oregon

Master of Music, 2018, University of Idaho

Bachelor of Music, 2015, University of Nevada, Reno

## ACKNOWLEDGMENTS

To my parents, Chris and Shannon, for opening the garden gate.

To my teachers, Eric, Javier, and Steve, for walking with me down the  
promenade.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
II. ARS MEMORANDA, FRANCIS HEERY .....	5
Biography.....	5
Analysis .....	6
III. FIGURA, PIARAS HOBAN.....	12
Biography.....	12
Analysis .....	13
IV. “U...”, BEN MCHUGH.....	16
Biography.....	16
Analysis .....	16
V. AXEMAN, ANNA MEREDITH.....	19
Biography.....	19
Analysis .....	20
VI. ÒRAN-BUIDHEACHAS, WILLIAM SWEENEY .....	23
Biography.....	23
Analysis .....	24
VII. ORACLE, HENRY MCPHERSON.....	27
Biography.....	27
Analysis .....	28
VIII. APPLICATION .....	32
Extended Techniques .....	32
Additional Effects .....	54
IX. CONCLUSION .....	56
REFERENCES .....	57

## CHAPTER 1: INTRODUCTION

There has been significant research on bassoon music within certain cultures. There has also been significant research on contemporary bassoon techniques. The information we have on both subjects is not entirely uncommon; however, there is minimal scholarly contribution regarding contemporary bassoon music created in the countries of Ireland and Scotland. Documenting, analyzing, and performing music from composers in this area of the world is essential in preserving bassoon history. Additionally, it is valuable to have an understanding of the contemporary techniques these composers use for a more cultural and technical breadth of musical insight in the 21st century.

Scholarly documents about bassoon works by contemporary composers in Canada, Mexico, pan-Latin America, and Thailand have been developed, and it is my intention to contribute to our knowledge of international bassoon works by introducing contemporary bassoon music from Ireland and Scotland to our existing academic repertoire. For the purposes of this research document, the contemporary works discussed date from 2004 to the present.

Many soloistic compositions written within this timeframe include the use of additional effects. Composers in Ireland and Scotland have also taken advantage of such opportunities; therefore, it is necessary to include analyses of works with bassoon and additional effects such as electronics and manipulated sound.

Through analysis of six pieces, three from each respective country, this document will give us a better understanding of what is significant to contemporary classical bassoon music in Ireland and Scotland. Each piece will be examined in three parts.

First, a biography of each composer and the inspiration for their writing style: initial questions will cover the composers' background information (i.e. what year and where they were born), awards and degrees, what inspires the composers' compositional styles, and how that relates to the bassoon-specific piece. This section will also explore any historical, traditional, and/or cultural references that contemporary Irish and Scottish composers are using. This will give us a better understanding of what influence contemporary Irish and Scottish art music has had on the world and vice versa. It is also beneficial to understand what practices each composer uses in writing their scores – that is, how they decided on certain written notations possibly including, but not limited to, multiphonics, microtones, and the use of electronics. When it comes to contemporary pieces, especially those utilizing extended techniques, there is currently no standard practice for bassoonists and composers.

Second, a theoretical analysis of each piece: as we have grown to understand in our study of music, having a general idea of the theory and a roadmap of the notation gives us a better foundation for performing a piece as true to the composer's intention as possible. Third, application instructions: after providing the biography of each composer and a general analysis of their works, I will provide a chapter of instructions on how to apply the extended techniques and additional effects discussed to the bassoon, as found through my own practice and research, while cross-referencing them to their corresponding pieces. To better perform established repertoire we practice scales, arpeggios, and long-tones outside of the context of specific pieces. It is my belief that this same approach would benefit bassoonists looking to broaden their repertoire through pieces with extended techniques. Therefore, it is my intention to provide a space in the

application section of this document for bassoonists to gain facility and confidence in replicating these effects. After this, the effects will be introduced within the context of the music.

A combination of understanding composer biography, history, intention, theoretical analysis, and application of the music to the instrument is regularly employed in learning classical music. In the contexts of equity and well-informed musicianship, it is helpful to maintain that approach with new music as well. This document is intended to help bassoonists successfully perform contemporary Irish and Scottish compositions with and without electronics and manipulated sound.

As previously stated, six contemporary solo bassoon pieces by composers from Ireland and Scotland will be examined. Irish composers Francis Heery, Piaras Hoban, and Ben McHugh have written pieces for bassoon with extended techniques as inspired by Pascal Gallois's book, *The Techniques of Bassoon Playing*. They were each commissioned to write a piece for him to play in concert. These chapters will delve into these composers' pieces, which consist primarily of extended techniques on the bassoon gleaned from Gallois's extensive technique book. The following three chapters will cover pieces by Scottish composers Anna Meredith, William Sweeney, and Henry McPherson. Anna Meredith allows us to explore an electric guitar 'rock-inspired' bassoon solo with the use of amplification; William Sweeney and Henry McPherson also give bassoonists the potential to explore extended techniques. The last two pieces, while challenging in their own right, have the capacity to be more accessible to the inspired professional or advanced bassoonist newly interested in performing extended techniques. They also maintain aspects that are more rooted in the established tradition.

As a classically trained musician, I feel that discovering and performing new art music is as significant as preserving traditional repertoire. Furthermore, as a bassoonist, I feel that this particular instrument's versatility can be celebrated and accessible. I hope that this document also adds to the representation of Irish and Scottish composers who work in this genre.

## CHAPTER 2: ARS MEMORANDA, FRANCIS HEERY

### Biography

Francis Heery (b. 1980, Co. Galway) is an Irish composer and sound artist. He holds a Ph.D. in Composition from University College Cork and an M.Phil. in Music and Media Technologies from Trinity College Dublin. He works in both electronic and instrumental mediums<sup>1</sup>, and his music is “inspired by science-fiction, occultism and animal aesthetics.”<sup>2</sup> Heery’s webpage shows a selection of 22 compositions, many of which employ electronics or additional effects. He improvises and performs with a MAX/MSP setup that integrates with acoustic instruments and modular synths. MAX/MSP, developed in San Francisco by Cycling ’74 and Miller Puckette, is described as “a playground for invention” and “an infinitely flexible space to create your own interactive software”<sup>3</sup> by its creators. His passion for electronics and musical integration can be seen in many of his works, including a recent work for B-flat clarinet, bassoon, and live electronics titled *Some Kind of Time But A Different Kind of Time* (2021).

Heery’s interest in going beyond traditional expectations can be seen taking shape in his older works, such as *Ars Memoranda* (2012) for solo bassoon. *Ars Memoranda*, like the pieces in the following two chapters, was written for and premiered by Pascal Gallois in a concert featuring new works by Irish composers put together by Dr. Jesse Ronneau, lecturer of Acoustic Composition and Contemporary Music at National University of Ireland, Maynooth. All of the Irish composers in this document have

---

<sup>1</sup> The Contemporary Music Centre, Ireland, <https://www.cmc.ie/composers/francis-heery>, (accessed 4 Feb. 2022).

<sup>2</sup> Francis Heery, <https://www.francishierry.com/biography>, (accessed 27 Mar. 2022).

<sup>3</sup> Cycling ’74, <https://cycling74.com/products/max>, (accessed 27 Mar. 2022).

studied with Ronneau. Heery utilizes a multitude of extended techniques in this composition. His comprehensive approach shows just how versatile the bassoon can be.

### *Analysis of Ars Memoranda*

In the performance notes of *Ars Memoranda*, Heery explains which extended techniques will be utilized in his piece. These include: singing while playing, microtonal elements, ‘bright’ and ‘dark’ inflections, bisbigliandi, multiphonics (notated in three ways), air tones, keyclicks, ‘flap,’ and ‘pizz’ (pizzicato). It is also notated that “all *crescendi* and *diminuendi* are *niente* unless specifically indicated,”<sup>4</sup> meaning that *crescendi* start and *diminuendi* end *niente*.

Three of the extended techniques used most liberally in *Ars Memoranda* are from chapter four in Gallois’s book, Percussive Effects. They include ‘flap’, ‘pizz’, and keyclicks. According to Gallois, a ‘flap’ sonority is a percussive effect that occurs by “hitting the reed with the tongue like when playing staccato.”<sup>5</sup> It can only be played in the *pp* to *mp* dynamic range because the air pressure must be light enough not to vibrate the reed. Gallois also explains that ‘pizz’ is produced by smacking the tip of the reed with the lips and keyclicks are produced by clicking the keys with no use of the lips, tongue, or reed. These should be considered for performance purposes and will be discussed in more depth in Chapter VIII: Application. Additional effects – singing while playing, microtonal elements, multiphonics, and airtones – are found in chapters two, eleven, three, and seven of Gallois’s book, respectively.

---

<sup>4</sup> Heery, *Ars Memoranda*, preface.

<sup>5</sup> Pascal Gallois, “The Techniques of Bassoon Playing,” 45.

The use of multiphonics may arguably be the next most liberally denoted technique. Therefore, I find it valuable to further examine them. Heery explains that they are notated in three ways. Either the specific notes are written out in the score (ways to reproduce these indications can be found in *The Techniques of Bassoon Playing*), or they are marked with an ‘O’ or an ‘M.’ The ‘O’ indicates that the multiphonic will “consist mainly of overtones of the notated pitch” and that ‘M’ represents multiphonics that are “quasi-adlibbed whereby the player is free to choose the fingerings and playing techniques...”<sup>6</sup> The Oxford Dictionary of Music defines an overtone as “one of the frequency components of a sound other than that of lowest frequency” and states that “usually overtones are numbered consecutively in ascending order of frequency; they need not be harmonic.”<sup>7</sup> It also defines a multiphonic as “a tone cluster with periodically fluctuating loudness and timbre” which is possible for woodwinds using conventional fingerings “if the player uses an appropriately modified blowing technique.”<sup>8</sup> These definitions will also be helpful as we approach the application chapter.

Two effects not found in the index of *The Techniques of Bassoon Playing* are bisbigliandi and ‘bright’ and ‘dark’ inflections. Bisbigliandi can be found in chapter nine, Trills and Tremoli, are notated as *bisb.*, and are described as “changing timbres, not pitch.”<sup>9</sup> In other words, bisbigliandi are much like color trills that change the timbre of a

---

<sup>6</sup> See note 4 above.

<sup>7</sup> Oxford Music Online, <https://www-oxfordmusiconline-com.libproxy.uoregon.edu/search?q=overtone&searchBtn=Search&isQuickSearch=true>, (accessed 4 Feb. 2022).

<sup>8</sup> Oxford Music Online, <https://www-oxfordmusiconline-com.libproxy.uoregon.edu/search?q=multiphonic&searchBtn=Search&isQuickSearch=true>, (accessed 4 Feb. 2022).

<sup>9</sup> Gallois, 11 (see note 5 above).

sustained note, which can be a multiphonic or a single pitch. ‘Bright’ and ‘dark’ inflections are found in chapter two, Traditional Effects and Current Sounds, under 2.2 Sound Colors (Vowels). Here Gallois explains that brighter sounds can be achieved by positioning the tongue and lips in *E* and *A* vowel placements and darker sounds are achieved by using *Ü*, *O*, and *U* vowel placements.<sup>10</sup>

Heery describes the intended texture of the piece prior to giving the Miscellaneous Performance Notes. While this piece is through-composed, there are two sections that Heery addresses: bars 1-46 and 47-end. In the remainder of this chapter, we will address them as sections A and B, respectively. Section A consists primarily of a ‘flap’ sonority motive which descends, followed by a textured motive which also descends; this textured motive employs multiphonics, bisbigliandi, and voice, often all at once and occasionally with only one or two techniques.

In addition to the ‘flap’ sonorities there are several moments of air tones, keyclicks, and ‘pizz.’ That, along with Heery’s notes, allows us to view Section A as primarily percussive. The separate percussive and multiphonic techniques are combined in Section B, creating what Heery calls “a more amorphous and textured sonic field.”<sup>11</sup> In the written music above bar 47, this concept is once again pressed upon when he states that “...a quasi-static, textured ‘field’ of sound takes shape...percussive sonorities are increasingly absorbed into this field...”<sup>12</sup>

Section A starts with the ‘flap’ motive, or what I call motive 1. These are descending pitches notated in the lower register of the instrument. The dynamics are

---

<sup>10</sup> Gallois, 21 (see note 5 above).

<sup>11</sup> See note 4 above.

<sup>12</sup> Heery, 4.

marked *fff* to *ppp* with a decrescendo. The decrescendo occurs every time motive 1 appears, though the dynamic markings are varied. Additionally, the tempo marking alternates regularly between eighth note = 110 and eighth note = 70 in Section A. We are left with a pulse of eighth note = 70 for the remainder of the section when this change occurs in measure 21. I also note that each measure is given a number of seconds to fill the space throughout the piece.

A textured motive (motive 2) is introduced in measure 4, shortly following the first iteration of motive 1, giving the listener a thematic foundation. This motive usually consists of some combination of multiphonics, singing while playing, and bisbigliandi. I would like to address the air technique as its own motive as well – motive 3 “...a ripple in the silence...”<sup>13</sup>. Its first appearance is in measure 9. There is a call and response effect among the three motives, where at first each is given silent space around its entrance. While motive 1 seems to be the dominant figure at the beginning of the section, motives 2 and 3 establish a more prominent presence. For instance, measures 31-34 could be considered one elongated statement of motive 3. Additionally, motive 3 is paired with motive 2 in measure 40, interrupting motive 1. By the end of this section all three motives begin to morph into one another regularly, which gives us a foreshadowing of what comes in Section B.

Other instances of extended techniques in Section A include ‘pizz,’ ‘bright’ and ‘dark’ inflections, microtones, glissandi, flutter-tongue, and “quick motion of the tongue (as for staccato) on several notes without touching the reed,”<sup>14</sup> (indicated here by a

---

<sup>13</sup> Heery, 1.

<sup>14</sup> Gallois, 12 (see note 5 above).

symbol which looks like three sideways z's on top of one another). These techniques can be considered an addition of color to the already established motives.

Section B opens with a tempo marking of eighth note = 50. This tempo indication stays the same throughout the remainder of the piece. It starts in measure 47 with three 'flap' sonorities, blending immediately into the amorphous motive, or what I will call motive 4, which also introduces new techniques. The majority of discussion regarding this section will acknowledge the new techniques introduced, as it consists mostly of this amorphous motive with intermittent remnants of the previously established gestures.

In Section B, Heery adds techniques that include specifically written harmonics, indications of strong to weak air pressure, Q (overtone multiphonics), and micro-tempo variations from very slow to very fast bisbigliandi. He removes the use of 'pizz' and keyclicks. Starting in measure 47, the diamond headed note at the bottom of the staff indicates a harmonic. The black and white squares indicate a motion from very strong to very weak air pressure. The combination of these techniques proceeds into measure 50. Heery also introduces the symbol 'Q' for the first time here. The overtones, harmonics, and multiphonics in Section B are the most common techniques. That persistence is what gives a sense of continuity and cohesiveness, as opposed to the blocks of cells in Section A.

Heery slows the momentum and brings us closure by introducing opportunities for the bassoonist to play more of the fundamental note, usually taking place below the staff with pitch bends; additionally, the use of voice is employed more sparingly throughout the remainder of the piece. Rather, Heery experiments with having the bassoonist play with strong and weak air pressure, sometimes to "fluctuate between

harmonic and fundamental,” such as in measure 57. *Ars Memoranda* ends with an elongated **M** multiphonic from measures 91-93 and an elongated **O** overtone multiphonic from measure 94 to the end, both occasionally interrupted by remnants of our initial motives. The **O** overtone in the last measure has a fundamental of  $B_1$  and decrescendos from a bright to dark inflection.

## CHAPTER III: FIGURA, PIARAS HOBAN

### Biography

Piarras Hoban (b. 1986, Co. Kildare), holds a Bachelor of Science in Music from the Queen's University Belfast and a Ph.D. from the National University of Ireland. His music has been played in Ireland, England, France, Germany, and the Netherlands at festivals such as the Huddersfield Contemporary Music Festival, the International Computer Music Conference, Gaudeamus Music Week, Hilltown New Music Festival, and the Dublin Electronic Arts Festival. According to his biography on The Contemporary Music Centre Ireland's (CMC) webpage, Hoban's work "tries to approach in some way the special situation of making music with instruments," that the "open and acknowledged aspects of this situation are sound, body, instrument, technology and culture. The closed and unacknowledged are..."<sup>15</sup> I found the open-ended nature of this statement particularly intriguing because it leaves room for personal interpretation of what each of us may subconsciously experience with regard to making and processing music.

The CMC webpage shows 18 compositions by Hoban, which consist of a combination of electronic music, instrumental music, and mixed media. We can tell that Hoban is comfortable composing in a non-traditional format and exploring his own creative interests based on his resume, and the same can be said by looking specifically at *Figura (1a): study on the presence/ absence of* (2012) for solo bassoon.

---

<sup>15</sup> The Contemporary Music Centre Ireland, <https://www.cmc.ie/composers/piarras-hoban>, (accessed 22 Mar. 2022).

## Analysis of *Figura* (1a)

*Figura* (1a): *study on the presence/ absence of*, circa 8 minutes, is an artistic exploration of the concept of stuttering. Hoban inserts this quote from *Carnets d'un toque* (Notebooks of a Madman) by Andrej Belyj in the opening of his program notes: "The reader will only see the inadequate means: fragments, allusions, efforts, searching, do not try to find a well-polished sentence or a perfectly coherent image there, what will be printed on the pages will be an embarrassed word, a stuttering (my translation)."<sup>16</sup>

He elaborates on Belyj's sentiments with the following:

"To stutter is to be inside a system of culture but unable to render that system in a coherent way. It is a conflict between the intention and the apparatus. It is to be an outsider of language from the inside. The stutter makes a spectacle of the inner private world of limitation and desire. And yet, through these sounds, these attempts at sounds, something of that struggle which goes on beyond words is communicated."<sup>17</sup>

Hoban goes on to explain that his primary concern in the performance practice of this piece is the relationship between speed of performance and sound clarity. The "speed at which sounds are played should affect the clarity of sound production."<sup>18</sup>

The remainder of the preface addresses which extended techniques and notations will be used in the piece. These include special note heads, beam modifiers, rolling tones, ghost sound, modified pauses (or fermatas), pinched reed techniques, and singing while playing.

---

<sup>16</sup> Le lecteur ne verra défiler que les moyens inadéquats: fragments, allusions, efforts, recherches, n'essayez pas d'y trouver une phrase bien léchée ou une image parfaitement cohérente, ce qui s'imprimera sur les pages sera une parole embarrassée, un bégaiement. Belyj, *Carnets d'un toque*.

<sup>17</sup> Hoban. *Figura* (1a): *study on the presence/ absence of*, preface.

<sup>18</sup> See note 16 above.

The piece begins with another quote, this one from French novelist Marcel Proust's work *À la recherche du temps perdu* (In Search of Lost Time). It states: "As if the instrumentalists played the motive much less than they performed the rites required of it for it to appear, and performed the incantations necessary to obtain and prolong for a few moments the prodigy of its evocation (my translation)."<sup>19</sup> I take this to mean that the quality of the musicianship allows the listener the ability to bring back a memory momentarily. This quote seems to set a tone of longing in that remembrance. To tie it to Hoban's narrative, a person may have a longing to be understood, an internal perception of what we wish to say, and an inability to share that experience, except perhaps through our art.

*Figura* has six major recurring themes – a series of notes played in a straight rhythm, the same played in a 'nervous' rhythm, and in a 'drunk' rhythm, as well as the rolling tone, the extended ghost sound, and the distant interrupting voice. Silences and pauses are also important moments, though I feel they serve more as a bridge to tie the other events together. The first three make up the majority of the work and feed off of one another. Among them, the straight rhythm is dominant and is almost always accompanied by the directive *più veloce possibile*, as fast as possible, or an *accelerando* to *più veloce possibile*. The indications for the nervous and drunk themes are mostly marked *moderato*; however, the nervous theme has more propensity to accelerate to the same speed of the straight theme, and the drunk theme more often stays *moderato* and even slows to *lento* at a point.

---

<sup>19</sup> Comme si les instrumentistes beaucoup moins jouaient la petite phrase qu'ils n'exécutaient les rites exigés d'elle pour qu'elle apparat, et procédaient aux incantations nécessaires pour obtenir et prolonger quelques instants le prodige de son évocation. Proust. *À la recherche du temps perdu*.

The latter three of the recurring themes also work regularly as their own unit. The ghost sounds are usually quite long, sometimes accompanied by the rolling tone and voice, but always accompanied by the notation [...presence...]. Hoban addresses this notation as “a kind of poetical presence which seems to accompany all our struggles to affect sound into some cultural space.”<sup>20</sup>

Thinking of Hoban’s intention for the piece to be an exploration of the concept of stuttering, we can now assign personality traits to each of the themes previously discussed. The straight rhythm can be seen as a person determinately trying to express themselves while they are able to, knowing that at any time this intention might be taken away by the apparatus, to paraphrase Hoban. The nervous and drunk rhythms, to me, addresses the concept of “the stutter [making] a spectacle of the inner private world...”<sup>21</sup> While the nervous rhythm allows us to experience the anxiety one might feel when unable to express themselves coherently in our cultural system, the drunk rhythm reflects the defeat one might feel for the same reason. These three serve as glimpses of what a spectator might see from an outside perspective, while the rolling tone, ghost tone, and interrupting voice serve as insights into the inner workings of the mind that is experiencing the stutter.

---

<sup>20</sup> See note 16 above.

<sup>21</sup> See note 16 above.

## CHAPTER IV: “U...,” BEN MCHUGH

### Biography

Currently based in Stockholm, Sweden, Ben McHugh (b. 1989, Co. Dublin) studied music and composition at Maynooth University in Ireland and Palacký University in Czechia. He credits Jesse Ronneau, Martin O’Leary, and Vít Zouhar as his professors there and is currently attending Uppsala University in pursuit of a master’s degree in Philosophical Aesthetics. As written on the CMC webpage, “[McHugh’s] music has been performed and discussed at Hilltown New Music Festival, Sonic Arts Waterford, Walled City Festival Derry, See|Hear Festival, The National Concert Hall, Project Arts Centre, The Crescent Belfast, CMC, and in various universities around Ireland.”<sup>22</sup> He is also self-described as “an Irish composer, researcher and sound engineer” who is “interested in the intersections of sound, time, imagination and technology.”<sup>23</sup> Most of this can be seen in his composition of “U...,” while his additional interest in technology can be found in a multitude of his other works.

### Analysis of “U...”

“U...” for solo bassoon was written in 2012 and premiered by Pascal Gallois the same year. The piece is approximately four minutes long and does not contain program notes or a preface regarding the use of extended techniques; however, McHugh provides thorough details of which techniques are used and how to produce them within the score

---

<sup>22</sup>The Contemporary Music Centre Ireland, <https://www.cmc.ie/composers/ben-mchugh>, (accessed 20 Mar. 2022).

<sup>23</sup> McHugh, <http://benmchugh.eu/bio.php>, (accessed 20 Mar. 2022).

itself. McHugh covers a wide range of traditional and extended techniques in a short period of time, allowing the bassoonist to show versatility of the instrument.

In order of appearance, extended techniques include modified fermatas, specified multiphonics, harmonics, reed-glissandos, voice, semitones, flap sonorities, ghost sounds (with and without voice), rolling tones, key clicks, bisbigliandi, and modified vowel placements. Each of these techniques interplays with sweeping gestures of traditional notation, which range from  $D_2$  to  $E_5$ . Tempo is set at quarter = 56 and dynamics range from *pppp* to *ff*. Much like in piano music, staves are connected because McHugh has written notation in bass, tenor, and treble clef.

The extreme ranges and pitch bending to achieve quarter-tones allow for the piece to feel like an ethereal calling in the upper register, paired with stately commentary from the lower register. McHugh starts the piece with space between each of the gestures and gradually prolongs the amount of time played between these rests. When difficult register leaps are present, there are few other extended techniques. This choice allows the bassoonist to concentrate on an already advanced skill, while maintaining the nuanced energy of the piece. Space and what McHugh refers to as ordinary notes make room for the performer to successfully employ the extended techniques that follow, and for the listener to absorb multiphonic and harmonic frequencies with which they may otherwise be unfamiliar.

Perhaps the most important factor for understanding “*U...*” is McHugh’s use of multiphonics. He utilizes six multiphonics in the piece and provides fingerings in the score above the desired pitches. He presents us with a sense of continuity as specific

multiphonics are repeated after an ordinary note phrase, such as in measures two through six. See Figure 1.

Figure 1. “U...” Example of repeated multiphonic use in measures 2 and 6.

This is also the case from measures 22 to 26. The peak of the piece occurs in measure forty-two, where moving gestures are combined with undulating alternations between multiphonics five and six. Following the climax, McHugh writes leaps of mostly ordinary tones, gradually providing more silent space between them. The piece ends with the sensation of a question, as the bassoonist plays a reed gliss upward in the highest register.

## CHAPTER V: AXEMAN, ANNA MEREDITH

### Biography

Anna Meredith (b. 1978, Tufnell Park, London) moved to South Queensferry, Scotland at the age of two. She holds an extensive resume which “straddles the different worlds of contemporary classical, art pop, techno, large-scale installations, and experimental rock.”<sup>24</sup> She is credited with 6 albums, 4 installations, 4 movie and television scripts, and 37 concert pieces in categories such as body percussion, orchestral music, concertos, chamber music, choral music, solos, duets, music for young performers, and operas. The Irish Times quoted her album, *Anno*, as “quite simply exquisite, confirming Meredith as one of the most interesting young pioneers in the increasingly intertwined worlds of classical and electronic.”<sup>25</sup>

Meredith and her band tour regularly in the UK, Europe, the US, Canada, and Australia where she is featured playing the clarinet and electronics. Other band members include Maddie Cutter on cello, Tom Kelly on tuba, Jack Ross on electric guitar, and Sam Wilson on drums. Awards and honors include being “voted Number One in The List's Hot100 (of Cultural Contributors to 2016), [included in] the 2018 BBC Women's Hour Power List and won the 2019 *Ivor Novello Composer Award for Innovation*” and “awarded an MBE for Services to Music in the 2019 Queen's Birthday Honours List.”<sup>26</sup> Her list of accomplishments is a testament to her artistry and society's appreciation of that work, performers and spectators alike. *Axeman* (2004) is an electric bassoon piece

---

<sup>24</sup> Anna Meredith, <https://www.annameredith.com/about>, (accessed 27 Mar. 2022).

<sup>25</sup> Irish Times, <https://www.annameredith.com/releases-1>, (accessed 29 Mar. 2022).

<sup>26</sup> See note 23.

where we can see Meredith's exploration of classical and experimental rock music come to life.

### *Analysis of Axeman*

"The idea behind this short piece is to turn the bassoon into an electric guitar and the gestural writing and amplification have been written with this in mind. The guitar sound should be heavily amplified and distorted and with possibly a bit of reverb to create a rocking 1980's style guitar wail!"<sup>27</sup> Meredith provides three examples in the performance notes of how one might successfully produce the desired effect. Suggestion A includes reverb and amplification (an amp), suggestion B uses reverb and a public address (PA) system, and suggestion C proposes the use of a digital effects box and a PA. She also notes to accelerate through gestures with expanding stems.

Meredith has written five multiphonics in the piece and indicates that they were written in collaboration with the original performer, bassoonist Shelly Organ. The intent is for them to "be as harsh and grinding as possible to sound similar to a totally over-distorted guitar chord unless there is a particular sound in mind as indicated in the score."<sup>28</sup> For instance, multiphonic four is always to be played "low and throbbing." Otherwise Meredith has left it up to the performer to decide which multiphonics work best for their instrument, though suggestions from Organ have been supplied. Extended techniques other than the use of additional effects and multiphonics include keyed glissandi, quarter-tones, flutter-tongue, bisbigliandi (notated as same note trills), breath

---

<sup>27</sup> Anna Meredith, *Axeman*, performance notes.

<sup>28</sup> See note 26.





## CHAPTER VI: ÒRAN-BUIDHEACHAS, WILLIAM SWEENEY

### Biography

William Sweeney (b. 1950, Glasgow) is a Scottish composer and woodwind player. According to Oxford Music Online, he studied at the Royal Scottish Academy of Music and Drama and the Royal Academy of Music with Alan Hacker (clarinet) and Harrison Birtwistle (composition) from 1967 – 1973. He was then a woodwind tutor prior to teaching composition at the University of Glasgow. Winner of the Aeolus Prize for composition (1981) and two-time winner of the McEwan Commission from the University of Glasgow (1981 and 1989), Sweeney composes music highly influenced by his heritage and Scottish tradition.

He has been known to write traditional Piobaireachd music, anglicized as Pibroch, which is “used to denote a specific category of music for the Scottish Highland bagpipes.”<sup>29</sup> They are always in theme and variation form and are often referred to as “the ‘classical’ music of the Highland bagpipe to distinguish [them] from the rest of the piping repertory which consists of dance music, airs, and military music.”<sup>30</sup> Sweeney also writes with varied ornamentation, tone-color through alternate fingerings, and elements that are reminiscent of art and jazz fusion. He also has been influenced by ancient Greek poetry, Indian, and Arabic traditions. *Òran-Buidheachas* (2019) for solo woodwind

---

<sup>29</sup> Oxford Music Online, <https://doi-org.libproxy.uoregon.edu/10.1093/gmo/9781561592630.article.21798>, (accessed 29 Mar. 2022).

<sup>30</sup> Oxford Music Online, <https://doi-org.libproxy.uoregon.edu/10.1093/gmo/9781561592630.article.21657>, (accessed 29 Mar. 2022).

incorporates Scottish themes including imitation of the bagpipe and has the potential to include additional effects.

### Analysis of *Òran-Buidheachas*

*Òran-Buidheachas* translates to “Song of Thanksgiving” the from Scottish Gaelic language. Sweeney offers an approximate pronunciation of “Oh-ran Boo-ye-khas.” The melodic phrases in *Òran-Buidheachas* refer to the third movement of Beethoven’s String Quartet No. 15 in A minor, Op. 132, “Heiliger Dankgesang eines Genesenen an die Gottheit, in der Lydischen Tonart,” or “Song of Thanksgiving to the Deity from a convalescent, in the Lydian mode.” Sweeney notes in the introduction to the piece that “*Òran-Buidheachas* was commissioned by Red Note Ensemble in honor of Professor Celia Duffy on the occasion of her retirement as Chair of Red Note Ensemble in September 2019, with much gratitude for her selfless service, guidance and dedication.”<sup>31</sup> It was originally written for flute and performed by Ruth Morley at the Royal Conservatoire of Scotland. Sweeney has since arranged the piece for oboe, clarinet, bass clarinet, bassoon, and saxophone.

One annotation related to the music itself is that “passages marked *senza dim.* or *sempre f.*...[should be sustained] in the style of a bagpipe.”<sup>32</sup> Sweeney clarifies that the performer should abstain from the “classical/ romantic” manner of rounding off a phrase. Another addresses the additional effects present in the piece. There is an indication marked ‘*tutti “G” sostenuto al fine*’ in the first line of the piece. This means that the audience or other members of an ensemble are invited to join in quietly on that pitch and

---

<sup>31</sup> William Sweeney, *Òran-Buidheachas*, preface.

<sup>32</sup> See note 34.

sustain the note until the end of the piece, breathing when necessary but trying to avoid breathing while the player is doing so. Sweeney's choices to emulate the bagpipe and to create the sensation of an ensemble out of a solo piece make this a culturally significant and original composition.

There are four primary sections followed by a return of the original motive at the end. The range is from  $Bb_1$  to  $Bb_4$  and dynamics range from *pianissimo* to *fortissimo*.

There are no distinct measures but Sweeney marks those areas that indicate the ends of smaller phrases. The opening section is rubato and starts with a tempo indication of *Veloce*, as fast as possible, sweeping up to a trilled *G* and then moving down with the indication *meno mosso, uguale*, less rapid, equal. It ends on a *G* two octaves lower where the audience, other performers, or additional effects come in. The remainder of the piece, aside from the reentry of the original gesture at the end, is marked eighth note = 60, *Tempo giusto*, signifying to play in strict time unlike the previous section.

Here is where we see *f senza dim* as we move through a melody of eighths and quarters with grace notes. This melody stays in a comfortable range of the bass clef for the bassoon and should be played as indicated, fully and without rounding off the ends of the phrases. The next section occurs after a third iteration of the melodic phrase and rests on a whole note *G*. *Sempre f* is our sign to continue playing with a full and steady tone, though this choice of written notation leads the performer to play somewhat more aggressively. The music also lends itself to a more forceful approach as there are several sixteenth and thirty-second notes within the bass clef that leap into the higher octave of the bassoon. This section specifically is reminiscent of the traditional Pìobaireachd music discussed in Sweeney's biography. It is a variation of the theme introduced in the

opening phrase. The same can be said for the following section, where the upward leaps are inverted and cascade downward to a fermata half note below the bass clef staff. An *a tempo, poco rubato* leads us back from the end of the second phrase to the beginning of the first phrase, ultimately landing again on a whole note *G*, this time trilled, which decrescendos to *niente* where the bassoonist cues the audience or other performers to finish their drone.

## CHAPTER VII: ORACLE, HENRY MCPHERSON

### Biography

Henry McPherson (b. 1995, Glasgow) is an “artist, composer, improviser, performer, and researcher from the United Kingdom. His creative practice draws widely across the visual, sonic, and kinetic...”<sup>33</sup> He has a Master of Arts and Bachelor of Music from the Royal Conservatoire of Scotland and is pursuing a PhD at the University of Huddersfield’s Centre for Research in New Music and Research Centre for Performing Practice. McPherson’s awards and accomplishments include: the Help Musicians Transmission Fund, the Harriet Cohen Memorial Music award, the Patron’s Prize for Composition, the Opera Sparks Commission prize, the BBC Scottish Symphony Orchestra Composition Club Prize, and the Dinah Wolfe Memorial Prize. He is also a two-time nominee for the Scottish Awards for New Music.

McPherson describes his artistry as exploring “abstract ritual, momentary symbolisms, and free-associative storytelling.”<sup>34</sup> These principles can be seen in his 2018 composition for solo bassoon, *Oracle*. *Oracle* was written for Ronan Whittern, a freelance bassoonist originally from Ireland who now resides in Belgium. It was also written to be performed with a tree!

---

<sup>33</sup> Henry McPherson, <https://www.henrymcpherson.org.uk/statement-bio-long>, (accessed 9 February 2022).

<sup>34</sup> See note 32 above.

## Analysis of *Oracle*

*Oracle* has four movements: *Questioning*, *Answering*, *Renouncing*, and *Praying*.

The total duration ranges from 13'30" to 16'30". In his preface, McPherson suggests the following meditation during the process of learning the piece:

“Go outside and collect three sticks.  
Return home, harming nothing.  
The following day, return the sticks to where they were found.  
Return home, harming nothing.”

On the subsequent page he gives performance notes regarding the nontraditional aspects of *Oracle*. These notes refer to glissandi, alternate fingerings, accidentals, rhythms and tempi, and multiphonics. They will be described during the application process.

Movement one, *Questioning*, is “to be played seated at the foot of the tree,”<sup>35</sup> as stated under the movement’s title. The tempo is marked at quarter = 60 and the duration is c. 5'30". There is an indication of how to produce trills at the bottom of the page:

- \*) all trills should be one tone, unless otherwise specified.
- \*\*\*) Semi-tone trill<sup>36</sup>

This means that a *tr* marking with one or no asterisks, or other annotations next to it, is to be played one full step above its written tone. For instance, measure 18 indicates a trilled note one full step above the written note, from *D<sup>b</sup>* to *E<sup>b</sup>*. This is the first instance of a full tone trill and is a reminder. McPherson omits the asterisk for the remaining full tone trills in the piece, such as in measures 23, 30, and 37. Two asterisks next the *tr* marking means that the trilled note should be played a half-step above the written note. This occurs in measure 40 where the *F* is trilled to an *F<sup>#</sup>*. The other annotation seen regarding trills in

---

<sup>35</sup> Henry McPherson, *Oracle*, 1.

<sup>36</sup> See note 34.

this piece is *alternate fingering* or *alt. fing.* This is McPherson's way of signifying the use of bisbigliandi. As we have learned in previous chapters, bisbigliandi are color trills that cause the timbre to fluctuate on the written note.

There are five separate sections of movement 1. Each begins with a *D* grace note to *B* and then *Bb*. In the first iteration the *Bb* is followed by *A-C-A* to a *G#*. We arrive on the *G#* at some point during each section, though the means of getting there is slightly different as the movement continues. In the second section, McPherson distorts the octaves of the *A*'s. In the third, we move around the *A*'s and *C*'s, but never quite reach them. Section four reintroduces them, but not completely and with an octave displacement. The first two measures of section five fulfill the promise of section one. They are replicated exactly and are followed by more melodic content for one measure before finally resting on an *A*.

Movement two, *Answering*, is "to be played pointing skyward staring at the branches."<sup>37</sup> The tempo is marked at quarter = 65 and the duration is c. 3-6'. This movement is also divided into sections. McPherson designates each of the eight sections as lettered cells, A-H. He states that the bassoonist may "repeat cells, or groups of cells, as many times as desired."<sup>38</sup> He clarifies that if the performer does wish to repeat a cell each following cell must be repeated sequentially and that ornamentations are open to interpretation upon repeats. Extended techniques represented in this movement are glissandi and bisbigliandi (indicated by the *alt. fing. tr.* mentioned above). Glissandi are not present in the first movement. I like to think that this technique is used to represent

---

<sup>37</sup> McPherson, 2.

<sup>38</sup> See note 36.

the tree answering the player's questions in movement one. Movement two also explores the higher range of the bassoon and many of the cells are written in tenor and treble clef.

Cell A is a short, one measure statement. It consists of an eighth note triplet figure followed by a whole note  $B\flat$  with a fermata. It is followed by four measures of melodic content in cell B, still placing importance on the  $B\flat$  until halfway through the material where quarter note triplets lead us to an  $E$ . Cells C and D continue melodically, placing importance on groups of three and the note  $B\flat$ . Cell E is short, reminiscent of the statement in Cell A. Cells F through H give us more melodic content and emphasis on third relationships, however the tonal center has shifted.  $F\sharp$  takes precedence in the second half.

An *attacca* is placed under an  $F\sharp$  fermata at the end of the movement, leading us directly into movement three, *Renouncing* (c. 2'). *Renouncing* is "to be played facing away from the tree (with back turned)."<sup>39</sup> The *attacca* can be seen as a foreshadowing of the more fast-paced and almost argumentative nature of the movement. The note values are much shorter than we have previously seen even though it is set at quarter note = 70, a mere five clicks faster than *Answering*. Frequent leaps from lower to higher registers also add to this effect. McPherson introduces a multiphonic and keyclicks in this movement and maintains the sense of continuity with bisbigliandi trills. It is written without fermatas between measures or cells, as previously seen, and *accelerandi* are another addition. See figure six.

---

<sup>39</sup> McPherson, 3.

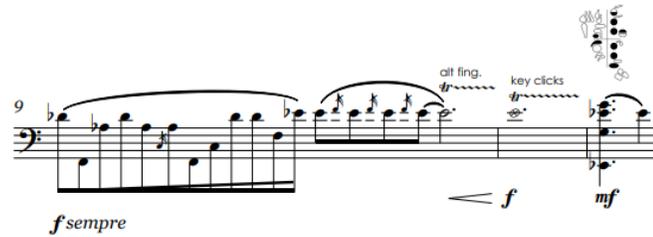


Figure 6. *Oracle – III. Renouncing*. New and established extended techniques.

Another quality of note is the *sempre forte*, which is the most dominant dynamic in the movement. We have a *piano* in measure 12, which is quickly followed by a crescendo to *forte* again, and then a crescendo from *mezzo forte* to *fortissimo* on a downtrill from *Bb* to end the movement.

The final movement of the piece, *Praying*, is “to be played into the heart of the tree.”<sup>40</sup> It is circa 3’ long and has a quarter note pulse of 50. There is a repeated melodic motive with lyrics written above the staff for the performer to think of while playing – “*at the loving tree*” – surrounded by multiphonics outside each end of the repeat signs. The two multiphonics on the latter end of the repeat sign are interrupted by a tremolo, a trill from a note more than a whole step away from the fundamental, from *Bb* to *Db* in the bass clef staff. The piece ends with long-tones leading to a fermata on keyclicks which fade to *niente*.

<sup>40</sup> McPherson, 4.

## VIII. APPLICATION

### Extended Techniques

To maintain continuity, I will concentrate on each extended technique as close to when they were first addressed in the previous chapters as possible; however, there will be cross-referencing of these techniques because many exist in multiple pieces discussed. The application of the techniques will first be taken out of the context of the music. Examples of where they exist in the music will then be given.

### **Singing while playing**

Though somewhat self explanatory, the act of singing while playing involves the vocal production of a specific pitch while simultaneously producing sound through the instrument. According to Gardner Read the singing or humming of a pitch other than the fundamental note creates “a simple two-voiced polyphony with two distinct timbres.”<sup>41</sup>

Gallois suggests that for bassoon:

It is possible to sing while playing. The dynamic range here is from *pp* to *mp*. This is possible on all of the notes of the bassoon, from *B<sub>b</sub>* to *d*<sup>2</sup>. It is preferable to amplify the voice by placing a microphone on the throat, near the vocal cords. To develop this technique, it is necessary to play in a *p* dynamic and to sing with nasal resonance.<sup>42</sup>

Dr. Steve Vacchi, bassoon professor at the University of Oregon, has written a document with practice suggestions for how to successfully implement this technique with a step-by-step method. Therefore, I will be referencing practice suggestions from his resource. Vacchi first advises the performer to begin production of the technique “from a

---

<sup>41</sup> Gardner Read, Contemporary Instrumental Techniques (New York: Schirmer Books, 1976), 151.

<sup>42</sup> Gallois, 27.

neutral point requiring neither the bassoon reed nor the instrument.”<sup>43</sup> The performer should first produce a tone by singing in a “comfortable range” and “normal manner;”<sup>44</sup> after this adding the syllable ‘oo’ with a larger stream of air. Third is the addition of the reed with no vibration. Hum with the reed resting between the lips and then repeat the previous step with the larger airstream while the reed is still between the lips. Vacchi then notes that the next step and primary challenge of singing while playing involves the addition of reed vibration. He suggests that we rely on the “intensity and support of the airstream”<sup>45</sup> as opposed to focusing attention on the two sounds happening simultaneously. Two practical applications for practicing with the reed and voice are as follows:

- 1) begin with air only—add sung note—then add reed vibration—remove reed vibration—then remove sung note—end with air only and similarly,
- 2) begin with air only—add reed vibration—then add sung note—remove sung note—then remove reed vibration—end with air only<sup>46</sup>

We are then invited to repeat these steps with the addition of the bocal, followed by the tenor, boot, bass, and bell joints respectively once comfortable with execution. The next step involves changing either the pitch that is sung or the pitch that is played while maintaining the alternative pitch. Vacchi suggests beginning with the former and exploring one’s own vocal range, and to first sustain  $F_2$  on the bassoon but once comfortable to experiment with challenges related to singing while playing higher and

---

<sup>43</sup> Steve Vacchi, “An Examination of Two Contemporary Techniques in Five Works for Solo Bassoon: Descriptions and Performance Suggestions,” (Louisiana State University, 1997), 30.

<sup>44</sup> See note 42.

<sup>45</sup> See note 42.

<sup>46</sup> See note 42.

lower frequencies. I maintain that the latter can be worked on in a similar manner, by sustaining the sung note while playing an easily accessible scale on the instrument.

I look to examples in the music now that we have a basic understanding of how to approach and establish the technique of singing while playing. I recommend practicing the specific vocal pitches for each example away from the instrument before also applying what is written for the bassoon. This technique is used in Heery's *Ars Memoranda* and McHugh's "U....". For the most part, Heery writes in a way that allows the bassoonist to execute the technique without changing voice pitch and bassoon pitch at the same time. The first instance of this is in measure 4, where he has written a multiphonic played simultaneously with a sung  $G\#_2$ . The voice moves up a quarter-tone and back down while the multiphonic is sustained. The performer should also practice and feel comfortable playing the multiphonic before trying to apply it to the piece and adding the additional effect of singing.

The next example of singing while playing is in measure 16. This provides more of a challenge for the performer because it involves changes from the ordinary tone on the bassoon to a multiphonic and back to an ordinary tone, changes in the voice with glissandi up and down the register, and bisbigliando with two different fingerings. It is best here to understand that each extended technique utilizes a different part of the body. The multiphonic comes from increased air pressure, the vocal part is produced by the throat, and bisbigliando involves only the fingers. My suggestion again would be to practice each separately until confident in the individual outputs. Then, to alternate playing two techniques at once: voice and bisbigliando, bisbigliando and multiphonic,

voice and multiphonic before putting them all together. These types of extended techniques are always present when the voice is used in *Ars Memoranda*.

Heery states his intention: “Where general, vocalizing while playing serves only to cause timbral ‘interference’ with the note being played. The voice should not be present as a separate sonority but rather integrate as much as possible with the instrumental tone.”<sup>47</sup> This means that our goal will be to vocalize in a way that blends with the bassoon as much as possible, as opposed to letting the voice be heard as a separate entity. In this case, Gallois’s suggestion of placing a microphone near the vocal cords is not desirable. Depending on physiology, it may seem challenging for bassoonists who do not naturally have a tenor voice to emulate Heery’s request; however, when humming as opposed to outright singing the brightness of the vocal cords is dulled, thus creating a timbral correction to an issue of octave displacement. An additional note is that Heery has written each voice entry in bass clef. It makes sense that he would write in this way, as the piece was written specifically for Pascal Gallois. However, it is another challenging circumstance for those of us who do not sing naturally in this range. My solution would be for the performer to sing in the range most comfortable for them while taking these steps to make the voice integrate as much as possible with the bassoon sound. Gallois’s suggestion of singing with a nasal resonance will also be beneficial in blending bassoon timbre with voice, allowing this technique to sound more like an integrated polyphonic tone from one source.

Though both McHugh’s and Heery’s pieces were written for Gallois’s performance, and many of the same techniques from his book were used, each composer

---

<sup>47</sup> Heery, preface.

wrote the differently in the score. For example, Heery's vocal part is above the bassoon part and McHugh's is below. Additionally, McHugh adds notes in parentheses an octave above the written note so the performer is immediately aware of the choice to sing the note most comfortable for their range. McHugh's use of voice in "U..." may also be more accessible to performers first practicing this technique because the voice is sustained on C# while the bassoon changes pitches. In either case, both composers have not exceeded the dynamic range proposed by Gallois. McHugh's piece may also invite the use of microphone, as there are no written directions to blend the sound and other techniques such as keyclicks and flap sonorities may be heard more easily.

### **Microtones**

According to Oxford Music Online, microtones are:

Any musical interval or difference of pitch distinctly smaller than a semitone. Some writers restrict the term to quantities of less than half a semitone; others extend it to refer to all music with intervals markedly different from the (logarithmic) 12th part of the octave and its multiples, including such scales with fewer than 12 pitches as are used, for example, in south-east Asia.<sup>48</sup>

For our purposes the definition will refer to all intervals less than a semitone from the 12 pitches used in a western classical scale. Gallois divides these into quarter, eighth, and sixteenth tones. This means that there are 36 pitches that can be achieved aside from the standard naturals, sharps, and flats. Each microtone pitch is indicated by a unique symbol. Gallois suggests to the composer that quarter, eighth, and sixteenth-tone changes only be written at slow tempi so the bassoonist may have time to change embouchure and to distinguish the individual tones from sounding like glissandi.

---

<sup>48</sup> Oxford Music Online, <https://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000018616>, (accessed 8 Apr. 2022).

In reference to quarter-tones, he tells us first to use the same embouchure as we would for quarter-tone glissandi, which includes “[pushing] the reed and the lips further into the mouth as though pronouncing the vowel ‘E’,” for a quarter-tone higher, and to “slide the reed from the mouth and pout the lips as though pronouncing the vowel ‘Ü’,”<sup>49</sup> for a quarter-tone lower. The bassoonist will also add a special fingering, such as the addition of the *B♭* key (right thumb) or the *C♯* trill key (right index finger). These suggested fingerings were given by Gallois and are, in general, efficient on many standard German bassoons; however, it is my suggestion that each individual experiment with different fingerings that may be more successful for their specific instrument. I would also suggest gaining fluency with embouchure, oral cavity, and voicing changes in the same manner as learning to sing while playing prior to working with the fingering aspect.

First, crowd the reed using a supported *mf* dynamic and switch slowly between the two aforementioned reed and vowel placements. Then do the same with the reed and buccal, and then add the bassoon, playing a single note in a comfortable range, such as *C*<sub>3</sub>. We can see where the pitch lies by looking at a tuner while practicing the embouchure changes. The next step is to practice pressing down suggested keys in each embouchure position to determine which would work best to facilitate the precise quarter-tone desired. Gallois gives special fingerings for eighth and sixteenth-tones and also suggests that some natural overtone fingerings can be useful in producing them.

The composers we have discussed who used this technique are Francis Heery, Piaras Hoban, Ben McHugh, and Anna Meredith. Heery acknowledges microtonal

---

<sup>49</sup> Gallois, 99.

elements in his preface by stating “where rapid microtonal changes occur, the different pitches should be sounded in as detached a manner as possible” and to “avoid microtonal glissandi where possible (unless expressly called for in the score).”<sup>50</sup> He also notes that the smallest value is an eighth tone. Heery deviates slightly from Gallois’s suggestion to use microtonal elements at a slow tempo. However, the detached nature of the pitches makes it easier to successfully employ the technique. It should be noted again that each of the pieces by Irish composers were written for Gallois himself to premiere, so there may have been an opportunity to create more technically challenging music. Additionally, the microtones in *Ars Memoranda* are primarily written with simultaneous percussive sonorities; therefore, embouchure placement is less of a priority than fingering choice. Glissandi regularly occur with microtones when the full sound of the bassoon is used. Hoban’s *Figura (1a)*, though a vastly different piece, is strikingly similar to Heery’s in the way he uses microtonal elements. Hoban mainly writes microtones in a detached manner and simultaneously with percussive sonorities, and when he deviates from this the microtonal gesture is accompanied by a glissando. After gaining agency over the technique on its own, the performer of these two pieces can separate practice methods for the detached, percussive sections and the glissandi gestures. Each should be practiced with a tuner, but focus should be placed on glissandi technique (to be discussed later in this section) when producing full tones on the bassoon, and on speed and accuracy of special fingerings when playing percussive gestures.

In terms of microtones, McHugh exclusively uses quarter-tones including one quarter-tone higher, one quarter-tone lower, and three quarter-tones higher in *U....* While

---

<sup>50</sup> See note 46 above.

the symbol he uses for one quarter-tone higher is different than that used in Gallois's book, the rest are identical. The quarter-tone higher in Gallois's book is indicated by a vertical line with one horizontal line going through it. McHugh's quarter-tone is a vertical line with two horizontal lines, which seems to be a frequent choice by contemporary composers. The symbols chosen can be seen in the image below.

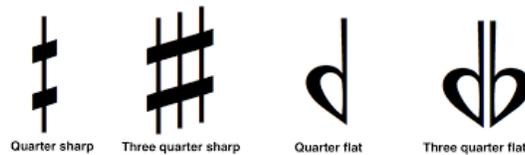


Figure 7. General Quarter-tone Symbols.

McHugh follows Gallois's suggestions more closely in this piece. Many microtones are accompanied by glissandi, as in the aforementioned pieces; however, when they exist outside of this context, the tempo is either much slower or the microtone is sustained for a longer period of time. One instance of quarter-tone sixteenth note triplets occurs in measure thirty-four and may require more practice than the other quarter-tones. In addition to the previously established practice techniques, my advice for measure thirty-four is to isolate and oscillate among the three notes, using a tuner and a metronome and increasing tempo gradually.

In *Axeman*, Anna Meredith takes a different approach to the technique than the previous three composers. Firstly, there are indications in the score of which keys to press directly since Meredith worked with bassoonist Shelly Organ while writing the piece. Additionally, Meredith intends for the bassoon to sound like an electric guitar wailing. Importance is therefore not placed on distinct divisions of tone, but rather on creating a

rock experience. Meredith also occasionally writes microtone symbols to indicate bisbigliandi, where other composers have specifically indicated bisbigliandi in the score. At other times, she uses microtones in a stepwise motion to an arrival tone. It would serve the performer best to first practice achieving microtonal elements in this piece by using the keys indicated and only to experiment with other keys if the desired effect is not achieved on their instrument. It is also imperative to practice how this would sound when the bassoon is amplified and distorted; applying amplification and distortion will be discussed later in the chapter.

### **Bright, Medium, and Dark Inflections**

Indications of bright, medium, and/or dark inflections are present in *Ars Memoranda* and *U...*. The terminology relates to which overtones are favored or heard more easily. For instance, using a bright inflection would mean that we are working to feature higher overtones. It should be noted here that composers have referenced these bright to dark changes as inflections, sounds, and tones – all of which refer to the same technique. Gallois informs bassoonists that having more reed in the mouth will create higher overtones and that the opposite occurs with less reed in the mouth. He also writes:

It is possible to maintain a dark or bright resonance over the bassoon's entire range since producing overtones depends mainly on air pressure. However, a good mouth position enables one to have greater control over sound production in difficult cases such as when playing *ppp* dynamics. Here is how this can be indicated on the score: Ü I O U A/ [Ü] [I] [O] [U] [A]<sup>51</sup>

---

<sup>51</sup> Gallois, 22.

In other words, while strong and weak air pressure are primarily important for creating darker or brighter overtones, vowel and reed placement can also be helpful tools. In general, producing standard tones in the low register is easier with less reed in the mouth and producing tones in the high register is easier with more reed in the mouth. To create brighter and darker inflections, use vowels E and A to produce brighter sounds and vowels Ü, O, and U to produce darker sounds when changing air pressure is not easily manageable due to extreme ranges or dynamics.

Heery informs us that in *Ars Memoranda* “transitions from dark tone to bright reedy tone should be executed with as much contrast as possible and by tongue and lip technique alone.”<sup>52</sup> We can see that in many instances where he uses different tone colors, he also writes *crescendi* and *diminuendi*, which require a change in air pressure. Therefore, it is understandable that he would direct us to utilize tongue and lip technique. Additionally, all occurrences of tone color change occur while using other extended techniques. It is once again suggested that the performer approach and gain fluency with each technique individually prior to combining the techniques, and then to work with them in sets of two prior to combining all of them in cases where more than two techniques are present.

The use of bright and dark inflections is rare in *U*... but McHugh does write two instances where we use the Ü vowel to create a darker tone, once while singing and playing a multiphonic, and the next while shifting from an ordinary tone  $D_4$  to a quarter-tone higher than  $F_4$ . In the first instance it is beneficial to practice changing between the standard vowel placement and the Ü vowel placement while maintaining the

---

<sup>52</sup> See note 46 above.

same pitch. In the latter, it is beneficial to practice sustaining the  $\ddot{U}$  vowel while changing pitches. An alternate fingering would be best for the quarter-tone above  $F_4$ . Suggestions for production have been made for those that do not have this vowel in their primary language. First, make an ‘ $\ddot{e}\ddot{e}$ ’ sound. We notice that the teeth are shown and the lips move horizontally to the sides of the face in a smile. While maintaining the position on the inside of the mouth, wrap the lips in an ‘o’ position around the teeth.

### Bisbigliandi

As I have stated in the analysis sections of previous chapters, bisbigliandi, also written as *bisb.*, *bisbig.*, *bis.*, same note trill, and *alt. fing. tr.* (alternate fingering trill) in the works discussed, is the act of trilling to change the tone color of the written note, as opposed to trilling between two distinct notes. It is possible by trilling a key that does not result in a different tone being played; typically, lifting a key that is already in use can be satisfactory. The range in which we can use bisbigliandi is from low  $C\#$  to  $F$  on top of the treble clef.

In *Ars Memoranda*, Heery writes bisbigliandi (*bisbig.*) on a separate staff with rhythms above the bassoon staff. He also states that the bassoonist should “alternate between two fingerings that create the most contrast in timbre.”<sup>53</sup>

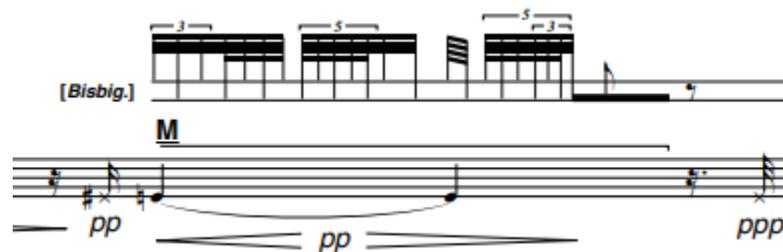


Figure 8. Bisbigliando in *Ars Memoranda*.

<sup>53</sup> See note 46 above.

For each instance, practice the rhythm apart from the bassoon. Then practice which keys work to create considerable contrast with the given pitch, and then combine the two techniques.

Bisbigliando in *U...* is used on a sustained  $G_4$  above the staff. On my bassoon the most effective fingering here is playing a standard  $G$  while trilling the third finger on the right hand. Other fingerings, such as trilling right hand B-flat, seem to raise the pitch as well as change the tone color. This may be useful in a piece like *Ars Memoranda* where an extreme difference is desired, but no such designation is recommended in *U...* It would be in the interest of the performer to establish a difference between bisbigliandi and microtone pitches.

Meredith approaches bisbigliandi by naming them ‘same note trills.’ A recurring theme in *Axeman* (see figure 5) utilizes them on  $E_4$ ,  $F\#_4$ , and  $A_4$ . For each, I would trill right hand thumb B-flat, left hand two, and right hand thumb B-flat again, respectively. The oscillation between an ordinary tone and quarter-tone while quickening tempo may also be considered bisbigliando. However, it is my opinion that Meredith wrote the tones and the suggestions for which keys to press in these moments, as opposed to writing ‘same note trills,’ because she wanted to show a quickening of pace through the beams. Additionally, to stay as true to the composer’s intentions as possible there should be more of a focus on the pitch rising than on the color changing.

McPherson introduces bisbigliandi as alternate fingerings in *Oracle*. He states “‘alt. fing.’ denotes a timbral trill/ alternative fingering trill on the same note.”<sup>54</sup> His use

---

<sup>54</sup> McPherson, preface.

of bisbigliandi is always on a single ordinary tone with no other extended techniques happening simultaneously. Bisbigliandi occur five times in the first movement. These are the most accurate fingerings on my bassoon - from  $A\flat$  to  $G$  in measures 11-12, trill resonance key. In measure 21,  $B\flat$ , trill left hand thumb  $C$ . Measure 33,  $D$ , works best trilling right hand thumb  $A\flat$ , and the  $G\sharp$  in measure 35 also works using the resonance key. In movement two, *Answering*, McPherson writes bisbigliandi trills in cell D alone. They are on  $B\flat$  (trill suggestion: right thumb  $E$ ),  $C$  (trill suggestion: resonance key or right hand  $F$ ), and  $A\flat$  (trill suggestion: resonance key), all in the treble clef. Movement three, *Renouncing*, has seven alternate fingering trills, however all but three have been used in the previous movements. Suggested fingerings for new trills are as follows:  $B_3$  – right thumb  $E$ ;  $G_b_3$  – resonance key;  $E_b_4$  – left hand thumb  $C$ . One alternate fingering trill is in movement four, *Praying*. It is on  $F_4$  and the suggestion that works best with my bassoon is right hand thumb  $E$ .

### **Multiphonics and Harmonics**

Concrete applications of multiphonic and harmonic techniques will now be discussed, although definitions and general descriptions have previously been given. Gallois has separated multiphonics into four achievable categories based on the embouchure and type of air pressure one would use to produce them. Category one consists of twelve multiphonics for playing with weak lip and air pressure. Category two is meant for pitches  $B_b_1$  to  $C\sharp_4$  (below bass clef staff to above bass clef staff) and consists of the opposite technique from the previous. We are to use most of the reed while pinching and greatly increase the air pressure, as if playing in the higher register. This

category does not require alternate fingerings. The resulting effect will be a multiphonic with higher overtones and is represented by the **Q** in *Ars Memoranda*. The third category consists of fingerings for fifteen multiphonics which can be used simultaneously with bisbigliandi. Gallois's fourth category gives us six multiphonic fingerings which can be used in chromatic succession. These consist of regular fingerings for  $Eb_1$  to  $G\#_2$  with the addition of the thumb C-sharp key. From my own experience, it is best to practice multiphonics with a newer, lighter reed, and to first approach each that has a new fingering with a *mf* dynamic before testing how loudly or softly one can sustain the technique. In the case of the second category, Gallois suggests that these multiphonics can only be played in a *p* dynamic. Rolled tones may also be considered under the multiphonic category, though the pitches produced are indistinguishable so Gallois gives special reference and fingerings for four rolled tones after discussing multiphonics.

Harmonics are similar to multiphonics in that they require manipulation of embouchure and air pressure. However, the desired effect is to have one overtone played at the same time as the fundamental. Harmonics are achieved by increasing embouchure and air pressure, and bringing more reed into the mouth when in the higher register of the bassoon. I also suggest practicing this technique in a comfortable range, with a supported dynamic, and using intention when increasing embouchure and air pressure to see exactly where the harmonic lies on one's own set-up without overblowing.

Hoban indicates his desired multiphonics by utilizing images of reed placement and air pressure shown in Gallois's book:

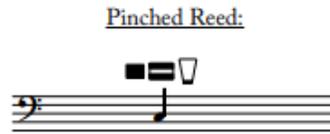


Figure 9. Images representing multiphonic production.

The figure shows three images which represent using strong air pressure, strong lip pressure, and placing much of the reed in the mouth, respectively. The end result will be a multiphonic sound. Hoban occasionally writes ‘...*variable*...’ next to these images, which means that “slight fluctuations/oscillations in the sound should be audible.”<sup>55</sup> Hoban utilizes this multiphonic several times through the course of *Figura (1a)* on a sustained *B $\flat$* . However, he does not use other multiphonics in the piece.

McHugh and McPherson choose to use multiphonics which require a different fingering than the fundamental in *U...* and *Oracle*, and both provide us with the appropriate fingerings in the score itself. Meredith does similarly in *Axeman*, though suggested multiphonics are in the preface. She also indicates that most multiphonics may be up to the performer’s discretion as long as those numbered differently in a succession sound different from one another. Additionally, she occasionally gives directions such as ‘high and harsh!’ or ‘low and throbbing!’ As is the case for practicing most extended techniques, my main suggestion is to practice new fingerings and/ or embouchure positions away from the music before putting them into context.

### **Air Tones**

Air tones, otherwise known as air noise, air sound, or wind sounds, can be interpreted in surprisingly different ways. In some instances it can be produced by

---

<sup>55</sup> Hoban, preface.

blowing the consonants ‘F’ or ‘S,’ or the sound “SHA” into the reed without physically touching it to the lips, as Gallois suggests. This suggestion may be helpful in achieving a wider dynamic range, but may be impractical for fast passages. In a *p* dynamic, it can also be produced with the lips on the reed or the bocal.

We can see that Heery would like us to use the latter example with the reed because he asks for “a lot of air pressure but only with hints of the resulting pitch.”<sup>56</sup> Air tones by Heery are represented by a hollow square note head. Hoban has four types of air tones. He names them “air sound medium brightness,” “air sound bright,” “air sound dark,” and “inhalation air sound.” These are shown as a hollow square note head, and a square with a dot in it, a solid square, and a solid upside down triangle. An air tone will sound brighter when more keys are depressed, but otherwise one can achieve a brighter effect by placing the lips closer to the wire and a darker one by placing them farther away. It is advisable to use air tones with the reed in Hoban’s piece as well.

### **Percussive Techniques: Keyclicks, Flap Sonorities, and Pizzicato**

Keyclicks are a percussive effect. Heery gives a precise description of how to implement the technique on bassoon: “Keyclicks...involve depressing the key relatively forcefully so that a percussive click [occurs.]”<sup>57</sup> Gallois informs us that the keys that make the most sound are in the lower register of the instrument; however, the sound is generally rather quiet. Unless otherwise specified by the composer, it is suggested to use amplification in pieces that require keyclicks. This effect is found in *Ars Memoranda* and *U....* The note heads in each piece look slightly different. Heery chooses to use a symbol resembling a plus sign to differentiate from the flap sonorities that look like an ‘x.’

---

<sup>56</sup> See note 46.

<sup>57</sup> See note 46.

McHugh uses the ‘x’ symbol, as it appears in Gallois’s book. Both composers clarify their intention either in the piece or in the preface. To use this technique there is only a need to depress the keys associated with the note heads. The mouth should not be touching the reed.

Flap sonorities utilize staccato tonguing on the reed or the bocal. Without making a full ordinary tone, the performer will hit the reed with the tongue in a staccato manner while using the appropriate note’s fingering. In the pieces discussed here, the reed should remain on the bocal because of the quickness with which extended techniques change. Gallois suggests a lighter air pressure to avoid causing the reed to vibrate.

Gallois’s instructions for performing pizzicato (*pizz.*) are to “[smack] the reed’s tip very briefly with the lips...Only a short and sharp lip movement on the reed’s tip is necessary, without using any air pressure from the diaphragm.”<sup>58</sup> The resulting effect is similar to a flap sonority, but with a short and distinct pitch produced. Gallois also advises that this technique only be used in the fundamental register. We see *pizz.* in *Ars Memoranda* and *Figura (1a)*. Note heads for *pizz.* in each piece are not the same, but each composer clarifies what the note heads mean. The more generally agreed upon symbol seems to be a solid upside down triangle.

### **Beam Modifiers**

Beam modifiers can represent the character in which a performer is to play a certain section or can be related to the tempo of a certain gesture. In *Figura (1a)* the modifier refers to the former and can be seen in the figure below:

---

<sup>58</sup> Gallois, 47.

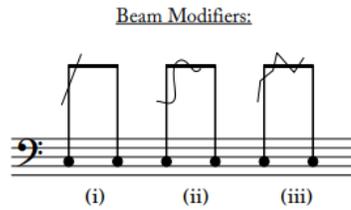


Figure 10. Beam Modifiers in *Figura (1a)*.

Beam modifier (i) signifies to play the rhythm straight, (ii) to play drunkenly, and (iii) to play nervously, as discussed in Chapter III. In my opinion, the best way to achieve modifiers (ii) and (iii) is to think of the character and remove ourselves from the standards of classical training. Hoban directs us for (ii) to “play in an undulating, uneven manner but without extreme discontinuity”<sup>59</sup>; for (iii) we are to play in an “extremely discontinuous and agitated manner.”<sup>60</sup> Beam modifiers that indicate tempo change are in *U...*, *Axeman*, and *Oracle*.



Figure 11. Beam Modifier as seen in *Oracle*.

---

<sup>59</sup> See note 54.

<sup>60</sup> See note 59.

Any time beams are split into two or more is an indication to quicken the tempo. If reversed, it is an indication to get slower. For practice purposes, it is best to think of or even write an *accelerando* or a *ritardando* above the gesture in the part.

### **Ghost Sounds**

Ghost sounds, also known as ghost tones, are “sounds that have a lot of air noise and very little tone. The proportion should be 90% air and 10% tone,”<sup>61</sup> according to Gallois. He instructs us to practice by producing air with very low pressure and slowly increasing the pressure until the reed vibrates. The main objective at this point is to keep consistent air pressure while avoiding opening the oral cavity (between the palate and the tongue). If there are instances where a ghost sound is called for in the 3<sup>rd</sup> and 4<sup>th</sup> registers of the bassoon, using pedal keys *Bb<sub>1</sub>* and *B<sub>1</sub>* are helpful. Ghost sounds are found in *Figura (1a)* and *U....* In the first case, it is sustained on *Bb<sub>1</sub>* and in the second it moves slowly through notes in the 3<sup>rd</sup> register. Dynamics of *p* and *pp* will help when practicing Hoban’s piece and the use of the pedal keys will help in McHugh’s.

### **Fermata Modifiers**

Fermata modifiers are also present in *Figura (1a)* and *U....* These composers have written in fermatas that require the performer to pause for different lengths of time:

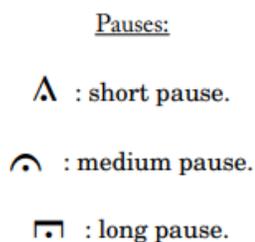


Figure 12. Fermata Modifiers as seen in *Figura (1a)*.

---

<sup>61</sup> Gallois, 27.

Hoban leaves the duration of a short, medium, or long pause to the performer's discretion, unless expressly specified in the score. McHugh plainly writes over the fermata how long the performer should pause in the score, but he uses the same modified symbols. My suggestion is to practice these sections of the pieces with a metronome set at 60bpm.

### **Glissandi**

Glissandi can be approached by different means, depending on the context. If a glissando is a quarter-tone away, Gallois suggests using a lip glissando. To play a quarter-tone higher, “push the reed and the lips further into the mouth as though pronouncing the vowel ‘E’.”<sup>62</sup> Contrarily, if the glissando is to be a quarter-tone lower, “slide the reed from the mouth and pout the lips as though pronouncing the vowel ‘Ü’.”<sup>63</sup> We can use this method in moments like measure 38 of *Ars Memoranda* by isolating the glissando from  $D_1$  to a quarter-tone lower and so on. If the glissando is required between two whole-tones, it can be accomplished by “very slowly opening or closing a hole or key.”<sup>64</sup> Gallois also notes the importance of maintaining supported air pressure while executing this technique. An example of finger glissando can be found in *Axeman*. Though the distance is more than a whole tone,  $D_1$  to  $F_2$ , the same slow method of raising the keys can be applied. Meredith also writes this as a “keyed gliss.”

---

<sup>62</sup> Gallois, 99.

<sup>63</sup> See note 61.

<sup>64</sup> Gallois, 100.

## **Flutter-tongue**

Flutter-tonguing, along with singing while playing, may be one of the most challenging techniques to master. I once again refer to Pascal Gallois and Steve Vacchi for their step-by-step methods to approach the technique. Each suggests two manners in which one can produce a flutter-tongue technique: glottal (or uvular) and with the tip of the tongue (as in Spanish or Italian ‘rr’ pronunciations), and Gallois explains that the sound “translates as a violent perturbation of the air pressure before it reaches the reed.”<sup>65</sup> While Gallois and Vacchi give suggestions for both methods of producing flutter-tongue, Vacchi identifies that flutter-tongue with the tip of the tongue can become more difficult and that personal limitations may apply to either approach based on the individual. I found that glottal flutter-tonguing is personally more natural and accurate for me. Gallois tells us that in order to produce the glottal flutter-tongue “place the base of the tongue towards the rear of the palate, relax the throat as much as possible and produce the sound “RRR” as if snoring.”<sup>66</sup>

One may feel compelled to practice the technique with the instrument if they are already fluent in either of the techniques, especially the front flutter-tongue, but I would recommend Vacchi’s approach to practicing without the bassoon or reed for those who do not yet have fluency. He states that the performer should first “flutter the tongue or uvula with the lips positioned as if pronouncing ‘oo’.”<sup>67</sup> He then recommends that the performer practice incorporating “normal breathing and support habits” which

---

<sup>65</sup> Gallois, 23.

<sup>66</sup> See note 64.

<sup>67</sup> Vacchi, 10.

“eliminates any unwanted variables at this stage of learning the new technique.”<sup>68</sup>

Following this, the performer is encouraged to incorporate the reed, repeating the first two steps first without and then with vibration. Continuing this sequence will help build strength and familiarity with the technique:

- 1) begin with air only – add reed vibration – then add flutter – remove flutter – then remove reed vibration – end with air only  
and similarly,
- 2) begin with air only – add flutter – then add reed vibration – remove reed vibration – then remove flutter – end with air only<sup>69</sup>

Vacchi then invites the performer to add the tenor, boot, bass, and bell joints after gaining agency with each, respectively. Flutter-tongue is present in *Ars Memoranda* and *Axeman*. Again, I recommend that the note that is flutter-tongued for each of these pieces is isolated, then coming into and coming out of the flutter-tongue to surrounding notes should be practiced before incorporating it back into larger sections of the piece.

### **Wide Vibrato and Breath Accents**

Wide vibrato is used in *Axeman* and is another instance where thinking less about our classical training and more about the ‘electric guitar wail’ will help us produce the desired effect. While Gallois gives examples of three different types of vibrato – diaphragm, lip, and jaw – it is my recommendation that lip vibrato be used for Meredith’s piece when called for. It allows for more contrast and for the player to maintain the written dynamic (*fff throughout*). Lip vibrato is produced by changing lip pressure on the reed. Breath accents are also present in *Axeman*, and we produce them by pushing puffs of air from the diaphragm as if quickly blowing out several candles, not touching the tongue to the reed.

---

<sup>68</sup> See note 66.

<sup>69</sup> Vacchi, 11.

## Additional Effects

Amplification and distortion are the two primary factors in a successful performance of *Axeman*. An amp, custom bocal, and Little-Jake bassoon pickup were the most easily accessible for me, although it is possible to use an FX unit and a PA system. The Little-Jake pickup is a hand built pickup created by Trent Jacobs for use with the bassoon and other woodwind instruments. “For bassoon a brass adapter must be made and soldered to the bocal.”<sup>70</sup> Changing a bocal in this way is permanent and will result in the bocal not functioning without the Little-Jake pickup. Using an already modified bocal or having a bocal modified that is not an imperative part of one’s standard set-up is advisable.

To use this set-up, first assemble the bassoon and bocal. Attach the pickup directly to the bocal’s adapter and then plug it into the amp while the amp is turned off. Make sure all volume knobs are turned down prior to turning the amp on. Once the amp is on, raise the master volume slightly, play a few notes, and raise it more until the bassoon can be heard coming through the amp’s speaker. At this point, the bassoon should be amplified but should still maintain its classical timbre. Each amp will be adjusted differently based on the equipment and personal preference. For my set-up, the amp had reverb, master volume, treble, middle, and bass adjustments, all with settings from 1-12. I found that having the reverb turned all the way up, the master, treble, and middle turned to about 5, and the bass turned to 3 worked efficiently for the bassoon to emulate an electric guitar sound. After playing, disassemble in the opposite manner of

---

<sup>70</sup> Trent Jacobs, “The Little-Jake,” [tjbassoon.com/little-jake](http://tjbassoon.com/little-jake), (accessed 29 Apr. 2022).

assembling. Turn the volume controls down, turn off the amp, remove the Little-Jake from the amp, and remove the Little-Jake from the bocal.

Some pieces do not specifically call for amplification. However, as we have learned, it may be beneficial to amplify some extended techniques discussed. *Ars Memoranda* and *Figura (1a)* are two pieces that use an extensive amount of percussive techniques which may be difficult to hear. Gallois suggests the use of a microphone close to the bassoon's bell in these cases.

## CHAPTER IX: CONCLUSION

Irish and Scottish composers have written a variety of new music for the bassoon and in a variety of different ways. Documents have been written about contemporary bassoon repertoire by composers in other parts of the world and it is essential to continue documenting, examining, and performing new repertoire from areas that have not yet been widely discussed. Performers and audiences benefit from learning, playing, and hearing material that may have otherwise been unfamiliar.

From a surplus of extended techniques to the use of additional effects such as amplification and distortion, bassoonists have many opportunities to share art music beyond traditional standards. Additional effects and extended techniques have been around for some time, but are continuing to grow in popularity throughout the world. Some of this repertoire may seem overwhelming to a performer if there are many extended techniques or additional effects and if there is a lack of continuity in how the effects are written.

Composers create scores in unique ways; as if each has individual fingerprints. This the case with the Irish composers who wrote pieces for solo bassoon with extended techniques based on Gallois's book *The Techniques of Bassoon Playing*. The Scottish composers discussed also wrote the same techniques differently. It is helpful to have resources when approaching new music because there is currently no official standard for the notation of these techniques. By providing this resource to learn about these Irish and Scottish composers and their solo bassoon works, and to understand how to apply the different techniques they write, it is my hope that bassoonists will feel encouraged and empowered in their exploration of current repertoire.

## REFERENCES

- Campbell, Murray. "Multiphonics." *Grove Music Online*. 2001; Accessed 4 Feb. 2022. <https://www-oxfordmusiconline-com.libproxy.uoregon.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000043536?rskey=FnAaqR&result=1>.
- \_\_\_\_\_. "Overtone." *Grove Music Online*. 2001; Accessed 4 Feb. 2022. <https://www-oxfordmusiconline-com.libproxy.uoregon.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000020615?rskey=CU0IAi&result=1>.
- "Contemporary Music Centre." n.d. Contemporary Music Centre. <https://www.cmc.ie/>.
- "Cycling '74." Accessed 27 Mar. 2022. <https://cycling74.com/products/max>.
- Gallois, Pascal. *The Techniques of Bassoon Playing*. Germany: Baerenreiter, 2012.
- Griffiths, Paul, Mark Lindley, and Ioannis Zannos. "Microtone." *Grove Music Online*. 2001; Accessed 8 Apr. 2022. <https://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000018616>.
- Heery, Francis. *Ars Memoranda*. 2012.
- \_\_\_\_\_. "Francis Heery." Accessed 20 Mar. 2022. <https://www.francisheery.com/biography>.
- Hoban, Piaras. *Figura (1a): study on the presence/ absence of*. 2012.
- Jacobs, Trent. "The Little-Jake." Trent Jacobs, bassoonist. Accessed 29 Apr. 2022. [tjbassoon.com/little-jake](http://tjbassoon.com/little-jake).
- Ronneau, Jesse. "An American-in Ireland-in Paris." *Timbre*. 2012; Accessed 4 Feb. 2022. <http://musicatmaynooth.blogspot.com/>.
- McHugh, Ben. "Ben McHugh." Accessed 20 Mar. 2022. <https://benmchugh.eu/bio.php>.
- \_\_\_\_\_. *"U..." for Solo Bassoon*. 2012.
- McPherson, Henry. "Bio. Henry McPherson." Accessed 9 Feb. 2022. <https://www.henrymcpherson.org.uk/statement-bio-long>.
- \_\_\_\_\_. *Oracle for Solo Bassoon*. 2018.

Meredith, Anna. "Anna Meredith." Accessed 20. Mar. 2022.  
<https://www.annameredith.com/about>.

\_\_\_\_\_. *Axeman*. Scotland: Scottish Music Centre, 2004.

Morris, Francis J. "Sweeney, William." *Grove Music Online*. 2001; Accessed 29 Mar. 2022. <https://www-oxfordmusiconline-com.libproxy.uoregon.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000049220>.

Read, Gardner. Contemporary Instrumental Techniques. New York: Schirmer Books, 1976.

Scottish Music Centre. "William Sweeney." Accessed 20 Mar. 2022.  
<https://www.scottishmusiccentre.com/william-sweeney>.

Sweeney, William. *Òran-Buidheachas*. 2019.

The Contemporary Music Centre, Ireland. "Francis Heery." Accessed 7 Feb. 2022.  
<https://www.cmc.ie/composers/francis-heery>.

\_\_\_\_\_. "Piaras Hoban." Accessed 20 Mar. 2022.  
<https://www.cmc.ie/composers/piaras-hoban>.

Vacchi, Steve. "An Examination of Two Contemporary Techniques in Five Works for Solo Bassoon: Descriptions and Performance Suggestions." DMA diss., (Louisiana State University, 1997).