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MIDI Electronic Wind Instrument: A Study of the Instrument and Selected Works

Matthew J. Swallow

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**MIDI Electronic Wind Instrument:
A Study of the Instrument and Selected Works**

Matthew J. Swallow

**Doctoral Essay submitted to the
College of Creative Arts
at West Virginia University**

**in partial fulfillment of the requirements
for the degree of**

**Doctor of Musical Arts
in
Music Performance**

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ABSTRACT

MIDI Electronic Wind Instrument: A Study of the Instrument and Selected Works

Matthew J. Swallow

The development of the MIDI (Musical Instrument Digital Interface) electronic wind instrument (EWI) stemmed from earlier electronic instruments including analog/digital synthesizers, earlier control devices (Lyricon), and electronic instruments using a “blow tube trigger generator” (Yamaha WX) or breath controllers (Yamaha BC). Developing such devices began as early as the 1940s and were originally intended for compositional use instead of performance. However, the technology of electro-acoustic sounds continued to expand commercially from the 1950s through the 1970s, including more general access to sound synthesis and live performance. Various companies including Yamaha, Akai, Moog, Korg, and others would establish lines of synthesizers that shaped the music instrument industry throughout the rest of the century. During the 1970s, the technology used only allowed each company’s devices to communicate with those of the same brand and not others. This incompatibility would be resolved with the introduction of MIDI in 1983. MIDI is the current industry standard in compatible synthesizer technology and allows a musician to connect devices from different companies, as they communicate using the same signals. The EWI is uniquely designed so that it is accessible to a musician with prior experience on selected woodwind instruments. Many musicians including Michael Brecker and Bob Mintzer have performed on the EWI in addition to saxophone. During the mid-1980s, classical composers took interest in the instrument and composed specifically for the EWI. Some musicians believed that this would be the instrument of the future. However, this notion has faded away over the years. There is only a limited amount of classical music written for the EWI, primarily within a brief span between the late 1980s and early 1990s.

The document serves as a resource for teachers, students, and composers interested in studying the EWI. This presents a brief history of the EWI; performance analysis of selected works; and a guide to the instrument’s western art-music repertoire, recordings, technical specifications, and pedagogy. Works by Leonard V. Ball, Marilyn Shrude, Gil Trythall, and William Moylan are studied in this document, exploring techniques and solving possible issues a performer may encounter when learning the EWI repertoire. The detailed information provided the selected works may be beneficial for those seeking to perform works dedicated to the EWI. Since there are many technical components involved with the EWI, the author provides instruction on using these devices: MIDI tone generator, mixer, computer, and cable configurations. Tone generators studied include the Yamaha WT11, Yamaha TG55, and Korg Wavestation. All examples in this document are examined through the lens of the Yamaha WX5 EWI, covering its specifications and adaption to the selected works. A comprehensive fingering chart is included as a supplement. In addition to the examined works, this author has compiled a list of western art-music repertoire that includes pertinent information for each piece: composer, duration, composition date, specified equipment, publisher/contact, and library via WorldCat (OCLC). The compiled list of recordings consists of a combination of sources that may be obtained in both a tangible format (i.e. tape, CD) and/or online source (i.e. YouTube, SoundCloud).

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GLOSSARY

The following list contains terms directly related to the EWI and its surrounding technologies.

Akai EWI: Popular line of MIDI electronic wind controllers that utilize many similar features to those of the Yamaha WX. Variants in design include fingering system, mouthpiece, and parameter settings. Older models follow the same system requirements using separate tone generators. Newer models are specifically designed with both internal sound banks and easy compatibility with computer connections and accompanying software.

Art-Music: Refers to a category of serious western music that consists of folk, art, and popular music and follows a written musical tradition. This term has been closely associated with 20th century European and American art music, even though was used periodically in the 19th century. The EWI repertoire discussed in this document, accompanied by the bibliographical information, are all associated with this genre.

Continuous Controllers/Control Change (CC): General MIDI function that allows a user to connect devices to a specific channel. Some of these include breath controller, foot controller, expression, and volume. There are a total of 95 CC channels to select based on what is being used within the specific sound hardware or software. CC is used prominently between the EWI, MIDI USB foot controller, and volume expression pedal in conjunction with the Korg Wavestation.

Digital Audio Tape (DAT) Cassette: An obsolete form of backing up MIDI data and storage for future retrieval. The Yamaha WT11 originally included a special output connection to allow for this method of storing and retrieving MIDI data. The accompanying cable for the device was designed by Yamaha and is rare to obtain if lost. This method has now been replaced by computer software via MIDI interface. SysEx Librarian and MIDI-OX are the preferred methods for backing up and restoring data today.

Electronic Wind Instrument (EWI): Wind controller that uses air pressure to regulate sound production (volume, articulation, and overtones). Most common devices operate through MIDI (Musical Instrument Digital Interface) and have a range of eight octaves. Key sensitivity is operated by contacts on the instrument unlike traditional woodwind instruments with their open/close tone holes. The EWI also uses a mouthpiece that allows a performer to produce vibrato, pitch bends, and modulations. Additional functions may include hold keys, voice program changes, lip controls, transposition, pitch bend/modulation keys, and other parameter adjustments. Most devices require a tone generator and/or computer to receive the signals and produce the desired sounds.

Hold Key: A key function on the EWI that allows a user to sustain a selected pitch while playing other notes above or below it. It can also be referred to as a sustain key.

Korg Wavestation: Synthesizer that was produced in the early 1990s. The original hardware series comprised four models in the series consisting of keyboards and rack-mount modules. In the 2000s, Korg released a version of this device as a software application for Mac and PC. It uses the same original parameter settings and carries the same file codes for sounds as were available on the hardware. Leonard V. Ball, Jr. composed *and they spoke of things transfigured...* for the Wavestation hardware in 1990, then participated in a 2015 reconstruction to adapt to the software version.

Lip Data: Function on the Yamaha WX5 that allows the user to choose between producing vibrato or modulation in response to the action of the mouthpiece reed.

Lip Data Range: Toggle switch on the Yamaha WX5 used to set limits to the overall range of the pitch bends or modulations from narrow to wide.

Lip Gain: Setting on the Yamaha WX5 that configures sensitivity to the player's lip based on its response with the embouchure.

Lip Pressure: Refers to the overall range which a pitch can be bent up or down with use of the embouchure.

Lip Zero: Setting on the Yamaha WX5 that is used to adjust and center the pitch based on the natural embouchure position.

Memory Protection: A security feature on tone generators that prevents a user from altering MIDI data of sound voices (patches) in the RAM. This option can usually be turned off by going through utility or general settings.

MIDI (Musical Instrument Digital Interface): Industry standard of circuitry for electronic musical instruments established between companies or manufacturers. Established in 1983, MIDI devices, regardless of brand, allow a user to communicate multiple signals to exchange information. The data transferred through MIDI signals include notes/pitches, voice program changes, volume control, and other data related to the device being used. For instance, the Korg Wavestation is compatible with other MIDI instruments, such as the Yamaha WX5.

MIDI Filters: Function with the continuous controller (CC) that enables or disables control change, program change, and aftertouch.

MIDI IN/OUT/THRU: Connections used between devices via 5-pin din cable and/or MIDI USB interface that allow for proper communication if using multiple units at once. The Yamaha WT11 WX IN is the substitute for the MIDI IN if connecting with a compatible Yamaha WX.

MIDI Interface: Refers to a junction between two or more different signals. The common connection used today is between MIDI IN/OUT and USB. A popular model currently produced is the Yamaha's UX16.

Modulation: Modulation is an alteration of the MIDI sound by its frequency in response to the action performed with the embouchure or the pitch bend/modulation wheel. When modulation is used, vibrato and other sonorities will vary based on the sound patch parameters.

Parameter: Mentioned mostly in conjunction with MIDI instruments, this is a mathematical term that generalizes the overall range and settings of a device numerically and symbolically.

Performance Combination: Most commonly a custom voice patch (sound patch) that is programmed using multiple instruments and/or voices at once.

Pitch Bend/Modulation Wheel: Spring-loaded key on the Yamaha WX that allows the user to alter a pitch up and down depending on the selected sound patch or settings configured on the WX.

Program Change: To switch to another voice within a sound bank currently programmed in a tone generator. This operation can either be executed using the “program change key” on the Yamaha WX and/or the physical tone generator itself.

RAM (Random Access Memory): Area located in a MIDI tone generator used for storing custom programmed sound voices (patches). Modules such as the Yamaha TG55 and WT11 have their RAM located in “Sound Bank I.”

Reverb: Refers to the sound simulating the acoustics of a specific room or space through electronic settings. Many tone generators contain configurations that allow a specific sound patch to simulate performance in, for instance, a cathedral or a small closet.

Semitone Trill Key: Auxiliary key on the Yamaha WX5 for the purpose of trilling to a pitch a half step higher when the key is pressed.

Setup Button: Speed function on the Yamaha WX5 that permits the arrangements of octave key transposition, sustained pitches, pitch bend/modulation, and wind gain sensitivity. This key is held while pressing the proper octave keys to compute any of the specific functions.

Sound Bank: Refers to the accompanying list of sounds that are located within one section of a tone generator. For instance, all five custom performance voices used for William Moylan’s *Two Suspended Images* are located in “Sound Bank I” of the Yamaha WT11.

SysEx Librarian: Apple OSX (macOS) program specifically designed to store MIDI data from a tone generator. Data stored in this software can also be restored to a designated device. This replaces older methods of storing MIDI data such as DATs. A similar program for PC is called “MIDI-OX.”

Transposition: Setting used on tone generators and certain EWI models that allows a player to set a device to a specific key: either C, E-flat, B-flat, F, or other transposing instruments. The Yamaha WX only allows for transposition between C, B-flat, and E-flat.

Tone Generator: Synthesizer that receives the signals from an EWI or other compatible instruments. Communication between devices is enabled through MIDI (Musical Instrument Digital Interface). A tone generator contains storage for a variety of voice/instrumental sounds, performance sounds, and RAM. Additional features include transposition, volume, acoustics, and master tuning. Some devices allow a user to create custom voice/instrumental and performance combinations. Tone generators can come in both hardware and software versions. Examples include the Yamaha WT11 (hardware), Yamaha TG55 (hardware), and Korg Wavestation (hardware/software).

UMI3 USB MIDI Foot Controller: Foot controller that connects to Mac or PC and is used with software that is MIDI-compatible with the device. A compatible program for the MIDI foot controller is the Korg Wavestation. The device is generally used for program changes, sustaining pitches, and volume; a total of three pedals on the device can be programmed for those various functions. The device also includes its own software for custom configurations. A volume/expression pedal can be connected to the device. It is used in *and they spoke of things transfigured* by Leonard V. Ball, Jr.

Velocity: Function on the Yamaha WX5 that adjusts the overall sound production using either wind pressure or finger/key intensity. When the velocity switch is toggled to the variable setting, the response is based on wind pressure that simulates sound production like flute, clarinet, or saxophone. The fixed velocity setting creates a sound response by the speed and intensity of the fingerings pressed down in a similar manner as a keyboard instrument. This function may only work on selected tone generators.

Voice Patch (Sound Patch): Refers to the individual instrumental/voice sound on a tone generator. The collections of sounds (“sound bank”) for each device may consist of either original pre-programmed sounds from the manufacturer or custom that is either programmed by a performer or composer. For specific works, composers may generate a voice patch sequence that is controlled by the player during a performance.

Yamaha BT7: Yamaha WX accessory that contains a separate battery back and an output for standard MIDI connection. This was an essential device for the older models (WX7 and WX11) of this EWI, as they do not have an internal MIDI OUT (only WX OUT). WindWorks Design produces a similar model, the WW-BAT.

Yamaha FC-5: Foot controller traditionally used for sustaining pitches when connected to an electronic keyboard. It can be used with the Yamaha WT11 for the specific purpose of program changes. Two of these foot controllers are needed to scroll up and down each of the sound banks.

Yamaha FC-7: Volume foot controller used specifically to control volume/dynamics for selected tone generators that support this device. It can be used with the UMI3 USB MIDI Foot Controller, which is used in *and they spoke of things transfigured* by Leonard V. Ball, Jr.

Yamaha TG55: Traditional FM synthesizer manufactured in the early 1990s. This rack-mount module is compatible with any MIDI synthesizer. Even though it was generally used for additional sounds for a keyboard, it can also be used for an EWI that has the traditional 5-pin din connection. This device was used originally for William Moylan's *Future Echoes from the Ancient Voices of Turtle Island*.

Yamaha TX81Z: Traditional FM synthesizer manufactured by Yamaha in the late 1980s. Similar to the Yamaha TG55, this unit is in the form of a rack-mount module. It is MIDI-based and compatible with any synthesizer that supports this industry standard. This unit has been used in a few compositions for the EWI and shares similar parameters with the Yamaha WT11.

Yamaha VL70-m: One of the last tone generators specially designed for the Yamaha WX series. In addition to the WX IN, it also includes support for a breath controller. This product was discontinued in the mid-2010s.

Yamaha WT11: FM synthesizer manufactured in the late 1980s and specially designed for the Yamaha WX. It was originally produced around the same time as the WX11. It uses the custom WX IN for powering and receiving MIDI signals for the WX. William Moylan's *Two Suspended Images* was originally performed using this device with custom performance combinations.

Yamaha WX: Electronic wind instrument line first released in 1987. There have been a total of three models in the WX series produced chronologically in this order: WX7, WX11, and WX5. Improvements have been made on this instrument over the years, including: battery storage, MIDI outputs, auxiliary keys (e.g., high D/D-sharp; trill keys), and octave key mechanism. All devices use a custom MIDI output (WX OUT) cable that connects to a compatible Yamaha unit. This powers the EWI along with sending the regular MIDI signals.

Whole-Tone Trill Key: Auxiliary key on the Yamaha WX5 for the purpose of trilling to a note a whole-step higher.

Wind Gain: Setting on the Yamaha WX5 used for determining sensitivity to the intensity of air being used.

Wind Curve: Function on the Yamaha WX5 referring to the amount of air required to produce the proper dynamic.

Wind Sensor to MIDI: Function on the Yamaha WX5 which operates the three MIDI data settings: breath control, expression, and volume.

Wind Zero: Setting on the Yamaha WX5 that adjusts the minimum amount of air required in order to produce a sound.

PREFACE

I. Purpose of Study

This study presents historical, pedagogical, technical, and interpretive information concerning the electronic wind instrument (EWI), directed particularly for those who are closely engaged with traditional wind instruments. Considering that the EWI has been used significantly as an alternate instrument for jazz and pop musicians, its art-music repertoire is small. This document serves as a resource for the woodwind musician interested in learning the instrument and the selected works examined in this document.

Most of the EWI repertoire has not been performed frequently. Due to the nature of the technology associated with the instrument, it can be overwhelming for a musician who is unfamiliar with electronics. This can be especially true for one who is not sure of the specific equipment required in order to perform a given piece. Some works were developed for a specific MIDI tone generator that requires synthesized sounds desired by the composer, and will be explained in further detail in Chapter 4.

A compiled list of recordings related to the study is included in this document. This is to provide a performer with sound references, which can be very helpful while studying a work, including assuring the musician that the proper sound patches are applied and serving as a guide to the technologies involved for execution.

The document may also be used as a reference for composers interested in writing for the EWI. Many special techniques can be performed on the EWI that would not be possible on any traditional wind instrument. One of the features include the sustain/hold key, which allows a user to sustain a selected pitch while playing other notes above or below it. The pitch bend/modulation wheel key is another unique function on the EWI that alters a pitch depending

on the selected setting in combination of the selected tone generator and instrument configurations.

The EWI has commonly been associated with the similar mechanical apparatus of woodwind instruments including saxophone, clarinet, and flute. Another device that is related to brass instruments that uses similar technology as the EWI is called the electronic valve instrument (EVI). The primary difference with this instrument is the similar valve system commonly used on horn, trumpet, euphonium, and tuba. The EWI and EVI may be categorized as one family of electronic instruments known as wind controllers. Since the introduction of the EWI in the commercial market, several brands and models have been released in addition to tone generators and computer software. Previous composers wrote works for a specific EWI/EVI brand and tone generator (hardware). Since some of the older tone generator hardware is no longer manufactured and can be difficult to obtain. This can lead to limited accessibility, making it challenging for a musician to perform these works. Newer compositions using modern, widely-accessible hardware and software that can work universally on any EWI can help avoid these issues.

For students, teachers, and professionals interested in learning the EWI, it is important to have some knowledge of the history of the instrument, its various manufacturers, and the musicians who contributed to the instrument's development and use. Many of the wind controllers currently produced in today's market share similar performance functionalities. This guide will provide a synopsis of how the device operates mechanically and electronically.

Having a solid foundation in the overall pedagogy is necessary for any prospective musician interested in the EWI. Understanding and mastery of the various settings including breath control, lip settings (depending on the model), and special fingerings may provide a better

quality of performance. Only the technical specifications of the Yamaha WX5 (the current model) will be examined in this document.

II. Related Literature

There are three important sources that contribute to a bibliography of the EWI, especially the compiling of its repertoire. One is the *Londeix Guide to the Saxophone Repertoire* (2012) by Bruce Ronkin.¹ Another source of repertoire is the *Cambridge Companion to the Saxophone* by Richard Ingham.² A pedagogical book related to clarinet, *New Directions for Clarinet* by Phillip Rehfeldt, contains information on a few additional EWI works.³

Additional dissertations related to the EWI have been published, which may serve as a supplement to the information presented in this document. Since the release of the Yamaha WX7 in 1987, Yamaha has developed two other additional models, the WX11 and WX5, both released during the 1990s. Even though these instruments come with detailed user manuals, the instructions lack material focusing on younger students eager to learn the instrument. Marilyn Linda Van Scoyoc published a dissertation related to teaching methods for the EWI titled “The Development and Evaluation of Electronic Wind Controller Instructional Materials and Techniques for the Instrumental Music Educator.”⁴ The purpose of Van Scoyoc’s dissertation is to provide awareness to educators regarding how the technology works and how to incorporate it into the music curriculum. Examples of performance techniques using the EWI are demonstrated in this document using the Yamaha WX11 wind controller and WT11 wind tone generator.

As this document primarily focuses on the repertoire using the WX series, those interested in more information related to the Akai wind controllers should refer to Matthew J.

¹ Bruce Ronkin, *Londeix Guide to the Saxophone Repertoire* (Glenmoore, PA: Roncorp, 2012).

² Richard Ingham, *Cambridge Companion to the Saxophone* (Cambridge, UK: Cambridge University Press, 1998).

³ Phillip Rehfeldt, *New Directions for Clarinet*. Revised Edition (Lanham, MD: Scarecrow Press, Inc., 1994).

⁴ Marilyn Linda Van Scoyoc, “The Development and Evaluation of Electronic Wind Controller Instructional Materials And Techniques for the Instrumental Music Educator” (dissertation, Teachers College, Columbia University, 1991), accessed September 21, 2016, <http://search.proquest.com.www.libproxy.wvu.edu/docview/303933696?accountid=2837>.

Vashlishan's dissertation, "The Akai Electric Wind Instrument (EWI4000s): A Technical and Expressive Method."⁵ Contents include the instrument's history, specifications, sound editing, and external control operations. Additional details in Vashlishan's work include methods for learning how to accurately read notated EWI music and use various extended techniques, including pitch bends, glissando octave doubling, and harmonization. The elements discussed in his essay also apply to the concepts related to the instructions provided for the WX series in this document.

The EWI is closely related to another synthesizer controller, the Electronic Valve Instrument (EVI). Many of the technologies of the EVI share similar characteristics with the EWI, including tone generators, parameter settings, and uses of MIDI (Music Instrument Digital Interface). Additional information regarding this electronic instrument can be found in Ronald Paul Cole's dissertation, "The Electronic Valve Instrument: Nyle Steiner's Unique Musical Innovation."⁶ The document includes fingering charts, technical exercises, bibliography, online links, and a discography. Cole also includes insightful information regarding the history and development of the instrument dating from its invention by Nyle Steiner.

⁵ Matthew J. Vashlishan, "The Akai Electric Wind Instrument (EWI4000s): A Technical and Expressive Method," (dissertation, University of Miami, 2011, accessed September 21, 2016, http://scholarlyrepository.miami.edu/oa_dissertations/576).

⁶ Ronald Paul Cole, "The Electronic Valve Instrument: Nyle Steiner's Unique Musical Innovation," (dissertation, University of Washington, 1998), accessed September 21, 2016, <http://search.proquest.com.www.libproxy.wvu.edu/docview/304460992?accountid=2837>.

III. Acknowledgements

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CHAPTER 1

History of the Electronic Wind Instrument

The MIDI *electronic wind instrument* (EWI) developed from earlier electronic instruments. A musician with prior experience on standard western woodwind instrument for concert music should find the EWI accessible due its unique design. The earliest developments of the synthesizer, a key precursor to the EWI, occurred as early as 1945. Harold Bode and Hugh Le Caine were early pioneers in creating sound-generating and processing devices.⁷ They assembled and manipulated electronic sounds using oscillators, filters, and ring modulators. These devices were operated by voltage controls, which manipulate the electronic components in order to produce the proper signal for the device that is being controlled.⁸ The voltage strengths create different frequencies and amplitudes.

One of the first commercial synthesizers to be produced was created in 1964 by Don Buchla and Robert Moog; the brand would be commonly known as the Moog synthesizer. The pair would eventually create the Minimoog monophonic keyboard synthesizer in the early 1970s and a polyphonic version few years later. During that time, digital synthesis became fully developed as a technique. This allowed for programming specific timbres (“voices” or “sound patches”) in the software of the synthesizer instead of the analog voltage controls commonly used in earlier devices that relied on sophisticated circuitry to create such sounds.

Additional experimentation took place with a unique electronic instrument called the *Lyricon* (1975), invented by Bill Bernardi and Roger Noble. Using a similar fingering system to

⁷ Hugh Davies, “Synthesizer,” *Grove Music Online*, accessed May 17, 2016.

⁸ Richard Orton and Hugh Davies, “Voltage Control,” *Grove Music Online*, accessed May 17, 2016.

that of a saxophone, this device controls a connected external synthesizer unit or tone generator module. In addition to its fingering, it functions using a blow tube trigger generator to convert wind pressure into a synthesizer input, controlling electronic data that responds to the physical air input by the user.⁹ During the same time, Nyle Steiner developed the *electronic valve instrument* (EVI). This instrument operates similarly to the Lyricon, using a wind pressure system, but uses different fingering mechanisms that resemble the valves on a trumpet.¹⁰

Synthesizer technologies found continued commercial success after 1983 with the establishment of the *MIDI* (Musical Instrument Digital Interface) industry standard. This universal electronic technology allows the player to operate synthesizers with any digital sound source, regardless of the brand or company, instead of being limited to one device.¹¹ During the early 1980s, similar technologies associated with the breath controls of the wind controller were adapted to keyboard synthesizers and tone generator accessories. The *breath controller* is commonly operated with a headset connected to an aperture breath sensor and is used for expressive purposes with keyboard sounds while the player sustains a note and/or chord. One of the most popular models of this system was the Yamaha Breath Controller series.¹² This technology was used on the iconic Yamaha DX7 keyboard synthesizer. Commonly associated with “synthpop” bands from the 1980s that centered around synthesizers in their musical style, the aesthetics surrounding this system would later branch into “New Wave” popular music.¹³

In 1987, Yamaha began producing the WX wind controller series, starting with the WX7 model invented by Sal Gallina. The Akai Company, which took over Nyle Steiner’s EVI

⁹ Hugh Davies, “Electronic Instruments: After 1945,” *Grove Music Online*, accessed July 29, 2016.

¹⁰ Ingham, *Cambridge Companion to the Saxophone*, 184.

¹¹ David Burnand, “MIDI (Musical Instrument Digital Interface),” *Grove Music Online*, accessed May 17, 2016.

¹² Matt Traum, “Wind Controller FAQ,” *Patchman Music*, accessed May 17, 2016, <http://www.patchmanmusic.com>.

¹³ Colette Simonot, “Synthpop,” *Grove Music Online*, accessed July 29, 2016.

operations, also began producing its own commercial line of instruments.¹⁴ This brand continues to prosper. By the end of the 1980s, Yamaha and Akai were the leaders in the EWI industry and were popular among many artists at the dawn of the 1990s. Some of the jazz saxophonists who would popularize this instrument include Michael Brecker, Bob Mintzer, Dave Koz, and Bernie Kenerson. Many classical saxophonists of the time also performed on these instruments, including John Sampen, Kenneth Fischer, Debra Richtmeyer, Griffin Campbell, Joseph Lulloff, and Bruce Ronkin.

After the inception of the Yamaha electronic wind controller, music began to be written and rearranged for the instrument, starting around 1988 and continuing through the 1990s. Some of the composers working in this area include Donald Freund, Marilyn Shrude, Morton Subotnick, Jean-Louis Petit, and Philippe Leroux.¹⁵ Many unaccompanied solo works were composed, along with others accompanied with other instruments in addition to the EWI. Many of the works have not been published; uncovering more about such works requires contacting the composer or known performers who have played the work in the past.¹⁶ Each piece uses specific tone generators which might or might not be shared by other pieces. This creates challenges in obtaining the units required in order to perform the work. Details regarding this challenge will be explored throughout the document.

During the mid-1990s, the EWI became less popular, so growth of literature slowed. The reasons behind this lessening interest in the EWI remain conjectural. Young musicians have not been broadly introduced to the EWI due to a lack of further development of EWI literature and attention to focus on traditional wind instruments. It is also possible that after this instrument was

¹⁴ Ingham, *Cambridge Companion to the Saxophone*, 184-185.

¹⁵ *Ibid.*, 210-211.

¹⁶ Ronkin, *Londeix Guide to the Saxophone Repertoire*, 739-740.

developed, it only remained popular until newer technologies were developed. This could have created difficulties for performers in maintaining the most up-to-date equipment. Nevertheless, the EWI is still in common use for jazz, new-age, vernacular music. This instrument is used in various ensembles including the Yellowjackets (Bob Mintzer), Moon Hooch, and other artists mentioned earlier in this chapter.

Yamaha still manufactures the WX series, currently in the form of the WX5 model. All of the Yamaha WX wind controllers require a tone generator that stores the MIDI sound patches and translates the command signals received from the EWI. When both of these electronic devices communicate, the sound is processed and the output is sent to an amplifier or speaker. More details about this process will be discussed in Chapter 4.

The MIDI tone generator is the primary output source of synthesized sounds, which translates the input commands from the wind controller. Tone generators come in two forms—hardware and software. An example of a hardware tone generator is the Yamaha VL70-m. This was Yamaha's most recent model, which was discontinued in the mid-2010s. There are however many compatible tone generator emulators (or software) that can be downloaded onto a Mac or PC that can connect with the EWI using a USB MIDI interface. Further work has been done to adapt tone generator software for mobile and tablet devices such as the iPad or iPhone. For example, there are MIDI interface accessories that allow an EWI to communicate with an iPad. iRig MIDI by IK Multimedia (2011) is a good example of a current-production interface. Akai also produces the EWI USB (2009) model, which is specifically designed for easy connection to a PC and comes with an interface for changing sound patches and voice/instruments. Akai's most recent model is the EWI5000 (2014), which includes wireless connections between the instrument and the tone generator module along with built-in sound patches. In 2016, Roland

released the Aerophone AE-10 Digital Wind Instrument, which features traditional saxophone fingerings, built-in speakers, an internal sound bank, and USB-MIDI compatibility.¹⁷

The EWI is a valuable musical tool for musicians, not because of its overall uniqueness, but because it contains a library of various voices and additional techniques that a musician may not be able to produce on a traditional woodwind instrument. If an experienced performer of another woodwind instrument seeks to learn how to play the EWI, the process of mastering this instrument is accelerated due to the similarity of its fingering systems. The EWI serves as a lens for understanding the historical development of electronic technologies. In addition, it provides a perspective on topics such as how pianists learned to adapt to keyboard synthesizers.

Many of the classical works for the electronic wind instrument were written specifically for the Yamaha WX series and its accompanying tone generators in the late 1980s. Throughout the 1990s and at the turn of the twentieth century, a number of improvements have been made to this model. These improvements include extended fingerings, modern MIDI sounds, programming, and hardware/software improvements. The next three chapters will examine the technical specifications of the WX, compatible tone module generators, electronic equipment configurations, and pedagogy.

¹⁷ “Aerophone AE-10 Digital Wind Instrument,” *Roland Corporation*, accessed September 20, 2016, https://www.roland.com/us/products/aerophone_ae-10/features/.

CHAPTER 2

Electronic Wind Instrument Pedagogy (Yamaha WX)

2.1 General Pedagogy

Two different mouthpieces are included with the Yamaha WX5. One has a synthetic reed while the other resembles the shape of a recorder mouthpiece. The purpose of the synthetic reed on the WX is to enable pitch bends, vibrato, and articulation.¹⁸ It is not intended to vibrate like a traditional woodwind instrument's. The blow tube trigger inside the EWI produces the synthesized sounds in response to passing air. If the mouthpiece is removed, a metallic rod is visible which protrudes from the top of the WX. When the metal cantilever comes in contact with the plastic reed, the device pivots up and down to control the pitch. The metal rod is synced with the electronic components, which converts input to the proper MIDI signals.¹⁹ The actual synthetic reed on the WX may be removed using a Phillips-head screwdriver for necessary cleaning and/or replacement. When the setup switch is configured to use flute fingerings, this function is turned off. The basic recorder mouthpiece is preferable if using the flute configuration. If using the recorder mouthpiece, pitch bends and vibrato can still be performed using the pitch bend/modulation wheel controls.²⁰ The pedagogical approach to articulation with the recorder mouthpiece is similar to a traditional recorder, which airstream is controlled with the tongue making contact with the tip opening of the mouthpiece.

Many of the proper playing positions shared between saxophone and clarinet apply on the WX. The instrument does come equipped with a hook ring for a neck strap; the strap is optional

¹⁸ Yamaha, *WX5 Wind MIDI Controller Owner's Manual*, 6-7, 28.

¹⁹ Ibid.

²⁰ Ibid.

and may be used or not according to personal preference. Use of the strap might not be necessary due to the minimal weight of the WX—it may be thought of similarly to the situation of clarinetists who opt to use a neck strap on their instrument. The angle position can range between the traditional clarinet angle, held closer to the body, and the soprano saxophone angle, which is usually held significantly farther away. Performers of these other instruments may replicate the stance they are used to with the EWI.²¹

The following information related to hand/finger posture is similar to what is normally mentioned in other pedagogical sources for woodwind instruments. *The Art of Saxophone Playing* by Larry Teal demonstrates methods of developing technique focusing on proper hand position, finger dexterity, coordination, and rhythm.²² Even though this source is directly related to saxophone, many of the general principles are similar for the EWI. The WX fingering system is diagrammed in Figure 2.1.1. It is recommended to have all fingers relaxed and rounded like a

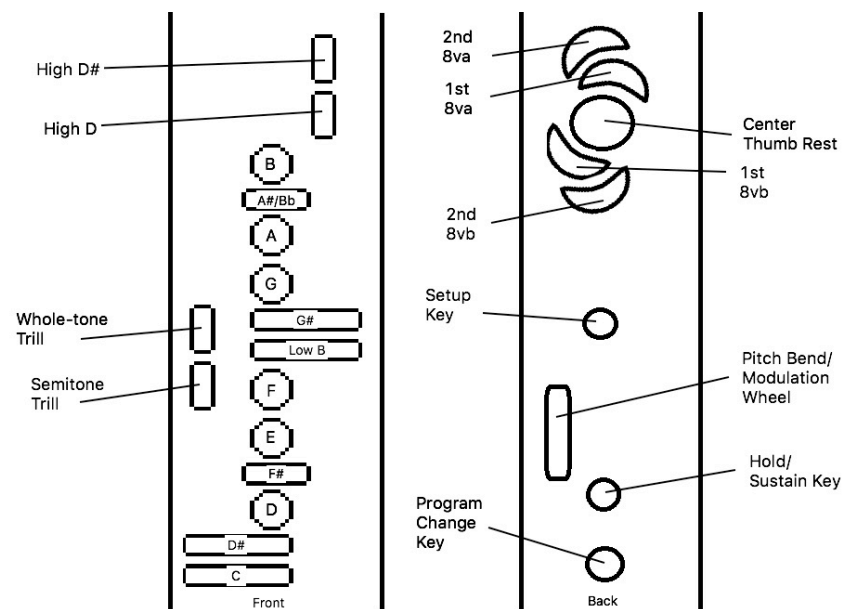


Figure 2.1.1
 Yamaha WX basic keys and additional functions. Source: Yamaha, *WX5 Wind MIDI Controller Owner's Manual*, 12.

²¹ Anecdotal.

²² Larry Teal, *The Art of Saxophone Playing* (Miami: Summy-Birchard Inc., 1963): 70-78.

cup when making contact with the keys. The fingertips are the only areas that have initial contact with the keys, particularly the six basic keys (B, A, G, F, E, D). The left hand pinky finger will naturally fall around the G-sharp and low B keys. On the right hand, the pinky finger rests on keys C and D-sharp. Both trill keys are operated with the right index finger around the second knuckle. This is also the case for the index finger of the left hand, which controls the high D and D-sharp keys. The left thumb controlling the octave key mechanism is centered in the middle circle. When working around the range, part of the thumb pivots from the center. This will require a small rocking motion when pressing down one or two octave keys at the same time. This technique takes time to master, as it is difficult to press down on two keys at the same time with one finger. The right thumb, when not positioned at the thumb rest, should also be used to control the additional function keys discussed later in this chapter.

Three possible pedagogical approaches to producing proper articulation may work with the EWI using the reed mouthpiece. These methods are derived from *Guide to Teaching Woodwinds* by Frederick W. Westphal and Teal's *Art of Saxophone Playing*. On the WX, the mouthpiece with the synthetic reed resembles a clarinet and saxophone mouthpiece. However, these methods may also be used with the recorder mouthpiece, even though there are slight limitations to performing vibrato or pitch bends. As mentioned before, this can be substituted using the pitch bend/modulation wheel. To produce a precise attack in a similar manner as with a single reed instrument, use the tip of the tongue and strike between the reed and mouthpiece tip. This creates instant abruption of airflow.²³ Although this is an effective method for articulation, it is not consistent with its clarity on the WX. The attack can occasionally sound muddy based on

²³ Larry Teal, *The Art of Saxophone Playing*, 79.

a combination of tongue position consistency, fatigue factors, and voice patch.²⁴ Another articulation approach involves having a player move the tip of the tongue to the roof of the oral cavity closest to the middle upper teeth. This is similar to a flute or brass approach to starting and stopping pitches.²⁵ In this position, the tongue prevents incoming air from passing through the teeth until it is released.²⁶ On the WX, this technique is effective during sensitive passages that must be performed as cleanly as possible. The last approach is in the form of anchor tonguing, which is performed by setting the tip of tongue at the center of bottom teeth. Movement is made by pivoting middle of the tongue upward to make contact with the roof of mouth to obstruct airflow. This approach traditionally uses the middle of tongue to make contact with the reed.²⁷ Understanding each of these tongue positions provides the performer with numerous options that may be beneficial when working on challenging sections of a piece that calls for specific articulations.

In addition to the basic pedagogy regarding embouchure and general posture, the WX uses a fingering system similar to a saxophone's along with extended techniques that contributes to the instrument's overall uniqueness.

2.2 WX Fingering System

The fingering system has remained similar between all models of the WX wind controller series. However, there are some slight variants in arrangement of the octave key mechanism in terms of shape, size, and spacing. The WX5 contains additional *high D* and *D-sharp* fingerings added to the left hand for overall range expansion and trill functions (Figure

²⁴ Anecdotal.

²⁵ Richard J. Colwell and Thomas W. Goolsby, *The Teaching of Instrumental Music* (Upper Saddle River, NJ: Prentice Hall, 2002): 211.

²⁶ Frederick W. Westphal, *Guide to Teaching Woodwinds*, 5th ed. (New York: McGraw Hill, 1962): 32.

²⁷ Larry Teal, *The Art of Saxophone Playing*, 79.

2.1.1).²⁸ Careful practice and patience is required to master this octave key system regardless of the brand and model used. One should refer to the accompanying manual to study the octave key system, as fingering combinations may vary.²⁹ On the WX5, for instance, it is necessary to press down two of the octave keys at the same time in order to play selected ranges. Other registers on the WX can be played using only one octave key.

The WX5 setup switch allows the EWI to toggle between fingering arrangements based on saxophone and flute systems.³⁰ Experimentation is needed in order to determine which of these works best for an individual performer's style of playing and overall comfort. Fingering charts for the WX series are located in Appendix C, which includes both traditional and alternate fingerings. Additional details regarding trill and tremolo fingerings are also located in this section.³¹ Many of the alternate fingerings used on saxophone, such as the Bis-key, can be executed in a similar manner if necessary. The trill keys also function in a similar manner as with a saxophone. If trilling from B to C, the *semitone trill* key can be applied; this is located just above the F key on the right hand. There is also a *whole-tone* key located just above the semitone trill key, which can allow for an easy trill from B to C-sharp (Figure 2.1.1).³² All the fingerings work the same way regardless of the octave played. It is important to experiment with different fingerings. Similar to any woodwind instrument, there are a variety of alternative fingerings available; this is illustrated the fingering combinations in Appendix C. It is beneficial to know what is available, as familiarity creates ease when working on any new repertoire.

²⁸ Yamaha, *WX5 Wind MIDI Controller Owner's Manual*, 25-26.

²⁹ *Ibid.*, 32-37.

³⁰ *Ibid.*

³¹ Yamaha, *WX11 Wind MIDI Controller Operation Manual*, Add 3-4.

³² Yamaha, *WX5 Wind MIDI Controller Owner's Manual*, 12.

The back of the WX contains unique key features in addition to the comprehensive octave key system (Figure 2.1.1).³³ For the purpose of performing bends or modulating the pitch up or down, the *pitch bend/modulation wheel* key may be used. This spring-loaded key allows for bending or modulating the pitch up to a whole step in either direction. It is an alternative to using the embouchure for making scoops or other sound sonorities. The pitch will return to its normal tone once the right thumb releases the key. It is a beneficial key for executing portamento techniques. If the setup switch is adjusted, this key can be used alternatively as a program voice change. This function can scroll up and down a list of patches available on the tone generator and/or MIDI supported computer software.

A *program change key* is located at the bottom back of the WX; this is dedicated to voice program changes.³⁴ When the instrument is connected to a tone generator, a player can scroll up and down by holding this round key down while simultaneously pressing the high D and D-sharp keys with the left hand. This only applies to the WX5, as those keys do not exist on the previous models. Players should consult the operation manuals for the WX7 and WX11 to discover alternate keys with which to operate the program change key on those models.³⁵ The program change key operates like a remote control for changing voices without needing to toggle controls directly on the tone generator. The commands from the program change key are translated into MIDI signals usable with any MIDI-compatible tone generator and software. This function is widely used with the selected works examined in Chapter 5, which calls for multiple voice changes within the same piece.

³³ Ibid.

³⁴ Yamaha, *WX5 Wind MIDI Controller Owner's Manual*, 16-19.

³⁵ Ibid.

The second round key located between the pitch bend wheel and the program change key is the *hold key*.³⁶ Similar to pitch drone, this sustains a pitch and performs other notes above and below it. In order for this operation to work, play and hold the note first. While holding that pitch, press the hold key. Depending on the specific sound/voice patch being used, the sound can sustain regardless of whether air is blowing through the EWI. The sustained sound may silence altogether once the air stops for certain sound/voice patches. However, the pitch will continue to sustain once the air is restarted along with sound. The held note can be cancelled simply by pressing the hold key again. In order to properly stop this function, there must be no sound and airflow.

Located directly above the thumb rest, the *setup button* serves multiple parameter functions, including octave key transposition, sustain hold key, pitch bend modulation wheel, and wind gain sensitivity.³⁷ Each parameter function on the WX can be set by holding down the setup button and then pressing selected octaves in the left hand. To transpose a default middle range of the WX up or down an octave, octave transposition may be used; this function is operated by holding the setup button and clicking the inner octave keys with the right hand. The sensitivity controls on the setup button serve as a convenient adjustment to the overall wind gain and are adjusted when holding the setup button and pressing the outer octave keys.³⁸ In conjunction with the pitch bend wheel, the setup button is an auto-play function. This allows production of sounds from the tone generator source regardless of whether air is passing through

³⁶ Ibid., 12-15.

³⁷ Yamaha, *WX5 Wind MIDI Controller Owner's Manual*, 20-24.

³⁸ Ibid.

the EWI.³⁹ If the WX is powered off, any adjustments made with the setup key during use will reset to the instrument's normal/default parameters.

³⁹ Ibid.

CHAPTER 3

Technical Specifications and Configurations of the Electronic Wind Instrument (Yamaha WX)

Over the years since the inception of the Yamaha WX series by Sal Gallina in 1987, technological improvements have been made to the instrument. As the WX5 is the most up-to-date model, it is also important to address some of the limitations regarding the older models, including both the WX7 and WX11. Any three of the WX models mentioned in this chapter are adaptable to the selected works examined in Chapter 5. However, there may be a call for additional accessories in order for the selected model to function as desired. Solutions regarding the older models are explored in this chapter, even though most of the technical specifications are based on the WX5.

3.1 Yamaha WX External Outputs and Power Supplies

There are several advantages to the Yamaha WX5 in comparison to the previous WX models. A standard 5-pin din MIDI input was added to the WX5, internal battery power was made an option, and overall functionality was improved/further developed. Notably, the WX7 and WX11 wind controllers only have a WX output, whereas the WX5 has both MIDI and WX outputs. The WX output is a special 6-pin connector located toward the bottom of the instrument. An accompanying cable designed by Yamaha can only be used with the WX output.⁴⁰ In addition to sending MIDI signals, this cable also powers the wind controller from a compatible Yamaha tone generator, such as the WT11 or the VL70-m. Yamaha MIDI foot controllers, such as the MFC10, also have a WX outlet for power and MIDI connectivity. Because the older Yamaha

⁴⁰ Yamaha, *WX11 Wind MIDI Controller Operation Manual* (Hamamatsu, Japan: Yamaha Corporation): 2-3.

WX models (WX7 and WX11) have been out of production for several years, it has become difficult to find the proper accessories; the new connectivity of the current WX5 model may alleviate this compatibility issue in the future. Yamaha does not have an internal battery storage bay on the WX7 and WX11, and so created a battery pack accessory (BT7) that attaches to the WX output. This device has a separate standard MIDI output and AC power outlet onboard (Figure 3.1.1).⁴¹ This is helpful with older models, because neither of the older models has an AC output permitting direct power to the unit. An alternate solution is from WindWorks Design,

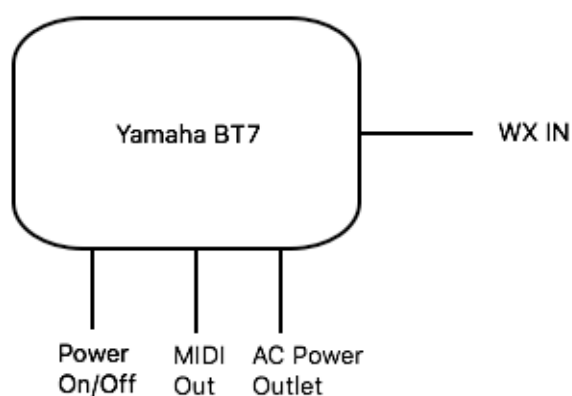


Figure 3.1.1
Yamaha BT7 WX/MIDI/power pack. Source: Yamaha *BT7 WX MIDI Power Pack Owner's Manual*. (Hamamatsu, Japan: Yamaha Corporation).

which currently produces a MIDI interface similar to the BT7 called the WW-Bat.⁴² Neither the BT7 or WW-Bat is necessary for the WX5, as all outputs and AC outlet (WX and MIDI) are included on the instrument. However, if using only the MIDI output and no WX cable on the WX5, the instrument must be powered separately, either with an AC adapter or a set of (Sum-4) AAA batteries.

⁴¹ Yamaha, *BT7 WX MIDI/Power Pack Owner's Manual*. (Hamamatsu, Japan: Yamaha Corporation).

⁴² "WW-BAT: A Power Supply and MIDI Interface for WX Wind Synth Controllers," *WindWorks Design*, accessed May 18, 2016, <http://www.windworksdesign.com>.

3.2 Yamaha WX5 Wind Controller Setup Configurations

The WX5 is equipped with various settings that allow a performer to customize and program the wind synthesizer; these include fingering configurations, transpositions, pitch bend/modulation key functions, performance/voice program change control preferences, wind sensor and velocity parameter settings, and lip control.⁴³ All of these settings can be found at the setup switch located on the back of the WX5 above the right-hand octave key system (Figure 3.2.1).⁴⁴ A rubber plate covers the setup switch to protect the electronic components from water and prevent unwanted adjustments during a performance. As the switches are small, it is best to use a small flathead screwdriver to make the appropriate changes. A reference diagram is located in between the setup switch and the octave keys.

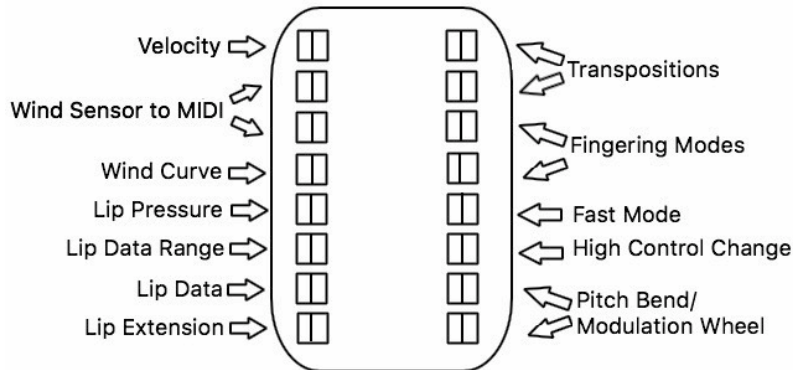


Figure 3.2.1
Yamaha WX5 setup switch configuration. Source: Yamaha, *WX5 Wind MIDI Controller Owner's Manual* (Japan: Yamaha Corporation, 1998): 22-24.

The *velocity* function adjusts the overall sound production using either wind pressure or finger/key intensity. When the velocity switch is toggled to the variable setting, the response is based on wind pressure that simulates sound production like flute, clarinet, or saxophone. The

⁴³ Paul D. Lehrman and Tim Tully, *MIDI for the Professional* (New York: Amsco Publications): 37-38.

⁴⁴ Yamaha, *WX5 Wind MIDI Controller Owner's Manual* (Japan: Yamaha Corporation, 1998): 22-24.

fixed velocity setting creates sound response by the speed and intensity of the fingerings pressed down in a similar manner as a keyboard instrument. However, this function may only work on selected tone generators.⁴⁵ Adjustments to all three MIDI data settings (breath control, expression, and volume) are made using the *wind sensor* switch.⁴⁶ The breath control is the standard MIDI data for the EWI and is primarily used if using sound patches or a wind tone generator that are already programmed for breath controls. When using a standard MIDI tone generator or software, it may be helpful to use the expression and volume settings, as many of the sound patches in these systems are not equipped for breath control. The switches on the WX5 allow for volume control in conjunction with air speed. A faster airstream produces a louder volume from the sound source and vice versa. In terms of the amount of air needed to produce the initial volume, overall response is very similar to that of saxophone. When using expression and volume settings for the wind sensor to MIDI data, it is essential that the velocity switch is turned on. This allows for proper fixed velocity settings to transmit to the wind sensor data. Toggling the *wind curve* switch may be used to make adjustments to wind resistance (e.g., normal and hard) on the WX5.⁴⁷ Depending on the amount of air needed to achieve the loudest volume, toggling the wind curve switch can help distinguish the wind resistance variants. For instance, if the switch is set on “hard,” a large amount of pressure is required to produce the proper dynamic.

The WX5 uses a synthetic reed for the purpose of creating pitch bends and modulation; it is operated using an embouchure similar to that of a saxophone or clarinet. To balance the intonation of the instrument electronically, the lips may be used to bring pitches in tune. This

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ Yamaha, *WX5 Wind MIDI Controller Owner's Manual*, 22-24.

also allows for the same flexibility in expression and vibrato as with a traditional woodwind instrument. A total of four switches, each of which has two settings, are directly related to lip sensitivity on the WX5. The first setting, *lip pressure*, refers to the overall range over which a pitch can be bent up or down with use of the embouchure.⁴⁸ A beginner on the EWI may benefit from starting with the tighter setting and then later experiment with looseness as they become more comfortable with the instrument. As with young students learning saxophone, intonation on the EWI can be an issue at first due to embouchure instability and lack of development. The tight setting may also be helpful when focusing on intonation and balance in works without the jazz scoops and/or portamento/glissandi. Leonard V. Ball's *and they spoke of things transfigured...* does not require any use of these techniques with the embouchure and the tight setting can limit any possibility of these elements inadvertently occurring in the piece. To create variations of narrow to wide flexibility in the overall range of the pitch bends or modulations, the *lip data range* setting may be used.⁴⁹ *Lip data* is a basic switch to toggle between using a pitch bend or modulation with the embouchure.⁵⁰ Modulation is an alteration of the MIDI sound by its frequency in response to the action performed with the embouchure or the pitch bend/modulation wheel. When modulation is used, vibrato and other sonorities will vary based on the sound patch parameters. The *lip extension* is a MIDI control function that permits for more expressive effects with specific sound patches. Specifically, the Yamaha VL70-m MIDI tone generator utilizes unique sound parameters that allows for screams and growls using the WX5. Unless this specific tone generator is being used, the lip extension is a non-essential switch for the instrument. These

⁴⁸ Ibid.

⁴⁹ Ibid.

⁵⁰ Ibid., 22-24.

expressive effects are produced by a combination of the overall air pressure speed and how the sounds are specially programmed in the VL70-m.

The WX5 can only be transposed to play a total of three keys: C, B-flat, and E-flat. Any additional specified transpositions may be adjusted using the tone generator directly. The *transposition* switches can assist someone who is accustomed to performing on an instrument pitched in a certain key, such as E-flat alto saxophone, B-flat clarinet, C flute, etc.⁵¹ In Chapter 5, the repertoire for the EWI is all written and to be performed in concert pitch. It is important with this repertoire to ensure that the switches are in the original (C) settings. However, it is convenient to be able to make the proper transposition when doubling on saxophone, B-flat clarinet, or other transposing instrument in a popular music, jazz, or concert setting.

3.3 Additional WX5 Configurations

Four additional settings are included on the WX5 and are located between the mouthpiece and setup switches. The large wheel above the setup switch box is *lip zero*, which adjusts and centers the pitch based on the natural embouchure position.⁵² If, when forming the embouchure with normal tension, the pitch happens to be sharp or flat, the lip zero control can correct this issue. The adjustment is made by turning the wheel with any finger clockwise or counterclockwise based on the intonation tendency. To achieve an accurate adjustment, sound should be produced while using this function. This capacity will likely be used more if using the reed mouthpiece, as the mouthpiece requires more stabilization compared to the traditional recorder mouthpiece. To execute proper adjustment, both lights on the front of the wind controller should be on; this will determine if the tuning is stabilized with embouchure strength.

⁵¹ Ibid.

⁵² Ibid., 25-26.

Wind zero sets a minimum amount of air required in order to produce a sound; this control works in conjunction with the *wind gain* function directly above it.⁵³ This control is also used for determining the instrument's sensitivity to air intensity.⁵⁴ Both settings can only be adjusted by removing the rubber safety caps and employing a Phillips-head screwdriver. The *lip gain* control elevates lip sensitivity in response to the embouchure formation and is useful for achieving natural wavelength motions that are fundamental to vibrato.⁵⁵ All configurations mentioned here should not be adjusted until one is familiar with the setup switch functions on the WX5 and accompanying tone generator(s). Due to the sensitivity of these functions, they may be difficult to reset to default parameters once any of these have been altered. When the WX5 is used for the first time, the lip gain, wind gain, and wind zero functions are configured to factory settings. This is similar to the adjustment screws on a saxophone that are used to alter how far the tone holes can open to help with common intonation tendencies.

⁵³ Yamaha, *WX5 Wind MIDI Controller Owner's Manual*, 25-26.

⁵⁴ Ibid.

⁵⁵ Ibid.

CHAPTER 4

MIDI Tone Generator Synthesizers

4.1 Overview

In order for the EWI to produce the desired sounds, it must be connected to a MIDI sound source. The earlier Akai line of EWIs used an external sound-creating device that was essential to the overall performance of the instrument. From the late 1980s through the 1990s, Yamaha produced a number of FM tone generators including the TX81Z, TG55, WT11, VL70-m, and others. All of these devices are compatible with a MIDI-compatible EWI, like the Yamaha WX series. There are also several keyboard instruments that have sophisticated built-in MIDI technology that can communicate with an EWI using the standard 5-pin din connector. Many of the tone generators developed during this era serve as expansions to an existing MIDI-compatible keyboard. Tone generators come in the form of rack modules for the purpose of collecting a vast library of sound patches, which can be useful for the EWI. Performers of the EWI have the potential of being able to use a variety of sounds without limitations to one specific MIDI source. Selected tone generators are programmable, capable of creating unique sounds using parameters available on the devices. Selected MIDI tone generators and programs will be examined in this section: Yamaha WT11, Yamaha TG55, and Korg Wavestation. These units are used in the selected works in Chapter 5.

4.2 Yamaha WT11

The Yamaha WT11 Wind Tone Generator is specifically designed for use with the Yamaha WX series. Therefore, when using the combination, parameter adjustments are not required on the WX wind controller and many of the controls can be set on the tone generator

itself. In fact, the WX5 can operate with the WT11 with the default settings. Each of the preset voice patches on the device is programmed with the WX5 wind controller in mind.

One of the first noticeable features of the WT11 is the WX input on the front of the device. When a WX cable is connected to the instrument, the cable sends both MIDI signals to the WT11 from the WX and power to the WX wind controller from the WT11. Non-Yamaha wind controllers can also be used with the WT11, as long as they are MIDI-compatible. With these, use a standard MIDI cable that connects to the back of the unit. The cable must be connected to MIDI IN when using the standard 5-pin din cable. One should ensure that the *input select* switch in the back is set to “off” where it says “WX IN.” Failure to follow this step will not permit the EWI to properly communicate with the WT11, which will assume that the signal is coming in from the WX input instead of the MIDI input.

Another notable feature on the WT11 is the option to add foot pedals for swift program changes, a particularly convenient feature if a work calls for fast program changes. Two Yamaha FC5 sustain foot switches, traditionally used as sustain pedals for a keyboard instrument, may be used with the WT11. Even though the foot pedal is an optional accessory, it is beneficial to have with this tone generator and it is a great alternative to the program change key on the WX. William Moylan’s *Two Suspended Images* calls for multiple program changes and the performer may find it easier to be able to switch voice/sound patches with one click of the foot pedal. When a foot switch is plugged into the quarter-inch jacks under *memory*, tapping the switch scrolls up and down each sound bank.

An 8-pin din outlet on the back of the WT11 is used for connecting a cassette player to the tone generator. Any programmed sounds on the device can be backed up to a DAT cassette. Doing so requires a dedicated cable produced by Yamaha along with a cassette player/recorder.

This cable is extremely rare and difficult to find, especially if a used WT11 comes without this special accessory. The cassette method of backing up data is considered obsolete and unreliable; given today's technology, there are better formats for backing up MIDI data, such as backing up programmed voices using a computer. Additional information on this topic can be found under "Format Info" in Patchman Music.⁵⁶

Because there is no internal speaker on the WT11, an external speaker, amplifier, or PA must be used. The use of the right/left outputs makes wiring simple. Two quarter-inch cables can be used for stereo-quality sound. Another option is to use the left output only for mono. If using multiple tone generators, a local mixer is helpful to create a single sound output. The WT11 includes a headphone jack that can be used for individual practice in a quiet environment. A total of four sound banks with a 32-voice program in each set are internally preprogrammed in the device. Several sounds are used in the first three banks, including woodwind instruments, brass, strings, and other non-wind instruments. All sounds in the other three banks are presets and cannot be altered in any way. One of the sound banks serves as internal RAM for custom-programmed voices.

The WT11 offers a variety of functions that are beneficial beyond the settings on the WX. In review, the WX5 has a limited number of transpositions—C, Bb, and Eb. Under *utility* settings, the player can adjust the transposition chromatically and range. If, for example, a performer prefers to have the F fingering on the WX start as a sounding concert Bb pitch, the WT11 permits these specific transpositions. In addition, the default playing range of the WX may also be shifted up or down octaves, which allows a player to be able to perform pitches higher or lower than the originally intended range of the instrument. This setting is more

⁵⁶ Matt Traum, "Format Info," *Patchman Music*, accessed August 5, 2016, <http://www.patchmanmusic.com>.

comprehensive and provides more options than the transposition settings on the WX5. The tuning frequency can be adjusted within a flexible range of A4 = 415.3 to 465.7 Hertz, which is preset at the standard 440.0 Hertz. Other utilities on the WT11 include tools that allow for the import and export of programmed voices, either from a DAT cassette or a computer. The remaining basic settings adjust the sound effects (reverb and delay) and volume.

4.3 Yamaha TG55 Tone Generator

The Yamaha TG55 tone generator, in comparison to the WT11, contains more sophisticated parameters along with a vast library of voice programs including percussion, strings, and custom synthesized sound effects (i.e. SynBrass, Pulse 25, and Noise). Because this device was specially designed as an expansion to a keyboard synthesizer, it has limited use in conjunction with an EWI without having to program new sounds. This is because the internal sounds on the TG55 respond to a keyboard articulation instead of breath. Similar to the WT11, the TG55 has additional RAM for 64 sound patches. Additionally, an expansion card port can take a memory card (the proprietary Yamaha RAM 64K BYTES) or preprogrammed Yamaha sound bank cards. If a user is both familiar and comfortable with programming new sounds for the TG55, the parameters of the device permit the creation of custom voices and options for breath control compatibility. Patchman Music, a company from Cleveland, Ohio, specializing in EWI technology, has created a custom set of breath-controlled sound banks for this tone generator, the WT11, and other vintage synthesizers.⁵⁷

The TG55 utilizes many of the same features as the WT11. Some of the technical aspects of this unit allow programming of custom sounds, reverb, balance, tuning, transposition, and

⁵⁷ Matt Traum, "Wind Controller Soundbanks," *Patchman Music*, accessed May 20, 2016, <http://www.patchmanmusic.com>.

import/export sound banks. This rack module lacks support for a WX input if using any of the WX wind controllers; the EWI must be connected using a standard MIDI cable. The TG55 and the WT11 must be powered separately (see Chapter 2.1). The TG55 does not provide an outlet for foot controllers for the purpose of program changes.

4.4 Korg Wavestation

First produced in the early 1990s, the Korg Wavestation is an example of equipment from a brand other than Yamaha that can make use of the WX series through MIDI. Several different Wavestation models have been manufactured. Some came in either a keyboard or rack unit setup. In the mid-2000s, Korg launched a software version of this MIDI tone generator for Mac and PC. It operates all of the original preset sounds, running a total of three RAM sound banks, eight ROM slots, and six card slots filled with various pre-programmed voices (Figure 4.4.1). The software has some variants compared to the original hardware, but utilizes all the same features. Sounds that were originally programmed on the physical systems can be transferred, as they still



Figure 4.4.1
Korg Wavestation software tone generator.

share the same file format.

One of the general functions of the Wavestation calibrates the standard control change or continuous controllers (CC) channels. A total of 95 CC channels are available to match the equipment being used with the software. When plugging in multiple MIDI devices, Wavestation-specific settings can be made for a breath controller, foot controller, expression, volume, and other functions. These various functions match with one of the 95 CC channels, which are listed in the software program. Other possible general changes are similar to those of other tone generators, including master tuning, transposition, pitch bend range, volume, and MIDI filters. The filters can be referred to as on/off switches, which give options to enable or disable control change, program change, and aftertouch.

Any EWI can be used with the Wavestation through a MIDI USB interface cable. The preferred accessory to use with any of the WX models is the Yamaha UX16 MIDI USB interface. This cable starts with the USB connector and then the cable branches into two standard MIDI cables labeled MIDI IN and MIDI OUT. The same principles apply when connecting any USB MIDI interface to a supported device. In order to properly connect the device to the EWI, the branched part of the standard cable marked MIDI IN must be used to connect to the EWI's MIDI OUT. At the other end, the USB connector should be connected to a computer. All interface lights will turn on when connected correctly as long as the EWI is powered on separately and the accompanying software is operating. Under preferences/MIDI settings in the Wavestation program, the UX16 should appear as one of the three devices.

With the increased adoption of software in preference to physical hardware over the years, it has become easier to gather all MIDI sounds and tools on a single device. The Wavestation's conversion from hardware to software is therefore beneficial for musicians. It

allows for easier access and a reduced need to purchase, store, and maintain the original unit. As an EWI performer, a certain recital program required this author to carry multiple synthesizer units in addition to a computer. These included the WT11, TG55, and additional computer software (e.g., Wavestation) mentioned in this chapter. Having software versions of multiple synthesizers accessible on a single device would be convenient—all necessary materials for such a performance would be available in one source. Regardless of the current challenges, there are some methods that can alleviate such logistical issues when dealing with multiple synthesizers in a single concert program. This will be discussed in further detail in the next section.

4.5 Connecting Multiple Synthesizer Tone Generators

All of the tone generators mentioned in this chapter are highly compatible with the EWI, as they communicate through MIDI frequencies. It is conceivable that in a performance situation, the simultaneous use of all three synthesizers might be required. To review the available options, one tone generator (WT11) is made specifically for the WX. The TG55 is a traditional tone generator, meaning that it is a separate piece of hardware, whereas the Korg Wavestation now takes a computer software format. All these tone generators, whether hardware or software, can be connected to one another because they are able to communicate using the same MIDI protocol. Previously mentioned, a time may come where a performer use multiple tone generator modules in a single program. But for now, syncing all MIDI cables between devices avoids unnecessary disconnections during a performance. Not doing this can pose a risk of technical difficulties and delays. This will be discussed in further detail in the next section.

All three synthesizers can be interconnected easily with the use of MIDI. This protocol transfers the information from the controller device regardless of whether it is a keyboard, guitar

pickup, or EWI. The signals transfer from the EWI, crossing through the WT11, then the TG55, and concluding with the Wavestation. A diagram of tone generator connections is presented in

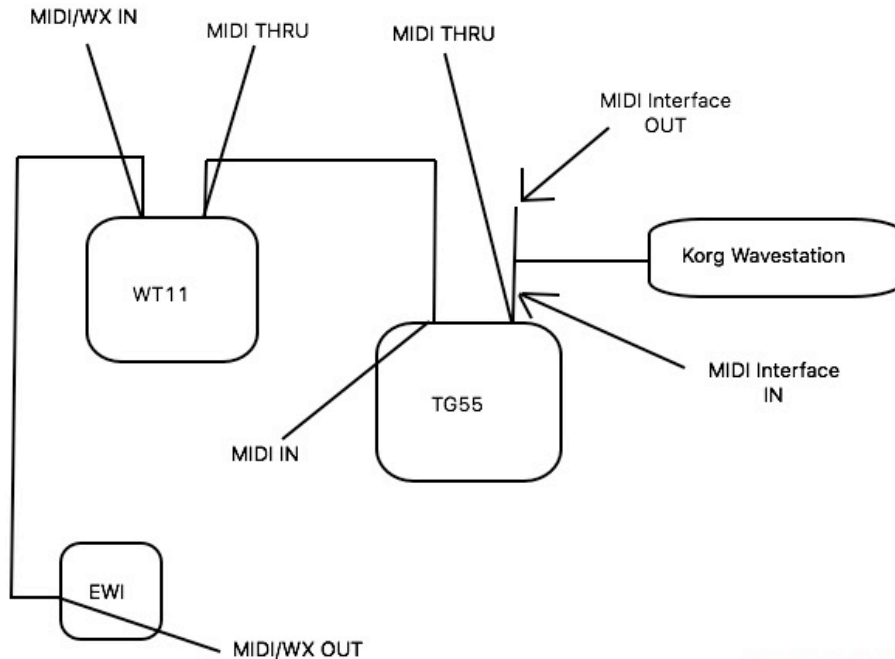


Figure 4.5.1
Diagram of tone generator MIDI cable connections.

Figure 4.5.1. This wiring also works when using only two of the three synthesizers. It is important to know that this setup only affects the communication of MIDI signals being sent from the EWI, including data for breath control, fingerings, and other technical components. Even though the performer does not need to disconnect the MIDI cables, the physical sounds coming from each of the synthesizers must be controlled separately. This issue of managing multiple sound outputs can be solved by consolidating all sound outputs into one mixer device, which serves as a single primary output for volume (Figure 4.5.2).

Any mixer that has at least four channels to control sound inputs from any synthesizers can be used with the configuration illustrated in Figure 4.5.1. Both the WT11 and TG55 have quarter-inch stereo outputs that can occupy two separate channels on the mixer. If using a

computer, the easiest connection is to use the XLR/quarter-inch channel with a cable fitted with a 3.5 mm adapter. Using high-quality cables will ensure a solid and lasting audio connection. Some of the lower-end cables have weak or thin coatings and can cause interference and unnecessary fuzziness and distortion in the stereo sound. It is also wise to select new cables instead of used. A previous owner could have caused damage to the cables through excessive use or by improperly wrapping the cords, or both. The initial expense of purchasing new high-quality cables will pay dividends in improved performance outcomes—reliability in operating devices will be improved, allowing for greater success in performances (Figure 4.5.2).

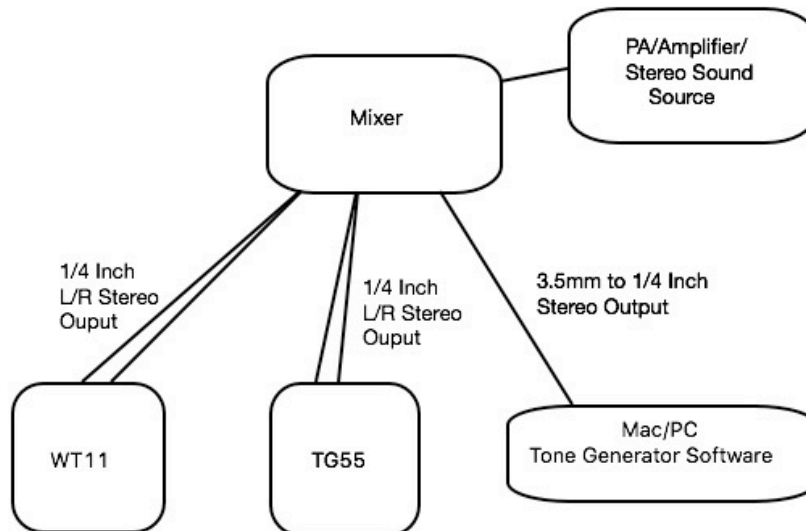


Figure 4.5.2
Diagram of volume control setup for MIDI tone generators/computers.

When all stereo cables are properly connected, all sound generated from each of the synthesizers/computers will transfer directly into the mixer and signals will be directed into the main output. This main output is connected into a PA, amplifier, or other stereo sound source. All volumes on the WT11 and TG55 should be set at about half; the requisite level will vary on a

computer depending on the software being used. It should be safe to have the computer at full volume.

After setting the volume controls on the synthesizers, all further adjustments should be done using the mixer. Adjusting volumes from the mixer is easier to manage since everything is in one location. When using a specific synthesizer, all other volumes in each of the channels should be turned down to zero (or muted if the mixer has this feature). If two or more of the volumes are turned up on the mixer, sounds from either the TG55, WT11, or Wavestation will be heard at the same exact time. The selected sound channel on the mixer should ideally be turned to the mid-volume. During practice and performance, the main volume control is preferred for sound calibration and equalization. When working with a specific sound from a tone generator, the volume on that channel should be set to the middle. This is easier to remember and is more manageable when working with the main volume control. However, the individual sound channel may be used for additional adjustments as needed.

CHAPTER 5

PLAYER'S GUIDE TO SELECTED REPERTOIRE AND ANALYSIS FOR THE ELECTRONIC WIND INSTRUMENT

This chapter presents a comprehensive guide to five compositions specifically created for the EWI using the equipment mentioned in the last three chapters. Discussions of each work include programmatic information, musical analysis, and pedagogical strategies. Three technical features will receive special attention: 1) A few pieces not only use specific tone generators, but also require the programming of sounds desired by the composer. 2) Many of these works take advantage of the EWI's special features mentioned in the previous chapters. 3) Other electronic components, such as tone generators and MIDI foot control pedals, are also required in order to execute certain passages.

5.1 *and they spoke of things transfigured...* for Wind Controller and the Korg Wavestation by Leonard V. Ball, Jr.

5.1.1 Overview

Leonard V. Ball, Jr.'s original work for wind controller and the Korg Wavestation, *and they spoke of things transfigured...* (1992) was written for Kenneth Fischer. Fischer taught saxophone at the University of Georgia's Hugh Hodgson School of Music, 1979-2009. The premiere of Ball's work took place on February 24, 1992, as part of one of Fischer's faculty recitals. The piece was also performed at the Western Kentucky University for a Southeastern Composers League Forum the following month.⁵⁸ This collaborative piece is a 10-minute soundscape work. It features various sound textures layered with multiple voice changes. Other

⁵⁸ Leonard V. Ball, Jr., e-mail message to author, July 21, 2016.

soundscape element features include sound modulations, sustained drones, and extreme changes in register. Of the five works discussed in this chapter, this is the one that most intensively utilizes extended techniques and other features of the EWI and therefore most requires mastery of these elements. Specifically, sustained drones, modulation bends, program changes, and additional volume controls are used extensively throughout Ball's work. His piece also uses unconventional notations and markings, which adds difficulty along with the extended techniques. Ball provided the author with a great deal of insightful background information regarding his work:

This work really came about due to Ken [Fischer]'s interest in the Yamaha Wind Controller and my interest in anything electronic. He was so interested that he bought one, then asked if I would consider writing a work for him on that instrument. Since I did not know the instrument, he obligingly answered my many questions and demonstrated its capabilities. I knew that, based on personal preference, I wanted to stay away from standard MIDI sounds as much as possible, and Ken was open to that approach. In 1990, my wife gave me a Wavestation as a Christmas present. She knew I was really intrigued by the instrument, since the capabilities described in its advertising brochures reminded me quite a bit of the Crumar GDS, which I worked with during my M.M. studies at Kansas State University. I had already finished and performed a solo Wavestation work, *In Fields of Yellow Down*, during the spring of 1991, so I decided to use that instrument with the wind controller for Ken's piece. Both performances seemed to be well-received by their respective audiences.⁵⁹

5.1.2 Performance Instructions

This section provides a performer with ideas regarding the musical score and technical components using the suggested materials and equipment. There are challenges involved with using the software version of the Korg Wavestation, which requires minor alterations to make the piece work as effectively as with the original hardware. The unconventional musical

⁵⁹ Ball, e-mail message, July 21, 2016.

notations presented throughout the score might lead to questions when defining the various elements, some of which may prove difficult for a performer to figure out independently. Examples of these challenges include how to approach the program voice changes, necessary equipment in addition to the EWI and Wavestation, and how to interpret specific notational markings. This section will clarify these possible issues and provide ideas for solutions that will contribute to efficient and accurate practice. Details will include a walkthrough of the musical material along with the combination of controls used with the Yamaha WX, foot controllers, and Wavestation.

According to his performance instructions, Ball recommends using the WX11 wind controller with the BT7 accessory. The WX5 may also be used with the recommended equipment configuration.⁶⁰ Although the Wavestation (Chapter 4.4) is required to perform this work, either the hardware or software version may be used. Ball constructed the custom sound patches using the original hardware when he composed the piece. This author collaborated with him to reconstruct the sound patches and convert them for the software version.⁶¹ The original Wavestation uses two Korg PS-1 pedals that can be connected to the device. One is used for sustaining pitches and the other for sound patch changes. An additional volume pedal is also needed to perform this piece. As there are no slots on a Mac or PC to facilitate the use of these special pedals, this is a minor drawback when using the software. To compensate, many of the program sound changes can be adjusted using the program change key on the WX. Furthermore, a USB MIDI foot controller can be used instead of the PS-1 pedals. One such product currently in production is the Logidy UMI3. This device has a total of three programmable pedals and a

⁶⁰ Leonard V. Ball, Jr., *and they spoke of things transfigured...* (Leonard V. Ball, Jr., 1990): i.

⁶¹ Leonard V. Ball, Jr., e-mail message to author, August 27, 2015.

quarter-inch jack for an expression pedal. The MIDI foot controller uses its own software and can be used to program voice changes, droned pitches, and as an expression pedal for volume controls. Based on the specifications of the USB and MIDI capabilities for the device, it is compatible with the Wavestation software, which can support up to three MIDI devices. A reliable expression pedal to use with the UMI3 is the Yamaha FC-7 Volume Foot Controller. Ball also prefers the performer to use a stereo pair of speakers and an amplifier/monitor to aid a performer. All equipment discussed for the performance of *and they spoke of things transfigured...* is recommended to be set up in the arrangement shown in Figure 5.1.1. The

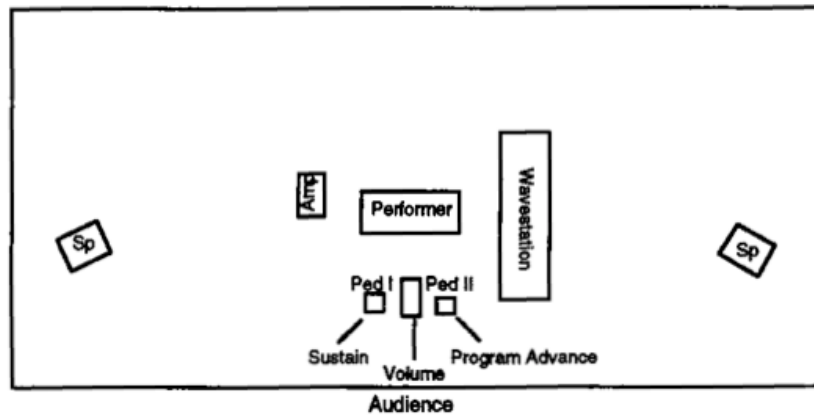


Figure 5.1.1
Original stage configuration for *and they spoke of things transfigured...* Source: Ball, *and they spoke of things transfigured...*, i.

included software for the UMI3 must be programmed for sustaining multiple pitches at the same time and to enable easier program sound changes with the Wavestation. Figure 5.1.2 shows the UMI3 MIDI foot controller program and the suggested program controls related to the work and Wavestation software. In order to operate all three pedals properly, each *autostep* should be highlighted according to the number associated with the pedal number. The *expression* control option at the top must be programmed to the channels in order for the attached expression pedal

to operate properly with the software. The necessity of these programming elements will become apparent in specific sections of the work. Specifically, there are moments in the piece where program changes on the WX might become difficult to execute cleanly and efficiently. For instance, certain sections require patch changes after playing a single note.

Unlike the Yamaha tone generators discussed in Chapter 4.4, the Wavestation has limitations regarding physical volume and breath controls from a wind controller. The breath controls of the WX5 are not fully compatible with the Wavestation for playing traditional dynamics; the dynamics are reflective only of the initial breath response by the player. If blowing fast air, for example, the sound will only be produced at a forte level; there is no flexibility to

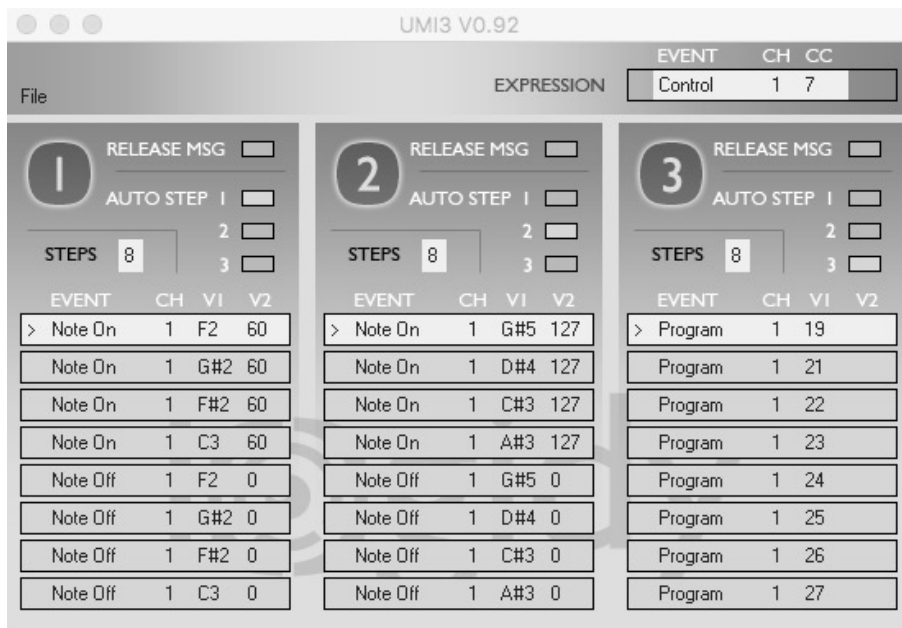


Figure 5.1.2
Logidy UMI3 MIDI foot controller configurations from *and they spoke of things transfigured...*

move to a softer dynamic. Another way to achieve a softer volume is to stop the air completely and rearticulate the note using slower air. Playing the necessary crescendo or decrescendo dynamics can therefore be challenging. The volume expression pedal connected to the UMI3 is instead used to compensate dynamically for such limitations. By slowly moving the pedal up and

down, the Wavestation volumes can be altered, allowing for contrasting and smoothly changing dynamics as instructed in the score.

The WX5 must be reconfigured specifically for this piece. The problem is that the default settings of the setup switch (Chapter 3.2) are originally configured to pitch bends. Because this work calls for modulations without pitch bends, the switches for the *pitch/bend modulation wheel* should be set only for modulation. Flipping the bottom right-hand switch to the right will enable pitch modulations without pitch bends when moving the right thumb upward on the wheel. However, descending pitch bends are still active if the wheel pivots downward. This can be overcome by flipping *Lip data* (located second from the bottom on the left side of the setup switch) to the right. This will entirely reconfigure lip settings of the reed on the WX from pitch bend to modulation. The final switch that needs flipped to the right is *fast mode*, which will permit faster key and fingering speeds. Lastly, ensure that the transposition is set to concert C on the WX.

In addition to a stand holding the sheet music, another stand or similar platform is needed to hold a laptop computer. There are many patch changes involved between the accompanying Wavestation and UMI3 software programs. It is beneficial to look at the window boxes on the monitor in addition to the score to ensure proper program changes during a performance. The laptop should be located directly in front of the performer and directly behind the stand with the musical instructions. In addition, a computer monitor should be angled such that the screen and score can easily be viewed at the same time.

Ball constructed a custom patch sequence that follows the precise order of the synthesizer voice patch changes marked in the score, starting with *20 Sec./sus*. There are a total of 30 voice changes throughout the entire piece. Refer to Figure 4.4.1 in Chapter 4. All voice program

changes are carefully notated at the top of a staff in the score as seen in Figure 5.1.3.⁶² Most of these patch changes have sufficient rest space to quickly change voices with the WX program change key. However, it becomes increasingly difficult to use this feature fluidly as the piece progresses because there is little or no time to complete the program change after finishing a section; it is therefore preferable to use the UMI3 MIDI foot controller. This will be discussed in further detail later in this section. Figure 5.1.3 illustrates the challenge: the grouped pitches

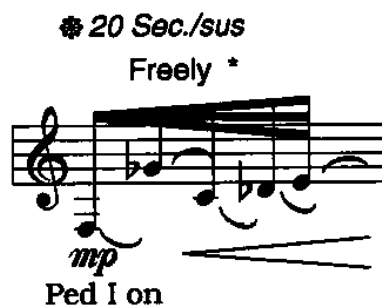


Figure 5.1.3
Notated voice patch (*20 Sec./sus*) above staff from *and they spoke of things transfigured...* Source: Ball, *and they spoke of things transfigured...*, 1.

progress from eighth to thirty-second notes and are performed by gradually increasing rhythmic speed after each pitch, a feature that occurs only twice in Section A. When starting the first pitch (F), the dynamic will start at mezzo-piano followed by a crescendo. A player may find it helpful to maintain control of the air speed moving from slow to fast. Between breath and pitch movement, there will be a noticeable crescendo. There should be no interruption of airflow lest a sudden increase or decrease of dynamic should result.

The beginning of the piece at Section A involves sustained pitches that are either notated with a written note followed by a tie leading nowhere (Figure 5.1.4) or with a thick dark line

⁶² Ball, *and they spoke of things transfigured...*, 1.

toward the top of the staff (Figure 5.1.5).⁶³ These represent digital sounds that reverberate based on the selected MIDI sound patch rather than a true sustained drone that remains on one steady pitch. Waves of motion-like sound are generated within the parameters set with that specific



Figure 5.1.4
Tied pitches leading to blank spaces in *and they spoke of things transfigured...* Source: Ball, *and they spoke of things transfigured...*, 1.

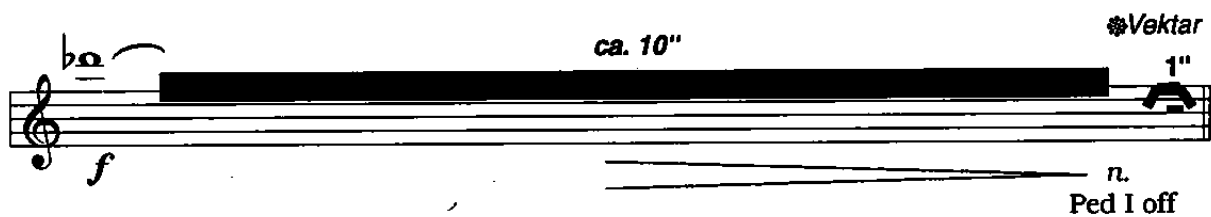


Figure 5.1.5
Sustained pitch marked with time duration and thick dark line from *and they spoke of things transfigured...* Source: Ball, *and they spoke of things transfigured...*, 1.

sound patch. Few of the notated pitches accompanied with this element instruct a timed duration. The initial breath articulation on D-flat (Figure 5.1.5) must start strong and is to remain sustained by pressing the sustain button on the WX. Once the sustain key is pressed, continuous airflow is no longer necessary. During this sustained pitch, the expression pedal is used to gradually decrease the volume to *niente*. This process occurs after c. five seconds of holding the pitch. Once there is complete silence without any airflow, the sustain key is pressed once more to fully silence the droned sound.

⁶³ Ibid.

In the closing of Section A, many of the elements discussed thus far apply and lead into Section B. In the third staff of the second page, the pitch starts on a low C ending on E-flat (Figure 5.1.6).⁶⁴ Even though the sustained pitch is E-flat, it is imperative that the sustain be set

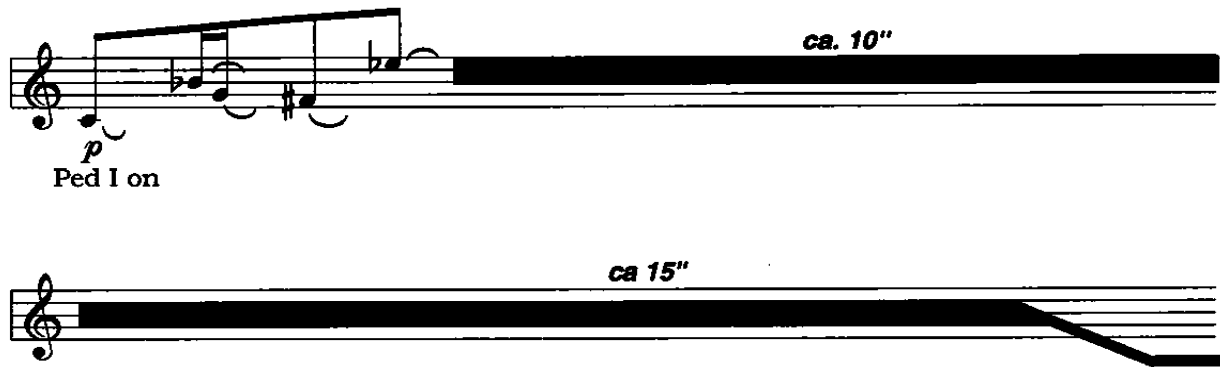


Figure 5.1.6
Section A; last part of the section showing starting pitch (C) as the primary sustained note through Section B from *and they spoke of things transfigured...* Source: Ball, *and they spoke of things transfigured...*, 2.

only on C below staff. Playing a drone on B-flat, G, F-sharp, or E-flat in Figure 5.1.6 could potentially cease the droned pitch if any of these notes are individually played again in the next section on the WX. Low C is not used at all in Section B with exception of the last note before the fermata over the quarter rest. However, at the end of this section, all sustained sounds should have been silenced.

Section B consists of gradual layering of pitches and multiple sound patches used at the same time. Looking back to Figure 5.1.6 of the last section, there is a sustained black line descending into a narrower line below the staff. This concluding narrow line shows the low C that will continue to sustain throughout the entire section. Once the note is played and the sustain key is initiated to hold the low C pitch, it will remain present regardless of whether there is air

⁶⁴ Ball, *and they spoke of things transfigured...*, 2.

flowing through the instrument. Throughout all of Section B, the low C continues to sustain, as indicated by arrows at the end of each staff line (Figure 5.1.7).⁶⁵ A sound patch called *Chronos I*

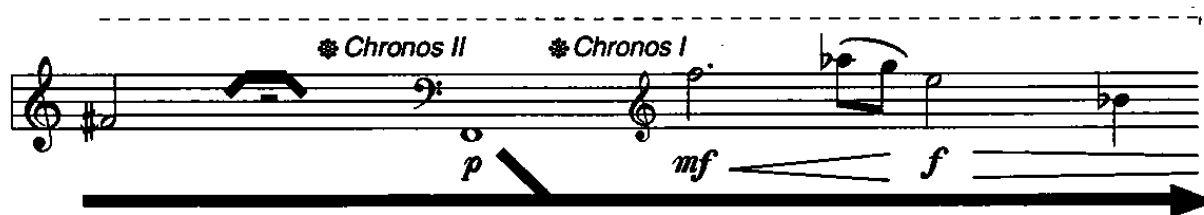


Figure 5.1.7
Section B; instructions related to voice patch changes and sustained pitches from *and they spoke of things transfigured...* Source: Ball, *and they spoke of things transfigured...*, 2.

is used three times in this section, and another called *Chronos II* is used twice. It may be helpful to copy these patches so that the performer can create a linear ordering of the patches as required in the piece. Observe the sound patch sequence in Figure 4.4.1. After playing the first phrase starting with the sound patch *Chronos I*, there is a small rest that lasts around one second. During this time, the WX program change key may be used to switch to the next sound patch (*Chronos II*). If using the programmed MIDI foot controller program parameters (Figure 5.1.2), foot control “one” may be used to create a pitch drone that continues to sustain through the rest of the section. All sustained sounds, other than low C, are produced by the MIDI foot controller instead of the EWI. The drone is labeled with the dark line after F, connecting to the long line parallel to the staff. After clicking foot control “one”, the program change key on the WX may be used again to scroll down to another *Chronos I*. This passage is the continuation of the initial melody previously presented. Figure 5.1.8 demonstrates the same concept as it occurs on the

⁶⁵ Ibid.



Figure 5.1.8
Section B; instructions related to voice patch changes and sustained pitches from *and they spoke of things transfigured...* Source: Ball, *and they spoke of things transfigured...*, 3.

third page of the score.⁶⁶ After five seconds of sustaining, the voice is to be switched to another *Chronos II*. Using the settings as shown in Figure 5.1.2, foot control “one” is pressed two additional times, producing pitches A-flat and G-flat. Similar to the sustained F in Figure 5.1.7, sustained pitches A-flat and G-flat are produced and controlled by the MIDI foot controller with the Wavestation software. At this time, pitches C, F, A-flat, and G-flat continue to sustain while the WX program change key is used to scroll to the third copy of the *Chronos I* sound patch. On page four (end of Section B), there is one more low C pitch that needs to be sustained. Even though there is a low C in the exact octave already being used, it will not interfere with the original one set back at Section A: two different sound patches are being used with this pitch, along with two MIDI controllers (EWI and foot controller) operating at the same time. The last drone can be activated by pressing foot controller “one.”

After the last pitch (B-flat) before low C using sound patch *Xnaos Split-2*, all sustained pitches must be switched off. As there are a total of four tones being sustained at the same time, foot control “one” needs to be clicked four times to successfully silence all sounds. By clicking the hold key, the final droned pitch on the EWI is stopped, followed by a quick switch to the next program change on the WX to *Xnaos Split-2*. At the same time, use the expression pedal to lower

⁶⁶ Ibid., 3.

the overall volume. The initial attack of the low C should be strong, followed by using the volume pedal to control the long hairpin dynamic. The performer must be highly competent at using the program and volume controls on the WX and MIDI foot controller in this section of the piece.

Section C(a) is straightforward in notation with the exception of its more intricate voice program changes. It's important for the performer to take time to ensure that all sounds are being adjusted appropriately. A new musical element that has not appeared thus far arrives in this section: the sound modulation, represented by long, dark triangles.⁶⁷ With all configurations set on the WX5, the modulation is executed by slowly and steadily pivoting the right thumb up and then back to center. To maintain consistency between the dynamics and modulations, it is preferable to perform this in the same contour as the hairpin dynamics crescendo to decrescendo. At the beginning of each long pitch accompanied by the crescendo and decrescendo modulation, the articulation is to be strong. The expression pedal should be set to soft, allowing room for dynamic contrast. Each hairpin set should close at a *niente* dynamic. As most of the playing in this passage is sporadic and percussive, it is essential to follow the dynamic markings as indicated. Performing this accurately will create more interesting metallic effects.

Toward the end of Section C(a), there is a gradual increase in rhythm, new sounds, and dynamic shape. Right before the double bar line in Figure 5.1.9, foot control “three” on the Logidy UMI3 can be pressed to activate the sound patch *Motion Mix*.⁶⁸ As there is no rest or space between the last note (F) of the bar and the first note of the next bar with the new sound (F-sharp), it is necessary to have this patch change programmed specifically to be done with the

⁶⁷ Ball, *and they spoke of things transfigured...*, 5.

⁶⁸ *Ibid.*

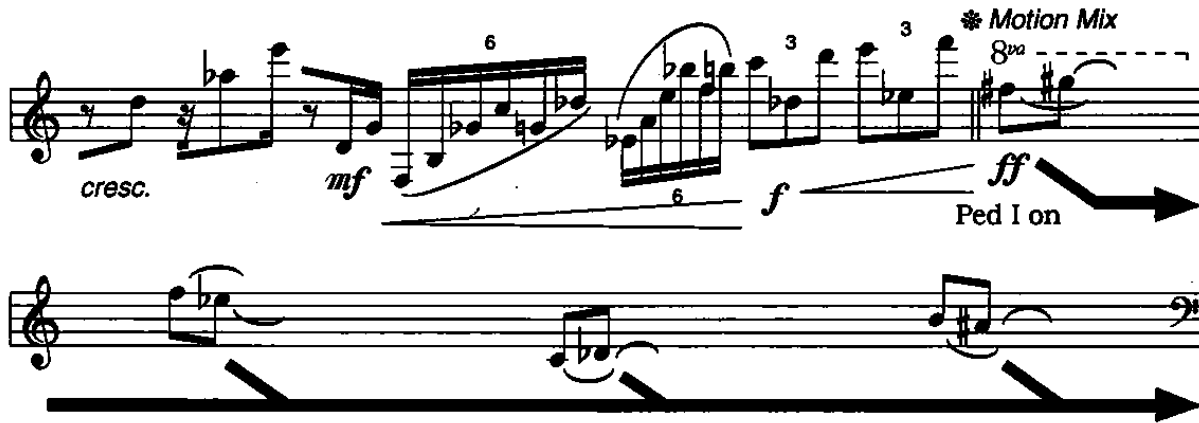


Figure 5.1.9
 Sections C(a) and C(b); observe program change “Motion Mix” and required sustained pitches from *and they spoke of things transfigured...* Source: Ball, *and they spoke of things transfigured...*, 5.

MIDI foot controller. After making the program change to *Motion Mix*, be ready to press foot control “two.” Following the high F-sharp, press foot control “two” to activate the G-sharp drone. Repeat this process on all other similar droned pitches: E-flat, D-flat, A-sharp, and F-flat. As there is a limited amount of programming room for the second control slot on the foot controller, the F-flat can be sustained using the WX hold key. Before moving on to Section C(c), which starts with the *Screamer* voice patch, silence all five droned pitches as was done with foot switch “one” previously: click the “two” pedal four times and release the WX hold key. Observe the changes on the monitor to ensure for correct sound patches and deactivation of drones before proceeding to the next section.

After releasing all sustained notes, switch over to the next sound patch (*Screamer*). Refer to Figure 5.1.10 with the boxed pitch groups.⁶⁹ These should be “fast, unevenly spaced, [and] random.”⁷⁰ The player has the option of selecting any pitch in each grouping to sustain. The duration of each grouping should preferably be the same as the following rests; that is, the last

⁶⁹ Ball, *and they spoke of things transfigured...*, 6.

⁷⁰ Ball, *and they spoke of things transfigured...*, ii.

box of notes should be around 10 seconds, as the following rest is also 10 seconds. Dynamics may be best approached by using the expression pedal. Each rest duration starts after releasing

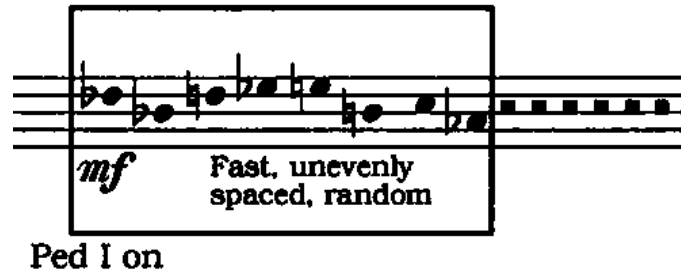


Figure 5.1.10
Section C(c); grouped pitches from *and they spoke of things transfigured...* Source: Ball, *and they spoke of things transfigured...*, 6.

the selected pitches with the sustain key. Even though sound is still echoing from the preceding passage, the next phrase may start during the conclusion of this process. All sound diminishes during the last rest, which means that the silence may not last the full 10 seconds as indicated in the score.

Section C(a') utilizes the same musical concepts as before, especially percussive effects; the only variants are the different sounds. Throughout this section, foot controller "three" may be used for program changes. The expression pedal is to be set to the highest volume possible on the Wavestation. All parts labeled under sound patch *Digital Touch* are slurred, starting with a fast air attack. More air is required with this particular voice than others in order to produce the special effect. Occasional moments might occur when it takes longer to move between the upper and lower registers of the EWI. To achieve a gradual decrescendo of the last note in the section, the volume expression pedal connected to the UMI3 foot controller is needed. The very last pitch on low C should gradually soften in volume by starting the note with fast air and diminishing using the expression volume pedal.

Similar techniques at Section C(a) are also used in the last section of the piece (Coda) with a combination of modulations and hairpin dynamics. These elements combine to make this section the most demanding part of the piece in its use of the expression pedal. If the performer is not yet accustomed to the expression pedal, this material in Section C(a) can serve as a helpful starting point to master the controls. At the beginning of each set of notes, position the pedal to zero and play the note on the EWI. The hold key on the WX can be used for each note that needs to be sustained; air is no longer needed until the start of the next note set. While the sustain function is on, move the volume expression pedal up and down according to the written dynamics and use the right thumb to control the modulation. Similar dynamic and modulation shapes will occur twice more to conclude the piece. Remember to use the WX program change key to switch between sound patches *Stereo Waves I, II, and III*.

and they spoke of things transfigured... is a challenging technical work that should only be studied once the performer has initially become competent with the fundamental elements of the EWI and accompanying tone generators. There is much technique involved in the combination of program changes and sustained pitches. Because of the compositional layout of the piece, its several technical components, and its coordinated sound changes, it is one of the most challenging works studied in this chapter. The combination of using the EWI and MIDI foot controller with volume expression pedal gives the performer the perspective of an orchestrator of sounds. It is the performer's responsibility to maintain complete control when cuing sounds between the EWI, Korg Wavestation, MIDI foot controller, and volume expression pedal. As some of the program changes occur in the middle of phrases, it is helpful to practice these transitions independently in addition to learning the traditional notation.

5.2 *Drifting over a Red Place* by Marilyn Shrude

5.2.1 Overview

American composer Marilyn Shrude originally composed *Drifting over a Red Place* (1982) for solo clarinet, commissioned by Burton Beerman and Celesta Harazti. John Sampen, saxophone professor at Bowling Green State University in Ohio, performed this piece in 1988 on the Yamaha WX7, one year after that model appeared on the market. The work is based on the original painting *Drifting over a Red Place* by Dorothy Linden. According to Shrude,

...the score was included in the book *Notations 21* by Theresa Sauer, a stunning collection that builds on the legacy of John Cage's *Notations* with selected compositions that break new ground in non-traditional notation.⁷¹

In addition to the original artwork that is to be projected on a screen, the composition is meant to be accompanied by a dancer.

Shrude composed this work as one large score to permit a performer to choose a custom sequence, as long as it follows the guidelines prescribed in the directions:

The large one-page score is to be considered as an entire field of performance. The four areas [enclosed in concentric rectangles] are conceived as such: theme, variation, diversion, and development. The theme must be played three times, and the four development sections must [each] be played once each without repetition. The performer is free to use (or not use) any fragments in the variation and diversion areas, and these can be repeated ad libitum.⁷²

Please note that this document shall treat “area” as a technical term and shall use it in the rest of the discussion of this piece.

⁷¹ Marilyn Shrude, “Drifting over a Red Place (version for WX7 wind controller),” *Marilyn Shrude*, accessed June 2, 2016, www.marilynshrude.com.

⁷² Marilyn Shrude, e-mail message to author, November 12-14, 2016.

Virtuosity in technique is a prerequisite for this piece. This contrasts to *and they spoke of things transfigured...*, the difficulty of which lies in its uses of various sounds and multiple program changes. Because *Drifting over a Red Place* was originally composed for clarinet, the performer may choose a sound that is most desirable. A sound that is similar to clarinet is an obvious avenue to explore. Any tone generator equipped with the desired sound can be used with this work. Since the EWI score used for *Drifting over a Red Place* is exactly the same as the original for clarinet, some of the musical content includes extended techniques that are idiomatic to the clarinet but not to the EWI. It is the performer's responsibility to use the special features on the EWI both to honor the original conception of the piece that are specific to the technical possibilities of the clarinet and to demonstrate sounds that make the EWI unique. The duration of the full work is approximately 12 minutes. John Sampen's recording of the work, from the album, *The Electric Saxophone* (Capstone Records, 1997), can serve as a model for the type of sound possible for a realization on an electronic wind controller but should be considered a single exemplar among many possible realizations.

5.2.2 Performance Instructions

The original artwork by Linden inspired Shrude's composition and is traditionally displayed during the performance. A dancer further supplements the visual art piece. According to the performance instructions, using a Kodachrome projector, a variety of shades and filters are added to change the color scheme of the picture. With today's technology, it is also possible to reconstruct the photography digitally and create a custom slide show using modern software programs in place of the Kodachrome projector. These color arrangements can be coordinated with the music and dance and should change with each of the musical fragments performed in

Drifting over a Red Place. However, there should not be too many consecutive changes.⁷³

Therefore, one should repeat one or more of the color arrangements, rather than having each one presented uniquely. For this reason, the person (other than the performer) operating the projector should become familiar with the piece. If a performing sequence of fragments has been established, an order of colorful slides can be arranged in a way that fits the music and dance. However, if the performer is spontaneously deriving a sequence of fragments during a performance, it would be appropriate for the slide order to vary between performances. In that case it would therefore be up to the performer to use their best judgment, altering the shades as appropriate by cuing the projectionist during a performance.

Since Shrude does not specify a sound patch, any sound patch and tone generator might conceivably be used. Only one voice should be used for the entire work. However, not all patches would be equally suitable, due to the requirements of the piece with respect to dynamics. From the selected modules examined in Chapter 4, the WT11 offers the most sensitivity in breath control and extended techniques and therefore may be the most appropriate choice. There are moments in the piece where specified dynamics are notated in the score; it is important to follow these carefully. The most important moments, with respect to the requirements of a sound patch, are the decrescendo markings on sustained notes that end with pianissimo or *niente*. The performer therefore might be best served by selecting a sound that permits fluent tapers of pitch without sudden stops on the held note. Adjusting the reverb on the tone generator and/or mixer may help further with this musical technique. If using the custom WT11 sound bank from Patchman Music, *Stringy* (I-7) provides the correct amount of sensitivity and a similar feeling to

⁷³ Marilyn Shrude, e-mail message to author, November 5–19, 2015.

traditional wind instruments.⁷⁴ This voice is legato, yet flexible enough to work with the combination of requirements respecting breath control, technical clarity, and dynamic contrast.

All switches on the WX5 should be set to the normal settings. Depending on the sound patch used in this piece, adjustments to the sustain/hold key may need to be made on the WX in order to effectively perform the multiphonic notations. Said adjustment is made by holding the sustain key with the right hand and then pressing only the top octave key with the left hand. On *Stringy*, the sustain key reconfiguration will allow additional notes to be played above and below the first held pitch as long as there is air flowing through the WX. Because of the overall tessitura of the piece, a shift to the overall playing range may be desired. In particular, the default transposition on the *Stringy* sound patch is set too low of an octave for the upper tones to be clearly audible. The WT11 can be adjusted up or down an octave by accessing the device's transposition settings, which will permit further flexibility between the upper and lower registers.

There is no need to develop a sequence order of fragments when first learning the piece. Some players may even prefer to choose the order during the course of the performance (improvisation); this technique is acceptable as long as it follows the sequence order described in the performance directions (Figure 5.2.1). Of course, others may wish to choose pre-plan a specific sequence that follows the specified order of areas shown in Figure 5.2.1. It is advisable, when either pre-planning a sequence or preparing to create a sequence during the performance itself, to label each of the fragments with integers as originally labeled in the physical score and performance instructions. Figure 5.2.2 demonstrates a sample order that follows the proper sequence based on the four areas of the piece—Theme, Variation, Diversion, and Development. The Theme is fragment 1; the seven Variations are fragments 2-8; the eight Diversions are

⁷⁴ Matt Traum, "Yamaha WT11 Soundbanks," *Patchman Music*, accessed June 7, 2016, <http://www.patchmanmusic.com>.

fragments 9-16; the four Developments are fragments 17-20. There are a total of 27 times a fragment is played following the prescribed sequence, however, the order is not random. The sequence of areas which is given in the score is to be followed and the only random element is the fragment chosen. For example, the performer must start with the Theme and then proceed to a Variation; any fragment from among fragments, 2-8 (that is, the Variation fragments) is permissible. A Diversion is played next, choosing any fragment from 9-16 (that is, the Diversion fragments). Since the performance scheme requires ten Variations fragments and ten Diversion fragments, but the score only provides seven and eight such fragments, respectively, some of these fragments have to be repeated. On the other hand, there are only four Developments and four places to play them in the sequence, suggesting that one might play each one once only. The original Theme is played three times.⁷⁵ According to the performing instructions, there should be a brief pause of around one to four seconds before starting each fragment.

1	Theme				
2	Variation	3	Diversion		
4	Variation	5	Development	6	Diversion
7	Variation	8	Diversion		
9	Variation	10	Development	11	Diversion
12	Variation	13	Diversion		
14	Theme				
15	Variation	16	Diversion		
17	Variation	18	Development	19	Diversion
20	Variation	21	Diversion		
22	Variation	23	Development	24	Diversion
25	Variation	26	Diversion		
27	Theme				

Figure 5.2.1
Performance sequence from *Drifting Over a Red Place*. Follow the numerical order left to right before moving on to the next row. Source: Shrude, *Drifting over a Red Place*.

⁷⁵ Marilyn Shrude, e-mail message to author, November 12-14, 2016.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
T: 1	V: 2	Di: 12	V: 6	De: 17	Di: 14	V: 5	Di: 11	V: 4	De: 18	Di: 13	V: 3	Di: 15	T: 1
15	16	17	18	19	20	21	22	23	24	25	26	27	
V: 4	Di: 16	V: 8	De: 20	Di: 10	V: 7	Di: 9	V: 2	De: 19	Di: 15	V: 5	Di: 12	T: 1	

Figure 5.2.2

Sections: T=Theme, V=Variation, Di=Diversion, De=Development. Integers next to the defined sections indicate the fragment number marked in the score. Sample performance sequence (numbers 1 to 27) from *Drifting over a Red Place*.

The remainder of this section will focus solely on executing various passages using the mechanics of the WX5.

As this piece was originally composed for clarinet, changes will need to be made to embrace the mechanics of the WX5. Some intervals in the score are more challenging than others based on their specific fingerings; however, there are alternate fingerings that allow for easier and cleaner execution. The most intensive problem in this regard concerns tremolos, especially ones that include two octave registers. “Variation 4” (Fragment 4) is a group of contrasting tremolos (Figure 5.2.3).⁷⁶ Consult Appendix C for specific tremolo fingerings for the WX. The G to C intervals are played lifting off the B and G keys while holding down the A key with the left hand. Hold the A key and then trill with only the E key to play the C to F-sharp tremolo.

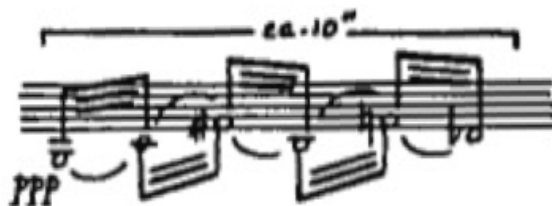


Figure 5.2.3

“Variation 4” from *Drifting over a Red Place*. Source: Shrude, *Drifting over a Red Place*.

⁷⁶ Shrude, *Drifting over a Red Place*.

Between intervals C to F-sharp and F-sharp to B, switch to another F-sharp fingering to perform the rest of the passage: from the last F-sharp fingering holding down keys A and E, go up an octave and perform the traditional F-sharp fingering, leaving out keys F and D. The F-sharp to B interval can now be performed by pressing down keys F, D, C, and low B. Transition to the B-F tremolo by applying the regular F fingering. The tremolo from F to D-flat is executed by pressing down keys E, D, C, and G-sharp.

Another pattern similar to “Variation 4” is “Diversion 10” (Figure 5.2.4).⁷⁷ Additional alternate fingerings are needed in this short passage due to the different set of intervals. The

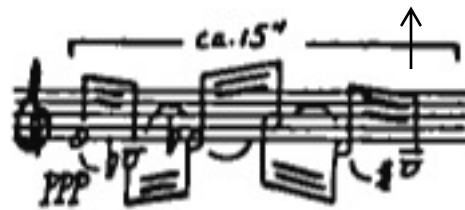


Figure 5.2.4
 “Diversion 10” from *Drifting over a Red Place*. Source: Shrude, *Drifting over a Red Place*.

tremolo from E to B-flat or B-flat to E is performed by playing Bis B-flat (A-sharp + B keys) with the left hand and keys E and F with the right hand. An E pitch will be produced through this fingering. Lifting off both E and F keys at the same time achieves the E to B-flat tremolo. The tremolo between B-flat and E-flat is executed with Bis B-flat (already pressed down) and then pressing the F, E, D, and D-sharp keys with the right hand. Quickly shift up an octave and play the normal E-flat fingerings. Tremolos from E-flat to A are normally played by releasing all keys except B and A; this same concept can be applied with the tremolo from A to D. The last tremolo, D to G-sharp, is one that is not physically possible on the WX5 using the traditional

⁷⁷ Ibid.

methods. In this scenario, the best solution is to take the G-sharp up one octave, where it is easy to play between these two pitches.

Playing the following musical example properly requires delicate technique. “Diversion 13” uses portamento with intervals ranging as wide as over two octaves (Figure 5.2.5).⁷⁸ Though this would be physically possible on clarinet, it is best to substitute the portamento on the WX by

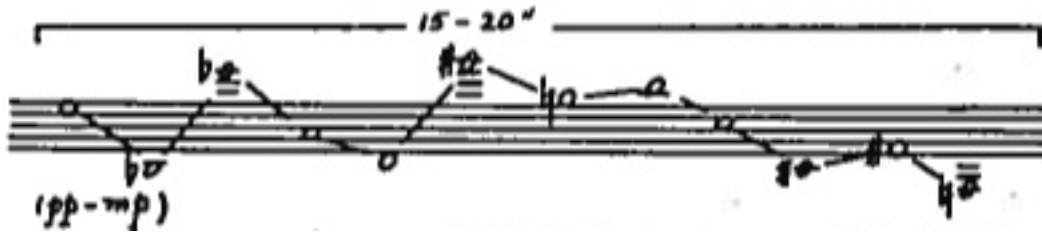


Figure 5.2.5
“Diversion 13” from *Drifting over a Red Place*. Source: Shrude, *Drifting over a Red Place*.

moving down and up using the C major scale. Each notated pitch should be of similar length that all fits within 15 to 20 seconds.

Scoops are a common technique on clarinet, in addition to saxophone, where the pitch starts with a loose embouchure, producing a tone that sounds flat and then the embouchure suddenly tightens to bring the pitch in tune. There are moments in *Drifting Over a Red Place* where the scoop technique is needed in a specific context. One passage (Figure 5.2.6) has a line



Figure 5.2.6
“Diversion 16”; small scoops indicated within held note (G) from *Drifting over a Red Place*. Source: Shrude, *Drifting over a Red Place*.

⁷⁸ Shrude, *Drifting over a Red Place*.

over a long note with dip-like scoops parallel to the staff below.⁷⁹ Using the reed on the WX, the lip can be loosened to bring down the pitch and back. Because this occurs four times, it is important to strictly follow this outline. Each of these scoops should follow along with the short hairpin dynamics. The pitch bend wheel could also be used, but it is more effective to use the embouchure for this section to create a more organic effect instead of a mechanical one as produced by the pitch bend/modulation wheel.

Certain fragments require careful articulations. Many of these are within a group of sixteenth notes, or even faster. “Diversion 14” (Figure 5.2.7) exemplifies these challenges due to its fast articulation. It may be helpful to spend time experimenting with tongue positions that will produce the best clarity and evenness.⁸⁰ This is complicated by the fact that octaves from the

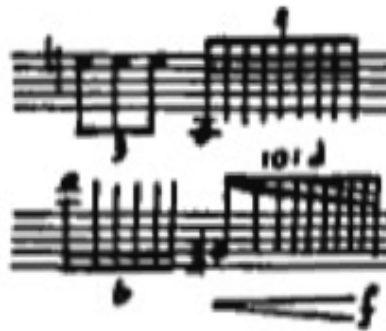


Figure 5.2.7
“Diversion 14;” fast-moving rhythms grouped on one pitch from *Drifting over a Red Place*. Source: Shrude, *Drifting over a Red Place*.

same sound patch may respond differently, especially with respect to resonance. Understanding the differences in resonance of the MIDI sound between the upper and lower ranges through careful listening may therefore also aid a performer in learning to play these sections carefully and delicately.

⁷⁹ Ibid.

⁸⁰ Ibid.

There are sections in this piece where personal reinterpretation of the notation is necessary due to the technical variants between clarinet and the EWI. The most significant of these is with multiphonics, which Shrude requires a few times in the composition. As this technique was originally intended to be played on clarinet, an alternative is necessary: especially, using the sustain/hold key as an alternative method to produce multiple notes on the WX. “Fragment 20” (Figure 5.2.8), one of the Development figures, has a tremolo G-flat/D-flat while sustaining a D-flat above the staff.⁸¹ A viable substitution for this multiphonic notation can be achieved by applying the hold key on the upper D-flat and then trilling between G-flat/D-flat.

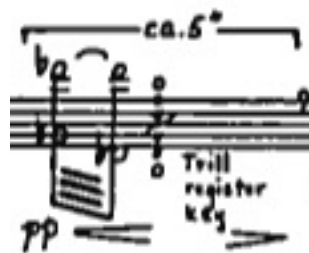


Figure 5.2.8
 “Development 20;” tremolo/multiphonic notation from *Drifting over a Red Place*. Source: Shrude, *Drifting over a Red Place*.

“Fragment 18” is another Development fragment that uses multiphonic techniques, located in two places. Both of these are notated only with two pitches (C/B-flat). A solution for this is to apply the hold key on the lower note and then quickly play the top one. Since it is not physically possible to execute the fluttertongue technique on the EWI, this can be substituted by using the hold key. The hold key can be played on the five eighth notes with fluttertongue located in “Development 20” (Figure 5.2.9).⁸² Press the hold key on the first pitch (A) and then

⁸¹ Ibid.

⁸² Ibid.



Figure 5.2.9
 “Development 20;” fluttertongue passage from *Drifting over a Red Place*. Source: Shrude, *Drifting over a Red Place*.

release it after the last note before the eighth rest. This will create a new, unique sound effect similar to an echo.

The beginning of “Fragment 19” (Figure 5.2.10), another Development fragment, shows a note marked from no vibrato to wide vibrato followed by an upward scoop.⁸³ The vibrato is performed the traditional way with the embouchure. At the end of the excerpt, a scoop is sketched which may be performed by moving the pitch bend wheel upward. Using the pitch bend wheel on the scoop will create a better effect since the pitch can rise up further than via applying

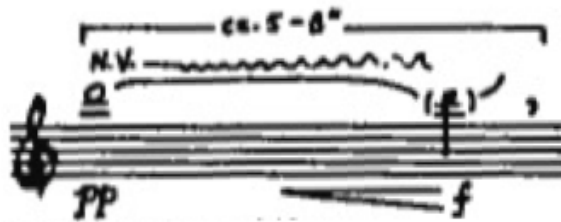


Figure 5.2.10
 “Development 19;” beginning of section from *Drifting over a Red Place*. Source: Shrude, *Drifting over a Red Place*.

pressure to the reed. As it is more difficult to scoop upward than downward, using the pitch bend wheel instead of using the lip embouchure can produce a better result.

⁸³ Ibid.

In the performance instructions for the piece, Shrude mentions a musical fragment that is reminiscent of the clarinet solo at the beginning of George Gershwin's *Rhapsody in Blue*. This fragment, no. 19 is shown in Figure 5.2.11.⁸⁴ It might be beneficial to become familiar with the

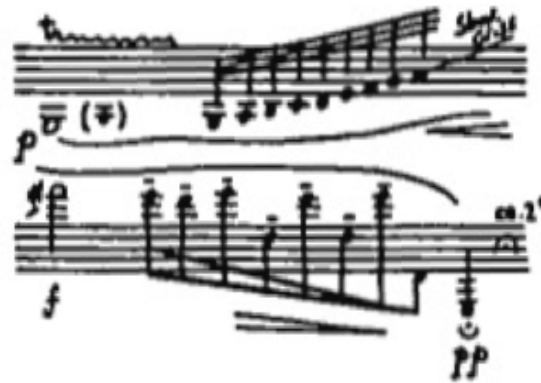


Figure 5.2.11
“Development 19;” *Rhapsody in Blue* quote from *Drifting over a Red Place*. Source: Shrude, *Drifting over a Red Place*.

overall playing style of the Gershwin solo and imitate it with the EWI as close as possible in this fragment. In the context of the WX5 and its limitations in executing a long portamento, continue playing the notes within the G mixolydian scale. Instead of playing E above the staff, substitute an E-flat. This will allow the creation of a short, but effective, portamento with the pitch bend wheel. Moving the wheel all the way up from E-flat will arrive comfortably on F.

Drifting over a Red Place is a work that can be adapted for the EWI. The examples within the analysis and performance instructions provides a better view of the piece and how to approach it. Although this work was originally written for clarinet, the EWI can still portray the effects in a similar, if not identical, manner. It is important to experiment with different sound voices to discover what may brings the best possible interpretation of the piece.

⁸⁴ Ibid.

5.3 *Rima's Song* by Gil Trythall

5.3.1 Overview

Professor Emeritus Gilbert Trythall taught music theory and composition at West Virginia University from 1974 to 1999. He currently teaches at Brookhaven College in Dallas, Texas. Many of his works make use of electronic instruments and synthesizers. *Rima's Song* for wind controller and synthesized tape accompaniment was composed in 1994 for Paul Scea. The included performance instructions for this piece describe the overall compositional structure:

Rima's Song consists of 13 immediately successive sections. Each section consists of simultaneous melodic loops based upon the six note scale or "trope" notated at top left of each score page. In some sections the loops are reinforced by sampled percussion. The soloist is accompanied by the synthesized tape, or for better fidelity, accompanied by a Yamaha SY99 synthesizer driven by its internal sequencer.⁸⁵

Rima's Song was inspired by William Henry Hudson's novel *Green Mansions: A Romance of the Tropical Forest*.⁸⁶ This excerpt, describing the sounds of the rainforest, is included in the score as program notes:

After that tempest of motion and confused noises, the silence of the forest seemed very profound; but before I had been resting many moments it was broken by a low strain of exquisite bird-melody, wonderfully pure and expressive, unlike any musical sound I had ever heard before. . . . I waited with suspended breath for its repetition, wondering whether any civilized being had ever listened to such a strain before. Surely not, I thought, else the fame of so divine a melody would long ago have been noised abroad. . . . But its greatest charm was its resemblance to the human voice—a voice purified and brightened to something almost angelic.⁸⁷

⁸⁵ Gil Trythall, "Instructions," *Rima's Song* (Gil Trythall, 1994/2010).

⁸⁶ Gil Trythall, "Program Notes," *Rima's Song* (Gil Trythall, 1994/2010).

⁸⁷ W.H. Hudson and Horacio Butler, *Green Mansions: A Romance of the Tropical Forest* (New York: Alfred A. Knopf, 1956): 42-43.

The inspiration is the sounds of nature that occur within deep jungles. These rainforest references can be heard through the synthesized instruments used in the accompaniment, appropriately mixed with voices from the soloist. Trythall strongly encourages the incorporation of visuals such as jungles, trees, and any related elements into the performance of *Rima's Song*. A slideshow with a wide variety of photographs of the rainforest provides the audience with ideas of what is occurring in the music.⁸⁸

The EWI is accompanied by an audio track in each of the 13 sections. Original parts for the accompaniment were performed live using the Yamaha SY99 synthesizer. Even though Trythall created an arranged audio track that could be used for performances, better sound quality could be achieved using the internal sequencer components of the SY99. Because the SY99 is considered a vintage synthesizer, it is now easier and more accessible to perform this piece with a modern pre-recorded audio accompaniment.⁸⁹ Due to the two sound sources (EWI and audio accompaniment), a mixer is required for performance. The composer wishes to have all sounds blended evenly. At the same time, it is also important for the listener to be able to identify the material played by the soloist.⁹⁰ It will be up to the performer to explore a variety sound patches that can establish a balance of sounds between the EWI and the accompanied track. This is another work that does not require a specific EWI or tone generator. Any of the units mentioned in Chapter 4 are acceptable.

5.3.2 Performance Instructions

Rima's Song is inspired by rainforest sounds. The performer might select sound patches that can relate to this notion. Trythall encourages a limited number of voice changes throughout

⁸⁸ Gil Trythall, e-mail message to the author, November 6, 2015.

⁸⁹ Gil Trythall, "Instructions," *Rima's Song*.

⁹⁰ Ibid.

the performance of the work. In the performance instructions he states that “less is more”, meaning that the player should not spend an excessive amount of time switching between sound patches.⁹¹ Thus, a performer should select a total of at least two appropriate sounds that achieves proper equalization with the accompaniment track. Due to the combination of wind-like instruments presented in the accompaniment, sounds resembling that of a flute will work best with this piece. The selected sound should also be distinguishable enough to determine which part is the soloist and which the accompaniment. Two excellent sounds on the WT11 that are appropriate for this work are *Ocarina* and *Recorder* from internal sound bank “A.” When using the pitch and modulation wheel on the WX, specific sounds on any tone generator may be pre-programmed to modulate instead of bending pitch. Testing the pitch bend and modulation wheel and other extended techniques on the WX should be taken into consideration when selecting sound patches.

Trythall recommends that an accompaniment track (CD or MP3) and EWI/tone generator sounds be consolidated into a mixer, which allows for one individual sound output (left/right PA speaker system).⁹² All sounds through the mixer will need to be adjusted accordingly to produce the correct balance. The configuration needs to be set so that it is easy to identify the soloist within the accompaniment texture.

Of the five works examined in Chapter 5, *Rima’s Song* is by far the most virtuosic with respect to traditional technique. The six notated pitch classes in each of the 13 sections are similar to many traditional scales—octatonics, major, and minor (harmonic/melodic). A player may benefit from establishing his or her technique by practicing these scales in all 12 keys. As

⁹¹ Ibid.

⁹² Gil Trythall, “Instructions,” *Rima’s Song*.

the performer develops dexterity over the given pitches, he or she may improvise their own melodic material that relates to the various musical characters.

One of the challenges in this piece is learning how to effectively and accurately read the written octaves. As the EWI has the full range of a keyboard, it is necessary to play any pitches that are beyond what can normally be played on a traditional woodwind instrument for this piece. Trythall notates either an 8vb or 15vb below treble clef. It is notated this way for consistency of playing in this clef instead of using a grand staff and reading in bass. The eight directly below the clef means that the notated line is to be played down an octave (8vb). Other treble clefs are marked with 15 below the notation, indicating two octaves below the original notated pitches (15vb) (Figure 5.3.1).⁹³ Some octave indications are carried over from staff to another, but are not always indicated in the following system. Brackets indicate that the staves belong to the same melodic idea or phrase. The treble clef may also change to a different octave in the midst of a



Figure 5.3.1
Treble clef octave notations; left: 8vb (down octave); right: 15vb (down two octaves) from *Rima's Song*. Source: Gil Trythall, *Rima's Song*.

melodic passage. Figure 5.3.2 shows a bracketed phrase starting in the original octave, progressing down one to two octaves, and then returning to normal in the last line.⁹⁴

⁹³ Gil Trythall, *Rima's Song*.

⁹⁴ Gil Trythall, *Rima's Song*, V.



Figure 5.3.2
 “Section V”; observe change in treble clef octaves in last phrase in section from *Rima’s Song*. Source: Gil Trythall, *Rima’s Song*, V.

The written melodic phrases in *Rima’s Song* contain sections where the technique may be challenging and will require the use of alternative fingerings with the Yamaha WX. Appendix C provides multiple alternate fingerings that are adaptable to this piece. The following figures in this part of the chapter will demonstrate how these fingerings can be used in context. Section II contains a passage of moving sixteenth notes with many accidentals to work around (Figure 5.3.3).⁹⁵ In order to play this excerpt cleanly, use keys B and F (1+1) to play the A-sharp



Figure 5.3.3
 “Section II”; use B and F keys to play A-sharp in all octaves; beginning of last phrase in section from *Rima’s Song*. Source: Gil Trythall, *Rima’s Song*, II.

moving between G-sharp and B. Using the side B-flat or Bis-keys will create unwanted notes around the ascending and descending pitches.

⁹⁵ Gil Trythall, *Rima’s Song*, II.

with the left hand. The difficult intervals shown in Figure 5.3.5 are only one of several excerpts where this sort of challenge occurs. Still, with time to experiment with different alternate fingerings to figure out which ones work best in context, solutions are often available. A reasonable solution for Figure 5.3.5 is to take all C-sharps down one octave, which will narrow the interval with G-sharp.

One other alternate fingering that can simplify mechanics involves the intervals C to E-flat in Section X (Figure 5.3.6).⁹⁸ After playing C, release the A key, and at the same time, press



Figure 5.3.6
 “Section X;” C to E-flat intervals can be used by playing open with whole-tone trill key. Excerpt from *Rima’s Song*.
 Source: Gil Trythall, *Rima’s Song*, X.

down the whole-tone trill key. This raises D-flat up a whole step to E-flat. Using this alternative fingering avoids adding an octave key and additional fingerings to play the traditional E-flat.

There are passages where it is not necessary to press all fingerings at the same time to achieve the desired sound on the WX. The B-flat to D interval in the middle register can be performed while pressing the Bis-key with the left hand throughout. To play D, only press down keys F, E, and D with the right hand, but keep the same fingerings for the left hand (Figure 5.3.7).⁹⁹ In the same figure toward the end, D and C can be performed easily by playing it up an octave and pressing down the C key instead of moving up an octave to play D from middle C. It is helpful that the WX has many options with respect to alternate fingerings. A firm grasp of these fingerings will be beneficial in performing the work. Additional references regarding

⁹⁸ Gil Trythall, *Rima’s Song*, X.

⁹⁹ *Ibid.*, XII.

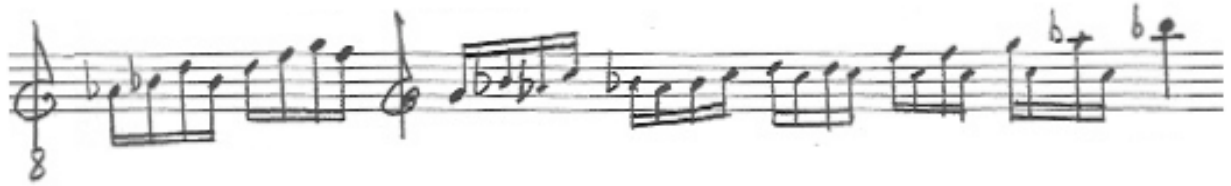


Figure 5.3.7
“Section XII;” observe B-flat to D and D to C intervals in last line in section from *Rima’s Song*. Source: Gil Trythall, *Rima’s Song*, XII.

alternative fingerings, trills, and tremolos are located in Appendix C.

When performing each sequence, the performer may create improvisatory material that interacts with the musical accompaniment. Moreover, each of the phrase lines does not need to be played in the exact order written on the page. A choice can also be made to start the piece with improvisation followed by playing part of the last phrase in the section. Given these musical flexibilities, and taking into consideration the interaction with the accompaniment, it is beneficial to develop times where there is space between each phrase. This is also indicated by Trythall, who suggests that the performer be mindful about space between lines and create musical sentences or conversation. Silence should be treated in a similar manner to any performed melody. Trythall’s instructions indicate that a light jazz style is suggested. Even though the jazz style is not necessary for this piece, it does allow the performer to develop a personal style without restrictions regarding specific genres. It is helpful to think about creating a personal voice that is not only independent, but blends with the rainforest sounds that characterize the overall meaning of the piece. Throughout each section, tempi change drastically in the accompaniment. However, it is not required to follow along with the exact tempo the accompaniment is playing.

Trythall’s *Rima’s Song* is a versatile work in the EWI repertoire, including as it does traditional performing styles present in the classical and jazz genres. It is a flexible work that can

demonstrate the performer's personal interpretation of what "Rima's" voice is supposed to sound like. With the notion of creating sounds of the rainforest as the inspiration for the work, it flows through constant changes and brief silence. These elements create an organic structure that produces continuous and various sounds that evoke exploring a tropical place. In natural environments, certain activities that occur will not repeat themselves consecutively, which creates a sense of unpredictability—one evoked to excellent effect in the piece.

5.4 *Two Suspended Images* by William Moylan

5.4.1 Overview

William Moylan is an American composer who currently teaches at the University of Massachusetts Lowell, serving as coordinator of sound recording technology. He has written works for solo and chamber vocal/instrumental ensembles, orchestra, chorus, and electronic/computer music. Many of his works have been performed throughout North America and Europe. *Two Suspended Images* is an original work for the EWI that was written for saxophonist, author/editor, and publisher Bruce Ronkin. This eight-minute piece was completed in 1990 and was composed for the Yamaha WT11 Wind Tone Generator. The piece contains specific instructions for programming the voice and performance settings. The configurations permit unique sound effects and combinations of multiple voices at the same time. This work is in two movements referred to as "images," which are "suspended" out of time:

Each image (movement) is designed to utilize certain unique characteristics of the wind controller:

- I. The use of very long melodic gestures (which would be unplayable on traditional wind instruments) and the use of drone sounds.

- II. The use of many timbres (some in quick succession), many spatial processing techniques, very wide registral boundaries (and skips between notes), and a wide dynamic range.¹⁰⁰

Even though *Two Suspended Images* can be performed with another tone generator, it is tailored for the WT11. Due to the specific sound parameters for this piece, it can be difficult for a performer with no knowledge of creating custom MIDI sounds on other tone generators to execute the work. The Yamaha TX81Z tone generator is the only other system that uses similar parameters to those required. Its synthesized algorithms are very similar to those of the WT11, with only a few minor variants.¹⁰¹ Further details on this topic will be covered in Chapter 5.4.3. As Moylan desires the use of special features that are unique to the WT11 and WX; this does, however, limit performance potential, since the WT11 is no longer in production and it has no software alternative.

5.4.2 Performance Instructions

Of the five pieces analyzed in this document, *Two Suspended Images* is the most challenging in regards to its programming apparatus. As specified in the work, the WT11 requires the use of special programming methods that go beyond what is normally listed in the user's manual and musical score. On the first page after the score, the composer states that there is a "secret" editing mode on the WT11 that can only be accessed by contacting Yamaha directly.¹⁰² Fortunately, an article by Art Whitfeld and Mardou Case of WindWorks Design, an electronic music technology and engineering firm, provides detailed instructions on how to gain

¹⁰⁰ William Moylan, *Two Suspended Images* (Glenmoore, PA: Roncorp Publications): 1.

¹⁰¹ William Moylan, *Two Suspended Images*, 10.

¹⁰² William Moylan, *Two Suspended Images*, 10.

access into the performance, voice, and test editing modes for the WT11.¹⁰³ Without employing these procedures to program the sound banks, it would not be possible to program the sounds to the specifications detailed, as in the example shown in Figure 5.4.1.

OPERATOR				OPERATOR				Yamaha WT11 – VOICE NO. 5 (Modification of WT11 voice A08. Part of Silverwind A23.)					
op1	op2	op3	op4	op1	op2	op3	op4						
TL (out. level 0–99)	99	56	56	37	eg bias sens. (0–7)	7	5	2	1				
detune (0–6)	3	6	3	6	amp. bias sens. (0–1)	1	0	0	0				
OSW (osc wave 0–7)	0	0	0	0	key. vel. sens. (0–7)	0	0	0	0				
attack rate (0–31)	15	13	17	17	FUNCTION				LFO				
decay 1 rate (0–31)	4	4	16	14	feedback lvl (0–7)	0	LFS (speed 0–99)	31	ALGORITHM				
decay 1 level (0–15)	15	15	15	15	transpose (0–48)	36	LFD (delay 0–99)	17	WT11 no. 3				
decay 2 rate (0–31)	0	0	0	0	mono. (0–1)	0	pit. mod. depth (0–99)	0	↓				
decay 2 level (0–15)	0	0	0	0	sus. (0–1)	1	amp. mod. dpth. (0–99)	0	2				
release rate (0–15)	9	5	5	5	pit. bend rg. (0–12)	2	sync. (0–1)	0	↓				
eg shift (0–3)	0	0	0	0	portamento (0–1)	0	LFW (waveform 0–3)	2	3				
freq. coarse (0–63)	8	8	13	14	porta. time (0–99)	0	pitch mod. sens. (0–7)	5	↓				
freq. fine (0–150)	0	0	0	0	br. ctrl. pitch (0–99)	32	ampl. mod. sens. (0–3)	1	1				
fix (0–1)	0	0	0	0	b. c. ampl. (0–99)	0							
fix range (0–7)	0	0	0	0	b. c. pit. bd. (0–99)	50							
level scaling (0–99)	7	36	11	23	b. c. eg bias (0–99)	95							
rate scaling (0–3)	1	2	1	1									

Figure 5.4.1 Custom sound patch program (Voice No. 5) for WT11 used in *Two Suspended Images*. Source: William Moylan, *Two Suspended Images*, 10.

Pages 10 through 12 of *Two Suspended Images* include custom voice and performance combination settings for the WT11. The individual “voice” programming modifies the current sounds pre-programmed in the RAM. Each performance combination is a full sound patch file that utilizes a variety of the nine programmed voices. The six performance combinations are what will be visible on the LCD screen in the first slots in bank I, which is where all RAM is stored. For better accuracy when programming these parameters, it may be best to start with the nine individual voices (pages 10-11) before moving to the performance combinations (page 12).

For each WT11 voice, there are a total of four sections that are to be programmed in order to achieve the desired sound. These include operator, function, low-frequency oscillation (LFO), and algorithm (Figure 5.4.1).¹⁰⁴ All of these parameters will affect the sound in relation

¹⁰³ Art Whitfield and Mardou Case, “WT11 Secret Mode,” *WindWorks Design*, accessed June 20, 2016, <http://www.windworksdesign.com>: 1-5.

¹⁰⁴ William Moylan, *Two Suspended Images*, 10.

to the MIDI instrument, tuning, transposition, attack and decay, key range, breath control, and other sensors related to the WX.

According to the guide on the secret editing mode, the process of accessing the performance combination edit mode is similar to accessing voice editing mode.¹⁰⁵ The performance combination edit mode allows a user to combine multiple programmed voices or instruments into the same sound patch. Additional parameter settings include volume, tuning, balance, key range, and effects (reverb, echo, etc.). Of the list under the instrument settings of the performance combination, *voice number* is by far the most important for programming accuracy (Figure 5.4.2). The integers listed in the *voice number* row from *instrument* columns one to eight are directly related to the nine programmed voices. Figure 5.4.1 is an example of one of those nine voices. Under instrument columns 1-3 in Figure 5.4.2 the integer “5” in the voice number row represents the “voice number 5” configuration listed in Figure 5.4.1.

INSTRUMENT	1	2	3	4	5	6	7	8
number of notes (0-8)	2	2	2	2	0	0	0	0
voice number*	5	5	5	6				
midi channel (0-16)	0	0	0	0				
limit low (0-127)	61	61	48	48				
limit high (0-127)	71	71	59	59				
detune (0-14)	7	7	7	7				
note shift (0-48)	24	19	24	24				
volume (0-99)	99	99	99	99				
out assign (0-3)	3	3	3	3				
lfo select (0-3)	1	1	1	2				

Yamaha WT11

PERFORMANCE COMBINATION 3

assign mode (0-1) – 0
 dsp select (effect) (0-10) – 6 (stereo echo)
 effect balance (0-99) – 60
 effect time (0-75) – 30 (120 msec.)
 lfo control (0-2) – 1 (lip)

Figure 5.4.2
 Custom performance combination for I-sound bank no. 3 for WT11 used in *Two Suspended Images*. Source: William Moylan, *Two Suspended Images*, 12.

After programming the WT11 voices and performance combinations, check on a few other parameters on the device that need to be set before starting the piece. Under *utilities*, the transposition should be set to the default C2 = C2. Be aware that, due to how the overall range of the six sound patches is programmed, certain pitches or keys within the range of the WX are

¹⁰⁵ William Moylan, *Two Suspended Images*, 12.

nonfunctional. Therefore, specific notes will not respond even when the key is fully pressed down with a steady airstream. Such behavior is considered normal, but since the score does not include any of these pitches, this is not a limitation here. For easier changes between sound patches, the Yamaha FC5 foot controller may be used. If the foot pedals are not available, the program change key on the WX may also be used.

The first movement makes use of delicate and temperamental material, so one must learn the specialized techniques specific to the EWI. A performer may find sections of this movement difficult to perfect on the WX. In particular, because of the variables in rest length between notes and the sensitivity of the instrument, a player may find it challenging to articulate a pitch cleanly without accidentally adding an extra note in between the next notated pitch. Therefore, in this movement, the best tongue position for articulating effectively and with clarity is the one that makes contact with the upper teeth: it does not permit air to flow through the EWI. To supplement the clarity of each articulation, it is helpful to have the fingerings prepared for the next note while the pitch most recently played continues to resonate. Since it is necessary to rearticulate each note in movement one, the difficulty of cleanly playing each note rises significantly. A player must ensure that all keys are pressed down accurately to avoid an extra pitch sounding in between marked notations. Since the sounds in this first movement contain a large amount of reverb, there is more freedom to take time to set up for each note and phrase. The decay in sound will prevent any moments of silence.

The first movement only uses one sound patch, which allows a performer to focus more on the musical content instead of the electronic components of the WT11. Voice program 1 (“P: I01”) however utilizes two voices. The upper register in the treble clef is composed of bell tones, while the lower range contains bass-like synthesized sounds. Changes of register and voice

require special attention. There are sections where a pitch will follow with the text indication “Hold Key: ON” (Figure 5.4.3).¹⁰⁶ In this example, it may be found more effective to press the sustain key on the WX while playing G-sharp and then play the low E-flat below in the bass clef. In order to start on the next pitch cleanly (C-sharp), the G-sharp needs silenced by clicking the hold key. No air should be flowing through when pressing the hold key. If air is flowing, it may

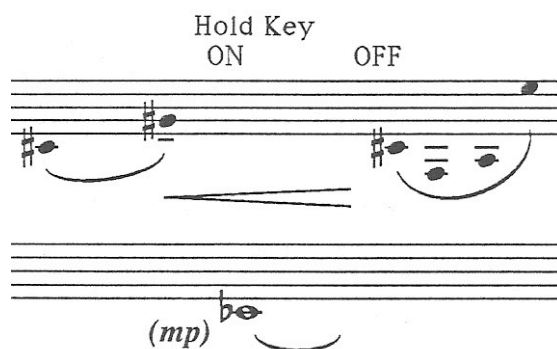


Figure 5.4.3
 “Movement I;” G-sharp sustained with “hold key” function on WX over E-flat from *Two Suspended Images*.
 Source: William Moylan, *Two Suspended Images*, 3.

lead to accidentally activating another sustained droned pitch. There are two other times in this movement when the hold key is used. The second occurs in between staves four and five; the process here is similar to that in Figure 5.4.3. In Figure 5.4.4, the hold key may be pressed after

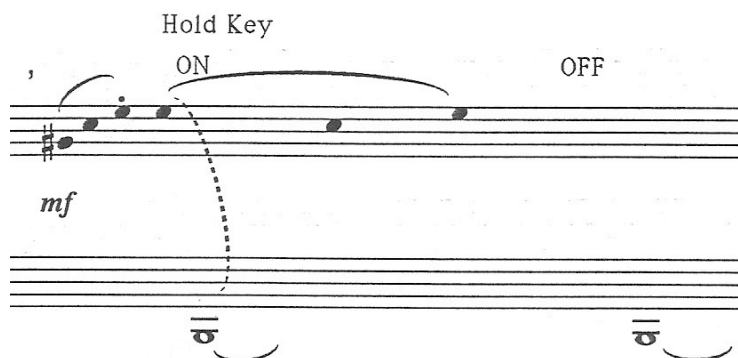


Figure 5.4.4
 “Movement I;” sustained B in bass clef staff in eleventh staff system from *Two Suspended Images*. Source: William Moylan, *Two Suspended Images*, 3.

¹⁰⁶ William Moylan, *Two Suspended Images*, 3.

the first low B pitch in bass clef. This note should be played directly after the second E pitch is articulated followed by the dotted slur figure.¹⁰⁷ Even though the C pitch within the slur will need to be rearticulated after playing low B, the resonance from the lower pitch should be able to connect continuously even with the hold key activated. After playing the last E pitch in Figure 5.4.4, the sustain key may be turned off just before starting the next low B pitch. At the same time, due to the reverb, the previous low B pitch should carry over without interruption. It will take practice to play this passage fluently using the hold key feature on the WX.

Two Suspended Images is clearly a work that consciously experiments with all the parameters and extended techniques available between the WX and WT11. It is an excellent introductory piece for the EWI because of the simplicity of the extended techniques that are unique on the EWI. The synthesized sounds allow the performer to perform in extreme ranges, change voices, and sustain pitches while playing melodic lines that would not be possible on a traditional woodwind instrument. Contrasting elements of technique and expressiveness within each of the movements overlap the playing styles necessary on other instruments, which creates an easier transition when applying these fundamentals to the EWI.

5.5 *Future Echoes from the Ancient Voices of Turtle Island* by William Moylan

5.5.1 Overview

Future Echoes from the Ancient Voices of Turtle Island (1992) is another original work for wind controller by William Moylan and also was written for Bruce Ronkin. It was premiered at

¹⁰⁷ Ibid., 5.

the Tenth World Saxophone Congress in Pesaro, Italy. This work includes piano accompaniment and sophisticated voice programs. Similar to *Two Suspended Images*, this piece includes a program chart that includes specific sound parameter settings. The sounds for this piece were originally written for the Yamaha TG55 Tone Generator, though the sound parameters can be used with any similar tone generator. To briefly summarize the sounds used throughout this piece, it begins with solo flute accompanied by shakers and a low-voice choir. The second part features drum and shakers with sound effects that echo. In the last part of the piece, multiple flute sounds are heard, which are intended to seem out of tune with one another. A final section features the sounds of beating drums and shakers. The piano has minimalistic qualities throughout the entire work, especially the repetitive ostinato. The overall piece is described as programmatic and spiritual based on the relationship between two cultures. According to Moylan,

The work was conceived as a response to the many celebrations of the 500th anniversary of Columbus's 1492 "discovery" of North America (the land long called Turtle Island by Native Americans). The piece was written to speak to the "Old World," from the perspective of the "New World," about this event, and its consequences. The work is a juxtaposition of fundamental aspects of Native American and Western European cultures and music, and is a journey to find some consonance between the two.¹⁰⁸

Future Echoes slowly progresses as the texture gradually becomes more involved with the percussive elements derived from the accompanying TG55. In Moylan's program notes, he expresses the motivation of the piece in relation to the technology associated with it:

¹⁰⁸ William Moylan, *Future Echoes from the Ancient Voices of Turtle Island* (Glenmoore, PA: Roncorp Publications): 28.

The influence of technology in music is a central issue to the work, as this piece was written fully utilizing synthesis technologies. Technology is used here to realize musical expression, to elevate the human spirit to experience beyond the human condition, and to celebrate life in its connection with the Earth, on Turtle Island.¹⁰⁹

It is clear that during the compositional process of this work, Moylan was thinking deeply about quality of life and how technology has evolved to further express spirituality. The musical sounds that are used in this piece bring out the unity between two different cultures.¹¹⁰

5.5.2 Performance Instructions

Preparation of the customized sound patches for *Future Echoes from the Ancient Voices of Turtle Island* is similar to the methodology used with Moylan's *Two Suspended Images* for the WT11. A total of five voices are programmed for the TG55 in this piece. Each combination assigns different sounds to various registers of the EWI. Some of these split into either two or three sounds using percussion, choirs, and woodwinds. Pages 21 and 22 in the piano score describe each of the voices in full detail.¹¹¹

In the score, pages 23-27 consist of charts containing parameters for the TG55 (Figure 5.5.1).¹¹² Each chart is read down the left-hand column then down the right-hand column. There are a total of four programming sections known as *elements*, abbreviated EL1, EL2, EL3, EL4; this permits the programming of multiple sounds into a single sound patch, along with specific ranges, transpositions, volume levels, and stereo balance. Many of these parameters may seem similar to the ones programmed on the WT11. However, there are many more configurations

¹⁰⁹ Ibid.

¹¹⁰ Ibid.

¹¹¹ Ibid., 21-22.

¹¹² Ibid., 23-27.

TG55 Program Parameter Chart

Program Name: Turtle3

(Voice 4: elements 1 & 2, Voice 5: elements 3)

	EL1	EL2	EL3	EL4		EL1	EL2	EL3	EL4
VOICE Mode	4 Element				FL1\CEG R3	+33	—	—	
Wave Select	P31 chorus	P32 ltopia	P74 shaker	(not used)	FL1\CEG L3	+60	—	—	
Volume Master Vol:127	80	80	127	0	FL1\CEG R4	+31	—	—	
Note Shift	+12	+12	0		FL1\CEG L4	-20	—	—	
Detune	-3	+3	0		FL1\CEG RR1	+10	—	—	
Note Limit/L	C-2	C-2	C2		FL1\CEG RL1	+26	—	—	
Note Limit/H	B1	B1	G8		FL1\CEG RR2	+6	—	—	
Vel. Limit/L	1	1	1		FL1\CEG RL2	+63	—	—	
Vel. Limit/H	127	127	127		FL1R. Scale	+3	—	—	
Pan	-16	+16	0		FL1\LS BP1	C-2	C-2	C1	
Output Asgn	str	str	str		FL1\LS BP2	C#-2	F#1	G2	
EF Balance	40	50	50		FL1\LS BP3	C4	C5	E4	
OSC Frq. Mode	norm	norm	norm		FL1\LS BP4	C6	G8	C6	
OSC Frq. Note	—	—	—		FL1\LS OFS1	0	0	0	
OSC Frq. Tune	0	0	0		FL1\LS OFS2	0	0	0	
AEG Mode	nrm	nrm	hld		FL1\LS OFS3	-20	0	0	
AEG R1/HT	25	26	63		FL1\LS OFS4	-45	0	0	
AEG R2	63	63	63		FL2\Type	LPF	LPF	THU	
AEG L2	63	63	63		FL2\Cutoff	100	71	127	
AEG R3	0	0	63		FL2\Mode	EG	LFO	LFO	
AEG L3	63	63	63		FL2\CEG L0	-35	—	—	
AEG R4	0	0	0		FL2\CEG R1	+50	—	—	
AEG RR	15	21	63		FL2\CEG L1	+52	—	—	
AEG R. Scale	+3	+3	0		FL2\CEG R2	+7	—	—	
AEG LS BP1	C-2	C-2	C1		FL2\CEG L2	-10	—	—	
AEG LS BP2	F#1	F#1	G2		FL2\CEG R3	+28	—	—	
AEG LS BP3	C5	C5	E4		FL2\CEG L3	+63	—	—	
AEG LS BP4	G8	G8	C6		FL2\CEG R4	+24	—	—	
AEG LS OFS1	0	0	0		FL2\CEG L4	-10	—	—	
AEG LS OFS2	0	0	0		FL2\CEG RR1	+14	—	—	
AEG LS OFS3	0	0	0		FL2\CEG RL1	+25	—	—	
AEG LS OFS4	0	0	0		FL2\CEG RR2	+6	—	—	
Sens. Vel.	0	0	+4		FL2\CEG RL2	+63	—	—	
Sens. V. Rate	on	on	off		FL2R. Scale	+3	—	—	
Sens. AMS	+7	+7	0		FL2\LS BP1	C-2	C-2	C1	
Sens. PMS	1	7	0		FL2\LS BP2	F#1	F#1	G2	
LFO Wave	S/H	sin	tri		FL2\LS BP3	C5	C5	E4	
LFO Speed	76	2	0		FL2\LS BP4	G8	G8	C6	
LFO Delay	49	48	0		FL2\LS OFS1	0	0	0	
LFO Phase	0	0	0		FL2\LS OFS2	0	0	0	
LFO AMOD	0	0	0		FL2\LS OFS3	0	0	0	
LFO PMOD	35	0	0		FL2\LS OFS4	0	0	0	
LFO CutoffMOD	0	0	0		FL\Resonance	0	0	0	
PEG L0	-4	+9	0		FL\Vel. Sens	+3	+3	0	
PEG R1	20	0	63		FL\Mod. Sens	+1	-4	0	
PEG L1	+4	-3	0		CNTL\Pitch Bend	0			
PEG R2	0	0	63		CNTL\AT P. Bias	0			
PEG L2	-10	+6	0		CNTL\Random Pitch	2			
PEG R3	0	0	63		CNTL\AMOD CTL#	0			
PEG L3	0	-2	0		CNTL\AMOD RNG	0			
PEG RR	6	63	63		CNTL\PMOD CTL#	0			
PEG RL	-1	0	0		CNTL\PMOD RNG	0			
PEG Range	1 oct	1 oct	2 oct		CNTL\CoffMOD CTL#	0			
PEG R. Scale	+3	+3	0		CNTL\CoffMOD RNG	0			
PEG Vel. SW	on	on	off		CNTL\Cutoff CTL#	0			
FL1\Type	LPF	LPF	THU		CNTL\Cutoff RNG	0			
FL1\Cutoff	110	70	127		CNTL\EG Bias CTL#	2			
FL1\Mode	EG	LFO	LFO		CNTL\EG Bias RNG	127			
FL1\CEG L0	-35	—	—		CNTL\Volume CTL#	0			
FL1\CEG R1	+50	—	—		CNTL\Volume MIN	0			
FL1\CEG L1	+62	—	—		EF\Type	2: Rev. Room			
FL1\CEG R2	+7	—	—		EF\Output Level	90%			
FL1\CEG L2	-13	—	—		EF\ **Others**	Time 2.0sec / LPF thru / Delay 5ms			

Figure 5.5.1

Sound program Voice No. 3 parameter chart for TG55 used from *Future Echoes from the Ancient Voices of Turtle Island*. Source: William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 25.

required for the TG55 voices, as can be seen just by comparing the parameter adjustment charts of both works. One of the most important areas to adjust for proper effectiveness of the sounds with the EWI are the settings used specifically for breath volume control. Because the TG55 was originally designed for a MIDI keyboard, including a breath controller, the customized sounds for this piece allow for wind control adaptation. Accuracy of all variable inputs is essential in order for the sound patches to work effectively with the EWI regardless of brand. Refer to the TG55 instruction manual to access the menus to properly program each of the parameters.

If using the WX5 for *Future Echoes*, the TG55 can be interconnected with the WT11 as in the example shown in Chapter 4. If the WX cable is not available, a standard MIDI cable works just as efficiently by itself with the TG55; however, when doing so, the WX5 must be powered with either batteries or an AC adapter. Since the TG55 is not adapted to attach MIDI foot pedals for program changes, the program change key on the WX must be used for all program changes. Due to the specific voice program settings assigned to this tone generator, the breath controls respond like those of the WT11. The performer will be able to fluently play the marked notations and achieve similar musicality, including the dynamics, articulations, and extended techniques required in this work.

The programming requirements are one of the most challenging aspects of putting this work together. Once the programming is established, the rest of the task of studying *Future Echoes* is easier, and might feel similar to preparing *Two Suspended Images*. One distinctive notational convention merits explanation; when preparing this work, the performer will encounter notations such as V5, V11, etc. These indicate the specific voice that is supposed to be played during a phrase and/or short excerpt. Each of these is defined in detail on page 20 of the score under “Program and Voice Organization.”

Some of the sections may be difficult to execute due to the extended techniques of the EWI. One of these challenges concerns the placement of program changes. There are times when many elements are required in the same moment and must also be executed in time with the piano accompaniment. Figure 5.5.2 shows the end of one of the phrases concluding with a sustained pitch.¹¹³ In between the triplet figure, P2 indicates Voice Two. This change must be made in a short period of time (quarter-eighth rest). It is beneficial to practice these three bars in time with a metronome to ensure that the transition between programs one and two is clean and

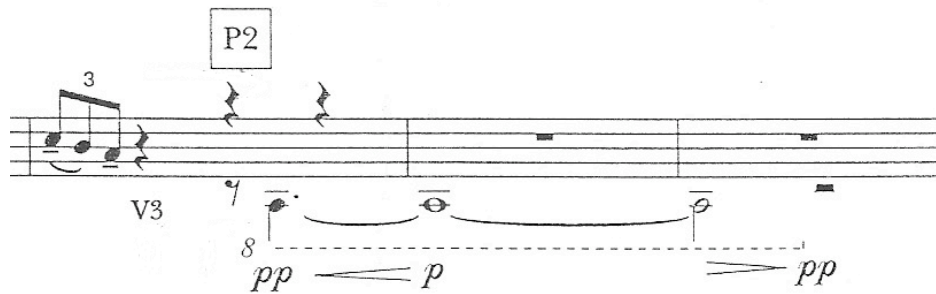


Figure 5.5.2
Section A(a); excerpt from *Future Echoes from the Ancient Voices of Turtle Island*. Source: William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 4.

smooth. Another area that is significantly more challenging appears within section A(c) (Figure 5.5.3).¹¹⁴ A program change back to Voice Two is required with only one beat. The same

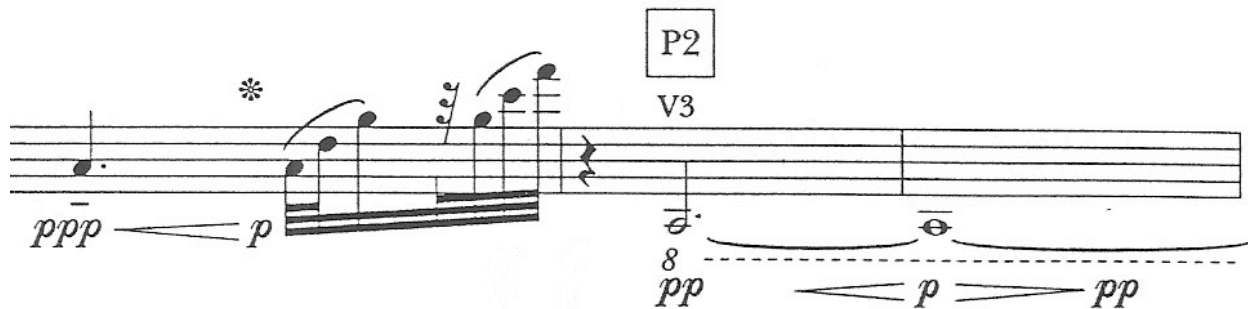


Figure 5.5.3
Section A(c); excerpt (Measures 78-80) from *Future Echoes from the Ancient Voices of Turtle Island*. Source: William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 8.

¹¹³ William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 4.

¹¹⁴ *Ibid.*, 8.

approach as used in the excerpt in Figure 5.5.2 could be just as effective here. Since the accompaniment plays an eighth-note pickup to the quarter note downbeat of measure 79 where the soloist is resting on the first beat of that bar, it may be helpful to communicate with the pianist and develop a cue. This will allow for more time to make the “P2” sound patch change during the quarter-rest.

Measures 81 and 82 contain another difficult program voice change after the low A, sustained from the passage shown in Figure 5.5.4. The end of measure 81 consists of a quarter

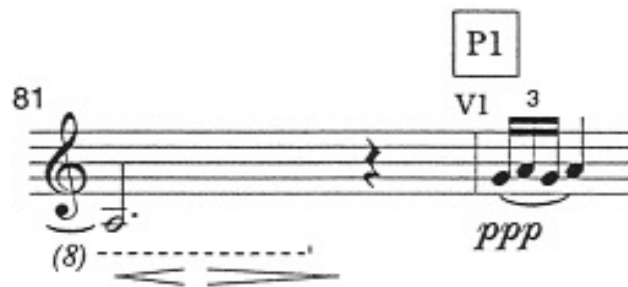


Figure 5.5.4
Section A(c); excerpt (Measures 81-82) from *Future Echoes from the Ancient Voices of Turtle Island*. Source: William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 9.

rest and the following bar returns to Voice One.¹¹⁵ During this rest, the player must switch the sound patch. The note can diminish earlier to create more time to prepare for the next voice. Since the last part of the sustained pitch contains a hairpin dynamic, the player could cut the note short. The reverb programmed into the voice compensates for the silence. Other than these sections that require fluent voice changes, the rest of *Future Echoes*’ sound patch configurations are simple, due to longer rests in which to make the proper switches.

Another aspect of the piece that will take time to get accustomed to is the use of the hold key on the WX. Figure 5.5.5 is the first appearance of a sustained pitch with melodic material

¹¹⁵ Ibid.

stacked on top (measures 54-55).¹¹⁶ This is executed by first blowing through the WX to get the first sounds of the low A. The hold key should be pressed as the A is played. For the best effectiveness and accuracy, the air should keep going while maintaining the same fingerings for

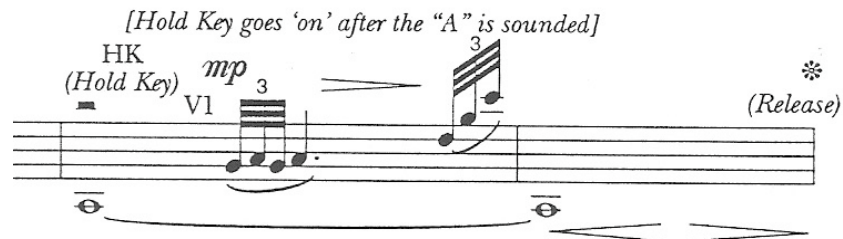


Figure 5.5.5
Section A(c); drone A below staff is played by chorus voice and thirty-second note triplets above played by flute voice from *Future Echoes from the Ancient Voices of Turtle Island*. Source: William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 6.

the low pitch. After the hold key is pressed, the air should remain consistent before playing the notated thirty-second triplets and the hairpin dynamic that connects to measure 56. For the best clarity in completing the phrase, the hold key should be pressed to release the droned A. The airflow should also cease during this process. Failure to execute this accurately could result in the A continuing to sustain through the next section.

Another area that uses a similar texture in the one in Figure 5.5.5 occurs in measures 76-78 (Figure 5.5.6).¹¹⁷ It uses the same droned A pitch in the lower register, which is held through the first two beats in measure 78. This pitch will continue to sustain through the two beats during the short eighth rests that are part of the melodic phrase. The drone should be quickly deactivated right after playing the dotted quarter note A marked with an asterisk.

¹¹⁶ Ibid.

¹¹⁷ Ibid., 8.

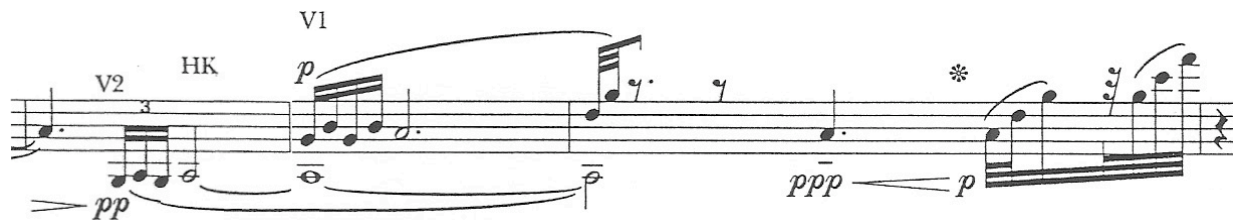


Figure 5.5.6
Section A(c); excerpt (Measures 76-78) in treble clef from *Future Echoes from the Ancient Voices of Turtle Island*.
Source: William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 8.

The hold key on the WX is extensively used in a different context toward the end of Section A in *Future Echoes*. Figure 5.5.7 is an example of where this extended technique is



Figure 5.5.7
Section A(d); excerpt (Measures 86-88) from *Future Echoes from the Ancient Voices of Turtle Island*. Source:
William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 9.

used on almost every other eighth note (measures 85-96).¹¹⁸ The hold key, abbreviated HK, is played immediately after playing A and before the next note. In addition, it should also be performed in time with the passage. In context, the A (bass clef) and hold key could be played as sixteenth notes, then returning to the G as the normal written eighth. Regardless, the sound effect is still achieved from the listener's point of view. A similar process takes place with other instances of this technique, including pitches F and G in the latter part of the phrase. The breath mark at the end of the excerpt is also marked with an asterisk. All sound should fall completely silent before pressing the hold key to cease the previous sustained pitch (F). This action will prevent the sustained pitch from being heard when starting the next note after the breath mark, as

¹¹⁸ William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 9.

long as there is no air or sound being produced by the EWI. At this point, the echoed sound produced from the held F earlier should already be silent. As long as all other notations are played through each of the slurred markings, a natural decay on the sustained note should occur. The rest notated above E indicates that the sustained F should have fully decayed by the last beat in the measure. This particular section should be rehearsed carefully with an accompanist due to the breaths that will be necessary to take in between each of the phrases. Communicating the breath locations will aid the pianist in following along with the melodic passage.

The middle section of the piece utilizes delay effects on the TG55 that metrically coordinate in time with the notated material. Section B (measures 97-99) contains a variety of percussion instruments assigned throughout the entire range of the EWI. The special effects in Voice Four are delayed by $\frac{10}{3}$ of a second: that is, by an eighth note at quarter = 100. There is a moment in Section B(a) where additional rhythms are performed over a long sustained note. Figure 5.5.8 shows a C dotted whole note connected with dotted lines to a quarter.¹¹⁹ The player

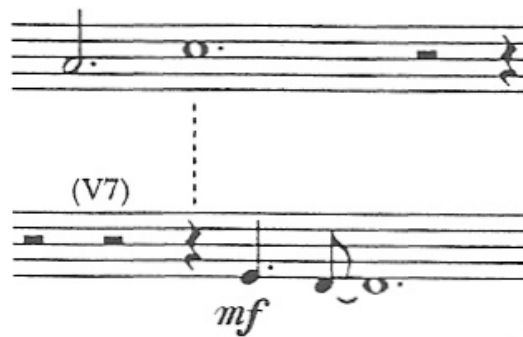


Figure 5.5.8
Section B(a); excerpt in grand staff from *Future Echoes from the Ancient Voices of Turtle Island*. Source: William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 10.

¹¹⁹ William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 10.

attacks the starting C pitch and then plays the dotted quarter a beat later. This will occur again within this section with another C in treble clef immediately followed with B-flat below bass clef.

The last section of the piece combines both the melodic and percussive elements from the previous areas. One of the more technically demanding areas of the piece is Section C(b) (measures 132-149).¹²⁰ Not only does this section require precision in finger technique, but it also needs careful synchronization of articulation. To achieve the best results in this section, it might be best to practice slowly and carefully to ensure clear tongue and finger coordination. It is best to articulate with contact of the upper front teeth with the tongue. This prevents any accidental notes from sounding in between the notated notes. Section C(a) (measures 100-131) consists of melodic material similar to the beginning of the piece.¹²¹ The voice patch (Voice Five) used in this section consists of multiple instruments programmed together and each of these sounds are assigned throughout the range of the EWI. The material in the treble clef should consist of flute sounds while the bass clef features percussion instruments. Indeed, it is this change between registers that explains why such a wide register, with its clef changes, is necessary. Careful finger coordination is needed in order to minimize unintended percussive sounds. The only areas that are difficult to learn at first are the short bursts of percussion in measures 119, 123, and 127-129 noted in bass clef. It will be more efficient to work these excerpts separately before putting it all together in full context.

When rehearsing this piece with a pianist, it is beneficial to practice first with a metronome. Due to the repetition of rhythm in the accompaniment, there could be a tendency to

¹²⁰ Ibid., 16.

¹²¹ William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 13.

slow down.¹²² It is essential to establish a form of forward motion or direction. If not, the musical elements in the piece could become stagnant and take away from the special features that the EWI has to offer. Some areas will require particular clarity, especially when the flexibility to move around the instrument's range is essential. There are moments where there is a burst of thirty-second notes followed by an arpeggio flare, as shown in Figure 5.5.9.¹²³ The



Figure 5.5.9
Section A(a); excerpt (measures 45-46) from *Future Echoes from the Ancient Voices of Turtle Island*. Source: William Moylan, *Future Echoes from the Ancient Voices of Turtle Island*, 6.

whole-tone trill key on C and D may be used in this passage. The arpeggios organized upward in fourths will need to be worked out slowly to coordinate the proper octave key fingerings. Preventing accidental pitches in the wrong register of the instrument is a challenge in this section. These fourth patterns occur again in measures 49, 78, and 159. A player should be aware of these issues and develop practice methods that will allow performing with as much clarity as possible.

Future Echoes from the Ancient Voices of Turtle Island is another important original work for EWI that utilizes the TG55 technologies, which were originally intended to be used with a MIDI keyboard. Moylan was able to develop custom voices in this EWI-compatible device. The MIDI technology combined with the programmatic musical approach creates for an

¹²² Anecdotal.

¹²³ *Ibid.*, 6.

engaging piece for any listener. Even though it was constructed especially for the TG55, the parameters and specifications of this tone generator are able to adapt to the EWI technology with ease.

CHAPTER 6

Conclusion: Examining the Future of the Electronic Wind Instrument

This document serves as a resourceful guide to the electronic wind instrument. The instrument's development, repertoire, and discography have been discussed to serve as a resource for prospective performers of this unique instrument. In addition to a detailed examination of the works discussed in this document, the lists of other compositions and recordings/video related to the EWI are important tools for anyone discovering new repertoire. The dedicated bibliography of EWI repertoire is intended to assist a player in locating these works and observing what is required in order to perform them. The discography can additionally contribute as an aid in selecting works and in suggesting/illustrating/demonstrating how such works should be performed.

The vast majority of these works have not been published. For now, most of the composers in the repertoire list are still alive and can be contacted. However, with the passing of time, it will eventually become more difficult to obtain the music and accompanying electronics from these individuals. Issues related to retirement and/or death could lead to the loss of these compositions forever. Preservation of the music is essential. We must work for easier access to the unpublished works, either through archiving or through publication.

Another issue related to the repertoire is the requirement of specific hardware for specific works. For instance, the two works by William Moylan (*Two Suspended Images* and *Future Echoes from the Ancient Voices of Turtle Island*) detailed herein require specific tone generator units in order to be properly performed. These tone generators are becoming increasingly difficult to obtain. Additionally, many of the older works were originally intended to be

performed with technology such as DAT cassettes and earlier generation computers that are completely obsolete today. However, there are methods that may make the preservation of such works possible. Morton Subotnick's *In Two Worlds* for Alto Saxophone and Interactive Computer is an example of a known work in the repertoire that was adapted to be performed with modern technology. Jeffrey Heisler and Mark Bunce reconstructed the accompanied computer sounds from the original hardware and operating systems prominent when the piece was composed in 1987.¹²⁴ They were able to adapt the piece to Max/MSP for Macs running OSX (macOS) or higher. Adapting works to use modern mediums and technology allows players to perform using their own personal computers without any need to locate older or original hardware. This could lead to increased awareness of such works, and therefore to other musicians looking into performing works for the EWI.

The accessibility of recordings of the EWI also affects the preservation and dissemination of the works. The discography includes a very limited number of recordings directly related to the EWI. In addition, there are several works in the accompanying repertoire list in Chapter 6 that lack any extant recordings. This author has made efforts in this area to publish recordings/videos online for listening reference, which can be found in the discography. More recordings might engage future performers and listeners in the goal of preserving and performing EWI compositions.

In addition to making efforts to preserve extant works for the EWI, one can also look to the creation of new works. More collaboration is encouraged between EWI musicians and composers. Considering the current state of published repertoire and evolving technology for the EWI, there must be a common meeting ground where the newer pieces are accessible to

¹²⁴ Jeffrey Heisler, "Anatomy and Evolution of Morton Subotnick's *In Two Worlds* for Alto Saxophone and Interactive Computer." Dissertation (Bowling Green State University, 2010).

performers. This includes both sheet music and the hardware/software related to MIDI technologies. It could be beneficial for newer pieces to be composed using reputable software that can easily be downloaded on any PC or Mac, which may eliminate the possibility of any newer hardware becoming obsolete as long as the MIDI software is regularly updated. Companies such as Akai have developed newer EWI models that are more user-friendly and which do not require any additional hardware.

When the EWI became noted as the “instrument of the future” in the late 1980s, musicians thought it would change the way instrumental music would be performed. Through the beginning of the twentieth century, this concept of innovation is still associated with this electronic instrument. On September 9, 2016, Roland presented more than 30 new products during an online music festival titled “The Future. Redefined.” These products included the new Roland Aerophone AE-10.¹²⁵ This instrument is a combination of both the wind controller and tone generator, which are combined into one single device. It is clear that the EWI will continue to be present alongside other major instruments that are in current production. Therefore, the EWI’s literature will also continue to make a contribution toward genres including jazz, vernacular, and classical music.

This document has provided an example of the basic musical electronic components required in establishing a functioning system for the EWI. Even though the Yamaha WX series was covered extensively throughout this document, the other EWI brands can also follow these similar procedures. The technology around the EWI could be overwhelming for a musician looking to learn this instrument. However, these elements related to the EWI should become easier to understand and utilize once the player becomes more familiar with the equipment.

¹²⁵ “The Future. Redefined,” *Roland Corporation* (accessed September 21, 2016) <<https://www.roland.com/us/>>.

Careful practice in mastering the external components including the tone generator and mixer are just as important as working with the EWI itself.

Many of the pedagogical elements related to the other woodwind instruments are relevant with the EWI; diligent practice will undoubtedly prove fruitful for interested musicians.

However, there are differences, and the information provided in this document can be used to teach others about the EWI. Whether if one is teaching young students or professional musicians, many of the techniques on the EWI are closely related to other instruments pedagogically. The saxophone, by far, is the most similar in regards to embouchure formation, fingering systems, articulation, and posture. Controlling intonation on the saxophone is one of the most important fundamentals. The approach in mastering intonation requires a combination of control—forming a proper embouchure, voicing balance, lip control, and steady airstream. On the EWI, similar use in lip control with a firm embouchure is also a necessity for achieving good intonation. However, no intonation changes occur when making alterations to the oral cavity and breath support. In addition to these elements, the extended techniques on the EWI share similar traits that are relatable to what can be performed on saxophone. For example, the sustain key on the EWI can be viewed as similar to multiphonic technique on saxophone since both of these instruments are capable of playing multiple pitches at the same time. It is important to explore some of the variants between a traditional wind instrument and the EWI and be able to explain it in a language that is relatable to a student.

Capitalizing on the differences between the traditional wind instruments and electronic components, the various parameters on the EWI can generate sounds and execute techniques that are considered unique. The EWI has the potential to individualize a performer by taking

advantage of the various sound palettes and special features on offer, making it a one-of-a-kind musical experience deserving of preservation and performance.

BIBLIOGRAPHY

- “Aerophone AE-10 Digital Wind Instrument.” *Roland Corporation*. Accessed September 20, 2016. https://www.roland.com/us/products/aerophone_ae-10/features/
- Agnessens, Udo. “Compositions.” *Udo Agnesens*. Accessed July 6, 2016. <http://www.udoagnesens.de/web-content/compositions.html>.
- Akiho, Andy, SRU Percussion Ensemble, and Matthew Swallow. “Karakurenai.” *Matthew Swallow: Youtube Channel*. Accessed July 6, 2016. <https://www.youtube.com/watch?v=3jKTdwGIAow>.
- American Composers Alliance. *Burton Beerman: Fragments (elec devices)*. Accessed July 6, 2016. <http://composers.com/composition/fragments-elec-devices>.
- Apfelstadt, Marc. “Marc Apfelstadt.” *Facebook*. Accessed July 6, 2016. <https://www.facebook.com/marc.apfelstadt>.
- Ball, Jr., Leonard V. *E-mail Message to Author*. August 27, 2015.
- . *E-mail Message to Author*. July 21, 2016.
- . *and they spoke of things transfigured...* Leonard V. Ball, Jr., 1990.
- and Matthew Swallow. “and they spoke of things transfigured...” *Matthew Swallow YouTube Channel*. Accessed July 6, 2016.
- Beck, Stephen David and Griffin Campbell. “Love’s Not Time’s Fool.” *Music from Seamus: Volume 3*. Los Angeles, CA: Society for Electro-Acoustic Music in the United States, 1995.
- Birkby, Peter R. *Peter Birkby Publishing*. Accessed July 21, 2016. <http://www.prbpnews.info/index.html>.
- Brookhaven College. *Music Faculty Profiles*. Accessed July 6, 2016. https://www.brookhavencollege.edu/programs/bcsa/music/Pages/faculty_profiles.aspx.
- Burnand, David. “MIDI (Musical Instrument Digital Interface).” *Grove Music Online*. Accessed May 17, 2016.
- Canadian Music Centre. *Passage de Peter Hannan*. Accessed July 6, 2016. <http://www.musiccentre.ca/node/89185>.
- . *Digital rituals five fractal instrumental pieces by Bruno Degazio*. Accessed July 6, 2016. <https://www.musiccentre.ca/node/89410>.
- Capital University. *Michael Cox: Professor Music*. Accessed July 21, 2016. <http://www.capital.edu/directory/>.

- Cole, Ronal Paul. "The Electronic Valve Instrument: Nyle Steiner's Unique Musical Innovation." Dissertation, University of Washington, ProQuest Dissertations Publishing, 1998. Accessed September 21, 2016.
<http://search.proquest.com.www.libproxy.wvu.edu/docview/304460992?accountid=2837>
- Colwell, Richard J. and Thomas W. Goolsby. *The Teaching of Instrumental Music*. 3rd ed. Upper Saddle River, NJ: Prentice Hall, 2002.
- Damian, Kalvos. "Composer Profiles: Joseph Celli." Accessed July 6, 2016.
<http://kalvos.org/cellijo.html>.
- Davies, Hugh. "Electronic Instruments: After 1945." *Grove Music Online*. Accessed July 29, 2016.
- . "Synthesizer." *Grove Music Online*. Accessed May 17, 2016.
- Davies, Terry. "Whale by David Holman." *Terry Davies*.
<http://www.terrydavies.com/play/Whale.html>.
- Degazio, Bruno. "Digital Rituals." *Pressure Points*. Ontario: Soundprints, 1993.
- De Ritis, Anthony. "Chamber Works." *Composer: Anthony Paul De Ritis*. Accessed July 6, 2016. <http://www.deritis.com/works/chamber-works/>.
- Dugan, Mark, Jeff Vaughn, and Matthew Swallow. "Bois Sculpte." *Matthew Swallow: YouTube Channel*. Accessed July 6, 2016. <https://www.youtube.com/watch?v=CRvXTddOLog>.
- Edwards, Michael. *Michael Edwards*. Accessed July 6, 2016.
<http://www.michael-edwards.org/>.
- Ehle, Bob. *Bob Ehle*. Accessed July 21, 2016. <http://bobehle.bandcamp.com/>.
- Enström, Rolf and Stockholm Saxophone Quartet. "Vigil." *Links*. Stockholm: Caprice, 1997.
- and Stockholm Saxophone Quartet. "Vigil (Live Recording)." Accessed July 6, 2016. <https://soundcloud.com/tags/stockholm's%20saxophone%20quartet>.
- . "Vigil." *Rolf Enström: Composer*. Accessed July 6, 2016.
<http://www.enström.se/>.
- Everett, Steve. "Compositions by Steve Everett." *Steve Everett*. Accessed July 6, 2016.
<http://www.steveeverett.info/#!/list-of-compositions/c17ed>.
- and Debra Richtmeyer. "Proper Behavior." *Light of Sothis*. Clarence, NY: Mark Custom, 1995.
- Fish, Greg. *The Hammer and the Arrow*. Musical Score. Greg Fish, 1989.

- and John Sampen. *The Hammer and the Arrow*. Cassette Recording. Greg Fish, 1989.
- Freund, Donald. “Compositions: Saxophone.” *The Music of Don Freund*. Accessed July 6, 2016. <http://donfreund.com/media/works/woodwind-chamber-music/saxophone>.
- “The Future. Redefined.” *Roland Corporation*. Accessed September 21, 2016. <http://tfr.roland.com/us/>.
- Futurs Composés Réseau National de la Création Musicale. *Etienne Rolin*. Accessed July 6, 2016. <http://www.futurscomposes.com/membres/musiciens-compo-independants/etienne-rolin/>.
- Garcia, Orlando Jacinto and Joseph Celli. “Improvisation for Metallic Materials.” *La Belleza Del Silencio*. Black Rock, CT: O.O. Discs, 1991.
- Havel, Christophe. “Excerpt/Metamorphosis.” *33 RPM: Exhibition Companion Compilation*. San Francisco Museum of Modern Art. San Francisco, CA: 23five, 2003.
- Heisler, Jeffrey. “Anatomy and Evolution of Morton Subotnick’s *In Two Worlds* for Alto Saxophone and Interactive Computer.” DMA dissertation, Bowling Green State University, 2010.
- Hither Gate Music. *Archer (Tom) Endrich: Composer*. Accessed July 21, 2016. <http://www.hithergatemusic.com/>.
- Hudson, W.H. and Horacio Butler. *Green Mansions: A Romance of the Tropical Forest*. New York: Alfred A. Knopf, 1959.
- ICRAM. *Philippe Leroux: Image à Rameau (1995)*. Accessed July 6, 2016. <http://brahms.ircam.fr/works/work/14281/>.
- Ingham, Richard. *Cambridge Companion to the Saxophone*. Cambridge, UK: Cambridge University Press, 1998.
- . *Notes from a Small Country*. Lower Largo Fife, Scotland: Largo Music, 2012.
- . *Richard Ingham: Saxophonist, Composer, Conductor, Educator*. Accessed July 6, 2016. <http://www.saxingham.com/>.
- Jomar Press. *Robert C. Ehle*. Accessed July 21, 2016. <http://www.jomarpress.com/ehle/ehle.html>.
- Karpman, Laura. “Concert Works.” *Laura Karpman*. Accessed July 6, 2016. <http://www.laurakarpman.com/concert/>.

- Kefala-Kerr, John. *John Kefala-Kerr*. Accessed July 21, 2016.
- Kim, Jin Hi and Joseph Celli. "Duo Improvisation." *No World Improvisations*. Black Rock, CT: O.O. Discs, 1990.
- Lehrman, Paul D. and Tim Tully. *MIDI for the Professional*. New York: Amsco Publications, 1993.
- Louisiana State University. *Stephen David Beck: Derryl & Helen Haymon Professor of Music/Assistant Vice President at ORED*. Accessed July 6, 2016. <http://wp.music.lsu.edu/faculty-staff/beck-stephen-david/>.
- Mahin, Bruce and Jennifer Spoon. *Time Chants*. Brooklyn, NY: Capstone Records, 1995.
- Mondelci, Federico. "Pan : per sassofono midi e nastro magnetico." *'900 Musica-Classica Contemporane a Il Sassofono*. New York: RCA Records, 1995.
- _____. "Recordings." *Federico Mondelci*. Accessed July 6, 2016. <http://www.federicomondelci.com/recordings.htm>.
- Monet, Marc. "Catalogue." *Marc Monet*. Accessed July 6, 2016. <http://www.marcmonnet.com/catalogue.html>.
- _____. "'Fragments' opera (enregistrement de repetition 1993)." *Edouard Manet: YouTube Channel*. Accessed July 6, 2016. https://www.youtube.com/watch?v=K_JurD25ut4.
- Montague, Gary. *Live Electronics: Contemporary Music Review*. Vol. 6, Part 1. Reading, UK: Harwood Academic Publishers, 1992.
- Moylan, William. *Future Echoes from the Ancient Voices of Turtle Island*. Glenmoore, PA: Roncorp, Inc., 1998.
- _____. and Matthew Swallow. "Future Echoes from the Ancient Voices of Turtle Island." *Matthew Swallow: YouTube Channel*. Accessed July 6, 2016. <https://www.youtube.com/watch?v=xsb70zyuuyU>.
- _____. *Two Suspended Images for Wind Controller*. Glenmoore, PA: Roncrop, Inc., 1990.
- _____. and Matthew Swallow. "Two Suspended Images." *Matthew Swallow: YouTube Channel*. Accessed July 6, 2016. <https://www.youtube.com/watch?v=pyFkqdT5InM>.
- Nelson, Gary Lee. *Gary Lee Nelson: Professor of Electronic and Computer Music*. Accessed July 21, 2016. <http://www.timara.oberlin.edu/gnelson/gnelson.htm>.

- Northeastern University. *Bruce Ronkin, DMA*. Accessed July 6, 2016.
<http://www.northeastern.edu/camd/music/people/bruce-ronkin/>.
-
- _____. *Douglas F. Durant, PhD: Lecturer, Music Theory, Music Composition*. Accessed July 6, 2016.
<http://www.northeastern.edu/camd/music/people/douglas-f-durant/>.
- Olofsson, Kent. "Works." *Kent Olofsson*. Accessed July 6, 2016.
<http://kentolofsson.com/workchron.html>.
-
- _____ and Stockholm Saxophone Quartet. "Burning Pitch: The Stone of Emptiness." *The Veiled Hearts*. Sweden: DB Productions, 1995.
-
- _____ and Stockholm Saxophone Quartet. "Burning Pitch Part II: The Stone of Emptiness." *Works by Kent Olofsson*. Sweden: DB Productions, 2010.
- Orton, Richard and Hugh Davies. "Voltage Control." *Grove Music Online*. Accessed May 17, 2016.
- Patton, Andrew. "Jazz Columbus Weekly – February 18, 2016." *JazzColumbus.com*. Accessed July 21, 2016. <http://www.jazzcolumbus.com/jazzcolumbus-weekly-february-18-2016/>.
- Petit, Jean-Louis. "Compositeur." *Jean-Louis Petit*. Accessed July 6, 2016.
http://jean_louis.petit.perso.sfr.fr/compositeur/compositeur.html.
-
- _____ and Nicolas Prost. "Concerto pour Saxophone." *Han-Chiang Wang: YouTube Channel*. Accessed July 6, 2016.
<https://www.youtube.com/watch?v=p0f4iEADyCo>.
- Proxima Centauri. "Christophe Havel: Composer and Electroacoustician." Accessed July 6, 2016. <http://www.proximacentauri.fr/christophe-havel-composer-and-electroacoustician/>.
- Purse, Lynn Emberg. "Concerto for Electro-Acoustic Wind Symphony." Original composition and dissertation, Duquesne University, ProQuest Dissertations Publishing, 1989. Accessed September 21, 2016.
<http://search.proquest.com.www.libproxy.wvu.edu/docview/303759070?accountid=2837>.
- Radford University. *Dr. Bruce Mahin: Professor of Composition and Music Theory*. Accessed July 6, 2016. <https://www.radford.edu/content/cvpa/home/music/faculty/bruce-mahin.html>.
- Rehfeldt, Phillip. *New Directions for Clarinet*. Lanham, MD: Scarecrow Press, Inc., 1994.
- Ronkin, Bruce, *Londeix Guide to the Saxophone Repertoire*. Glenmoore, PA: Roncorp, Inc., 2012.

- Ruggerio, Charles. "Saxophone (All)." *Charles Ruggerio*. Accessed July 6, 2016.
<http://charlesruggiero.com/comp/works.php?ins=23>.
- Sandroff, Howard. *Concerto for Electronic Wind Instrument and String Orchestra*. Howard Sandroff, 1988.
- . "Works for Orchestra." Howard Sandroff. Accessed July 6, 2016.
<http://compmustu.uchicago.edu/sandroff.html>.
- Shrude, Marilyn. *E-mail Message to Author*, November 5-19, 2015.
- . *E-mail Message to Author*, November 12-14, 2016.
- . *Drifting over a Red Place*. Marilyn Shrude, 1982/1988.
- . "Drifting over a Red Place (version for WX7 wind controller)." *Marilyn Shrude*. Accessed July 6, 2016.
<http://www.marilynshrude.com/works/drifting-over-a-red-place-1988-version/>.
- and John Sampen. *The Electric Saxophone*. Brooklyn, NY: Capstone Records, 1997.
- and Matthew Swallow. "Drifting over a Red Place." *Matthew Swallow: YouTube Channel*. Accessed July 6, 2016.
<https://www.youtube.com/watch?v=hFkM89x4ifM>.
- Siegel, Wayne. "Jackdaw for Bass Clarinet and Computer." *Wayne Siegel: Composer*. Accessed July 6, 2016. http://waynesiegel.dk/?page_id=708.
- and Harry Spaarnay. "Jackdaw." *Devil's Golf Course*. Copenhagen, Denmark: Dacapo Records, 1995/1997.
- and Stephen Cottrell. "Jackdaw." *The Electric Saxophone*. London: Clarinet Classics, 2000.
- Simonot, Colette. "Synthpop." *Grove Music Online*. Accessed July 29, 2016.
- Sisman, Elaine. "Variations." *Grove Music Online*. Accessed July 7, 2016.
- Smith, Howie. "Compositions." *Howie Smith*. Accessed July 6, 2016.
http://www.howiesmith.com/?page_id=31.
- Steadman, Robert. *Robert Steadman – Composer*. Accessed July 21, 2016.
<http://robertsteadman.com/1311.html>.

- Steiger, Rand. "Resonant Vertices." *Rand Steiger*. Accessed July 6, 2016.
http://rand.info/rands/text/resonant_vertices.html.
- Subotnick, Morton. *In Two Worlds*. Mainz, Germany: Schott Music, 1987.
- and Susan Fancher. *In Two Worlds*. St. Paul, Minnesota: Innova Recordings, 2011.
- Teal, Larry. *The Art of Saxophone Playing*. Summy-Birchard Inc., 1963.
- Traum, Matt. "Format Info." *Patchman Music*. Accessed May 28, 2016.
<http://www.patchmanmusic.com/FormatInfo.html>.
- . "Wind Controller FAQ." *Patchman Music*. Accessed May 17, 2016.
<http://www.patchmanmusic.com/WindControllerFAQ.html>.
- . "Wind Controller Soundbanks." *Patchman Music*. Accessed May 20, 2016.
<http://www.patchmanmusic.com/WindControllerBanks.html>.
- Trythall, Gil. *E-mail message to Matthew Swallow*, November 6, 2015.
- . *Rima's Song*. Gil Trythall, 1994.
- . "Rima's Song." *Gil Trythall: YouTube Channel*. Accessed July 6, 2016.
<https://www.youtube.com/watch?v=0YgDUygJ2xE>.
- and Matthew Swallow. "Rima's Song." *Matthew Swallow: YouTube Channel*. Accessed July 6, 2016. <https://www.youtube.com/watch?v=O2jWhYDclAw>.
- University of California San Diego. *Musicians Referral List*. Accessed July 6, 2016.
http://musicweb.ucsd.edu/about/musicians_referral.php.
- The University of Georgia. *Leonard Ball*. Accessed July 6, 2016.
<http://music.uga.edu/people/leonard-ball>.
- University of Illinois. *Scott A. Wyatt*. Accessed July 6, 2016.
<http://ems.music.uiuc.edu/people/wyatt/>.
- University of Leeds. "Allan Greenwood: BA Popular and World Musics." Accessed July 6, 2016. <http://webprod3.leeds.ac.uk/catalogue/dynprogrammes.asp?Y=201112&P=BA-MUSI%2FPWM>.
- . "Professor David Cooper." Accessed July 21, 2016.
<http://music.leeds.ac.uk/people/david-cooper/>.

- The University of Memphis. *John Baur (D.M.A.): Composition and Theory*. Accessed July 6, 2016. <http://www.memphis.edu/music/fac-staff/bios/baur-j.php>.
- The University of New Mexico. "Patricia Repar Bio." *Arts Learning Laboratory*. Accessed July 6, 2016. <http://artslearninglab.unm.edu/arts-in-medicine/patricia-repar-bio/>.
- University of Wisconsin Stevens Point. "Chamber Music and Solo Works." *Charles Rochester Young*. Accessed July 6, 2016. <http://www.uwsp.edu/cofac/faculty/cyoung/Pages/Compositions/chamber.aspx>.
- Van Scoyoc, Marilyn Linda. "The Development and Evaluation of Electronic Controller Instructional Materials and Techniques for the Instrumental Music Educator." Dissertation, Teachers College, Columbia University, ProQuest Dissertations Publishing, 1991. Accessed September 21, 2016. <http://search.proquest.com.www.libproxy.wvu.edu/docview/303933696?accountid=2837>
- Vashlishan, Matthew J. "The Akai Electric Wind Instrument (EWI4000s): A Technical and Expressive Method" Dissertation, University of Miami, Open Access Dissertations, 2011. Accessed September 21, 2016. http://scholarlyrepository.miami.edu/oa_dissertations/576
- Westphal, Frederick W. *Guide to Teaching Woodwinds*. 5th ed. New York: McGraw Hill, 1962.
- Whitfield, Art and Mardou Case. "WT11 Secret Mode." *WindWorks Design*. Accessed June 20, 2016. <http://www.windworksdesign.com>
- Wood, Nigel. *Partial Eclipse*. UK: Saxtet Publications, 2007.
- and Alistair Parnell. "Partial Eclipse." *Wetherfordway YouTube Channel*. Accessed July 6, 2016. <https://www.youtube.com/watch?v=HPPWe6mtzI>.
- and Equinox Saxophone Ensemble. "Partial Eclipse." *Equinox Saxophone Ensemble Recordings*. Accessed July 6, 2016. http://www.equinoxsax.org.uk/ourshop/prod_165138-Partial-Eclipse-CD.html
- and Hubert-Jan Hubeek. "Partial Eclipse." *Erik-Jan de With: YouTube Channel*. Accessed July 6, 2016. https://www.youtube.com/watch?v=yBE3LUC-F_4
- "WW-BAT: A Power Supply and MIDI Interface for WX Wind Synth Controllers." *WindWorks Design*. Accessed May 18, 2016. <http://www.windworksdesign.com>
- Wyatt, Scott and Joseph Lulloff. "Vignettes." *Collections II: Chamber Music with Electronics*. University of Illinois: Veriatza Records, 1989.
- Yamaha Corporation. *BT7 WX MIDI/Power Pack Owner's Manual*. Hamamatsu, Japan: Yamaha Corporation, 1987/1988.

_____. *WX11 Wind MIDI Controller Operation Manual*. Hamamatsu, Japan: Yamaha Corporation, 1988.

_____. *WX5 Wind MIDI Controller Owner's Manual*. Japan: Yamaha Corporation, 1998.

APPENDIX A

Comprehensive Repertoire List for the Electronic Wind Controller

This section consists of a comprehensive bibliography of works dedicated for the EWI. Sources enumerated include the *Londeix Guide to the Saxophone Repertoire, 1844-2012* by Bruce Ronkin and the *Cambridge Companion to the Saxophone*. Additional information about each composition includes duration, publishers, composer contact, and library OCLC (if applicable). Most of the EWI works are not published and can only be obtained by contacting the composer directly. Each entry therefore includes either an e-mail address or web address. Continued research and collaboration in accumulating more literature will be needed to maintain this information in an accurate and up-to-date form. All pieces in this section have been thoroughly verified and located and are presented in alphabetical order by the composer's last name.

(+) = Professional Recording Available (Refer to Appendix B)

(*) = Recording/Video Available Online (Refer to Appendix B)

Note: Hyperlinks are not included in this section. Links should function by copying and pasting to a web browser.

Composer/ Arranger	Title of Work	Date Composed	Duration	Instrumentation	Publisher/ Contact	Library (OCLC)
Agnesens, Udo	<i>Airelectronica on "Supernatural Songs"</i>	--	--	Mezzo-Soprano, Saxophone, EWI, Synthesizer, Piano, and Percussion	http://www.uoagnesens.de/	N/A
Apfelstadt, Marc	<i>Industrial. Orient.90 (Duo)</i>	1990	N/A	Two EWIs (Yamaha WX)	https://www.facebook.com/marc.apfelstadt	N/A
Ball, Jr., Leonard V. (*)	<i>and they spoke of things transfigured...</i>	1990	10'	Yamaha WX and Korg Wavestation	lvball@uga.edu	N/A
Baur, John	<i>Colors-O'Keefe</i>	--	--	EWI and MIDI Sequencer	jbaur@memphis.edu	N/A
Beck, Stephen David (+)	<i>Love's Not Time's Fool</i>	1992	8'8"	Yamaha WX and Computer	sdbeck@lsu.edu	N/A

Composer/ Arranger	Title of Work	Date Composed	Duration	Instrumentation	Publisher/ Contact	Library (OCLC)
Beerman, Burton	<i>Fragments</i>	1988	6'	EWI and Yamaha TX81Z/Digital Delay	American Composer's Alliance http://composers.com/composition/fragments-elec-devices	N/A
Birkby, Peter	<i>Dance Suite</i>	--	--	Yamaha WX and DX7 Keyboard	http://www.prbpnews.info/index.html	N/A
Bizet, Georges (arr. Bruce Ronkin)	<i>Suite from Carmen</i>	--	--	EWI and Piano	b.ronkin@neu.edu	N/A
Celli, Joseph	<i>Quintet</i>	1995	--	Yamaha WX, Kayagum, and three Kalimba	Cellioo5@aol.com	N/A
Cooper, David	<i>Metamorphosis</i>	1993	--	Yamaha WX and Live Electronics	D.G.Cooper@leeds.ac.uk	N/A
Cox, Michael	<i>Improvisation Matrices I-VII</i>	--	--	EWI and Drums	mcox@capital.edu	N/A
Davies, Terry	<i>Whale</i>	1990	--	EWI and Percussion	td@terrydavies.com	N/A
Degazio, Bruno (+)	<i>Digital Rituals: Five Factual Instrumental Pieces</i>	1990	21	Bass Clarinet, Bassoon, Saxophone, EWI, Percussion, Piano, and Violin	Canadian Music Centre www.musiccentre.ca	Upon Request
De Ritis, Anthony	<i>Filters</i>	2000	20'	EWI and Alto Saxophone	a.deritis@neu.edu	N/A
Durant, Douglas	<i>Skelter Memory</i>	1994	--	EWI Solo	d.durant@neu.edu	N/A
Edwards, Michael	<i>Electric Cowboy Cacophony</i>	2006	10-70'	EWI, Saxophone, Electric Guitar, Banjo, Piano, and Computer	m@michael-edwards.org	N/A
Edwards, Michael	<i>Off Limits</i>	2005	10-15'	Yamaha WX, Soprano Saxophone, and Computer	m@michael-edwards.org	N/A
Ehle, Robert (*)	<i>Mongolian Sonata</i>	--	21'	EWI and Keyboard Synthesizer	robert.ehle@unco.edu	N/A
Endrich, Tom Archer	<i>Dewdrop</i>	--	--	Yamaha WX and DX7 Synthesizer	archerhgm@talk.net	N/A

Composer/ Arranger	Title of Work	Date Composed	Duration	Instrumentation	Publisher/ Contact	Library (OCLC)
Enström, Rolf (+) (*)	<i>Vigil</i>	1994	13'45	Saxophone Quartet, EWI, and Live Electronics	enström.rolf@telia.com	N/A
Everett, Steve (+)	<i>Proper Behavior</i>	1994	14'30"	EWI, Alto Saxophone, Tape and MAX	steveeverett3@gmail.com	N/A
Fish, Greg (+)	<i>The Hammer and the Arrow</i>	1989	10'35"	Yamaha WX, Computer (Mac), Yamaha TX81Z (x2), Yamaha TX802	N/A	35232987 740875386 (Musical Score Only)
Freund, Donald	<i>...not...gentle</i>	1992	10'	Yamaha WX, Computer, and Sequencer	dfreund@indiana.edu	N/A
Greenwood, Allan	<i>Junctions</i>	1992	8'	Yamaha WX and Tape	a.greenwood@leeds.ac.uk (Retired?)	N/A
Hannan, Peter	<i>Passage</i>	1989-1990	17'	EWI, two Saxophones, two Trumpets, Trombone, Percussion, Piano, and Bass	Canadian Music Centre www.musiccentre.ca	N/A
Havel, Christophe (+)	<i>Métamorphoses I</i>	2000	--	EWI, MIDI Guitar, and Theremin	proxima-centauri@wanadoo.fr	N/A
Havel, Christophe (+)	<i>Métamorphoses II</i>	2000	--	EWI, MIDI Guitar, and Theremin	proxima-centauri@wanadoo.fr	N/A
Havel, Christophe (+)	<i>Métamorphoses VIII</i>	2004	10'	EWI and Virtual Percussion	proxima-centauri@wanadoo.fr	N/A
Hertzog, Christian	<i>Angry Candy</i>	1989	7'	EWI Solo	christian.hertzog@gmail.com	N/A
Ingham, Richard	<i>Hopper 1, 2, 3</i>	--	--	Yamaha WX and Tape Delay	richard@largo-music.co.uk	N/A
Ingham, Richard	<i>Still Life</i>	1992	7'	Yamaha WX and Tape Delay	richard@largo-music.co.uk	N/A
Ingham, Richard	<i>Rothko Soundings</i>	--	--	Yamaha WX, Tape Delay, and Computer	richard@largo-music.co.uk	N/A
Karpman, Laura	<i>Song Pictures</i>	1989	8'	Yamaha WX and Soprano Voice	http://www.laurakarpman.com/contact/	N/A
Kefala-Kerr, John	<i>Comics</i>	--	--	Yamaha WX	jjk@johnkefalakerr.com	N/A

Composer/ Arranger	Title of Work	Date Composed	Duration	Instrumentation	Publisher/ Contact	Library (OCLC)
Lennon, John & Paul McCartney (Arr. Ronkin)	<i>Yesterday</i>	--	--	EWI and Piano	b.ronkin@neu.edu	N/A
Leroux, Philippe	<i>Image à Rameau</i>	1995	15'	Four Yamaha WXs	Éditions G. Billaudot	N/A
Mahin, Bruce (+)	<i>Time Chants</i>	1995?	?	EWI and Computer	bmahin@radford.edu	N/A
Mondelci, Federico (+)	<i>Pan</i>	1994	3'30"	EWI and Tape	info@federicomondelci.com	N/A
Monnet, Marc (*)	<i>Fragments</i>	1990/93	85'	Two Sopranos, four Clarinets/Yamaha WXs, four Bassoons, four Horns, Keyboard, two Violins, four Violas, four Cellos, and Computer	www.marcmoynet.com	N/A
Moylan, William (*)	<i>Future Echoes from the Ancient Voices of Turtle Island</i>	1992	15'30"	Yamaha WX, Yamaha TG55, and Piano	Northeastern Music Publications Inc. (Roncorp)	40988530
Moylan, William (*)	<i>Two Suspended Images</i>	1990	8'	Yamaha WX and Yamaha WT11	Northeastern Music Publications Inc. (Roncorp)	35864298
Nelson, Gary Lee	<i>Colony</i>	1994	--	EWI/EVI, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A
Nelson, Gary Lee	<i>Fractal Mountains</i>	1988	--	EWI/EVI, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A
Nelson, Gary Lee	<i>Ice Maidens</i>	1987	--	EWI/EVI, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A
Nelson, Gary Lee	<i>LightSong</i>	1998	--	EWI/EVI, Computer, Synthesizers, and Interactive Video	gary.nelson@oberlin.edu	N/A
Nelson, Gary Lee	<i>Quintessence</i>	1986	--	EWI/EVI, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A
Nelson, Gary Lee	<i>Refractions I</i>	1989	--	Four Yamaha WXs, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A

Composer/ Arranger	Title of Work	Date Composed	Duration	Instrumentation	Publisher/ Contact	Library (OCLC)
Nelson, Gary Lee	<i>Refractions II</i>	1989	--	EWI/EVI, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A
Nelson, Gary Lee	<i>Strange Attractors</i>	1988	--	EWI/EVI, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A
Nelson, Gary Lee	<i>Sums and Differences</i>	1987	--	EWI/EVI, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A
Nelson, Gary Lee	<i>Variations on a Theme and Process of Frederic Rzewski</i>	1987	--	EWI/EVI, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A
Nelson, Gary Lee	<i>Warps in Time</i>	1987	--	EWI/EVI, Computer, and Synthesizers	gary.nelson@oberlin.edu	N/A
Olofsson, Kent (+)	<i>The Stones of Emptiness</i>	1993	13	Four Saxophones, EWI, and Tape	kent.olofsson@mhm.lu.se	N/A
Petit, Jean- Louis (*)	<i>Concerto</i>	2010	16'34"	Saxophone/EWI and Band	jlpetit@jeanlouispetit.com	N/A
Petit, Jean- Louis	<i>La Clameur qui s'en va</i>	2008	11'	EWI Solo	jlpetit@jeanlouispetit.com	N/A
Purse, Lynn Emberg	<i>Concerto for Electro-Acoustic Wind Symphony</i>	1989	--	Yamaha WX, Yamaha TX81Z and Yamaha DX-7	ProQuest Dissertations Publishing	N/A
Repar, Patricia	<i>...caught her, midswing</i>	1990	--	Saxophone, EWI, Live Electronics, and five Dancers	repar@unm.edu	N/A
Rolin, Étienne	<i>Prise de bec</i>	1994	8'30"	Two Flutes, Saxophone, EWI (Synthophone), and Piano	etienne.rolin@u-bordeaux-montaigne.fr or etienneterolin@gmail.com	N/A
Rolin, Étienne	<i>Proliférations</i>	1994	12'	Flute, two Saxophones, Percussion, and EWI	etienne.rolin@u-bordeaux-montaigne.fr or etienneterolin@gmail.com	N/A

Composer/ Arranger	Title of Work	Date Composed	Duration	Instrumentation	Publisher/ Contact	Library (OCLC)
Rolin, Étienne	<i>Pyromen</i>	1994	11'	Saxophone Ensemble and EWI (Synthophone)	etienne.rolin@ u-bordeaux- montaigne.fr or etienneroлин@ gmail.com	N/A
Rolin, Étienne	<i>Pyromen</i>	1994	11'	Saxophone Ensemble and EWI (Synthophone)	etienne.rolin@ u-bordeaux- montaigne.fr or etienneroлин@ gmail.com	N/A
Rolin, Étienne	<i>Rideau de feu</i>	1994/ 1995	--	Flute, Saxophone, EW (Synthophone), and Piano	etienne.rolin@ u-bordeaux- montaigne.fr or etienneroлин@ gmail.com	N/A
Ronkin, Bruce	<i>Incantation and Furies</i>	1998	--	EWI and Piano	repar@unm.ed u	N/A
Ronkin, Bruce	<i>Poem 'Ask Your Mama—12 Moods for Jazz</i>	--	--	EWI, Brass and Rhythm, and two Narrators	repar@unm.ed u	N/A
Ronkin, Bruce	<i>Transient States</i>	--	--	EWI and Piano	repar@unm.ed u	N/A
Ronkin, Bruce	<i>Twelve Moods</i>	1997	80'	Narrator/ Baritone, Narrator/Soprano, Alto Saxophone/Flute, Tenor Saxophone/ Clarinet, EWI, Trumpet, Trombone, Piano, Bass, and Drums	repar@unm.ed u	N/A
Ruggiero, Charles (+)	<i>Interplay</i>	1988	19'	EWI and Tape (Soprano Saxophone and Piano)	ruggierl@msu .edu	N/A
Sandroff, Howard	<i>Concerto</i>	1988	--	Yamaha WX and Orchestra	http://www.col um.edu/	29310381
Sheppard, C. James	<i>Cloudfree</i>	1989	--	EWI Solo	sheppajc@mia mioh.edu	N/A
Sheppard, C. James	<i>Ayers and Improvisations</i>	Late 1980s	--	EWI/EVI and Buchla 700	sheppajc@mia mioh.edu	N/A
Sheppard, C. James	<i>Prelude No. 1: Snowfall</i>	1988	--	EWI/EVI and Buchla 700	sheppajc@mia mioh.edu	N/A
Sheppard, C. James	<i>Prelude No. 2: Smokerings</i>	1988	--	EWI/EVI and Buchla 700	sheppajc@mia mioh.edu	N/A
Shrude, Marilyn (+)(*)	<i>Drifting over a Red Place</i>	1982/1988	9'45"	EWI (Clarinet) Solo, Optional Slides and Dancer	mshrude@bgs u.edu	N/A

Composer/ Arranger	Title of Work	Date Composed	Duration	Instrumentation	Publisher/ Contact	Library (OCLC)
Siegel, Wayne (+)	<i>Jackdaw</i>	1996	10'	EWI (Bass Clarinet or Baritone Saxophone) and Tape	http://waynesiegel.dk/	N/A
Smith, Howie	<i>All in the Numbers</i>	1993	--	EWI, Synthesizer, Percussion, and Electronics	howie@howiesmith.com	N/A
Smith, Howie	<i>Colorful Life Outside</i>	1991	--	EWI, MIDI Guitar, Bass, and Drums	howie@howiesmith.com	N/A
Smith, Howie	<i>A First Thing for Every Time</i>	1990	--	Four EWIs	howie@howiesmith.com	N/A
Smith, Howie	<i>Period</i>	1988	--	EWI Solo and Electronics	howie@howiesmith.com	N/A
Smith, Howie	<i>The Poster</i>	1992	--	EWI and Percussion	howie@howiesmith.com	N/A
Steadman, Robert	<i>Whalesong</i>	--	--	Yamaha WX and Concert Band	http://robertsteadman.com/1311.html	N/A
Steiger, Rand	<i>Resonant Vertices</i>	1996	13'	MIDI Percussion, EWI, Flute (alto and piccolo), strings (violin and viola), and cello	rand@ucsd.edu	N/A
Strauss, Richard Arr. Bruce Ronkin	<i>Klavierstucke, Op. 3</i>	--	--	EWI and Piano	repar@unm.edu	N/A
Subotnick, Morton (+)	<i>In Two Worlds</i>	1987	18'	Yamaha WX (Alto Saxophone) and Computer	morts@creatinmusic.com Schott EAM	829707273 (Musical Score Only)
Trythall, Gil (*)	<i>Rima's Song</i>	1994/ 2010	15'	EWI and Tape	giltrythall@yahoo.com	N/A
Wood, Nigel (+)(*)	<i>Partial Eclipse</i>	2007	6'	EWI (or Soprano Saxophone) and Saxophone Octet	Saxtet Publications	783461577
Wyatt, Scott (+)	<i>Vignettes</i>	1989	11'47"	Yamaha WX and Tape	s-wyatt@illinois.edu	N/A
Young, Charles Rochester	<i>October in the Rain</i>	1989	5'	EWI, Synthesizer, Horn, Piano, and Percussion	cyoung@uwsp.edu	N/A

APPENDIX B

Comprehensive List of Recordings for the Electronic Wind Controller

Locating an album consisting of EWI repertoire can be just as challenging as obtaining sheet music and accompanying electronic equipment to perform a piece. Many of the EWI recordings are not located in common outlets for purchasing music such as iTunes, Amazon, Spotify, etc. Some recordings can only be purchased directly from a composer or specific recording label. A number of these recordings, however, can be obtained from library systems. This discography includes recordings from online sources such as YouTube, SoundCloud, personal websites, etc. Note that links to these online recordings may expire and become inactive. A composer may have a copy of the original recording, which may be obtained upon request.

Note: Hyperlinks are not included in this section. Links should function by copying and pasting to a web browser.

Name of Composer/ Artist	Title of Album	Title of Work	Recording Label/Source	Label #	Date Published	Library (OCLC)
Akiho, Andy/ SRU Percussion Ensemble/ Matthew Swallow	Matthew Swallow: YouTube Channel	<i>Karakurenai</i>	https://www.youtube.com/watch?v=3jKTdwG1Aow	N/A	5 July 2016	N/A
Ball, Jr., Leonard V./Matthew Swallow	Matthew Swallow: YouTube Channel	<i>and they spoke of things transfigured...</i>	https://www.youtube.com/watch?v=8_h8c93qtL4	N/A	7 January 2016	N/A
Beck, Stephen David/Griffin Campbell	<i>Music from Seamus: Volume 3</i>	<i>Love's Not Time's Fool</i>	Seamus	EAM -9402	1994	26391684 CD
Degazio, Bruno	<i>Pressure Points</i>	<i>Digital Rituals</i>	Soundprints	CD- SP 9301	1993	37184087 CD

Name of Composer/ Artist	Title of Album	Title of Work	Recording Label/Source	Label #	Date Published	Library (OCLC)
Dugan, Mark/ Jeff Vaughn/ Matthew Swallow	Matthew Swallow: YouTube Channel	<i>Bois Sculpte</i>	https://www.youtube.com/watch?v=C RvXTddOLog	N/A	5 July 2016	N/A
Ehle, Robert C.	<i>Bob Ehle</i>	<i>Mongolian Sonata for Synthesizers</i>	http://bobehle.bandcamp.com/	N/A	19 November 2015	N/A
Enström, Rolf/ Stockholm Saxophone Quartet	<i>Links</i>	<i>Vigil</i>	Caprice Records	CAP 21517	1997	811226044 CD
Enström, Rolf/ Stockholm Saxophone Quartet	SoundCloud: Stockholmsaxophonequartet	<i>Vigil</i> (Live Recording)	https://soundcloud.com/stockholmsaxophonequartet	N/A	2014	N/A
Everett, Steven/Debra Richtmeyer	<i>Light of Sothis</i>	<i>Proper Behavior</i>	Mark Custom	MCD 1806	1995	854921535 CD
First, David/Joseph Celli	<i>Resolver</i>	(Entire Album)	O.O. Discs	5	1991	N/A
Fish, Greg/John Sampen	N/A	“The Hammer and the Arrow”	Greg Fish	N/A	1989?	35232457 Cassette Tape
Garcia, Orlando Jacinto/ Joseph Celli	<i>La Belleza Del Silencio</i>	<i>Improvisation for Metallic Materials</i>	O.O. Discs	6	1991	N/A
Havel, Christophe	<i>33 RPM: Exhibition Companion Compilation</i>	<i>Excerpt/ Metamorphosis</i>	San Francisco Museum of Modern Art	N/A	2003	56762420 CD
Ingham, Richard	<i>Richard Ingham: Notes from a Small Country</i>	<i>Treisur</i>	Largo Music	N/A	2012	N/A
Kim, Jin Hi/Joseph Celli	<i>No World Improvisations</i>	<i>Duo Improvisation</i>	O.O. Discs	2	1990	N/A
Mahin, Bruce/ Jennifer Spoon	<i>Time Chants</i>	<i>Time Chants</i>	Capstone Records	CPS-8624	1995	36858679 CD 924439464 CD 919499072 Audio
Mondelci, Federico	<i>'900 Musica – Classica Contemporanea Il Sassofono</i>	<i>Pan : per sassofono midi e nastro magnetico</i>	RCA Records	CD 25171 -2	1995	45012851 CD
Monnet, Marc	Edouard Manet: YouTube Channel	“Fragments” opera (enregistrement de repetition 1993)	https://www.youtube.com/watch?v=K JurD25ut4	N/A	26 June 2012	N/A

Name of Composer/ Artist	Title of Album	Title of Work	Recording Label/Source	Label #	Date Published	Library (OCLC)
Moylan, William/ Matthew Swallow	Matthew Swallow: YouTube Channel	<i>Future Echoes from the Ancient Voices of Turtle Island</i>	https://www.youtube.com/watch?v=xsb70zyuuyU	N/A	7 January 2016	N/A
Moylan/ Matthew Swallow	Matthew Swallow: YouTube Channel	<i>Two Suspended Images</i>	https://www.youtube.com/watch?v=pyFkqdT5InM	N/A	7 January 2016	N/A
Olofsson, Kent/ Stockholm Saxophone Quartet	Works by Kent Olofsson	<i>Burning Pitch Part II: The Stone of Emptiness</i>	DB Productions/ Naxos Music Library	N/A	2010?	767883319 Audio
Olofsson, Kent/ Stockholm Saxophone Quartet	<i>The Veiled Hearts</i>	<i>Burning Pitch: The Stone of Emptiness</i>	DB Productions	dBCD 16	1995	35120676 CD
Petit, Jean-Louis/ Nicolas Prost	Han-Chiang Wang: YouTube Channel	<i>Concerto pour Saxophone</i>	https://www.youtube.com/watch?v=p0f4iEADyCo	N/A	13 July 2011	N/A
Ruggerio, Charles/ Joseph Luloff	<i>Interplay</i>	<i>Interplay</i>	Channel Classics Records	10497	1997	40128465 CD
Shrude, Marilyn/ John Sampen	<i>John Sampen: The Electric Saxophone</i>	<i>Drifting over a Red Place</i>	Capstone Records	CPS-8636	1997	38227385 CD
Shrude, Marilyn/ Matthew Swallow	Matthew Swallow: YouTube Channel	<i>Drifting over a Red Place</i>	https://www.youtube.com/watch?v=hFkM89x4ifM	N/A	7 January 2016	N/A
Siegel, Wayne/ Harry Spaarnay	<i>Devil's Golf Course</i>	<i>Jackdaw</i>	Dacapo	8.224069	1995/ 1997	874185628 CD 39207947 CD
Siegel, Wayne/ Stephen Cottrell	<i>The Electric Saxophone</i>	<i>Jackdaw</i>	Clarinet Classics	N/A	2000	49045811 CD
Subotnick, Morton/ Susan Fancher	<i>In Two Worlds</i>	<i>In Two Worlds</i>	Innova Recordings	736	2011	811456509 Audio
Trythall, Gil	Gil Trythall: YouTube Channel	<i>Rima's Song</i>	https://www.youtube.com/watch?v=0YgDUygJ2xE	N/A	13 May 2014	N/A

Name of Composer/ Artist	Title of Album	Title of Work	Recording Label/Source	Label #	Date Published	Library (OCLC)
Trythall, Gil/ Matthew Swallow	Matthew Swallow: YouTube Channel	<i>Rima's Song</i>	https://www.youtube.com/watch?v=O2jWhYDclAw	N/A	7 January 2016	N/A
Wood, Nigel/ Alistair Parnell	Witherfordway: YouTube Channel	<i>Partial Eclipse</i>	https://www.youtube.com/watch?v=HPPWe6mtzI	N/A	2 December 2014	N/A
Wood, Nigel/ Equinox Saxophone Ensemble	<i>Partial Eclipse</i>	<i>Partial Eclipse</i>	http://www.equinoxsax.org.uk/recording.html	N/A	2005	N/A
Wood, Nigel/ Hubert-Jan Hubeek	Erik-Jan de With: YouTube Channel	<i>Partial Eclipse</i>	https://www.youtube.com/watch?v=yBE3LUC-F4	N/A	2 February 2015	N/A
Wyatt, Scott/ Joseph Lulloff	<i>Collections II: Chamber Music with Electronics</i>	<i>Vignettes</i>	Veriatza Records	N/A	1989	21275458 CD

APPENDIX C: COMPREHENSIVE FINGERING CHART

Traditional/Alternate Fingerings and Trills for Yamaha WX Series

The chart is organized into three horizontal sections, each containing a musical staff and a corresponding fingering diagram. The first section shows traditional and alternate fingerings for notes G, A, B, and C. The second section shows traditional and alternate fingerings for notes D, E, F, and G. The third section shows traditional and alternate fingerings for notes A, B, and C. Each note is accompanied by a diagram showing the placement of fingers (1-5) on the keys. The diagrams are arranged in a grid-like fashion, with notes and fingerings aligned vertically and horizontally. The musical staffs are in treble clef and show the notes G, A, B, and C for the first section, D, E, F, and G for the second section, and A, B, and C for the third section. The fingering diagrams are placed below the notes, showing the finger numbers and the corresponding key positions. The chart is a comprehensive reference for fingerings and trills for the Yamaha WX Series.

Selected Tremolo Fingerings for Yamaha WX Series

The image displays five musical examples of tremolo fingerings for notes on a treble clef staff. Each example consists of a musical staff with notes and a corresponding diagram of the guitar fretboard. The diagrams show the fretboard with fingerings (represented by numbers 1-4) and arrows indicating the tremolo motion (up and down). The notes and their fret positions are as follows:

- Example 1: Notes on strings 1-5 at frets 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.
- Example 2: Notes on strings 1-5 at frets 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.
- Example 3: Notes on strings 1-5 at frets 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.
- Example 4: Notes on strings 1-5 at frets 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25.
- Example 5: Notes on strings 1-5 at frets 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30.

Selected Tremolo Fingerings for Yamaha WX Series (continued)

The first row consists of a musical staff with seven measures of music. Below each measure is a diagram showing the fingering for the notes in that measure. The diagrams use circles to represent fingers (1-4) and arrows to indicate the direction of the tremolo stroke.

The second row consists of a musical staff with seven measures of music. Below each measure is a diagram showing the fingering for the notes in that measure. The diagrams use circles to represent fingers (1-4) and arrows to indicate the direction of the tremolo stroke.

The third row consists of a musical staff with seven measures of music. Below each measure is a diagram showing the fingering for the notes in that measure. The diagrams use circles to represent fingers (1-4) and arrows to indicate the direction of the tremolo stroke.

The fourth row consists of a musical staff with two measures of music. Below each measure is a diagram showing the fingering for the notes in that measure. The diagrams use circles to represent fingers (1-4) and arrows to indicate the direction of the tremolo stroke.

APPENDIX D: PERMISSIONS FOR MUSICAL EXCERPT USE

LB

Hi Matt,

Thank you, once again, for giving "transfigured" an opportunity to live on well beyond what I thought would happen back in 1992. Most definitely you have my permission to include *and they spoke of things transfigured* in your document. Since I cannot remember exactly what you have received to date, I'll just summarize a bit below, and if you have any more questions don't hesitate to ask:

Work (of course you know this, still): *and they spoke of things transfigured*

Year completed: 1992

Requested by: Dr. Kenneth Fischer, Professor of Saxophone, UGA

Premiere: February 24, 1992, The University of Georgia, Ken's faculty recital.

2d Performance: March 6, 1992, W. Kentucky University for a Southeastern Composers League Forum.

Instruments/equipment: Yamaha WX11 Wind Controller w/accompanying interface

Korg Wavestation (Model WS1)

2 Korg Foot Pedals (single throw) for sustain and program advance.

Some background: This work really came about due to Ken's interest in the Yamaha Wind Controller and my interest in anything electronic. He was so interested that he bought one, then asked if I would consider writing a work for him on that instrument. Since I did not know the instrument, he obligingly answered my many questions and demonstrated its capabilities. I knew that, based on personal preference, I wanted stay away from standard MIDI sounds as much as possible, and Ken was open to that approach. In 1990, my wife gave me a Wavestation as a Christmas present. She knew I was really intrigued with the instrument since the capabilities described in its advertising brochures reminded me quite a bit of the Crumar GDS, which I worked with during my MM studies at Kansas State University. I had already finished and performed a Wavestation work, *In Fields of Yellow Down*, during the Spring, 1991, so I decided to use that instrument with the wind controller for Ken's piece. Both performances seemed to be well received by the respective audiences.

Hope this helps a bit, and, again, if you need anything specific just ask. I really never thought in theoretical terms about the work (the only work of mine that I have actually analyzed are those for my degrees, I believe), more in terms of flow, return, and growth.

Best -

- chic

On Jul 15, 2016, at 2:21 PM, Matthew Swallow

Hello Dr. Ball,

I hope you are having a relaxing summer! As of right now I am in the process of completing my research project for my DMA degree here at WVU. My topic is on a guide to the EWI and selected repertoire. Your work, "and they spoke of things transfigured...", is one of the pieces to be discussed in my document. If you have any additional pertinent information regarding its composition history or anything related that should be included in my paper, please let me know.

With your written consent, may I include musical excerpts from "and they spoke of things transfigured..."? My document currently contains musical examples supporting performance practice and theoretical analysis. If you have any questions and/or concerns, please let me know.

Have a great weekend!

Sincerely,

Matt Swallow



Hi Matthew,

Below is the letter you wrote to Dr. Moylan. I am Randy Navarre, president of Northeastern Music/Roncorp. I see you copied the letter to all. Dr. Moylan is a professor at the university in Lowell, MA. You may try calling him directly if you wish at the department of music. I have no inside information. I have performed "Two Suspended Images" several times it is a great work. I don't know what to say about it, though. I have no other contact information to give you, but just try contacting him through the university if he has not responded back to you.

You have permission to include excerpts of the two compositions, "Two Suspended Images" and "Future Echoes from the Ancient Voices of Turtle Island," in your dissertation. There is no fee for this usage so long as it is not published for sale.

Thank you for asking and seeking permission.

Sincerely,

Randy Navarre, DMA
President

Hello Dr. Moylan,

I hope you are having a relaxing summer! As of right now I am in the process of completing my research project for my DMA degree here at WVU. My topic is on a guide to the EWI and selected repertoire. Your works, "Two Suspended Images" and "Future Echoes from the Ancient Voices of Turtle Island", are to be discussed in my document. If you have any additional pertinent information regarding its composition history or anything related that should be included in my paper, please let me know.

With your written consent, may I include musical excerpts from your two works? I understand that the music is currently published through Roncorp Publications part of Northeastern Music Publications Inc. I cc'd Bruce Ronkin in this email for additional permissions through his company. My document currently does contain musical examples supporting performance practice and theoretical analysis. If you have any questions and/or concerns, please let me know.

Have a great weekend!

Sincerely,

Matt Swallow



Hi Matthew,

Thank you for including "Drifting" in your research project. I am very honored. I am not sure what information you already have, so perhaps you can let me know what you need. Yes, you have my permission to include musical excerpts. Keep me posted on your progress.

All best,
Marilyn Shrude

Hello Dr. Shrude,

I hope you are having a relaxing summer! As of right now I am in the process of completing my research project for my DMA degree here at WVU. My topic is on a guide to the EWI and selected repertoire. Your work, "Drifting Over a Red Place", is one of the pieces to be discussed in my document. If you have any additional pertinent information regarding its composition history or anything related that should be included in my paper, please let me know.

With your written consent, may I include musical excerpts from "Drifting Over a Red Place"? My document currently does contain musical examples supporting performance practice and theoretical analysis. If you have any questions and/or concerns, please let me know.

Have a great weekend!

Sincerely,

Matt Swallow

Matthew,

Thanks for writing. I don't think of anything to add.

Yes, you have my consent for using any part of the score or any recordings of Rima's Song in your research project.

I am very pleased that Rima's Song is included.

Gil

Hello Dr. Trythall,

I hope you are having a relaxing summer! As of right now I am in the process of completing my research project for my DMA degree here at WVU. My topic is on a guide to the EWI and selected repertoire. Your work, "Rima's Song", is one of the pieces to be discussed in my document. If you have any additional pertinent information regarding its composition history or anything related that should be included in my paper, please let me know.

With your written consent, may I include musical excerpts from "Rima's Song"? My document currently does contain examples supporting performance practice and theoretical analysis. If you have any questions and/or concerns, please let me know.

Have a great weekend!

Sincerely,

Matt Swallow

APPENDIX E: E-MAIL CORRESPONDENCES
Messages to and from Leonard V. Ball

May 4, 2015

Dr. Leonard Ball,

My name is Matthew Swallow and I am currently a doctoral student at West Virginia University studying saxophone with Dr. Michael Ibrahim. As of right now I am beginning to prepare for my third DMA recital, which will all consist of music for the electronic wind controller. When I was researching pieces to play for this instrument, I came across “and they spoke of things transfigured...” I am looking for a contrasting work that has musical interactions with a computer and this one seems appropriate for my program.

Would it be possible to obtain the music for “and they spoke of things transfigured”? If there is any cost involved, I would be happy to make the purchase. Thank you for your time and interest and I hope to hear from you soon.

Sincerely,

Matt Swallow

May 26, 2015 at 1:36 PM

Dear Mr. Swallow,

I apologize for the delay in responding – there are several reasons, but none more impactful than being surprised that this work surfaced at this time in my career. While I missed your first message (many recitals and papers going at the time), your second at the beginning of this month started a search for the score. At first I thought I had succeeded in converting the hard copy to digital back before '95, but I quickly found that the digital file was not complete and the software I used then no longer functioned in the current OS. Then, quite by accident, I found a hard copy of the score while searching for another work – somewhat worse for wear, but still functional to a degree.

Finally, I came to the actual sounds and realized that, to get the required sounds, you would need the instrument called for in the work – the Korg Wavestation. The work is specific to that instrument which is no longer produced and, except for the one at my shoulder, not readily available for anyone else (to my knowledge). I do not know your deadlines or timetable, but it might be possible to produce the sounds by buffering them in Max and adjusting cueing using more modern methods. That would take time and effort on my part, but I would be happy to consider doing the work if you are truly interested.

Let me know, and I will proceed accordingly. Meanwhile, I do thank you for your interest in “Transfigured” and, regardless of your decision to use or not use the work if it can be reproduced, I wish you all on your DMA recital.

All the best –

- chic ball

May 26, 2015 at 4:20 PM

Dr. Ball,

Thank you very much for getting back to me. I am still in the planning stages of gathering music for my recital and would still be very interested in possibly performing “Transfigured”.

When I was researching your piece, I was aware that I would need the Korg Wavestation and the fact that they are out of production. However, I came across an emulator of that specific synthesizer that seems relatively inexpensive and can run on my mac:

http://www.korg.com/us/products/software/korg_legacy_collection/

What is your opinion on this software? Hopefully that can be an option which could make things easier for the both of us if it works. I am looking at performing this upcoming DMA recital sometime in the fall and I do not have an exact date yet. If anything, I will probably look into having the performance in November at the latest. If you have any questions and/or concerns, please let me know. Thank you again for getting back to me and I hope to hear from you again soon.

Best,

Matt Swallow

June 24, 2015 at 10:17 AM

Hi Matthew,

Well, I have not been idle, but should have, no doubt, responded before now. I do apologize, but will not make excuses as the reconstitution of “Transfigured” has been problematic, and, to date, not really successful. To explain:

1) I have located the hard-copy of the score, but unfortunately, have not been able to find the performance-patch notes (and the score does not contain accurate information).

2) While my Wavestation still produces sound, and the original ROM and RAM patches are available and loaded, the display has seen its better days and it has been difficult to remember the programming aspect – and impossible, so far, to re-establish the performance that was on the machine twenty-three years ago (wow, just worked that out for real).

3) While I say impossible, I am close the performance sounds as I found the RAM Memory card that was used in 1992 – couldn't believe that good fortune. Many of the sounds are on the card, but, again, the pedal advance performance was not saved to that card.

4) Finally, two performances of the work have been located. I can pass the best one on to you, with the score that I found, through DropBox or some other means. I haven't figured out how to copy the Memory Card, but can continue to work on that as well, if necessary.

I have not purchased the software, but it looks like it should have the original sound banks, underlying waves/samples, and performances that the Wavestation 1 had. As I assess my overall finances a bit, I might very well want to purchase the legacy sounds to see if I could actually do something again with the Wavestation. The problem, of course, is the lack of an editor for that particular instrument.

Let me know your thoughts when you get the opportunity.

- chic ball

July 28, 2015 at 10:54 PM

Dr. Ball,

Thank you for sending me the score, sound patches, and sample recording. I was able to download a free 30 day demo of the Korg Wavestation, which after getting used to where things are located in the program, I was able to import your sound patches. Attached is a picture of the sound sample its, do all of these look familiar? I see many of these sound samples specifically stated in certain parts of the piece (I still have to look at it some more).

The emulator along with your sound patches seems to work well with my wind controller and usb setup. However, like you said before, it will be a challenge to remember the programming of the performance patch specifically designed for what you originally intended for this piece (pedal advance performance). I am assuming that the original performance used a sustain pedal? I know my WX 5 has sustain features, which were not present on the older WX 11 model. Maybe that will give you an idea. Hopefully more information will turn up in the performance score that in Stephen Fischer's possession.

As of right now, I have to urge to expand my knowledge and repertoire in contemporary music and from looking and listening to this piece, it would be a great opportunity to perform this! It

seems like we are on the right track with things, but I guess the next challenge is to figure out how to properly program the performance patches and effects. If you have any suggestions or recommendations, please let me know. Also if you are curious about where I downloaded the demo, it can be loaded by clicking on this link:

<https://www.korguser.net/downloadfile/wave.asp?purchased=yes>

Thanks again for sending me the music. I look forward to hearing from you again soon.

Best,

Matt S.

August 5, 2015 at 11:46 AM

Hi Matthew,

The sound patches look familiar, but do not necessarily follow what is on the card here. Somehow Sound 2 was replaced by Sound three in your jpeg, and the other voices are missing after patch 34. Of course, you are in Edit mode, so they would probably come back when you went into Select mode. The last twenty-four program changes of the performance located from patch 19 through patch 43 on the card. I haven't double checked the sounds, but the names seem to match.

As you can tell, I have the scores that were given to Ken Fischer. They clear up a lot, but not all, of the problems. Give me the week through the weekend to work through the issues, if I can. I have discovered that I can recreate most the original twelve program changes, through the last Chronos II change, in the software program. I am just not sure how to save those adapted voices and lose them when I shut the program down. Perhaps I have to use a purchased product to get the full functionality of the program, and will do that, if necessary. I will talk to their support staff to see what they say.

So, if you are still interested (and you seem to be), I hope to have a copy of the fully realized score given to Ken and adequate patch assembly to you by mid-next week.

Best –

- chic

August 17, 2015 at 11:45 AM

Dr. Ball,

I apologize for not getting back to you sooner. That is good to hear about the scores and the possible editing of the program. I am also running into a similar issue with the Korg Wavestation emulator where I load up the patches and lose it when I shut down the program. Hopefully that will be resolved when I purchase the full version.

My semester here at WVU is starting up again, so I will be more devoted in experimenting with everything that we have here so far. If you have any questions for me, please let me know. Thanks!

Matt S.

August 27, 2015 at 10:07 AM

Hi Matthew,

No problem on the delay in contact, it gave me some time to really reacquaint myself with the internal workings of the original Wavestation and also to connect those to the software emulator. To that end, I am attaching a bank of sounds that you should be able to load into your RAM 1 (it's named RAM1_Transfigured_a, strangely enough. The small a is explained below). The first 30 performances (0-29) are the voices for Transfigured as close to the originals as I have configured them to date. I think they are pretty close, although the absence of specific waves in the software that matched the same location on the original hardware necessitated some substitutions. Along with the actual performances, the underlying waves for RAMs 1 -3 have been altered a bit to include adjustments I made to the current sounds so that they match the performances contained in the original hardware card record. Again, the saving process on the KLC is a bit confusing, but I think I was able to lock everything down – at least it loads into my KLC correctly now. Finally, the end of the work contains three “Stereo Waves” labeled I – III. They should be used consecutively with the last three statements of B-flat 1 to end the piece. Hence the “a” for the RAM.

Also attached is a scan of the computer score that I gave to Ken Fischer after the performances in 1992. This is a PDF, of course, and not the accordion-fold from which it was taken. Let me know if I need to take it to another, better scanner to get a clearer representation. The changes to Stereo Waves have been entered in this score (minus some of the formatting and symbols).

Of course, this is pretty much all speculation as I do not have a wind controller in the area to try these sounds on. Plus, as you will note in the performance notes, three pedals were required for the performance: one continuous volume pedal and two single throw switch pedals to advance the program and to provide sustain. The pedal work was new to Ken, so it was a bit of a struggle for him to get used to handling three of them. I am not sure right now how the KLC software

will respond, but, with the sustain switch you have on your instrument, maybe the two MIDI controller ports under Global can be configured to advance through the performances and also to handle a MIDI volume pedal (probably controller 2).

I am out of town and away from any of the equipment or software until September 4th, so this is the best shot I have right now. Let me know, regardless, if the RAM patches do not load as I think they will. Just go under Mac/Windows File Menu (the one in the upper left corner of the screen next to WAVESTATION – not the software File pulldown window in the Performance Select Box) and select Load Bank. Navigate to where you have placed RAM 1 Transfigured a and choose that – the sounds should flow in (Screen Shot below).

Hope this works, and good luck –

- chic ball

August 27, 2015 at 1:13 PM

Dr. Ball,

Thank you very much for taking the time to put the sound patches together. Everything loaded up perfectly. I was playing around with the wavestation the other day and I was able to figure out some of the features with the controls. My WX5 has another control key which allows me to switch between the performance patches and it works well with the program. It may be difficult to use this key during the last part of the piece between the Digital Touch and Wave Table patches, but I think I can make it happen with practice. The only thing that I am missing right now is the ability to control the volume and I actually have been trying to figure out what I actually need there the last few days. I will look into a volume expression pedal where I can connect to my mac via usb.

The PDF score is much clearer with the overall instructions. Other than the volume pedal, I am almost set with everything that I need. I truly appreciate your help in this time-consuming process. We will keep in touch.

Best,

Matt S.

August 28, 2015 at 7:00 AM

Hi Matthew,

Great! I had my doubts and it is good to know the process works. Let me know if something needs to be tweaked. If I can do anything else, and, especially, if the work makes it to the recital list (and when the recital is scheduled).

It's been fun getting back into the Wavestation's levels of complexity, and see how Korg adapted it in the KLC. In some ways so much easier to program since the screens allow easier access to the underlying controls, and in some ways still intricate since saving has to be effected at three levels for the sounds to hold when one exits the program. Thanks for the query and the opportunity!

Best –

-chic

October 15, 2015 at 2:16 PM

Dr. Ball,

I hope everything is well. I just wanted to touch base and let you know that everything is going well with “And they Spoke of Things Transfigured”, which will indeed be part of my recital program! Over the past month, I was able to get a programmable MIDI usb foot controller that allows for fluid changes in voices (especially towards the end of the piece) and permits multiple sustained pitches and an adapter for an expression/volume pedal. It all works together very well between the wind controller and the Korg Wavestation software. If you are curious in how I did this, I would be happy to let you know. My recital is scheduled on December 4th here at WVU. As soon as I get the programs made and the finished recording and video, I will forward it to you. Thanks again for your help.

Best,

Matt Swallow

November 9, 2015 at 4:07 PM

Dr. Ball,

The recital is definitely on for December 4. I passed my hearing last week. My committee was thinking of ways to make my overall program more engaging for the audience. They strongly recommended me to put together a slide show, which would serve as a backdrop during my performance. Would you happen to have any suggestions/recommendations of pictures or graphics that would be appropriate for "And they Spoke of Things Transfigured"? I thought of possibly projecting parts of the score. What are your thoughts on that? Thank you again for all of your assistance these last several months!

Best,

Matt S.

November 12, 2015 at 10:20 AM

Hi Matt,

Congratulations on passing the hearing and solidifying your third (last?) degree recital!

To your question about retroactive visual reinforcement for the work. While I do not agree with the concept, I think that you need to follow your committee's recommendation. Your suggestion of projecting part(s) of the score during performance appeals a bit since it can be understood to support the context of the work (score to actual performance = transfiguration). Of course that is true for all performances involving live sound anchored in written score, but it does fit better than anything else I can think of at this time.

So, try the slides and see how they work. If I come up with something else I will let you know in the next few days.

Thanks, again, for programming the piece.

- chic

PS: I wanted to let you know about the current piece- still sans title. The equipment: MacBook Pro, Max 7, UA's Apollo Quad B, and, right now, the Logidy is in play (checked it out on your recommendation and the simplicity really sold it due to 70 patch changes by the player). I am a bit concerned about the sound of the foot press, but have not spent time trying different things to silence it. I am still looking for other foot pedals that might be quieter, but am afraid it might just be the nature of the beast. IT is quad in nature, although a stereo version will have to be produced for a concert in February, so we are going through the Dance Center equipment for sound.

July 21, 2016 at 10:30 AM

Hi Matt,

Thank you, once again, for giving “transfigured” an opportunity to live on well beyond what I thought would happen back in 1992. Most definitely you have my permission to include *and they spoke of things transfigured* in your document. Since I cannot remember exactly what you have received to date, I’ll just summarize a bit below, and if you have any more questions don’t hesitate to ask:

Work (of course you know this, still): *and they spoke of things transfigured*

Year completed: 1992

Requested by: Dr. Kenneth Fischer, Professor of Saxophone, UGA

Premiere: February 24, 1992, The University of Georgia, Ken’s faculty recital.

2d Performance: March 6, 1992, W. Kentucky University for a Southeastern Composers League Forum.

Instruments/equipment: Yamaha WX11 Wind Controller w/accompanying interface
Korg Wavestation (Model WS 1)
2 Korg Foot Pedals (single throw) for sustain and program advance.

Some background: This work really came about due to Ken’s interest in the Yamaha Wind Controller and my interest in anything electronic. He was so interested that he bought one, then asked if I would consider writing a work for him on that instrument. Since I did not know the instrument, he obligingly answered my many questions and demonstrated its capabilities. I knew that, based on personal preference, I wanted to stay away from standard MIDI sounds as much as possible, and Ken was open to that approach. In 1990, my wife gave me a Wavestation as a Christmas present. She knew I was really intrigued by the instrument, since the capabilities described in its advertising brochures reminded me quite a bit of the Crumar GDS, which I worked with during my M.M. studies at Kansas State University. I had already finished and performed a solo Wavestation work, *In Fields of Yellow Down*, during the spring of 1991, so I decided to use that instrument with the wind controller for Ken’s piece. Both performances seemed to be well-received by their respective audiences.

Hope this helps a bit, and, again, if you need anything specific just ask. I really never thought in theoretical terms about the work (the only work of mine that I have actually analyzed are those for my degrees, I believe), more in terms of flow, return, and growth.

Best –

-chic

Messages to and from Marilyn Shrude

October 15, 2015 at 2:30 PM

Dr. Shrude,

I hope all is well. I want to let you know that I will be putting on a recital this upcoming December, which will feature your work, “Drifting Over a Red Place” on the Yamaha WX. I was wondering if there was a way to obtain a copy of Dorothy Linden’s original artwork (as described in your notes)? I am looking to have the picture produced on a projector and/or add it into my program notes. I appreciate your assistance. Thank you.

Matt Swallow

October 17, 2015 at 5:16 PM

Hi Matt,

Just catching up with this week’s email. I’m very happy that you are performing “Drifting” and will be interested to hear what you do with the WX7. I do have one set of slides of Dorothy Linden’s work, but would have to figure out how to duplicate them for you. Are you performing it with a dancer? When we did that version, we had different color saturation on various parts of the print so that the dancer had a changing pallet. You could also just project one slide as a backdrop. You mention having it in the program—also an option. Perhaps you could give me a little more information so I can think about what you might need.

Thanks again and let’s stay in touch.

Best,
Marilyn Shrude

October 19, 2015 at 3:03 PM

Dr. Shrude,

Due to time constraints with exams and other obligations this semester, I will not be able to get a dancer for your work by my recital date. I am mainly looking for just a single slide that I can use as a backdrop and/or paste it into my program notes. I hope that answers your question. I look forward to hearing from you back soon.

Best,
Matt Swallow

October 19, 2015 at 6:27 PM

Hi Matt,

This really helps and it is totally possible to perform it without a dancer. Let me check on the slides and get back to you.

MS

November 3, 2015 at 1:03 PM

Dr. Shrude,

I apologize for the late response. I also wanted to touch base and see if you were able to find the slides to Dorothy Linden's artwork. Thank you.

Matt Swallow

November 5, 7:02 AM

Hi Matthew,

Thanks for your message. As for the slide, I'm trying to get a digitized copy made since the originals are the old-fashioned Kodachrome that you would put in a slide projector. I don't think you want to do that. I should be able to get this done and then send you something electronically. What is the exact date of your recital? Also, I just wanted to double check that you only planned to project one slide. Correct?

I really appreciate your sticking with this and apologize for the problems.

Best,

Marilyn Shrude

November 19, 2015 at 6:40PM

Dr. Shrude,

I hope all is well. I just wanted to send a brief message to see if you were able to make any progress with digitizing the Kodachrome slide of Doroth Linden's artwork? I just wanted to communicate this with you before Thanksgiving break starts. Thank you again for your time and interest and hope to hear from you soon.

Best,
Matt Swallow

November 19, 2015

Hi Matthew,

Yes, I finally got the slide made. It was much more complicated than I realized. Please let me know if it opens satisfactorily. Thanks for your patience.

Best,
Marilyn Shrude

November 19, 2015 at 8:22 PM

Dr. Shrude,

Thank you very much for taking the time to get the slide digitized. The file opens up perfectly. The visual artwork makes more sense now with your piece. I truly appreciate your assistance with this. Have a good Thanksgiving break and I will send you a recording of my performance of "Drifting Over a Red Place".

Thanks again!
Matt Swallow

November 19, 2015 at 9:26 PM

Great! I look forward to hearing your interpretation of the piece.

Thanks,
MS

November 14, 2016 at 2:01 PM

Hi, Matt,

I think I have clarified things for you. I read the sections in your document and have made a few margin notes on pages 46-47. I am also sending an old page of notes I found digging through some files and am not sure why that never got to you. This explains the scheme in better detail. Take a look and let me know if you have more questions.

The sections I read are quite good, so don't be discouraged. These things always happen as your trying to wrap things up.

Best, Marilyn Shrude

Attached: DRIFTING OVER A RED PLACE: Notes on Performance

"Drifting Over a Red Place" was originally written for Bb clarinet, tape-delay system, slides and dancer, but has been successfully performed on the WX7 (Yamaha Wind Controller).

The large one-page score is to be considered as an entire field of performance. The four areas are conceived as such: theme, variation, diversion, development. The theme must be played three times, and the four development sections must be played once each without repetition. The performer is free to use (or not use) any fragments in the variation and diversion areas, and these can be repeated ad libitum.

The slides are also to be used at the discretion of the performer. They are various shots of the same work, "Drifting Over a Red Place," by artist Dorothy Linden, some emphasizing reds, some blues, etc. They are conceived to create a "field of expression." Therefore, the entire stage (or auditorium) could be flooded; all is subject, of course, to the performing situation.

Any kind of echo mechanism can be used, e.g., tape delay, reverberation, echo-plex, etc. This is to be added at the performer's discretion.

If using a dancer, it is suggested that he/she be costumed in white, so that the body acts somewhat as a screen.

Although the ideal performance would combine all elements, a successful experience could be had without slides and dancer. Echo, however, should be incorporated to some degree.

For program information, please list the work as follows:

"Drifting Over a Red Place" for Bb Clarinet, Echo, Slides and Dancer. Please credit Dorothy Linden as visual artist. If the piece is performed without dance or slides, omit those elements from the title accordingly.

This work was commissioned and premiered by Burton Beerman and Celesta Haraszti at the Piccolo Spoleto Festival (Charleston, SC) in May 1982. A version for Yamaha WX7 Wind Controller was premiered in March 1988 by John Sampen at the Contemporary Arts Center in Cincinnati, Ohio and later recorded by him on "The Electric Saxophone" (Capstone Records 1997).

Messages to and from Gil Trythall

April 29, 2015 at 5:17 PM

Matthew,

Score was mailed today. Suggestions for performance at the end of score. Basically, you construct your part from the score motives, or from the 6 note hexachord that comprises each of the 13 sections, or a bit of both.

The accompaniment presents a problem: it is so complete in itself that the soloist must at times submerge himself in it and at other times, where the accompaniment is quieter, less active, the soloist can get out in front with more rapid playing. But, choose timbres that come clearly from the wind controller so the listener knows, most of the time, which is which.

Paul Scea could be a resource. He premiered and has played Rima several times very successfully.

Very important to mix your synthesizer and the accompaniment through the same speakers. Stage monitors are a help as well for balance, even helpful (in my opinion) in the choir rehearsal room.

Less is more.
And thanks,
Gil.

November 3, 2015 at 12:11 PM

Dr. Trythall,

It's been a few months since I have spoke to you regarding "Rima's Song". I am happy to let you know that I will be performing this piece December 4, which is just about a month away. Everything seems to be going well. The performance will be recorded and I am working on the program pamphlet as well. I will forward those to you soon.

I was also wondering based on the nature of the piece, I am also looking for some visuals that I can use as a slide show while performing. Would you happen to have any pictures or artworks that might appropriately accompany this work? I would feel that pictures of the rainforest would be most appropriate in the musical context of the piece and what was described in your program notes. Any suggestions would be greatly appreciated. If you have any questions, please let me know. Thank you.

Best,

Matt Swallow

November 6, 2015 at 2:31 PM

Matthew,

We can't find any rainforest pictures, but they are all over the internet. Perhaps you can get permission from [Rainforest Trees and Jungle](#) for non-commercial purposes. The site shows how to get permission.

www.leslietaylor.net

Or just put in 'Rain Forest Pictures' in a search engine and maybe find some that are not copyrighted.

I think your idea is a good one. If you make your own, you will have it available for future performances as well.

I look forward to your recording.

Gil