

AN ANNOTATED GUIDE TO ELECTROACOUSTIC SOLO DOUBLE BASS
REPERTOIRE: PUBLISHED SCORES TO 2005

by

CRANFORD BRAXTON BALLEW

(Under the Direction of Milton Masciadri)

ABSTRACT

The double bass has an extensive solo repertoire. Works for solo double bass and electronics make up a significant part of that repertoire. To date, several repertoire and compositional guides for the double bass have been produced, but none deal extensively with electronic music. The goal of this guide is to be an educational resource that will result in more performances of these works by double bassists and, as a result, expansion of the double bass repertoire by composers concurrent with increased appreciation for the double bass as a solo instrument. This guide examines existing double bass and electronic music resources. A proposal for the creation of an archive for the preservation of the electronic media portion of these compositions concludes the document.

INDEX WORDS: double bass, electronic music, computer music, solo repertoire

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A Dissertation Submitted to the Graduate Faculty of the University of Georgia in Partial
Fulfillment of the Requirements for the Degree

DOCTOR OF MUSICAL ARTS

ATHENS, GEORGIA

2007

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for Sarah.

ACKNOWLEDGEMENTS

Special Thanks to Samantha Osbourne for the translations of the performance instructions of the Michaël Levinas piece. Thanks to James Barket, Albert Laszlo, Douglas Sommer, and Milton Masciadri, my double bass teachers, for helping me understand the instrument that has given me everything. Thanks to Henry Gwiazda and Leonard V. Ball, Jr., for opening the doors to electronic composition. And finally, thanks to my friends and family for putting up with all the racket.

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Chapter 1

Introduction

The purpose of this guide is to acquaint double bassists with the growing and significant body of repertoire for solo bass and electronics. It is a catalogue annotating a comprehensive list of available, published scores. This will enable bassists to have a better understanding of available repertoire and subsequently will result in more performances of the included pieces. To establish a historical context and need for such a guide, this paper will begin with an overview of solo double bass repertoire.

The double bass enjoys a large solo repertoire.¹ Composers in the eighteenth century produced a large body of works, and collaboration between composer and performer, though rare, did happen on occasion. A sampling of works by non-bassists with a soloistic bass part includes Josef Haydn, Concerto (the first one ever written for double bass and now lost); Wolfgang Amadeus Mozart, *Per Questo Bello Mano*, concert aria for baritone with double bass obbligato and orchestra; Karl Ditters Von Dittersdorf, two concerti, a sinfonia concertante, and a duo for viola and bass; Johann Baptist Vanhal, Concerto; Anton Zimmerman, concerto; and Franz Hoffmeister, three solo quartets and three concerti.² These works were written with at least three possible bassists in mind, Freidrich Pischelberger, Josef Kampfer, and Johannes Sperger.³ In particular, Mozart composed *Per Questo Bello Mano* specifically with Pischelberger in mind to play the obbligato double bass part.⁴ Johannes Sperger, known for his double bass virtuosity, was also a composer. He contributed works in many genres for solo bass, including at least 30 concerti; three sonatas for bass and piano; and a duo sonata for viola and double bass.⁵

¹ Rodney Slatford, "Double Bass" in *New Grove Dictionary of Music and Musicians*, 2nd Ed.

² Alfred Planyavsky, *Baroque Double Bass Violone*, trans. James Barket (Lanham Md: Scarecrow Press, 1988), 128.

³ Ibid.

⁴ Rodney Slatford, "Double Bass" in *New Grove*, 2nd ed.

⁵ Rodney Slatford, "Johannes Sperger" in *New Grove*, 2nd Ed.

The majority of music produced for the solo double bass in the nineteenth century was almost exclusively composed by the performers; that is, rarely did a non-bassist compose for the instrument (again, this refers to solo music only).⁶ Solo bass repertoire is largely represented by the two most familiar names in the canon: Domenico Dragonetti and Giovanni Bottesini. Both were virtuoso performers and composers and both wrote music for themselves to perform. Bottesini was the far more prolific composer. In addition to his own works for double bass, he made substantial contributions in opera and oratorio and he also produced a two-volume method book.⁷

Dragonetti and Bottesini's legacies stand in apparent contrast to one another. Bottesini's career is well documented, his works thoroughly catalogued, and at least one scholarly edition of most of his works is available. In contrast, Dragonetti rarely wrote music that was not for his own use, and he stopped composing entirely in his later years. His manuscripts are scattered across Europe, and no complete scholarly edition of his works is currently available.⁸

In the late nineteenth century, the performer as major composer trend continued with two notable and familiar names: Franz Simandl and Serge Koussevitzky. Simandl is best known for his two-volume method book and numerous etudes, but he contributed several small salon pieces for double bass and piano. Koussevitzky, perhaps best remembered as a conductor, wrote four salon works and a Concerto for the double bass. The composer Reinhold Gliere helped with the orchestration, and this association with Koussevitzky yielded Gliere's four pieces for double bass and piano: the *Intermezzo and Tarantella*, Op. 9, Nos. 1 and 2, and the *Prelude and Scherzo*, Op. 32, Nos. 1 and 2.

In the last sixty years, technological innovations, especially in regard to bass strings, have yielded a greater range of compositional possibilities. There has also been a higher instance of collaboration between virtuoso performers and composers. Modern composers of significance

⁶ Rodney Slatford, "Double Bass" in *New Grove*, 2nd ed.

⁷ Rodney Slatford, "Giovanni Bottesini" in *New Grove*, 2nd Ed.

⁸ Fiona M. Palmer, *Domenico Dragonetti in England 1794-1846. The Career of a Double Bass Virtuoso* (Oxford: Clarendon Press, 1997), 76-79.

who have produced works for double bass, either by inspiration or collaboration, include Hans Werner Henze, Gunther Schuller, Jacob Druckman, Ralph Shapey, Karlheinz Stockhausen, Iannis Xenakis, Robert Erikson, Mario Davidovsky, Brian Ferneyhough, Peter Maxwell-Davis, Luciano Berio, and Paul Hindemith. Many pieces by these composers were created in consultation with leading bassists of this era, such as Gary Karr, Francois Rabbath, Bertram Turetzky, Franco Petracchi, Robert Black, Jean-Marc Rollez, Stefano Scodanibbio and Duncan McTier. The contributions of Bertram Turetzky to electroacoustic solo double bass repertoire are of particular interest; he is the intended first performer or dedicatee of the majority of the works discussed in this guide.

After a review of the history of the solo double bass repertoire, it is fair to conclude that collaboration between composers and performers has become more common in the modern era, resulting in an overall increase in double bass repertoire, especially for solo double bass. There are many chamber-like pieces for electronics and an ensemble that include the double bass. However, in light of the increased availability, visibility, and viability of the double bass as a solo instrument, works that feature the bass in a solo role shall be the focus of this document.

The need for this study is based on the following rationales and conclusion: Over the last sixty years, the double bass has become a more visible, viable, and substantial solo performance instrument. The use of technology to create and perform music has also become more visible and viable. There is a substantial body of repertoire for double bass and some form of electronic media. Therefore, in order to become acquainted with this growing body of repertoire, a guide focusing on electronic music featuring the double bass is needed for performers and composers.

Review of Existing Literature

The double bass has a relatively small, but growing, amount of literature about the instrument and its history. The authoritative book is Alfred Planyavsky's *Geschichte des*

Kontrabasses.⁹ Planyavsky also wrote a smaller companion volume, *The Baroque Double Bass Violone*,¹⁰ dealing with the historical development of the double bass up to the late eighteenth century. Paul Brun's *A History of the Double Bass* is a more concise volume than either of the Planyavsky books.¹¹ Raymond Elgar's trilogy of works, *Introduction to the Double Bass*, *More about the Double Bass*, and *Looking at the Double Bass*, do not contain any citations and are full of anecdotal information.^{12 13 14}

Of all these volumes, only *Geschichte des Kontrabasses* contains a section on repertoire, and that section does not include a subsection on repertoire for double bass and electronics.¹⁵ Of the many resource guides for modern double bass repertoire, two stand out with regards to availability and thorough content: Murray Grodner's *Comprehensive Guide of Available Music for the Double Bass* and Bertram Turetzky's *The Contemporary Contrabass*.^{16 17} While both books are very useful and comprehensive, neither contains a section devoted to double bass and electronics, indicating a further need for the study.

Electronic music resources are almost exclusively devoted to instructional materials aimed at the creation of electronic music. Joel Chadabe's *Electric Sound—The Past and Promise of Electronic Music* is one of the only attempts to chronicle the history of electronic music.¹⁸ Robert L. Wick's *Electronic and Computer Music: an Annotated Bibliography* lacks a section on repertoire, but otherwise is a current and inclusive source for current research guides and articles.¹⁹

⁹ James Lambert, Bibliography available from www.earlybass.com Internet; accessed 9 March 2006.

¹⁰ Planyavsky, *Baroque Double Bass Violone*, 1988.

¹¹ Paul Brun, *A History of the Double Bass* (Norfolk: Yorke Edition), 2000.

¹² Raymond Elgar, *Introduction to the Double Bass* (Princeton, New Jersey: Stephen W. Fillio), 1960.

¹³ Raymond Elgar, *More About the Double Bass* (Princeton, New Jersey: Stephen W. Fillio), 1963.

¹⁴ Raymond Elgar, *Looking at the Double Bass* (Princeton, New Jersey: Stephen W. Fillio), 1967.

¹⁵ Alfred Planyavsky, *Geschichte des Kontrabasses* (Tutzing: Hans Schneider, 1984), 713-851.

¹⁶ Bertram Turetzky,

¹⁷ Murray Grodner, *Comprehensive Catalog of Available Music, Books, Videos*

and Recordings for the Double Bass, 4th ed. (Littleton, Colorado: Grodner Publications), 2000.

¹⁸ Joel Chadabe, *Electric Sound—The Past and Promise of Electronic Music* (Upper Saddle River: New Jersey, 1997),

¹⁹ Robert L. Wick, *Electronic and Computer Music: an Annotated Bibliography* (Westport, Connecticut: Greenwood Press) 1997.

Two journals with articles that contain information about electroacoustic double bass repertoire are: *The Computer Music Journal* and *Bass World*, the journal of the International Society of Bassists. In addition, *Double Bassist* magazine has had occasional articles relevant to this document, mostly consisting of performer and composer interviews.

The first instances of pairing a solo instrument with electronic music were the works of Vladamir Ussachevsky and Otto Luening, composed in 1952.²⁰ Ussachevsky's piece *Sonic Contours* combines piano and voice with tape. Luening's pieces are for flute and magnetic tape and include *Invention in 12 Tones*, *Fantasy in Space* and *Low Speed*. Other important pieces for instruments and prerecorded media include Karlheinz Stockhausen's *Kontakte*, Milton Babbitt's *Philomiel*, and Otto Luening's *Gargoyles*. Mario Davidovsky's *Synchronisms*, a series of electroacoustic compositions, were also significant in establishing the genre; *Synchronisms 6*, for piano and electronics, won the 1971 Pulitzer Prize in music.²¹ Important pieces composed for orchestra or large ensemble and tape include Darius Milhaud's *La Riviere Endormie* and Edgard Varese's *Deserts*.²²

Terminology

There are many complex aesthetic questions associated with terms and ideas in electronic music. As a genre, it is in its infancy, especially when considered in regard to the Western music canon. This document will not attempt to address larger, philosophical issues posed by the terms listed below; however, for discussion purposes, this document uses the following definitions:

¹¹ Joel Chadabe, *Electric Sound—The Past and Promise of Electronic Music* (Upper Saddle River: New Jersey, 1997), 44-45.

¹² <http://www.pulitzer.org/index> Internet; accessed 26 April 2007

¹³ Joel Chadabe, *Electric Sound*, 32.

Electronic music refers to music involving any prerecorded playback, computer generated music, interactivity, and/or a synthesizer. The act of applying amplification to an instrument is insufficient evidence of electronic music, unless the amplification affects the sound of the double bass other than increasing the volume.

Solo double bass music refers to pieces where the double bass has a dominant role; that is, throughout the entire piece the double bass is a focal point. As mentioned before, the chamber repertoire for double bass is quite extensive, but these works are not to be considered.

The term *Electroacoustic Music* is broadly defined as any piece of music involving electronic media combined with or generated by an instrumental component.

Technology has also provided a further consideration: two “hybrid” instruments, the electronic upright bass (EUB) and the MIDI bass, where the bass becomes a MIDI controller. Repertoire for these instruments will be considered in this document for the following reasons: the repertoire is almost exclusively for instrument and other electronics; the repertoire for these two instruments is small, but significant in terms of aesthetic possibilities; and technical familiarity with the double bass is a prerequisite to play these instruments.

Methodology

The body of works examined includes published and available scores for double bass and electronics up to 2005. Due to the nature of modern composition, providing an exhaustive list of unpublished compositions would be impossible since the available repertoire is expanding daily. In addition, out of print compositions are difficult to identify and often impossible to locate, making a satisfactory annotation unlikely.

When considering the works in this field as a whole, several general observations can be made. Double bass music increasingly combines different genres, exploiting the fact that most bassists are familiar with many different styles of music. Double bass music lends itself to

interactivity due to the sheer size of physical gestures needed to play the instrument. Composers tend to create dramatic music for the double bass. Also, aware that many bassists have experience with improvisation, composers are known to exploit this skill. Finally, in cases where the electronics are not provided with the score, composers assume a certain technological fluency among bassists. With these factors in mind, each annotation in this document will include the following information:

1) Basic information

- a) Title
- b) Composer
- c) Date of composition
- d) Publishing information
 - i) Publisher
 - ii) Date of publication
- e) Electronic media and instrumentation
 - i) Availability of the electronic media
 - ii) Double bass, MIDI bass, electric upright bass
- f) Duration
- g) Intended first performer or Dedicatée

2) Score

- a) Notation
 - i) Traditional notation
 - ii) Unconventional notation
 - iii) Improvisation: if utilized, how does the composer treat the material?
- b) Electronics
 - i) Notation (or lack thereof) of the electronic portion of the work
 - ii) Instructions on how to generate the electronic component, if required
- c) Musical Content
 - i) Melodic and harmonic vocabulary
 - ii) Style and genre features
- d) Extra-Musical Content
 - i) Theatrical elements (narration, wardrobe, lighting)
 - ii) Unconventional uses of the double bass
 - iii) Miscellaneous information
- e) Other observations: Any important information that may resist categorization into the above criteria.

3) Electroacoustic Specifications.

a) Speaker Field Use

- i) Stereo
- ii) Quadraphonic
- iii) Surround
- iv) Other sound fields

b) Interactivity

- i) Do the electronics change from performance to performance?
- ii) Does the piece feature live processing and editing of the electronics and, if so, is the performer responsible for effecting these changes, or is another performer required?
- iii) Computer interaction

c) Content of the Electronic Media

- i) Unedited sounds
- ii) Highly processed sounds
- iii) Other features

In cases where the composer does not provide a copy of the electronics for review and the work has not been recorded commercially, making satisfactory comments on the media portion in the annotations is very difficult, if not impossible.

The list of works to be considered includes a total of 30 scores. In addition, the annotations will be organized into the following categories, reflective of general patterns and trends observed in the repertoire: double bass and self prepared tape (which may also be performed with a double bass ensemble), double bass and audio, and double bass and electronic effects. Within these broad headings, the works will be organized along a chronological spectrum, allowing observation of the evolving technology and the impact on this repertoire.

Chapter 2

Works for Double Bass and Self-Prepared Tape or Double Bass Ensemble

The following works are usually presented in two different versions. In one version, a double bass ensemble of varying sizes performs the work without any electronics. In the other version, a solo performer plays along with a pre-recorded soundtrack, usually one self-produced by the soloist. These works tend to represent the oldest works in the electroacoustic solo double bass repertoire; the majority of these compositions were written from the late 1960's and through the 1970's. In the 1980s the microprocessor and MIDI became the dominant technologies. Digital Audio gave composers more options regarding the audio portions of electronic works. Works with composer produced and provided audio, usually realized through digital means, became the dominant idiom. Works included in this section:

- 1) *Ricercare a 3*, Robert Erikson, 1967
- 2) *Bass Piece*, Donald Erb, 1969
- 3) *Gorge*, Phil Winsor, 1969
- 4) *Cedar Breaks*, David Cope, 1971
- 5) *Four Etudes 1971*, M. William Karlins, published 1974
- 6) *Pentalogue*, George Heussenestamm, published 1971
- 7) *Quodlibet*, Marta Ptaszynska, 1976
- 8) *One Man's Meat* Sydney Hodkinson, 1980
- 9) *Stardust*, John Voght, 1980
- 10) *Reflections on Ives and Whittier*, Bertram Turetzky, 1981
- 11) *Ryonaji*, John Cage, 1984
- 12) *Spectral Canon*, Marc Sabat, 2005

1) Basic Information

- a) Title: *Ricercare à 3*
- b) Composer: Robert Erikson
- c) Date of Composition: 1967
- d) Publishing Information
University of California Press
1973
- e) Electronic Media and Instrumentation
Self-produced Tape
Double Bass or Bass Ensemble
- f) Duration: not provided.
- g) Intended First Performer: Bertram Turetzky

2) Score

- a) Notation
The score is written in traditional notation. There are three staves, representing a solo part and two channels of audio. There is a specific page that details the extended techniques used in the piece, and the symbols that are devised for those techniques.
- b) Electronics
The electronics consist of two double bass parts recorded into two channels of audio. Since this piece is double bass trio, these parts are notated in the same manner as the solo double bass part; that is, with traditional notation.
- c) Musical Content
This piece uses tremolo as the basis for the canonic aspects of a *Ricercare*. It follows the canonical procedure in a fairly free fashion. The other two voices imitate portions of the solo part, usually after an extended dialogue. All three parts are not equal; there is definitely a solo part and two accompanying voices.
- d) Extra-Musical Content
The main extended technique involved is using a dowel or pencil for various *col legno* effects, including various tremolos, and the use of crescendo and decrescendo marking to indicate the speed of the tremolo.
- e) Other Observations
The composer recommends that a solo performer record the tape portion using a click track and a professional recording studio.

3) Electroacoustic Specifications

- a) Speaker Field Use
The two audio channels require a stereo speaker field. There is no further information given on the specifics of the speaker field.
- b) Interactivity
The tape portions, once realized, do not change from performance to performance, nor does the solo part.
- c) Content of the Electronic Media
The audio is a two-channel representation of the two accompanying double bass parts.

1) Basic Information

- a) Title: *BassPiece*
- b) Composer: Donald Erb
- c) Date of Composition: October 10, 1969
- d) Publishing Information
Theodore Presser
1969
- e) Electronic Media and Instrumentation
Composer–provided or self-produced tape.
Double Bass
- f) Duration: 9 minutes.
- g) Intended First Performer or Dedicatee: None specified.

2) Score

a) Notation

The score is written in traditional notation. There is some experimental notation in the form of headless notes. This is a piece for solo double bass and double bass ensemble. The score presents the live bass as the top stave, with the remaining four staves given to the tape part. There is technical information very specific to reel-to-reel tape recorders presented in the tape portion of the score. Unless a performer has had experience working with these tape recorders, these indications will not yield much information. With modern recording technology, this should not be a prohibitive obstacle to a performance.

b) Electronics

The electronics are notated as a full realization of the double bass ensemble.

c) Musical Content

This piece contains four short movements. There is a range of extended techniques, including various glissandi, artificial harmonics, *sul ponticello* and *sul tasto*. The performer must also sing and hum random pitches and syllables; the score guides the actual content of the vocal sounds. Movement two is performed entirely *col legno*, movement four is performed entirely *pizzicato*. There is a high amount of aleatoric content in the form of pitch indeterminacy; many gestures are indicated by contour or rhythm, leaving the actual pitches to the discretion of the performer.

d) Extra-Musical Content

There is no extra-musical content.

e) Other Observations

Basspiece is unique among ensemble-type pieces in that it is intended exclusively for solo double bass and tape rather than being for double bass and tape or double bass ensemble.

3) Electroacoustic Specifications

a) Speaker Field Use

This piece is for double bass and four channels of audio. It is not specified in the score whether the performer is intended to use the quadraphonic sound field, or four stereo speakers, or another combination.

b) Interactivity

The electronics, once realized, remain the same for each successive performance. Variation in the tape and in the performance will be a result of the improvisatory and aleatoric elements present in the score.

c) Content of the Electronic Media

The tape consists of a pre-recorded double bass quartet using four channels of audio.

1) Basic Information

a) Title: *Gorge*

b) Composer: Phil Winsor

c) Date of Composition: 1969

d) Publishing Information

Pembroke Music Company and Carl Fischer, Inc.
1975

e) Electronic Media and Instrumentation

The electronic media is a self-produced tape.
Double Bass or Five Double Basses

f) Duration: 12 minutes.

g) Intended First Performer: Bertram Turetzky

2) Score

a) Notation

The score is composed of graphic symbols, boxes of material, and written descriptions of content at various points. The score contains numerous guidelines of what material to play, such as the opening instruction “Play a typical Baroque bassline. Continue when tape enters.”²³ There are also lines, missing note heads, and standard notes without a staff presented at various heights indicating melodic contour.

b) Electronics

The electronic portion is indicated by a bracket showing which of the five bass parts are to be recorded on the tape. The electronics consist of the remainder of the ensemble part. The performer is responsible for making this tape. There are no technical guidelines regarding producing the tape.

²³ Phil Winsor, *Gorge* (New York: Pembroke Music Company and Carl Fischer, Inc.) 1975.

c) Musical Content

The melodic and harmonic content is variable, given the amount of guided improvisational content. There are portions where the players are directed to play a chorale melody 'like Bach,'²⁴ and the instructions indicate that a quotation from a Bach chorale is acceptable. This piece can be thought of as a guided and controlled improvisation with written directions addressing how the five parts are to interact.

d) Extra-Musical Content

There is some narration.

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field Use

No information is provided.

b) Interactivity

The electronics, once produced, stay the same from performance to performance. Given the highly dynamic nature of the material, performances of the work will vary greatly from one another, especially between individual performers.

c) Content of the Electronic Media

Gorge is a quintet. The tape part consists of the four parts of the score the solo performer does not perform. Parts 1 through 4 on the staff indicate the parts to put on the tape, part 5 indicates the solo performer's line. There are no further technical specifications on producing the tape.

1) Basic Information

a) Title: Cedar Breaks

b) Composer: David Cope

c) Date of Composition: May 28, 1971

d) Publishing Information

Seesaw Music Corporation

1971

e) Electronic Media and Instrumentation

There is no indication that the composer supplies the tape or that it is self-produced.

The information given on the two staves of audio suggest that the audio could be self-produced.

Double Bass

f) Duration: 8 minutes, 20 seconds.

g) Intended First Performer: Bertram Turetzky

²⁴ Winsor, *Gorge*, 1975.

2) Score

a) Notation

There are three staves, two for the channels of audio and one for the solo double bass. All three parts are in traditional notation, but with many composer-derived symbols that indicate improvisation, texture, line content, and vocal sounds. There are wedges that indicate rhythmic activity, curved lines that indicate variation of an activity, and random dots that indicate clouds of activity. There are many extended techniques, including *col legno*, and drumming on the bass. The performer must sing, and the work calls for singing given pitches, improvising sung portions of the work, and singing along with the bass part using jazz style “scat singing.”

b) Electronics

The electronics are two channels that are notated on two staves. These staves contain two other double bass parts, so the notation is traditional.

c) Musical Content

This piece combines structured and notated material and guided improvisation. In various places in the score improvisation is guided by rhythmic notation, random dots, and the written direction “freely, no meter, jazzy.”²⁵ When there are actual notated melodic gestures, they are very angular and dissonant.

d) Extra-Musical Content

There is extensive vocalization in this work. These vocal sounds include singing unison lines with the solo part on given syllables and spoken word interjections using nonsense syllables, such as “zaa,” “pow,” and “da.” There is also extensive drumming on the body, ribs, and strings of the double bass.

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field.

The work requires a stereo speaker field to realize the two channels of audio.

b) Interactivity

The audio, once realized, remains the same for each successive performance. Due to the improvisatory nature of the material, audio realizations will vary from performer to performer.

c) Content of the Electronic Media

The audio consists of the two other double bass parts. The two parts function as a duo accompaniment for the solo bass.

1) Basic Information

a) Title: *Four Etudes*

b) Composer: M. William Karlins

c) Date of Composition: 1971

²⁵ David Cope, *Cedar Breaks* (New York: Seesaw Music Corporation) 1978.

- d) Publishing Information
American Composer's Alliance
1974
- e) Electronic Media and Instrumentation
Three etudes require either a tape or other performers. The content of the tape part is notated in the score, which enables the performer to produce the tape.
Double Bass, amplified in the First Etude
- f) Duration: 12 minutes.
- g) Dedicated to Bertram Turetzky

2) Score

- a) Notation
The notation is traditional. Three of the four etudes include parts for tape. The tape parts are notated in separate staves above the live double bass part.
- b) Electronics
The electronic portion of the work consists of the tape reproduction of one bass duo, two bass trios, and the amplification of the soloist in one movement. All portions of the pre-recorded material are fully notated. In the two trio movements, each staff corresponds to a separate tape channel.
- c) Musical Content
The first etude, "Reflections on Beethoven" is a free form fantasy on material from the trio from the Fifth Symphony. The second etude is a canonic theme and variations. The third etude is a texture study with the live bassist and upper tape voice performing exclusively harmonics. The fourth movement is a reflection on the composer's own work, a concerto for wind symphony and double bass entitled *Reflux*. The fourth etude uses improvisation and extended techniques, such as glissando, drumming on the double bass, and *col legno*. This etude also uses unconventional rhythmic notation with a number indicating how many beats are in one bar. This is combined with certain passages that have no stemming, just note heads, which implies a certain rhythmic freedom on the part of the performer.
- d) Extra-Musical Content
None.
- e) Other Observations
None.

3) Electroacoustic Specifications

- a) Speaker Field
While the score makes no specific mention of technical requirements, the channel requirements indicate a stereo system should be used. There are no other technical requirements specified in the score.
- b) Interactivity
The tape part, once realized, should be the same for successive performances.
- c) Content of the Electronic Media
Four Etudes is a bass ensemble piece, and the only variation in material will happen in the improvised sections of the fourth etude. The first etude indicates the bass should be

amplified, but there is no indication that the bass should or should not remain amplified for the duration of the piece. There are also no indications in terms of processing, effects, or any other technical aspects of the tape portion of the work. However, due to the ensemble indications in the score, it is reasonable to conclude the realization of the tape should sound as natural as possible.

1) Basic Information

- a) Title: Pentalogue
- b) Composer: George Heussenestamm
- c) Date of Composition is not available.
- d) Publishing Information
Seesaw Music Corporation
1971
- e) Electronic Media and Instrumentation
According to the performance notes, a four- or two-channel tape is available on rental from the publishers. In addition, there are instructions included on how to produce the tape.
Double Bass. In addition, the tape parts require the following *scordatura*: E-flat, A-flat, D-flat, G-flat; and F-sharp, B, E, A.
- f) Duration: 10 minutes, 48 seconds.
- g) Intended First Performer; Bertram Turetzky

2) Score

a) Notation

This score combines conventional notation with a graphic score. The score is a graph with each box representing three seconds. There are five staves, four representing the tape part, one representing the live performer. In addition, the performance guide has a complete description of all the extended techniques involved in the piece.

Unconventional notation in the score consists of three-line percussion staves, graphic, and “semi-graphic” notation. The “semi-graphic” notation consists of indeterminate pitches, but exact rhythms, while the graphic notation portion is improvised using the provided guidelines. In addition, where graphic notation requires the performer to determine what material should be performed, the instructions indicate “ it is essential that the play strive to maintain an atonal aural field.”²⁶

b) Electronics

Notation of the electronic portion of the work consists of a complete realization of the double basses heard on the tape. As a result, the score is quite large, requiring a page turn every 21 seconds. Instructions on how to generate the electronic component are found in the performance notes. They are quite detailed, specifying channel placement in each speaker, and durations of each section of the piece.

²⁶ George Heussenestamm, *Pentalogue* (New York: Seesaw Music Corporation), 1971.

c) Musical Content

This piece is very angular and dissonant. The graphic portions of the work specify that the improvised material must “maintain an atonal aural field.”²⁷

The extended techniques also use timbre as development. Adding to the dissonant nature of the piece is the aleatoric element—there are several places where the performer must hum or sing, but can choose the pitch used.

d) Extra-Musical Content

This piece requires a variety of extended techniques, including various forms of *pizzicato*, the “seagull” glissando, which is an artificial harmonic glissando, tongue clicks, flutter tongues, and the “dowel roll,” which consists of rattling the tip of the bow between the strings. In addition, there are various percussive sounds made by drumming on the bass.

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field Use

The performance notes specify at least four channels of audio be recorded. These channels may be combined into a stereo tape version, or used separately as a quadraphonic version. The quadraphonic version is preferred. The performance notes indicate which channels should be placed in each speaker.

b) Interactivity

The electronics, once realized, do not change from performance to performance. There will be slight variations in each tape produced by individual performers due to the aleatoric and improvised portions of the piece.

c) Content of the Electronic Media

The tape portion of this work consists of four double bass parts. The quadraphonic nature of the tape gives the work an almost antiphonal character. Other than splicing and alignment of the tape, no other processing is required to realize the tape.

1) Basic Information

a) Title: Quodlibet

b) Composer: Marta Ptaszynska

c) Date of Composition: 1976

d) Publishing Information

Polskie Wydawnictwi Muzyczne
1977

e) Electronic Media and Instrumentation

Self Prepared Tape

Double Bass

f) Duration: not provided

²⁷ Heussenestamm, *Pentatalogue*, 1971.

g) Intended First Performer: Bertram Turetzky

2) Score

a) Notation

The score is mostly notated in traditional notation, however, there are several symbols used which represent the extended techniques involved. The extended techniques are numerous, and are clearly explained in the performance notes. Each technique is accompanied by an example in the score showing the notation in context.

b) Electronics

The electronics are represented by a graph in the performance notes. These notes include instructions on how to produce the tape portions of the piece.

c) Musical Content

The melodic statements alternate highly chromatic material with episodes that utilize extensive extended techniques. These include the seagull artificial harmonic glissando, drumming on various parts of the double bass using metal and plastic thimbles, quarter tones, rubbing the strings, playing the strings above the nut, various forms of *col legno* with various parts of the bow on various parts of the bass, circular bowing motions, and a “two way” glissando in which the performer plays a simultaneous contrary motion glissando.

d) Extra-Musical Content

There is no extra-musical content.

e) Other Observations

There are no other observations.

3) Electroacoustic Specifications

a) Speaker Field Use

This piece requires an eight-channel sound field. The composer specifies the speakers must surround the performer and the audience. The placement and motion of sounds between the individual speakers is not specified and presumably are left to the performer.

b) Interactivity

Once realized, the electronics will not change from performance to performance.

However, the performer has considerable freedom in the generation of the tape portion of the piece. The performance notes indicate that the performer may arrange the voices on the tape in any order and in any combination.

c) Content of the Electronic Media

The tape portion consists of multiple double bass voices. The material is derived from the score, providing an echo like effect when paired with the solo double bass. The performance notes indicate that the tape creates a formal trapezoid in which the solo double bass part runs along the longest edge and the audio portion forms an inverted support structure to the solo bass.

1) Basic Information

a) Title: *One Man's Meat*

b) Composer: Sydney Hodkinson

- c) Date of Composition: 1970
- d) Publishing Information
Merion Music, Inc
1975
- e) Electronic Media and Instrumentation
Self Prepared Tape
Double Bass
- f) Duration: 7 minutes.
- g) Intended First Performer: Bertram Turetzky

2) Score

a) Notation

The notation is mostly conventional but it contains the following variations: Rhythm is notated conventionally. Time signatures are sometimes used, sometimes implied, and sometimes indicated by real time duration. Improvisation is indicated by the written direction to improvise. Headless notes imply the melodic contour of the improvised parts. Wedges indicate tempo changes in the improvised content. There is also a section with chord changes, similar to a jazz lead sheet.

b) Electronics

The two-channel tape part is entirely notated. Instructions on how to generate the electronic component are contained in the preface to the score. Explicit instructions are given regarding tempi, recording order of the two parts that make up the tape, placement of the performer, and the speakers. There are various other guidelines that form suggestions, such as theatrical directions, optional instrumentation, and technical aspects of the performance.

c) Musical Content

While there is a strong jazz influence, there are no indications to perform swing eighth notes. The melodies are highly angular. There are sections that recall walking bass lines, at various tempi and spread equally throughout all the parts. There are various extended techniques employed, such as various forms of pizzicato, bowing behind the bridge, random percussive noises, col legno battuto, and various portamento and glissando passages. The last third of the piece is a quasi 12-bar blues where the live performer alternately accompanies the tape and plays solo lines over the two voice texture.

d) Extra-Musical Content

The score contains stage directions for the performer, and the last page features a guide for optional stage lighting. The piece contains an optional ending and a dedication to "Bruce Curry, Mingus, and Bird who started it all."

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field Use

The score specifies two-channel tape, with each channel representing one part of a double bass trio. The live performer supplies the third double bass part.

b) Interactivity

The tape part, once realized, is constant from performance to performance. However, since the performer generates the tape and the score allows for some variation in realizing the tape part, the electronics will not necessarily be the same from performer to performer.

c) Content of the Electronic Media

The sounds are the unedited texture of a bass trio. The composer indicates that slight speaker distortion at high dynamic levels is acceptable.

1) Basic Information

a) Title: *Stardust*

b) Composer: John Voigt

c) Date of Composition: 1980

d) Publishing Information

Hornpipe Music Publishing Co.

1980

e) Electronic Media and Instrumentation

AM Radio.

The piece only specifies that the radio should be tuned to an easy listening station, and the volume “should be that of a sensitive accompanist.”²⁸

Double Bass

f) Duration: Variable

g) Intended First Performer or Dedicatee: Not provided.

2) Score

a) Notation

This piece is a series of 29 variations. The variations consist of written performance instructions. Some variations contain traditional notation, some contain jazz chart chord changes, and some contain notations of extended techniques.

b) Electronics

The electronics are not notated, except when following the instructions to turn the radio on and off.

c) Musical Content

This piece is a theater piece involving improvisation, gestures that may or may not produce sound, and several quotations of Camille Saint-Saens “L'Elephant.” The relationship of each variation is theatrical rather than musical.

Also, as the AM radio component is completely variable for each performance, traditional melodic and harmonic labels are not applicable.

d) Extra-Musical Content

Theatrical instructions are found in many of the variations. They include petting the bass like a favorite pet, drawing a moustache on the bass with the bow, chewing on the bass

²⁸ John Voight, *Stardust* (Hornpipe Music Publishing Co.), 1980.

as if it were a good meal, saying the phrase “Watchmakers should come with calipers,” and using the bow to mime spreading butter on the bass, as if the bass were a piece of toast. The double bass is used as a theatrical prop in many of the variations in this piece.

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field Use

This piece contains no information about the speaker field. It is inferred that as long as the performer uses the specified AM radio, any speaker field would be suitable. AM radio use implies the use of a mono field, or the so called big mono field, that is, two speaker channels reproducing the same material.

b) Interactivity

The electronics are completely different from performance to performance. This is due to radio formats constantly playing different material and the performer choosing a different radio station at every performance. As the performer has no control over the radio, any interactivity would consist of the performer reacting to the radio and shaping certain variations accordingly.

c) Content of the Electronic Media

The radio station should be an easy listening station. The score does not indicate if an FM easy listening is acceptable, or if another genre of music might be substituted. It merely specifies that the radio remains on the AM band.

1) Basic Information

a) Title: Reflections on Ives and Whittier

b) Composer: Bertram Turetzky

c) Date of Composition: December 1980-March 1981

d) Publishing Information

Elkan-Vogel, Inc., a subsidiary of Theodore Presser
1982

e) Electronic Media and Instrumentation

Self-produced Tape

Double Bass or Double Bass ensemble

f) Duration: 7 minutes.

g) Intended First Performer: Bertram Turetzky

2) Score

a) Notation

The score is presented entirely in traditional notation. The score consists of six melodic and harmonic gestures. While the melodic and harmonic gestures of this piece are written out, duration of each gesture, dynamics, and synchronization between each gesture are left to the discretion of the performer. There are no limits indicated with regard the number of repetitions of each gesture.

The solo performer is also given considerable freedom and discretion during a performance of this work—the performer may either play melodic or harmonic gestures any number of times, in any order, so long as the “random canon” form is observed, and the duration of piece is seven minutes.

b) Electronics

The electronics are not notated. The folio jacket includes detailed performance notes. It also includes general remarks about how to generate the tape. The instructions state “The technical aspects of making the tape are left up to the technological capabilities of the individual.”²⁹ This gives the performer considerable freedom in producing the audio.

c) Musical Content

The piece is tonal and organized around an A major tonality. Because of the “random canon” aspect, it is inaccurate to think of this piece as being in A major. The tonality is achieved by texture, repetition, and melodic content rather than functional common practice harmony. The performance notes indicate “*Reflections* is a random canon with possible touches of heterophony.”³⁰ The entrances and durations of all the melodic and harmonic gestures (there are six each) are left to the discretion of the performer.

d) Extra-Musical Content

The piece is played entirely with natural harmonics.

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field Use

The performance notes indicate “The technical aspects of making the tape are left up to the technological capabilities of the individual.”³¹ Therefore, the performer can determine the speaker field.

b) Interactivity

The tape part is made by each individual performer. The aleatoric nature of this piece suggesting that each performance of this piece will vary from audio content each time.

c) Content of the Electronic Media

The audio consists of the ensemble portion of the piece. As stated before, the audio content can be extremely variable given the performance instructions. However, the basic content of the audio is static from performance to performance.

1) Basic Information

a) Title: *Ryoanji*

b) Composer: John Cage

c) Date of Composition: double bass version March, 1984

²⁹ Bertram Turetzky, *Reflections on Ives and Whittier* (Bryn Mawr, Pa: Elkan-Vogel Music), 1982.

³⁰ Ibid.

³¹ Ibid.

- d) Publishing Information
C. F. Peters
1984
- e) Electronic Media and Instrumentation
Self-produced Tape
Double Bass
Vocalise ad libitum
- f) Duration: variable.
- g) Intended First Performer/Dedicatee: Joelle Leandre

2) Score

a) Notation

The score is presented in graphic notation, consisting of four lines set against a large standard musical staff. Every two pages represents a “garden of sounds.” The four lines are notated differently on the staff. The solo part is notated by a solid line, while the other three lines are dashed lines, lines with dots, and a combination of dashes and dots. Each of the other three lines represent a channel of audio. Each series of lines represents a glissando.

b) Electronics

The electronic portion of the score consists of three lines on the score. The electronic lines are represented lines by dashed lines, dotted lines, and a combination of dots and dashes.

c) Musical Content

Each garden of sound consists a series of glissando gestures. The glissandi take place between various intervals, ranging from a major second to a major seventh, indicated at the beginning of each garden. The *vocalise ad libitum* part is indicated by a series of lines at the top of each page. These lines indicate only the relative duration of each syllable.

d) Extra-Musical Content

This piece exists in several different versions for different instruments, such as trombone, flute, oboe, percussion, contrabassoon, and saxophone, and may be performed as part of a larger ensemble piece, a solo piece, or a chamber piece. The double bassist may perform the vocal part, or add another performer for the vocalise.

e) Other Observations.

None.

3) Electroacoustic Specifications

a) Speaker Field Use

The score specifies that each line of audio should have its own sound system. This means at least three speakers are needed. The performer then has a choice between a quadraphonic system, adding a speaker to a stereo system, or simply using the front three speakers of a surround sound system.

b) Interactivity

The tape part, once produced by the performer, does not change from performance to performance. However, the aleatoric nature of the piece means that the audio content will

vary somewhat from performer to performer. Pitch content and shape should remain consistent from version to version, with duration being the biggest variable.

c) Content of the Electronic Media

The only indication that prerecorded audio is required for performance is in the second line of the performance notes. There are no technical specifications or requirements given in the score.

1) Basic Information

a) Title: *Spectral Canon No. 1*

b) Composition: Marc Sabat

c) Date of Composition: March 2, 2005

d) Publishing Information

Plainsound Music Editions

2005

e) Electronic Media and Instrumentation

Multiple delay effects unit

Double Bass or bass ensemble consisting of 12 double basses

f) Duration: 8 minutes.

g) Dedicated to James Tenney

2) Score

a) Notation

The notation is entirely traditional. A number in a box above the staff indicates each canonic statement. Only notes marked with a fermata are to be performed. Each harmonic is notated explicitly with quarter tone indications used to indicate the exact intonation of each harmonic.

b) Electronics

The Electronics are not notated. The performance notes indicate that multiple speakers and delay units may replace eleven of the performers. The composer suggests panning and placement should be used to distinguish each voice. There are no other instructions given for the electronic portion of the work.

c) Musical Content

This piece is a semi-strict twelve voice canon, with the following allegoric features:

Durations of each note are variable, as the composer says duration should be that of a *mezzo-forte* bow stroke. Tempo throughout the work should remain steady. Entries of the canonic statements should be as soon as possible, but “on the next available beat.”³²

Since the work is based on the overtone series, and played entirely on the highest string of the double bass (G), or, to accommodate solo tuning, (A), the canon has a quasi-tonal character.

d) Extra-Musical Content

There are no extra musical requirements.

³² Marc Sabat, *Spectral Canon No. 1* (Plainsound Music Editions), 2005.

e) Other Observations

This is a very late example of an ensemble-type piece. The electronics are realized in real time. There are no other ensemble pieces that have this feature.

3) Electroacoustic Specifications

a) Speaker Field Use

The speaker field use is determined by the performer. Theoretically, this work could use an eleven speaker field.

b) Interactivity

The electronics are generated live and in real time during the performance. Since the material is canonic, the electronic portion will remain relatively the same for successive performances.

c) Content of the Electronic Media

The electronic media consists of double bass harmonics processed with digital delay.

Chapter 3

Works for Double Bass and Audio

The works included in this section are for double bass and various forms of audio playback. Although current performances of these pieces rarely use audio tape for the electronic portion's playback, these pieces tend to be referred to as pieces for double bass and tape. The following traits distinguish these pieces from the repertoire in chapter 2: the audio portions of these works are provided by the composer, the content of the audio is more diverse than the ensemble pieces, and there are more varieties of playback media. As indicated, the playback media can include tape, but usually it will be compact disk, computer, or any other current digital audio medium, such as mp3. These works make up the majority of the works included in this guide; most of the works were composed from 1980 onward. They also represent the most current works in the electroacoustic solo double bass repertoire.

It should be noted, however, that the earliest work for double bass and electronics, Charles Whittenberg's *Electronic Study II with Contrabass*, composed in 1961, is for double bass and tape. This work is not published, and it is not included in this anthology. It is available as a manuscript. This historical information is related as a matter of interest for the reader.

Works included in this section:

- 1) *Akasha*, Joseph Julian, 1972-1975
- 2) *Platte River Magic Fingers Dance Music*, Mel Graves, 1975
- 3) *Eight Moments*, Edward Diemente, 1975
- 4) *Found Objects*, Arthur Custer, 1975
- 5) *Composition 10*, John Rimmer, 1977
- 6) *Musik für Tonband und Kontrabass*, Andrej Dobrowolski, 1977
- 7) *Roundabout*, Robert Carl, 1985

- 8) *The Death of Desdemona*, Frank Proto, 1987
- 9) *Lyric Caprices*, Robert Rollin, 1989
- 10) *Sidereal Liaisons*, Kevin Hiatt, 1989
- 11) *Three Pieces for Double Bass and Tape*, Orlando Jacinto Garcia, 1990
- 12) *Kontrabass*, Karlheinz Stockhausen, 1995/1996
- 13) *Androgyne Mon Amour*, Barry Truax, 1997, 2001
- 14) *Paleo*, JoAnne Kuchera–Morin, 2003

1) Basic Information

- a) Title: *Akasha*
- b) Composer: Joseph Julian
- c) Date of Composition: 1972, revised 1975
- d) Publishing Information
Seesaw Music Corporation
1975
- e) Electronic Media and Instrumentation
Composer-provided tape
Double Bass
- f) Duration: 8 minutes, 10 seconds.
- g) Intended First Performer or Dedicatee: Bertram Turetzky

2) Score

- a) Notation
The score uses traditional notation. Durations and tempi are indicated by an analog timeline. There are many extended techniques, which have their own notation symbols, either explained in the performance notes or with written directions in the score. Page four of the score consists of a large box with various gestures that the performer may use at his or her discretion, responding to the tape.
- b) Electronics
The electronics are notated by two staves; one above and one below the double bass part. The electronics use a combination of traditional notation, text, and shapes to indicate the activity in the tape.
- c) Musical Content
The melodic gestures consist of angular lines that contrast with episodes of sustained passages that use a variety of timbres. This is combined with microtonal tone clusters, drumming on the bass, and harmonics.

d) Extra-Musical Content

The piece uses extensive extended techniques, including quarter tones, bowing on the other side of the bridge, glissandi, improvisation, and a variety of tremolos. The score also requires bi-tones, which are two tones produced by a sharp attack on a single note.

e) Other Observations

There are no miscellaneous observations.

3) Electroacoustic Specifications

a) Speaker Field Use

The tape requires a two-channel tape. The composer suggests using an additional pair of speakers to create a quasi-quadraphonic field.

b) Interactivity

The electronics do not change from performance to performance. The performer uses improvisation and aleatoric techniques to interact with the tape portion, creating a dynamic texture from performance to performance.

c) Content of the Electronic Media

The tape consists of various sounds and samples of the double bass.

1) Basic Information

a) Title: *Platte River Magic Fingers Dance Music*

b) Composer: Mel Graves

c) Date of Composition: 1975

d) Publishing Information

Seesaw Music Corporation

New York

e) Electronic Media and Instrumentation

Composer-produced tape

Amplified Double Bass

f) Duration: 6 minutes.

g) Intended First Performer: Dedicated to George Mason

2) Score

a) Notation

This piece combines traditional notation with an analog timeline. There are various aspects of improvisation in the piece, all of which are guided. These range from a scale suggestion in the first minute of the piece, used to develop a given phrase, to a section consisting of a long description of extended drumming techniques. The piece ends with pizzicato variations that form imitative counterpoint with the tape.

b) Electronics

The tape part consists of a timeline above the score. The timeline consists of written cues and arrows indicating where the two parts must synchronize material.

c) Musical Content

This piece is in two sections, an untitled first section and a dance, which begins at the four-minute mark. The work consists of four improvisations, which have various degrees

of guidelines. The dance, for example, consists of “all arco tremolo variations,”³³ followed by a set of suggested rules.

d) Extra-Musical Content

There is a long section in the music that requires extensive use of the double bass as a percussion instrument. There is also a section requiring the performer to produce a “moaning” sound.

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field Use

The score makes no mention or indication of any speaker field.

b) Interactivity

The tape is provided by the composer, and will not change from performance to performance. The interaction of the double bass and audio is achieved by cues and dotted lines linking the two parts.

c) Content of the Electronic Media

Content observations are impossible to provide without the audio.

1) Basic Information

a) Title: *Eight Moments*

b) Composer: Edward Diemente

c) Date of Composition: Published 1975

d) Publishing Information

Seesaw Music Corp.

e) Electronic Media and Instrumentation

The tape is not included with the score. There are no instructions on how to obtain the tape.

Double Bass

It is suggested that the bass be amplified if the performance is in a large hall.

f) Duration: 8 minutes, 50 seconds.

g) Intended First Performer: Bertram Turetzky

2) Score

a) Notation

The bass part has aspects of traditional notation. Extended techniques are represented by graphics. No time signatures are indicated. Duration and tempo are indicated by a combination of metronome markings and real time indications.

b) Electronics

The score has a line indicating the tape part. The tape part consists written descriptions of the sounds on the tape and a time marking indicating where the sounds take place.

³³ Mel Graves, *Platte River Magic Fingers Dance Music* (New York: Seesaw Music Corp.), 1975.

c) Musical Content

The harmony is very difficult to analyze without the tape, as the composer indicates “the tape part of the piece is not an accompaniment. It is an integrated part of the piece.”³⁴ There are no key signatures. The bass part is loosely organized around a D tonality. All eight moments have a recurring C-sharp to D and B-flat to a motive. Many of the melodic gestures are quite angular.

d) Extra-Musical Content

The bass is used as a drum for much of the piece. The composer indicates you should “play as if you were playing on an ancient African instrument.”³⁵ In addition, a small dowel or “plastic ball point pen” is used between the strings in Moment Six. The bassist must also sing.

e) Other Observations

The piece assumes an interest or willingness to explore the bass as a drum. No indications are given on how to obtain the tape, which may preclude potential performers from programming the piece.

3) Electronics

a) Speaker Field Use

The preface indicates a stereo tape. Analysis of the electronics is impossible given the information in the score.

b) Interactivity

The tape part, realized by the composer, stays the same in each performance.

c) Content of the Electronic Media

Content observations are impossible to provide without the audio.

1) Basic Information

a) Title: *Found Objects*

b) Composer: Arthur Custer

c) Date of Composition: 1971

d) Publishing Information

General Music Publishing
1975

e) Electronic Media and Instrumentation:

Tape (realized by the composer)
Double Bass

f) Duration: 12 minutes

g) Intended First Performer: Bertram Turetzky

2) Score

a) Notation

There are three systems of music—one for the double bass, one for “other sounds,” and one line for the tape. The performance guide also indicates a series of extended

³⁴ Edward Diemante, *Eight Moments* (New York: Seesaw Music Corp.), 1975.

³⁵ Ibid.

techniques, and an explanation for the various symbols that accompany each technique. These include striking the instrument with closed, opened, and cupped hands, various trills and tremolos, bending or pulling the string during harmonics, Bartok *pizzicato*, and playing on the tailpiece of the instrument. Rhythm and meter are indicated as a timeline, which consists of a number showing elapsed time at the end of selected systems. The composer suggests using a stopwatch to facilitate the coordination of the various parts.

b) Electronics

The notation of the tape part consists of written cues describing the sounds heard on the tape. No further information is given in terms of graphic representation of the tape part or technical requirements.

c) Musical Content

Found Objects is divided into two movements of equal length. The first is very angular and dissonant, incorporating many extended techniques that alternate with short, aggressive, and quasi twelve tone gestures. The second movement incorporates an easy blues feel with the highly chromatic melodic language. This gradually transitions into the theatrical finale.

d) Extra-Musical Content

The finale of movement two is a “war.” It is represented by two boxes of text with stage directions indicating how the performer is to act onstage during the war. This is accomplished by using the bass and bow as props and staging a mock battle with the audience, and firing on various imaginary enemies. The second box of text resolves the war and provides for a theatrical exit executed with the tape: the performer is to march in place on the stage, making an exit when the drill sergeant’s voice is heard on the tape.

e) Other Observations

There are no instructions given on obtaining the tape for performance. The lack of detailed information regarding the electronics in the score makes observations about the electronics difficult.

3) Electroacoustic Specifications

a) Speaker Field Use

There are no directions or indications as to the technical requirements of the electronic portions of the work. In the performance notes, however, it is noted a two-channel tape has been created for the piece, which requires a stereo speaker field.

b) Interactivity

The tape part is static, and will remain the same for all successive performances.

c) Content of the Electronic Media

The performance notes indicate the tape part consists of “contrabass sounds (Turetzky performing) and synthesized and concrete sounds.”³⁶ As noted above, further details about the tape are provided in the form of written descriptions of cues in the tape portion of the score.

³⁶ Arthur Custer, *Found Objects* (General Music Publishing), 1975.

1) Basic Information

- a) Title: *Composition 10*
- b) Composer: John Rimmer
- c) Date of Composition: December 30, 1977
- d) Publishing Information
Catena Press
1983
- e) Electronic Media and Instrumentation
Composer-produced tape
Double Bass
- f) Duration: no information provided.
- g) Intended First Performer/Dedicatee: Bertram Turetzky

2) Score

a) Notation

The score combines traditional notation with graphic notation, both in the tape portion of the score and the bass part. Each extended technique is accompanied with a text box that explicitly explains its execution. Unconventional aspects include improvisation boxes, headless notes, notes without stems, and wedges to indicate vibrato intensity.

b) Electronics

The tape part is notated in graphic notation on one staff. There are several places where the tape is to be stopped, and then restarted later. There are no indications concerning the number of channels. The performance notes indicate the bass is to be amplified with a pickup in the latter half of the piece, but gives no instructions as to the technical considerations or requirements involved with the amplification.

c) Musical Content

This piece contains a variety of extended techniques, including the “seagull” glissando, microtones, drumming on the bass, and a technique known as “white noise,” where the bassist draws the bow lightly enough to produce a white noise sound. In addition, the bassist must sing on various syllables similar to solfege.

The gestures involved, combined with the array of extended techniques, indicate the experimental and avant-garde nature of this work.

d) Extra-Musical Content

There are no extra music requirements in this piece.

e) Other Observations

The bass is to be amplified with a pickup. The composer indicates “This distorts and transforms the timbre of the real instrument and moves into a world of phantasy with its grotesque aural images.”³⁷ There is no further information given about this requirement.

3) Electroacoustic Specifications

a) Speaker Field Use

There is no information given about the technical requirements of the piece. The performance notes indicate a version of the tape is available on cassette or reel.

³⁷ John Rimmer, *Composition 10* (Catena Press), 1983.

b) Interactivity

The tape part is constant, and will remain the same for successive performances. There are various boxes that indicate how the performer is to interact with the tape. The climax of the piece is guided improvisation involving the performer reacting to and competing with the tape, eventually improvising a passage that is almost impossible to play.

c) Content of the Electronic Media

The only indications of the contents of the tape are written cues in the music. The descriptions of sounds on the tape are cues given in places to facilitate coordination between the soloist and the tape.

1) Basic Information

a) Title: *Musik für Tonband und Kontrabass Solo*

b) Composer: Andrej Dobrowolski

c) Date of Composition: July 2, 1977

d) Publishing Information

Edition Modern

No date provided.

e) Electronic Media and Instrumentation

Composer-produced tape.

Double Bass

f) Duration: Not provided.

g) Dedicatee: Bertram Turetzky

2) Score

a) Notation

The score consists of three staves, one for the double bass part, one indicating the register of the tape part, and one indicating the spatial locations of the audio. There is a performance note indicating the extended techniques used and their respective symbols. There is no time signature or key signature. The score shows arrows and graphic symbols indicating where the double bass and audio are to synchronize. There is a section where the bassist must sing and produce other vocal sounds such as tongue clicks; this is notated by a separate staff under the double bass part.

b) Electronics

The electronics are notated graphically. There are various lines and curves indicating the activity of the electronics.

c) Musical Content

This piece is characterized by angular and repeated melodic gestures, punctuated by Bartok pizzicato. There are elements of improvisation, indicated by headless stems.

There are also extended techniques such as fingernail rubs: a “tambourine roll,” which is a percussive sound made on the body of the bass: and vocal techniques.

d) Extra-Musical Content

There is drumming on the bass, vocal sounds, knocking and tapping on the body of the bass, and artificial harmonics.

e) Other Observations

This piece is unique among the pieces surveyed in that it provides a notation scheme for the movement and placement of sounds within the audio field.

3) Electroacoustic Specifications

a) Speaker Field Use

A stereo sound field is used for this piece. The spatial notation shows a true stereo field is required, with the audio actively moving between the left and right speakers, as well as returning to the center of the two speakers.

b) Interactivity

The tape is provided by the composer, and remains the same from performance to performance. The graphic notation aspects of the score indicate the double bass part may change from performance to performance.

c) Content of the Electronic Media

There is no information available.

1) Basic Information

a) Title: *Roundabout*

b) Composer: Robert Carl

c) Date of Composition: November 21, 1985

d) Publishing Information

American Composer's Alliance
1986

e) Electronic Media and Instrumentation

Composer-produced tape.
Double Bass

f) Duration: 6 minutes, 45 seconds.

g) Intended First Performer: Robert Black

2) Score

a) Notation

The score is written entirely in traditional notation. There is a free tempo section near the end of the piece that is notated by a bracket over the staff indicating the duration of the free tempo section.

b) Electronics

The electronics are notated on separate staves under the double bass part. These staves vary in number during various portions of the piece and range from one to five staves. The electronics are notated using cues and percussion notation in the context of traditional notation; that is, measures and time signatures.

c) Musical Content

This piece is characterized by very linear chromatic gestures organized around a low E pedal (the open fourth string). There are very few large leaps until the latter portion of the piece. This coincides with an increase in rhythmic activity. Structurally, this work is

divided into two sections of unequal length, a slow prelude marked “Delicate, ethereal, little vibrato; like an ancient viol,” and a longer section marked “Legato, lightly dancing.” Throughout the piece, the composer specifies very little vibrato—from marking certain sections *senza vibrato* to a general direction indicating very little vibrato should be used over certain phrases. The tape is characterized by timbral development and percussive sounds derived from the double bass.

d) Extra-Musical Content

None.

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field Use

The performance instructions indicate a stereo reel-to-reel tape is to be used. There are no indications if the audio is available in another format.

b) Interactivity

The tape part is supplied by the composer and does not change from performance to performance. The integration between soloist and audio is the responsibility of the performer.

c) Content of the Electronic Media

According to the performance notes, the tape sounds are generated digitally from the Synclavier II. The sounds consist of two “families” of sounds: sustained timbres derived from the E string of the double bass and percussive knocking sounds on the double bass. The sustained tones are subject to timbral development.

1) Basic Information

a) Title: *The Death of Desdemona*

b) Composer: Frank Proto

c) Date of Composition: 1987

d) Publishing Information:

Liben Music Publishers

1987

e) Electronic Media and Instrumentation:

Composer-provided Audio, available from publisher.

Double Bass, with slight reverberation.

f) Duration: 15 minutes

g) Dedicated to Barry Green

2) Score

a) The score is entirely traditional. There are time signatures, metronome markings, and timing cues to aid the performer's synchronization with the audio.

b) Electronics

There is a separate system for the electronic portion of the work. It consists of standard notation with selected written cues that describe the sounds heard on the tape.

c) Musical Content

This piece is a fantasy on the material heard in Verdi's opera *Otello*, Act four. The treatment of the material ranges from quotation to significant elaboration. This variety of treatment forms the melodic and harmonic foundation of the piece, and is present in both the double bass and tape parts of the work.

d) Extra-Musical Content

None.

e) Other Observations

The performance notes include very explicit instructions regarding the technical aspects of this piece. The first indication in the notes concerns the technical specification necessary to perform the piece; this included discussion of the use of reverberation on the double bass. The notes specify "A high quality reverberation unit or effects processor with a reverberation program should be connected to the (sound) system."³⁸ The notes also indicate that the bass "...should be miked [sic] closely to avoid feedback."³⁹ A preference for using a microphone on the bass is implied by the indication "A pick-up attached directly to the double bass may be used as a fill-in option."⁴⁰ One potential contradiction in the direction indicate that while it is important that the bass "retains as natural of a sound as possible throughout the performance."⁴¹ the next indication discusses the use of the reverberation effect, indicating "Reverberation should be used only on the bass, not the tape."⁴²

3) Electroacoustic Specifications

a) Speaker Field Use

The tape and technical directions specify a stereo speaker field.

b) Interactivity

The tape part is static from performance to performance. The performer is responsible for obtaining a CD containing the electronic material from the publisher.

c) Content of the Electronic Media

The electronics extend the range of the double bass, reflect the melodic gestures performed by the double bass, and develop and explore different timbres implied by the solo double bass part. The tape part was created on the Synclavier Digital Music System.

1) Basic Information

a) Title: *Lyric Caprices*

b) Composer: Robert Rollin

³⁸ Frank Proto, *The Death of Desdemona* (Cincinnati: Liben Music), 1987.

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid.

- c) Date of Composition: no information provided.
- d) Publishing Information
Seesaw Music Corporation
1989
- e) Electronic Media and Instrumentation
Composer produced tape
Double Bass
- f) Duration: no information provided.
- g) Intended First Performer/Dedicatee: Charles Hoag

2) Score

a) Notation

The score combines traditional notation with graphic notation. The two channel audio is represented by a combination of traditional notation and graphics, and the double bass part is written in a conventional manner. There are no extended techniques in the piece that require special notation.

b) Electronics

The electronics are notated on two staves indicating separate channels of audio. These staves combine traditional notation, unconventional notation that retains aspects of standard notation (predominantly note heads with an extended horizontal line to indicate duration), and graphic symbols to indicate activity in the tape portion. An explanation of various cues and symbols is provided in the performance notes.

c) Musical Content

Each movement uses a highly chromatic melodic vocabulary. While not twelve tone, the melodic content emphasizes specific intervals, such as the tritone, major seventh, and minor second rather than any specific tonality. The melodies manage to be lyrical and angular simultaneously by using extensive octave displacement in otherwise linear gestures.

d) Extra-Musical Content

There are no extra music requirements in this piece.

e) Other Observations

The two staves, one for each channel, indicate a stereo field is required. There is a note in the performance guide indicating that starting instructions refer to “the reel to reel version only” which indicates there are versions of the tape part on other types of media.

3) Electroacoustic Specifications

a) Speaker Field Use

There is no information given about the technical requirements of the piece. Again, the two staves in the score indicate a stereo field is required.

b) Interactivity

The tape part is constant, and will remain the same for successive performances.

c) Content of the Electronic Media

The only indications as to the content of the tape part are given in the performance notes, in which a brief description of certain cues is provided.

From this information, a partial list of the contents of the tape can be determined, including violin samples, multiple oscillators using a variety of sound waves, pink noise, white noise, and “sustained chordal structures—four pulse-wave oscillators, high frequency.”⁴³

1) Basic Information

- a) Title: *Sidereal Liaisons*
- b) Composer: Kevin Hiatt
- c) Date of Composition: 1989
- d) Publishing Information
Miami Music Editions
1989
- e) Electronic Media and Instrumentation
Digital Synthesized Tape
Double Bass with suggested amplification.
- f) Duration: Not provided.
- g) Intended First Performer or Dedicatee: Not provided

2) Score

- a) Notation
The score uses traditional notation for both the double bass and the tape parts. There are no examples of experimental notation in the solo double bass part.
- b) Electronics
The electronics are notated in traditional notation. The electronics use two to three staves. There are occasional written descriptions of the sounds included on the tape, but the majority of the electronic notation is traditional.
- c) Musical Content
This piece uses *jazz pizzicato* in the closing sections of the work. The melodic material is organized around an expansion and elaboration of the major ninth interval. The harmonies are organized around an E pitch center, though the work should not be thought of as having a key. The melodic gestures are linear but dissonant. The tape acts as a clear accompaniment to the solo double bass.
- d) Extra-Musical Content
None.
- e) Other Observations
There are no instructions for the technical aspects of the work. There are also no instructions given on how to obtain the tape.

⁴³ Robert Rollin, *Lyric Caprices* (New York: Seesaw Music Corp.), 1987.

3) Electroacoustic Specifications

a) Speaker Field Use

There is no information about the speaker field. The use of a digital tape implies at least a stereo field. As explained previously, the score contains no technical information, making any conclusions about the speaker field the assumptions and the responsibility of the performer.

b) Interactivity

The composer provides the audio, and due to the fixed nature of the score, the audio will remain the same for performance to performance.

c) Content of the Electronic Media

The descriptions of certain sounds in the score give some indication as to the nature of the tape. However, there are very few of these indications, thirteen indications of thirteen pages of music. As a result, making observations as to the content of the tape is very difficult.

1) Basic Information

a) Title: *Three Pieces for Double Bass and Tape*

b) Composer: Orlando Jacinto García

c) Date of Composition: 1990

d) Publishing Information

Kallisti Music Press

1998

e) Electronic Media and Instrumentation

Composer-provided audio.

Double Bass

f) Duration; 25 minutes, 30 seconds.

g) Intended First Performer or Dedicatee: Not specified.

2) Score

a) Notation

The score consists of the double bass part notated on one staff. Rhythmic notation is unconventional. Sustained notes are indicated by a black notehead with a line indicating duration. Faster gestures are indicated by conventional rhythmic notation. A metronome marking indicating the speed of the quarter note indicates the tempo of each gesture.

b) Electronics

The electronics are not notated. Synchronization of the double bass and audio is indicated by analog durations written above the score.

c) Musical Content

Piece Number One is characterized by long, quiet, sustained notes, some lasting up to one minute. These pitches are usually organized around a whole step. When large leaps occur, they are always followed by more whole step activity. Piece Number Two is characterized by more rhythmic activity. The melodic material is much more angular.

Piece Number Three returns to the sustained textures, but adds more timbral variation. These variations include *sul ponticello*, tremolo, and artificial harmonics.

d) Extra-Musical Content

There is no extra-musical content.

e) Other Observations

There is no information provided in the score or in the performance notes about the electronic portion of the work. The only information in the score about the integration of the two portions of the piece are the elapsed time indications above the staff and the indication that the “tape and live bass parts should be soft throughout.”

3) Electroacoustic Specifications

a) Speaker Field Use

Not specified.

b) Interactivity

The electronics are constant from performance to performance. Interaction is indicated by written directions above the staff, indicating elapsed time and entrances of the tape portion.

c) Content of the Electronic Media

There is no information provided.

1) Basic Information

a) Title: *Kontrabass*

b) Composer: Karlheinz Stockhausen

c) Date of Composition: 1995/1996

d) Publishing Information

Stockhausen Verlag

1999

e) Electronic Media and Instrumentation

The audio is available in either a two channel CD configuration, or an eight-channel configuration, for a Tascam 8-track machine.

Double Bass with contact microphone amplification.

A sound projectionist is used to manipulate levels in real time.

f) Duration: 8 minutes, 30 seconds.

g) Intended First Performer/Dedicatee: Not Available

2) Score

a) Notation

The score has aspects of traditional notation such as a staff, measures, standard note shapes, dynamics, and rhythms. It lacks time signatures. The unconventional aspects include the theatrical aspects, such as the dialog, dramatic physical gestures, and the level and fade indications of the electronics.

b) Electronics

The electronics are not notated. The only directions indicate the fades and decibel levels of the electronics. The score gives precise directions on how to obtain the audio portion from the publisher.

c) Musical Content

The first two pages of the piece feature various repetitions of a major seventh, notated A to A-flat (more precisely, a diminished octave). The last page is a pizzicato elaboration of that interval.

d) Extra-Musical Content

The piece is very theatrical. There are stage directions, dialogue, dramatic gestures, and a cameo appearance of a gong-banging percussionist, dressed as a mummy. The piece is a scene from *Licht*, a massive opera cycle representing the seven days of the week. *Kontrabass* is from *Mittwoch*. The bass is used as drum. There are explicit instructions regarding a *col legno* gesture, a bow bounce, and a scratch tone. All these instructions may be found in the prefatory notes of the score. A percussionist dressed as a mummy is required to strike a gong in the performer's face. The performer is then to fall with the double bass landing on top of them. The mummy runs off stage. After the fall, the bassist is to rise cheerfully and conduct the tape. There is no indication that these theatrical elements can be omitted in a concert performance.

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field Use

The score indicates that either of the two versions may be performed, and has detailed specifications for either a stereo or eight channel performance.

b) Interactivity

The electronics remain the same for all performances. The volume level is performed by a sound projectionist and is notated very precisely.

c) Content of the Electronic Media

The tape is unavailable unless obtained from the publisher. There are written directions indicating some of the sounds heard on the audio, including an orangutan laughing, a horse, and the creaking of a sailing ship.

1) Basic Information

a) Title: *Androgyne, Mon Amour*

b) Composer: Barry Truax

c) Date of Composition: 1997

d) Publishing Information:

SOCAN

1997

- e) Electronic Media and Instrumentation:
Two Digital Soundtracks
Double Bass
- f) Duration: 16 minutes.
- g) Intended First Performer or Dedicattee: Robert Black

2) Score

a) Notation

The score uses mostly conventional notation with some unconventional features that indicate the extended techniques and theatrical elements involved. These unconventional features include note heads without stems, stems without note heads to indicate random pitches, solid lines that indicate improvisatory content (which is generally theatrical). This is combined with conventional notation for many gestures. Tempo and durations of each gesture are implied by the text, which is placed below the electronics staff, and a periodic indication of elapsed time.

b) Electronics

The electronics are notated on a staff below the solo double bass line. Arrows between the staves indicate synchronization between the solo double bass part and the electronics. The electronic notation consists solely of traditional musical gestures; there are no symbols or unconventional notation.

c) Musical Content

The melodic gestures are organized around elaborations of an octave. They are mostly lyrical and conjunct. There are very few dissonances, leaps, and angular lines. The harmonic implications tie the theatrical symbolism to the musical content; the principal harmonic areas are D, E, A, and G, which correspond with the open strings of the double bass (for more information, see the Extra–Musical Content section).

d) Extra-Musical Content

This piece is based on a poem by Tennessee Williams. The entire poem is read during the piece. The reading makes up portions of the audio part, and the solo double bassist speaks some dialog from the poem. The soloist is required to be male. Certain wardrobe items are specified. The bassist is required to light a cigarette, manipulate the height of the endpin to distort visual perceptions, and use an onstage chair as a prop. Throughout the piece, the double bass serves as a symbol of the male soloist's lover.

e) Other Observations

This piece is paired with *Wings of Fire*, for female cellist and audio. There is also a video version of, produced in 2001. The work is a celebration of homosexuality. *Androgyne, mon Amour's* score makes no mention of any requirements regarding the sexual orientation of the performer, merely requiring a male performer.

3) Electroacoustic Specifications

a) Speaker Field Use

This piece is for two digital soundtracks. The score provides no information on the technical requirements required to reproduce the audio portion of the work.

b) Interactivity

The audio remains constant from performance to performance. While the theatrical elements also remain the same, the musical portions of the solo double bass part allow for certain flexibility, used are used to enhance the theatricality of the piece.

c) Content of the Electronic Media

The soundtracks consist of the complete text of the poem. The soundtracks also make use of what the composer refers to as resonators.

According to the composer, these resonators “model the characteristics of the open strings of the instrument, thereby linking them sonically and musically, as if each is speaking through the other.”⁴⁴

1) Basic Information

a) Title: *Paleo*

b) Composer: JoAnne Kuchera–Morin

c) Date of Composition: 2003

d) Publishing Information:

Discordia Music

2003

e) Electronic Media and Instrumentation:

Composer produced digital audio

Double Bass with amplification and reverberation

f) Duration: 8 minutes, 30 seconds.

g) Intended First Performer or Dedicattee: none listed

2) Score

a) Notation

The score uses traditional notation. The only unconventional features are the absences of bar lines and time signatures. Quarter tones are indicated by symbols derived from their respective accidentals. The score is notated on a four line staff, one line indicating the solo double bass part and three indicating the audio part. Overall, the score adheres to a very strict and traditional notation convention. Synchronization between the double bass and audio is achieved by elapsed time indications over the score.

b) Electronics

The electronics are notated on a three-line system. They are notated in a traditional manner. Musical cues in the electronics are indicated by traditional notation. Other notational symbols include bold lines and the standard glissando line to indicate texture.

c) Musical Content

Paleo is based on the idea of expansion. The minor second is the most important organizational feature, both harmonically and melodically. As the piece progresses, the minor second idea expands into larger melodic gestures. The piece is very angular; even the comparable lyric material features very disjointed rhythms and intervals. The piece

⁴⁴ www.sfu.ca/~truax/andro.html Internet; accessed 26 April 2007

also uses quarter tones and extended techniques to provide a feeling of expansion during the piece. The melodic material uses the entire range of the double bass. Abrupt changes of register further emphasize the angular nature of the solo double bass part.

d) Extra-Musical Content

There is no extra-musical content.

e) Other Observations

This piece was the winner of the 2003 International Society of Bassists's composition competition in the double bass and media category.

3) Electroacoustic Specifications

a) Speaker Field Use

This piece is for two-channel digital audio.

b) Interactivity

The audio remains constant from performance to performance. In addition, the detailed nature of the score indicated that synchronization between the audio and the solo double bass should remain constant from performance to performance.

c) Content of the Electronic Media

The audio uses sampled and manipulated didjeridoo and double bass sounds to create a primitive, desolate soundscape.

Chapter 4

Works for Double Bass and Electronic Effects

The works included in this section make up a small percentage of the electroacoustic solo double bass repertoire. The electronic component of these works is generated in real time by processing the double bass through an electronic effects unit. These works were composed from the mid-1980's onward. These works are the earliest examples of interactive composition for the double bass, as the solo performer is responsible for the realization of both the solo double bass part and the electronic portions of these pieces. Marc Sabat's *Spectral Canon No. 1*, discussed in chapter 2, also makes use of electronic effects, and can be thought of as an example of both a self-prepared or ensemble-type piece and a work for double bass and electronic effects.

Works included in this section:

- 1) *On an Experiment Seeking Favour and Love II*, John Voight, 1980
- 2) *Résonances Polyphoniques ou La Montée des Oiseaux*, Michaël Levinas, 1985
- 3) *Hesperonis: Sen (à Perotin)*, Piotr Grella-Mozejko, 1990
- 4) *Folia*, Kaija Saariaho, 1995

1) Basic Information

- a) Title: *On an Experiment Seeking Favour and Love II*
- b) Composer: John Voigt
- c) Date of Composition: Not available.
- d) Publishing Information
Hornpipe Music
1980

e) Electronic Media and Instrumentation

The performance notes do not contain any information on obtaining the tape. They do indicate the tape part is “essentially complex and synthesizer permutations of the bass part. As such, the tape part could be dispensed with, and the bassist's notes could be altered by any electronic means.”⁴⁵

Double Bass, possibly with amplification. A literal reading of the performance notes suggests a performance on Electric Upright Bass may be possible.

f) Duration: not indicated.

g) Dedicatee or Intended First Performer: not indicated.

2) Score

a) Notation

The score uses traditional notation. Improvisation is indicated by the written direction to improvise, followed by a description of what material to use. Extended techniques are described in the performance notes. There are further descriptions of extended techniques and their respective executions above the staff.

b) Electronics

The tape portion of the piece is not indicated in the score. Instead, entrance and exit tape cues are indicated by written cues above the staff.

c) Musical Content

The material features highly chromatic melodies performed with traditional technique punctuated by sections of extended techniques. There are scattered quarter tones throughout the piece, indicated by arrows indicating direction. The dynamic nature of the audio suggests harmonic implications could change with each performance. Each melodic gesture suggests its own harmonic construction.

d) Extra-Musical Content

None.

e) Other Observations

None.

3) Electronics

Referring to the section on Electronic Media, any comments regarding the electronic portion of the work are impossible to make. However, the direction previously mentioned indicating “the bassist's notes can be altered by any electronic means” implies unlimited possibilities in the realization of the electronic component of the work.

1) Basic Information

a) Title: *Résonances Polyphoniques ou La Montée des Oiseaux*

b) Composer: Michaël Levinas

c) Date of Composition: 1985

⁴⁵ John Voight, *On an Experiment Seeking Favour and Love II* (Hornpipe Music), 1980.

- d) Publishing Information
Editions Salabert
1985
- e) Electronic Media and Instrumentation
Digital delay and reverb, possibly operated by an audio technician.
Double Bass, with possible amplification
- f) Duration: not given.
- g) There is no intended first performer or dedicatee indicated.

2) Score

a) Notation

The notation is traditional. There are some text directions over certain measures in the text that indicate the performer is to wait for certain electronic events to unfold. All the musical events for the performer are notated in a traditional manner. There is a guide for the extended techniques in the performance notes.

b) Electronics

The electronics consist of a digital delay unit and a reverb unit. The electronics are not notated at all, with the exception of various empty measures (where the solo double bass rests) that contain written descriptions of how the performer is to proceed as the electronics unfold. The length of the electronic gestures during the score is expressed with a fermata over a blank measure, and a duration in seconds indicated over the measure. The exception is the last measure, where the duration is at the discretion of the technician.

c) Musical Content

In the performance notes, the composer indicates that the sounds are not typical of Western art music. The delay and reverb will vary the electronic content. There is little technical information provided about the electronics as far as settings or parameters are concerned. The piece is a quasi-programmatic piece that depicts birds and bird-like sounds.

d) Extra-Musical Content

Extended techniques include fingernail stop (using the fingernail to dampen a vibrating string), various glissandi, the “seagull” glissando, bending strings, and *col legno*.

e) Other Observations

This piece possibly requires two performers. The technical instructions are very sparse, and at one point, make mention of a technician. This is the only mention of another performer used to affect the digital audio. The technical information, score information, and all written instructions are in French.

3) Electroacoustic Specifications

a) Speaker Field Use

No speaker field is specified, but most delay and reverb systems use stereo speaker fields. The lack of any speaker field indications suggest that speaker field use is not a primary focus of the electronic component.

b) Interactivity

The electronics will change from performance to performance, mostly due to the lack of any detailed technical information regarding the electronics' settings and parameters.

c) Content of the Electronic Media

The audio consists of delay and reverb effects that manipulate the sound of the solo double bass in real time. The electronic portion of the work is created in real time, and acts as a kind of counterpoint to the solo double bass part.

1) Basic Information

a) Title: *Hesperonis: Sen (à Perotin)*

b) Composer: Piotr Grella-Mozejko

c) Date of Composition: 1990

d) Publishing Information

Canadian Music Centre

1993

e) Electronic Media and Instrumentation

Double Bass

“any kind of signal processing, including computers.”

f) Duration: not given

g) Intended First Performer or Dedicatee: In memory of Claude Vivier

2) Score

a) Notation

The notation is mostly conventional with a few interesting features. The work is notated on two systems, one in treble clef and one in bass clef. The notation is very complex, which is indicative of the level of virtuosity involved to perform the piece. This work is part of a genre of scores that feature very complex notation found in the work of composers such as Brian Ferneyhough.

b) Electronics

The electronics are not notated. The only indication that electronics are part of the work is in the performance notes where the composer indicates the work will be enhanced by signal processing. The performance notes indicate that the work could be performed without electronics.

c) Musical Content

This piece is described by the composer as “a very short virtuoso piece.” The piece requires a vast amount of extended techniques. The composer also demands a high level of left hand independence; often, the left hand will be playing two different parts simultaneously. The material does not directly reference any works by Perotin, but the use of harmonization and heterophony in fourths tend to echo medieval composition.

d) Extra-Musical Content

None.

e) Other Observations

None.

3) Electroacoustic Specifications

a) Speaker Field Use

The composer has left any and all electronic choices completely to the performer.

b) Interactivity

Any and all interactive choices are left to the performer.

c) Content of the Electronic Media

The content of the media will be dictated by the double bass part, and will closely mirror the solo portion of the work.

1) Basic Information

a) Title: *Folia*

b) Composer: Kaija Saariaho

c) Date of Composition: 1994-1995

d) Publishing Information

Chester Music

1995

e) Electronic Media and Instrumentation

The performance notes indicate the following is necessary: A Lexicon LXP-15 or a Yamaha SPX1000, at least two speakers, a mixer, a stereo amplifier, and one to two microphones for amplification.

Double Bass with amplification.

f) Duration: Not indicated

g) Intended First Performer: Commissioned by the GRAME for John-Pierre Robert.

2) Score

a) Notation

The score uses various aspects of conventional notation, while not using other aspects. Elements such as key signatures, time signatures, and bar lines are not used, while traditional note head shapes, clefs, and timbre designations are used. Timbre changes from *sul tasto* to *sul ponticello* are indicated by their respective abbreviations and a connecting line between lines. The performance notes have a guide to the extended techniques such as quarter tones, scratch tones, and rhythmic fluctuations.

b) Electronics

Since the electronic portion of the work consists of real time multi effects processing, the electronic notation consists of letters that indicate which presets to use on the multi-effects units. In addition, the performance notes indicate which effects to use, and the settings for each parameter.

c) Musical Content

The piece uses D and E as pedal points, which alternate repeated gestures, mostly linear in nature. There are various melodies that utilize bariolage gestures across four strings. Change of timbre is used to develop the repetition of most melodic gestures.

d) Extra-Musical Content

None.

e) Other Observations

The electronics are optional. *Folia* includes two different versions, one with electronics, one a solo acoustic version.

3) Electronics

a) Speaker Field Use

The performance notes for the electronic version indicate at least two speakers should be used, with stereo amplification. The indication “at least two speakers” implies that a larger speaker field, such as surround sound or quadraphonic sound might be possible. However, the stereo amplifier requirement seems to imply this work is intended for stereo performance only. Given the use of multi-effects units and the ever changing state of such technology, any speaker field with the exception of the mono field seems to be permissible.

b) Interactivity

The electronics portion of this work suggests a further definition for interactivity. The performer generates the electronic sounds while performing the piece, and manipulates the electronics effects. The electronic effects are controlled along very precise directions, which, in theory, will produce similar results from performance to performance.

c) Content of the Electronic Media

The effects involved are various reverb and digital delay settings.

Chapter 5

Summary and Concluding Remarks

There are three primary areas of electroacoustic solo double bass repertoire: Bass ensemble pieces, pieces for double bass and audio, and pieces for double bass and effects. This guide places each score into one of these three broad categories, based on the technology available to produce the audio portions of the pieces. By organizing each category chronologically, the technological evolution of these pieces can be observed.

Composers have developed various ways to notate electronics. Some composers choose not to notate the electronics at all, as in Orlando Jacinto Garcia's *Three Pieces for Double Bass and Tape*. Other composers notate the electronics very explicitly, as in Andrej Dobrowolski's *Musik für Tonband und Kontrabass Solo*. The issue of notation affects the interaction of the double bass with the electronics.

Obviously, this is a growing body of repertoire and there are many pieces not published commercially. This means that the body of repertoire is far larger than the 30 pieces included in this document. Future editions of this document will address this disparity by including a section for self-published pieces, contact information for composers and publishers, and a discography. Subsequent editions will include new pieces as they are published. Also, this volume only deals with solo double bass and electronics. There are several electroacoustic chamber pieces that feature the double bass in a prominent role.

Since audio portions are not available with the score, some works face a kind of musical extinction. Composers should try to make sure the audio portions of the score are available. There are many published pieces included in this anthology that will probably never be performed unless this situation can be addressed.

A possible solution is the creation of an online archive. Music technology is a growing field. The LP, cassette tape, compact disk, and most recently, mp3 have changed how people experience music. The Internet has changed how people receive information. It would now be possible to create an online archive where the audio portions of these works are available for download in a variety of formats.

The variety of ways composers notate the electronic portions of these pieces suggest that any consensus of standard notation regarding electronics is unlikely to be achieved in the near future. Because of the lack of a standard practice for electronic notation, information regarding the electronic portions of these pieces varies widely. Unfortunately for the performer, this can result in the extremes ranging from not enough technical information being provided: to the inclusion of highly detailed technical specifications that assume the performer possesses a high degree of technological proficiency.

Detailed technical instructions also suffer from obsolescence. As an example, the reverberation effects unit required for Kaija Saariaho's *Folia* is no longer in production. Works for MIDI bass or electronic upright bass are recent enough that very few scores are commercially available. As a result, these pieces are not represented in this guide. As the scores become available, future editions of this guide will include works specifically for these instruments.

Works for electronics and solo double bass make up a growing and significant portion of the double bass repertoire. The International Society of Bassists recognizes the significance of this repertoire when it including a separate category for electroacoustic works in their biannual composition contest. This guide provides insight into this growing and significant field of composition and performance.

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<http://www.pulitzer.org/index>

<http://www.sfu.ca/~truax/andro.html>

Appendix A: Works Not Included.

Some of the works located during the research of this document are not included in annotations. These works are mostly self-published, which falls outside the scope of this document. There are some pieces that are commercially available, but were unobtainable. Finally, one work was withdrawn by the composer.

Self-Published Works

Ager, Klaus

Klaage: für Kontrabass und Tonband

Barsom, Paul

Abadja lutes: for contrabass and audio

Burns, Kristine Helen

Underwear: for contrabass, stereo tape, and video

Carlentini, Massimo

Mutamenti: for double bass and computer

Deak, Jon, *Bland diet: a gastrointestinal portrait: for solo contrabass with 4 (or more) channel tape or 5(or more) live contrabasses*

Justel, Elsa

All+: for double bass and tape

Lucier, Alvin

A Tribute To James Tenney (1986), for solo double bass and pure wave oscillators

Weir, Judith; Depinska, Maria

Spij dobrze: na kontrabas i tasme

Unobtainable Scores

Jacobs, Kenneth

There's another one tomorrow: string bass & tape

Sullivan, Timothy

Composition for bass and tape

Withdrawn by the Composer

Birtwistle, Harrison

Chanson de gest: for double bass and tape

Appendix B: *Synapse/Valentine*.

Jacob Druckman's work *Valentine* has become a frequently performed example of modern double bass repertoire. *Valentine* is actually part two of a larger work, and is an example of a literal electroacoustic composition. Part one of the composition is a work for audio called *Synapse*. During a complete performance of *Synapse/Valentine*, the electronic portion overlaps with acoustic portion. The sounds on the tape are mirrored in the sound world of *Valentine*, which uses extensive extended techniques, including a tympani mallet, to realize the sound world. In addition, the score to *Valentine* uses the analog time line notation that has become a mainstream feature of electroacoustic double bass repertoire. These remarks are included to illustrate the variations possible when using the term electroacoustic, to show another method of composing pieces for double bass and audio, and to point out the precedent use of analog notation. Double bassist, composer, and sound artist Jeremy Baguyos has been working closely with the Druckman estate to restore the audio portion of *Synapse*, which will no doubt add another dimension to electroacoustic solo double bass repertoire.⁴⁶

⁴⁶ www.baguyos.tripod.com/cv/id23.html Internet; accessed 26 April 2007

Appendix C: A Partial, Annotated Bibliography of Double Bass and Electronic Music Resources.

Bahn, Curtis. *The S-bass*

www.arts.rpi.edu/crb

This article details the sensor bass, an invention and composition by bassist Curtis Bahn. It contains diagrams of setups, specifications, and the article contains several discussions of the instrument's potential.

Bahn, Curtis. *The Performance Interface*

www.arts.rpi.edu/crb

This article has details about programming and the interactive interface created by Curtis Bahn. It is an excellent primary source, a hands on look at the MIDI bass.

Dean, Roger. *Hyperimprovisation: Computer Interactive Sound Improvisation*

Middleton, Wisconsin: A-R Editions, 2003.

This is an excellent and current resource that contains information of various sub-genres from serious music to techno and an extensive discussion on software and software modification. It includes a bibliography and discography.

Delaney Kevin. "The Electric Upright: Common Ground for Bassists,"

International Society of Bassists, 19, no. 1(1993).

This is a long article with detailed pictures discussing the heritage, makers, benefits and drawbacks of the Electric Upright Bass. It has several profiles of past and present makers. No discussion of repertoire or MIDI applications is included since it is geared mostly to bassists with a need for amplification.

Emmerson, Simon, Ed. *Music, Electronic Media and Culture*

Burlington, Vermont: Ashgate, 2000.

This book contains a series of articles on aesthetics and electronics and their application to music. The article "Losing Touch" is of particular note as it discusses the role of the human performer in electronic music.

Farish, Margaret. *String Music in Print* 2nd ed.

New York: R.R. Bowker, 1973.

This is a list of published music for primarily bowed string instruments. It has one page devoted to electronic music, which shows the need for further research. This need was addressed in the 1998 supplement, where the listing was expanded. While it is still very incomplete (several published and widely available bass scores are not listed), it has useful information for chamber ensembles.

Grodner, Murray. *Comprehensive Catalog of Available Music, Books, Videos and Recordings for the Double Bass*, 4th ed. Littleton, Colorado: Grodner Publications: 2000.

A very thorough book, it covers published and non-published manuscripts for double bass in various combinations: solos, etudes, collections of material and chamber music. It is somewhat difficult to use; a comment table at the beginning requires a great deal of flipping back and forth. One needs to have a composer's name to use this text effectively.

Licata, Thomas, ed. *Electro-Acoustic Music: Analytical Perspectives*
Westport, Connecticut: Westport, 2002.

This book is a very current collection of analysis of important electronic works. It provides an excellent perspective on the current state of research and thought. The essays also delve into the technical aspects of electronic music. Composers represented are Stockhausen, Xenakis, and Risset, among others.

Neubert, David. "Electronic Double Bass Works," *International Society of Bassists* 7, no. 1 (1981).

This is a short article about electroacoustic music written for the double bass. It is significant because it is the earliest attempt at a catalogue of such works.

Neubert, David "The Extended Family: Electronic Bowed String Instruments," *American String Teacher*, 1984.

This is an article that details the history of the amplification of electronic string instruments. It discusses microphones, pickups, and new instrument creation. It also includes some information about the electric guitar and current instrumental innovations, such as the Chapman Stick.

Planyavsky, Alfred. *The Baroque Double Bass Violone* Translated by James Barket.
Latham, Maryland: Scarecrow Press, 1998.

The smaller companion volume to *Geschichte Des Kontrabasses* It essentially covers the historical period from 1600 to the early 1800's, and is the most thorough refutation of the violone=cello argument yet published.

Planyavsky, Alfred. *Geschichte Des Kontrabasses*
Tutzing: Hans Schneider, 1984.

917 pages of all things related to the history and development of the contrabass member of the string family. It contains a section on published repertoire, sorted by orchestration, yet there is no dedicated section on electronic repertoire. Still, a thorough and comprehensive source for all things double-bass related. As of this writing, it is available only in German.

Roads, Curtis, ed. *Composers and the Computer*
Los Altos, California: William Kaufmann, 1985.

This is a series of interviews and articles from various composers on their experiences with computers. It is an excellent primary sources for aesthetics and techniques of the electronic composer.

Roads, Curtis. *Computer Music Tutorial*
Cambridge, Massachusetts: MIT press, 1996.

This book is an immense textbook-like volume that is more akin to seven sources in one. It contains information on any topic related to computer music, from notation to studio building. Very complete, it would be hard to find a better one-stop source for a technical guidebook

Theberge, Paul. *Any Sound You Can Imagine: Making Music and Consuming Technology*. Hanover, New Hampshire: Wesleyan University Press, 1997.

This book is a history and critique of electronic music. It covers player pianos, the Moog, the early synthesizers, MIDI, and the adaptation of popular music to this technology. It is a very good study of current trends. It also contains information about the development and growth of the music industry.

Turetzky, Bertram. *The Contemporary Contrabass*, 2^d ed.
Berkeley, California: University of California Press, 1989.

The most complete guidebook to the modern double bass since 1945, this book discusses repertoire and performing techniques. It includes thorough bibliography and discography. It also includes a fingerboard and harmonic chart. It contains little discussion of electroacoustic double bass music.

Wick, Robert L. *Electronic and Computer Music: An Annotated Bibliography*
Westport, Connecticut: Greenwood Press, 1997.

An excellent resource, this book is inclusive and thorough, containing information on all things related to electronic music. It lacks a section on repertoire, but the appendix that lists dissertations is extensive and invaluable. Organized by histories, compositional aids, technology, this book is a must have resource for anyone doing work in electronic music.

Winkler, Todd. *Composing Interactive Music: Techniques and Ideas Using MAX*
Cambridge, Massachusetts: MIT Press, 1998.

A guide to using the software program MAX, which is used to create interactive music. It is very detailed, with a comprehensive bibliography. It is essential for the interactive composer.

Index of Works by Title

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Instrumental solo book for cello solo, bass solo and piano accompaniment. With solo part, standard notation, fingerings and piano accompaniment. 66 pages. Published by G. Schirmer, Inc. (HL.50262690) See more info! The six Vivaldi Sonatas serve a similar role as the Marcello Sonatas described above. They are slightly more difficult overall, but they should prove to be engaging and satisfying solo repertoire for the intermediate student. Six Sonatas Double Bass and Piano. By Antonio Vivaldi. Arranged by L Drew.Â Bach for the Young Bass Player (Double Bass / Piano) By Johann Sebastian Bach. Arranged by Mieczyslaw Kolinski, Frederick Zimmermann.