Hearing Voices: Interpreting Éliane Radigue, Listening to Dika Newlin, Tuning Judith Berkson

By

Judith Berkson

Faculty Advisor: Dr. Paula Matthesen

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Introduction

In *Hearing Voices*, I am speaking here about a broader term for voice. One that encompasses the singing voice, the spoken voice, and the artistic voice. This is not meant to confuse the issue, but to enrich it, bringing different modalities of sound, narrative, and art together to intertwine, as they sometimes do. I have chosen two subjects to speak about in addition to talking about my recent work, engaging with these subjects, and their voices, in various ways.

In hearing the voice of Éliane Radigue, I discuss interpreting her 1973 electronic work *Arthesis* as a means of engaging with her sound world firsthand. Working with the ARP 2600 I mapped out a live interpretation and describe the process and challenges of listening and transcribing to simulate the slow, barely perceptible changes so inherent in her music. In the second chapter, “Listening to Dika Newlin,” I wish to project the voice of, for the time being, an under the radar musical legend. Her voice is broad and hard to pin down, as it encompasses work in academia, composition and a late in life turn to pop culture and cult status.

In the final chapter, I will discuss some of my work singing and composing microtonally, tracing the background of my studies to my methods of teaching microtonal singing and playing to people who have not engaged with it previously. I will contextualize my work through other composers and approaches in microtonality especially as it relates to hearing and playing pitches on instruments and singing.
An undulating frequency, barely perceptible, then at once present. A quiet low oscillation beating rapidly but feeling slow. The frequency hums with a higher partial, leaving the tone sounding hollow, like an echo from its inception. You stay with the sound, in one place like a meditation, listening. It stays like this for a while. Slowly, the focus changes. You feel it in the center of your forehead, then in your cheekbones, now in your chest. Another frequency slowly fades in, but it isn’t intrusive. It is like a thought that has entered your head and you look at it. The two sounds hover together cohabitating, resonating softly. The sound of electricity, of machines humming. The sounds are very, very slow moving. As you listen you barely perceive the changes, and yet it is always changing. Beating patterns from the oscillations read as rhythms and overtones illuminate into harmonies. So much thought and careful consideration is felt in these sounds. The sounds are made to be followed through till the end, in a captive but dreamy attention that feels both deep and free.

“Everything I’ve ever done has been submitted to the different ways of listening, including distracted listening”\(^1\)

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I first heard the music of Éliane Radigue live at Issue Project Room in Brooklyn, New York in 2017. I had heard a few recordings previously but found the live setting to be especially revealing. The acoustic environment amplified the

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music’s reverberations even more strongly, bringing out the slow changes and waves of oscillations in her music to a fully immersive effect. I was drawn to Radigue’s music by these experiences and by her singular vision but also because of what I understand to be her aesthetic values: deep listening, slow development, economy of materials, and following one’s instincts. There are many more values to choose from.

Contemporary musicians look to Radigue as a precursor to ideas and directions in meditation music, sound baths and drone music. While she had come out of circles in Musique Concrète her ideas were a radical departure in that large gestures were almost non-existent through her use of synthesizers. She has been embraced by younger generations for these contributions, and for her singular, quiet, slow moving masterpieces.

Part of what drew me towards Radigue’s music was learning about her path towards this seminal body of electronic work. I became even more interested in learning about some of the struggles involved. Radigue worked with Pierre Schaeffer, the originator of Musique Concrète, in what was largely an all-male environment in the mid 1950’s. She was also a young mother. Radigue had been living in Nice with her husband and three small children when she first heard Schaeffer’s music over the radio. An opportunity to meet Schaeffer opened up while she was visiting her parents in Paris. Radigue became Schaeffer’s student and assistant.

“I had my first informal lesson…there were not very formal teachings about this discipline. There were only a few people who had interest, who came to watch and listen and try to get involved. The lessons were simply about being in the place…and participating. I cut my first magnetic tape there”.

Schaeffer even gave a letter on Radigue’s behalf to the radio station in Nice to further her work, but the head engineer was dismissive, and didn’t allow her studio time.

“So, I went back to writing my work on paper, waiting and dreaming for the time I would be able to get the equipment to allow me to do what I really wanted to do. I just had to wait and see. From time to time, when I came to Paris to visit my parents, I visited the Studio d’Essai de la Rue de l’Universite, I would visit Pierre Schaeffer and Pierre Henry, cut a little tape, do little things”.  

I was intrigued by the trajectory of Radigue’s development, how she steadily continued working and learning as she negotiated distances, pauses, setbacks and family responsibilities. After ten years in Nice, raising her children, and after separating from her husband, she returned to Paris and began working regularly again with Pierre Henry as his assistant. “What I’ve retained from that apprenticeship is the concentration and the slowness that is necessary for the subtle manipulation of potentiometers and microphones”. An eventual break with Henry who didn’t agree with what she was doing or the direction she was taking, Radigue started out on her own.

“After (working with Pierre Henry), I did everything I could to give myself the means of doing it, like going to the United States to have the opportunity to use the synthesizer which didn’t exist in France. To the GRM (Groupe de Recherches Musicales), the synthesizer appeared to be a devil-object”.

Though they remained friends, both mentors, Schaeffer and Henry, were ultimately unsupportive of Radigue’s own path and discoveries. She found more support in the United States through composers like LaMonte Young, Robert Ashley, Morton Subotnick, Laurie Spiegel, John Cage, Alvin Lucier and David Behrman and

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3 Nagoski (2017, 147).
5 Nagoski (2017, 152).
considers that generation and group of Americans to be her musical family.\(^7\) Perhaps it seems inevitable, though no less impressive that after this journey of stops and starts that Radigue managed to break out on her own.

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I knew that I wanted to contextualize and present the electronic music of Éliane Radigue alongside my own work, but how to present it? Radigue’s electronic music is pre-recorded, without a published score or a written imperative to perform it. At a performance of her music at Issue Project Room in October 2017, Radigue’s electronic piece *Mila’s Song in the Rain* from *The Songs of Milarepa* was played from the original 1983 recording. Her works for synthesizer are not typically interpreted live and with good reason. Radigue’s electronic pieces are tape pieces, completely finished. They are edited, put together and mixed from many hours of tape experimentation, to be played over a sound system by pressing start and walking away. But I did not know this at first.

I did know that Radigue’s main instrument during her electronic period was the ARP 2500 synthesizer. It was through this instrument that her sounds were created, filtered, and then recorded to tape, with sections to be chosen and ordered much later into a composite piece. I was becoming interested in playing the ARP 2600 which was at Wesleyan University and had been purchased by Alvin Lucier some forty-five years ago. I knew that I wanted to begin experimenting and interpreting Radigue’s music on the ARP 2600 although there were some differences between the two models, most importantly the ARP 2600 is semi-modular while

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\(^7\) Nagoski (2017, 153).
Radigue’s ARP 2500 is fully modular. The 2500 has two filters, while the 2600 at Wesleyan has one and there are some circuitry differences. Still, I felt that the analog sound and features on the 2600 were similar to the 2500 and were relatives in the same family.

I was particularly drawn to Radigue’s pieces *Arthesis* (1973) and used it as a starting point for my interpretation. It contains the central elements of her aesthetic during this period; slow changes, pulsing frequencies, minimal parts and quiet undulating tones and partials. Just from experimenting and improvising with the ARP 2600, it felt like something I might be able to reproduce on my own. I later learned that Arthesis was developed at the University of Iowa on a Moog synthesizer and finished at CalArts with a Buchla and ARP2600 (E. Radigue, personal communication, March 26, 2019). I knew that I did not want to recreate the development of the sounds in *Arthesis* exactly, but the style of their development. For Radigue, her music is never stable. As Radigue states, “It is ever changing. But the changes are so slight that they are almost imperceptible”.\(^8\) For me it was important to have the changes be imperceptible and cumulative as her aesthetic dictates. “This slow changing where we don’t even know that it is changing, and when we hear that it has changed, in fact it has taken place long before”.\(^9\) The dynamics in Radigue’s music are also of limited range, with pieces generally hovering around mezzo piano. If the one suddenly produces louder sounds by manipulating the filters or oscillators it can cause an unwanted awareness of change. For Radigue, she avoids sudden changes

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\(^8\) Radigue (2019, 49).
\(^9\) Radigue, cited in Rodgers (2010, 58).
in dynamics or content. As she states in interviews, “I immediately reject all the big effects. That was not my thing”.\textsuperscript{10} “I always avoid dramatic change”.\textsuperscript{11}

I began by setting each of the oscillator frequencies. Ironically, I found out later that this was also how Radigue began all of her pieces, by setting the oscillators first and leaving them there for the entire piece.\textsuperscript{12} I tuned each oscillator and found settings for the hertz, fine tune and pulse width which hovered around a slowly undulating, quietly pulsing composite. This quiet but subtly active hum defines \textit{Arthesis} and much of Radigue’s aesthetic. As I experimented, I sketched out my settings, carefully drawing the position of each of the faders on paper. With each subsequent session on the ARP 2600, I experimented with another section of the synthesizer; the filters, the ring modulator, the noise generator and oscillators. I collected my snippets of notation of the fader positions in a notebook and would recreate them with each practice session. I began to piece together these notations, moving the faders slowly in real time to recreate the subtle transitions of \textit{Arthesis}.

(See Fig. 1)

\begin{flushright}
\textsuperscript{10} Nagoski (2017, 152).
\textsuperscript{11} Radigue, cited in Rodgers (2010, 67).
\textsuperscript{12} \textit{Ibid.}\end{flushright}
Figure 1: Notes for Arthesis Interpretation

What I had not realized was that Radigue did not play the ARP in real-time to create her pieces. She did not record sounds chronologically but recorded segments to tape first, mixing only later as the very end of a long process. She would initially begin by having a structure or a theme in mind for a piece.

“I always have in mind what I want to do…the spirit of the piece. Whateoever you name it, it’s my leader. Let’s say, I always know if the piece will be three parts, five parts; looking for the sounds which would fit every part, I’ll know if this sound is good for the first part, the second part”.

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13 Rodgers (2010, 57).
To start, she would set the five oscillators around a similar range, typically 100-150 Hz with some being lower or higher by 25-50 Hz.\textsuperscript{14} Ring modulation, frequency modulations, amplitude modulations are added, and the results are sent to the ARP’s two main filters which Radigue’s calls “The marvels of this instrument, the best filters I have ever seen”.\textsuperscript{15} Very often after constructing and recording around a dozen of these segments she would walk away from the process for a few months to come back to it with fresh ears. “Then I listen again to all of the sounds I have collected, eliminate some of them, look at possible ways of putting them together, and I remake new sounds that are in line with those I have already have”.\textsuperscript{16}

The last two steps in her process were structuring the events of the piece and finally mixing. Radigue would draw out a score, a graph like map which she devised to show the pathways from modulators to filters and which segments to be placed where. These scores are not public\textsuperscript{17} and appear to be used as a tool towards the piece’s completion and not as a circulating score to interpret. Radigue describes the final step of mixing as the hardest work.\textsuperscript{18} As many as fifteen to twenty segments, would be mixed together through fading in, fading out and crossfading in a process of intense listening. She did this by very slowly fading and crossfading the segments manually. This was done straight through onto tape without editing so that if it was an eighty-minute piece and a mistake occurred in the seventy-fifth minute the whole piece would have to be started over again. This final mix was the completed piece.

\textsuperscript{14} IMAfiction #04 Éliane Radigue, Video, Austria: Institut Für Medienarchäologie, 2006.
\textsuperscript{15} Ibid.
\textsuperscript{16} Radigue (2018, 52).
\textsuperscript{17} Institut Für Medienarchäologie.
\textsuperscript{18} Rodgers (2010, 58).
When the piece was to be performed Radigue insisted on not being in the room. She sets up the equipment in a spot offstage and remains out of sight during the performance. She does insist on being in the room prior to set the speakers positions.

“I put all the equipment in a cupboard or in any other room, because I don’t want the equipment in the room where the audience is listening. I like to have just the audience with the loudspeakers around them. Carefully, I adjust the sound in the rehearsal space beforehand so that the people are able to listen as well as possible everywhere. I don’t like the idea of ‘You sit here in the middle; this is the best place.’ For me, that is not right. Everywhere, you should have something. This works very well with the sounds that I work with; the sounds go everywhere and come from everywhere when they are correctly projected in space”. 19

I was drawn to Radigue’s total vision for how her work should be constructed, presented and experienced. Her soundcheck was as part of the piece as working on her synthesizer prior to the performance. She insisted on listening in different seated spots. “Just turning the head from left to right, they can have different feelings about the sounds”.20 Similarly, her desire for invisibility during the performance may come from the idea that the room itself is really the instrument in the performance.

“Ideally, the sounds should give the impression of coming from everywhere but the loudspeakers. The loudspeakers should be forgotten. The space should be filled up with sounds, like a shell, as though you were in the body of a piano or an instrument. I mean the room being like the body of an instrument, and the people being inside the body. All the air should be moving and we should take a bath in it”.21

Listening to Radigue’s OCCAM XI played by Laetitia Sonami in October of 2017, I had that very impression in the forty-foot vaulted ceiling space of Issue Project Room in Brooklyn, New York. I began to not even think about the speakers but rather that the whole room was reverberating and amplifying. I happened to move

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19 Nagoski (2017, 149).
20 Ibid, 152.
from my seat to the other side of the hall and noticed that the effect remained. It was constant. The attention Radigue gives to the space itself in an extension of the deep listening she puts into making her pieces and explains why they have such a particular effect. It’s as if the deep layers of her listening translate into the deep layers of experience for the listener.

Learning that Radigue’s pieces were pre-recorded, I was then faced with a problem right away in my interpretation of *Arthesis*. Should I follow Radigue’s process of recording segments to tape to be mixed later, or continue my notations of the filter and potentiometer settings to play live on the ARP? In interviews, Radigue herself eschews the idea that her music could be played live. “It was impossible to perform.”22 The mixing was so complex that it was “impossible to reproduce in a live concert setting”.23 It would appear that the methods I had been cultivating were contrary to Radigue’s vision. Could I interpret *Arthesis* through a different process? What does it mean to interpret a work? Was any interpretation really justified because there was no directive to recreate the work? I decided to continue using my methods as long as I felt that the outcome sounded faithful to the work of Radigue. I felt I could achieve this by making a few simple decisions. One was that I felt strongly about working with the analog ARP 2600 rather than a digital platform because it was similar to the modality that Radigue worked with. Next, I knew that I would be able to interpret *Arthesis* not by reproducing it exactly, which would be impossible to replicate, but in the style of its durations, timbres and oscillations. Finally, I would try

22 Radigue, cited in Rodgers (2010, 57).
23 Electronic Beats.
to follow Radigue’s sensibility for slow moving, barely perceptible changes but I would achieve these through playing the ARP live.

The decision to play live came first from a misunderstanding. Listening to Arthesis, I had assumed the piece was live in the sense that it was a series of settings faded in and out on the ARP’s potentiometers and filters. I began to reproduce what I was hearing on the ARP 2600 in real-time. After learning that Radigue had mixed many segments together, I looked into doing just that with a multi-track Tascam cassette recorder, but I became ambivalent about the process. I felt like I was losing the thread of Radigue’s style when my attention shifted from the ARP to recording and mixing. As I thought about why I was feeling deterred, I remembered Radigue’s background in Musique Concrète. She meticulously edited countless tape loops as an assistant to Pierre Henry. When Henry was developing L’Apocalypse de Jean (1968) he installed two Tolanas tape machines in Radigue’s apartment for her to be able to work on. These tape machines would eventually become integral to her own compositional process.

Tape was a medium Radigue was used to, and I was not. The expertise needed to make the slow, barely perceptible changes could only have developed over a long time of working with tape, such as in Radigue’s background in Musique Concrète. For me, the immediacy of playing and hearing the ARP is what drove me to want to try Arthesis. The instinct to play with the instrument itself comes from my background as a musician and is what excites me most about music; physically experiencing, creating, and interpreting sounds. I wanted to inhabit the spaces Radigue created in her work but be in the center of those changes. Without tape, this
meant working on the ARP itself to maneuver the almost imperceptible slow change. I was very drawn to the slowness, to being inside of it, to following what the sound required however long that took. It was an exciting discovery.

I decided to stick to the methods which I felt confident in such as improvising, working with an instrument, and live playing. Often Radigue has stated in interviews that she is a “poor improvisor.” After studying her methods more closely, I believe this to be not entirely true, that there are some similarities in Radigue’s work to improvisation. She has said that she requires “lots of time to develop a work.”

Understandably this is antithetical to the immediacy of improvisation, but if improvisation is viewed as a way of integrating instincts, patterns, taste, ideas, and inspiration very quickly, then Radigue’s sense of working may be viewed on a similar spectrum as a slowed down version of the same process. Perhaps from this perspective a way to look at Radigue’s work would be to say it is one long improvisation. Although this may not characterize how Radigue views her own process, I find a sense of inspiration, search and discovery to be present in her music. Sounds feel as if they are organically unfolding in real-time, as if they were discovered or improvised in that moment.

As I developed my interpretation of Arthesis I came across several obstacles in the process. Through my notation I was able to designate a choreography of moves on the ARP’s faders to create the slow development and subtle changes, but there were limitations to the number of elements that I could control at once. For Radigue,

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24 Electronic Beats.
25 Institue Für Medienarchäologie.
mixing taped sections together could in a way simulate an expanded set of sounds, allowing for a richer palette to work with during transitions. All together I had three oscillators, a ring modulator and one filter so essentially, I could have up to five parts at once. Since in Arthesis, Radigue almost never expands past a certain field of sounds or an amount of parts at one time I was relatively confident that I could continue with my means but there were times when I wished I could have had one more element to work with, especially during subtle transitions.

Another problem was that contrary to Radigue’s performance practices, I needed to be physically in the room to play the piece. Part of the way that I negotiated this was by dimming the lights to near darkness and sitting behind the ARP where it covered most of my body. While I felt obscured, the top of my head poked out. I wasn’t sure if the audience seeing me distracted from the piece or from Radigue’s intention to let the sounds and the room speak on their own. Since this interpretation was an homage, a chance for me to engage with the ideas and experiences in Radigue’s music and not meant to replicate her entire practice, I felt okay in sharing some of the effort behind this difficult live interpretation, revealing some of my body, and humanness behind the process.

What I got the most out of engaging with Radigue’s music in a live setting surprised me. I thought that I was going to enjoy most working with the ARP and being in close proximity to the droning frequencies that permeate Radigue’s music. I thought that I would enjoy experiencing the room, its immersive sound, and subtly moving the faders along the matrix of pathways with my fingertips. Instead I felt the experience showed me the immense concentration and the letting go necessary to be
able to stay with sound for long time. *How long was too long? Surely it had been too long. What is happening? Nothing is happening but stay a little longer.* I had to continue past these thoughts, challenging myself to stay with the sound until it was ready to change. This is subjective, but I found that the way to begin to know when it was time to change was to wait. To wait past the questioning until the questions quieted, until I let go of the asking and was fully immersed in listening.

This listening took incredible energy. It meant inhabiting another artist’s sense of space and time different than my own. Working from a recording such as *Arthesis* is reminiscent of oral traditions in music where listening, playing and repetition reinforce a specific sense of time and space. How one engages through the mimetic process of listening, repeating and recreating is very different from interpreting a written score. Perhaps this is why Radigue chooses to work in a uniquely collaborative process with musicians in her more recent acoustic work. The works are constructed together in the same room with the musician where sounds are found on the instrument and then formed into structures. Once they are completed they are for that performer only. “My work with musicians is of course a sharing within the utmost respect for their personality and the intimate relationship they have with their instrument. Each piece is unique and can only be transmitted by them, if they want to.” (E. Radigue, personal communication, March 26, 2019).

While corresponding with Radigue in March of 2019 I had the opportunity to ask how she felt about musicians interpreting both her electronic and her acoustic work. She definitively said that it was not possible. I shared with her my interpretation of *Arthesis*. Her response was “Nothing to do with the original piece.”
You can sign by mentioning ‘inspired by’ but in no case can you claim an interpretation of this piece, of which the structure and meaning are completely different.

I thought about this distinction between inspiration and interpretation, about meaning and about Radigue’s response. My intention in working with *Arthesis* was to have a way to experience Radigue’s music for myself, deconstructing it both with my ear and through researching her, and then reconstructing it through a similar but ultimately different setup. I viewed my role as an interpreter, as one who is an explainer, a translator. To say the work was inspired by Radigue, for me, connotes being filled with the spirit of her which is acting upon my own creativity. In my interpretation of *Arthesis* I didn’t view myself as the creator of the work, but as an agent. While I may not have replicated the piece in its exact form or process, I did view it as her work and not as my own. By calling it an interpretation, I was hoping to distinguish it from a strict performance, knowing that I would never be able to capture the exact form of the piece, as it had never intended to be played live.

While this is clear to me in my mind, I completely understand Radigue’s sensitivity around performances of her compositions and work being put forth in the world. The very last thing I wanted was for Radigue to feel that her work was being in any way misrepresented. In retrospect, I could have titled the performance an *homage* or an *étude*. A different wording could have helped make clear that the agency lay with the performer. I still feel a connection to interpretation, much in the same way as when I interpret a Schubert song using a Wurlitzer or a harmonizer. I could never imagine calling it my own work. I recognize that there is a difference
between a Schubert score, intended to be played by others, and a tape piece as a fixed work. The question then arises about historical memory. I am certain that there are examples of musicians today who quote Radigue’s music or style without crediting her. I only hope that by presenting my version of *Arthesis* in an academic environment as part of my graduate work makes clear that this was an exercise in learning and in engaging with work which has profoundly affected me.
Chapter 2: Listening to Dika Newlin

As we continue to reckon with art and music’s histories of failure to properly acknowledge the works of women and people of color, it is interesting the slippage that still continues in this process of reconciliation and remembrance. Over a decade ago, Dika Newlin (1923-2006), a composer and professor whose seminal Schoenberg scholarship was published by the time she was twenty-two, who recorded for Deutsche Grammophon, composed at Bell Labs, and who towards the end of a long teaching career went on to become a septuagenarian and octogenarian punk rocker, B-movie actress, and Elvis impersonator, passed away without much fanfare at Imperial Plaza Manor Care in Richmond, alongside her closest friend, virtually broke. Dika Newlin’s life certainly deserves a full exploration. A full doctoral dissertation is in order, a book! There is a movie about her, Dika: Murder City (1995) which was directed by her friend and collaborator, the horror movie producer Michael D. Moore, and features performances by the then 74-year old Newlin, clad in black leather singing her punk rock songs and talking about her studies with Arnold Schoenberg. Newlin’s life exemplifies, quite pointedly, a path that traversed from formative years in modernism and its analysis to post-modern eclecticism, genre-bending, and exploration. In this short chapter I wish to call attention to some of her life and work with the knowledge that this space is far too small to capture this fascinating and complicated individual. I will focus on Newlin’s experiences as she or the people close to her have told them, both through her diary published in 1980 as Schoenberg Remembered: Diaries and Recollections, 1938-1976, as well as later
interviews which shed some light on her activities. I would like us to hear her creative voice whenever possible, since it has remained under the radar for far too long.

Dika Newlin was born in Portland, Oregon in 1923 but grew up in East Lansing, Michigan where her parents, both academics, taught at Michigan State University. A child prodigy, Newlin could read the dictionary at 3 years old and started piano lessons at age 6. Her teacher, the composer Arthur Farwell, encouraged her early interest in composing and she wrote her first symphonic piece, *Cradle Song* when she was 11. The piece was performed by conductor Vladimir Bakaleinikoff and the Cincinnati Symphony Orchestra. Newlin graduated high school at age 12 and was admitted to Michigan State where she graduated at 16 with a Bachelors in French Literature. It was reported in the New York Herald in 1939 that Newlin had the highest I.Q. in the school’s history.

Impressed by her composition, Bakaleinikoff encouraged her to pursue studies with Arnold Schoenberg even though he had no personal connection to him. In 1939 at age 14, Newlin enrolled at University of California, Los Angeles, where Schoenberg taught. Her mother accompanied her there because of her age. For five years Newlin studied with Schoenberg, eventually getting her master’s degree from UCLA. She continued PhD studies at Columbia University where she graduated with a doctorate in musicology at 22. It was the first degree of its kind to be given at Columbia. Her doctoral dissertation *Bruckner, Mahler, Schoenberg* was published two years later, a pioneering work in Schoenberg studies. She studied piano with Rudolph Serkin and Artur Schnabel and embarked on a performance career playing with various chamber groups as well as her own music.
Her post-graduate work included a year-long Fulbright scholarship spent in Austria researching Schoenberg’s early life and work. She also began what became a long career writing for music journals, book reviews and newspapers including *Notes, Perspectives of New Music,* and *Music Quarterly.* At this time too, she embarked on a teaching career, first at Western Maryland College and Syracuse University, followed by Drew University from 1952-1965 where she founded their music program. Newlin then moved to University of North Texas until 1973 followed by Montclair State University where she ran the Electronic Music Laboratory. Newlin’s final teaching position was at Virginia Commonwealth University from 1978-2004 where she founded their doctoral program.

In the 1980’s while at VCU Newlin began a new chapter collaborating on music with her students in bands and playing in rock clubs. When asked how a student of Schoenberg ends up in a rock band she began by replying, “Just lucky, I guess.”26 Brooke Saunders, a young rock musician at the time in Richmond had come to Newlin for help notating his music. He encouraged Newlin to perform and she began developing a cabaret act.

“in my solo songs…I have gone in a variety of directions. I have done some which are simply adaptations of classical music or contemporary concert music. I have a version, for instance, of one of Schoenberg’s cabaret songs in which I have not basically changed the harmony but have modernized the text. I have played this many times in night clubs to good success, and I think should Schoenberg come back and hear this, he would probably enjoy it very much! After all, he wrote for cabaret and clubs himself.”27

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27 Duffie.
Shortly after, Newlin and Saunders formed a band called “Apocowlypse” with current and former students of Newlin. “Interestingly enough, none of these players are music majors in the university.”\textsuperscript{28} Each of the members would bring in songs for the group to learn which they would present at local rock clubs. Newlin embraced the idea of shows with a mix of musical styles.

“We put together some concerts called the “Avant Classic Nights” in the night club Rockets which emphasized this very idea of bringing in people who are doing avant-garde things…electronic composers who put their music alongside rock musicians. This attracted a large body of people of all kinds. You would even see people from the symphony audience and from the classical side of the music school…a terrific variety.”\textsuperscript{29}

This experimentation went further. Already into her seventies she unveiled a new persona as a leather clad punk performer with dyed bright orange hair. As she started to be a fixture in the Richmond scene, getting notoriety for her performances, she began to be cast in cult films including Tim Ritter’s 1995 horror movie \textit{Creep}, where she plays motorcycle jacket wearing woman who poisons baby food in a supermarket. She was also featured in the movie \textit{Skulhedgeface} by the band GWAR, a metal band from Richmond known for their costumes, grotesque live stage shows, and for over the top graphic violence, political satire and scatological humor.

Occasionally she appeared as an Elvis impersonator and was featured in her own pin-calendar well into her 70’s.

\textsuperscript{28} Duffie.  
\textsuperscript{29} Ibid.
These experimentations seem at odds with her background and professional career as an academic and performer of serious music, but in fact she had been for some time challenging conventions in university music education. Starting in the mid 1960’s, during her tenure at University of North Texas she established herself as an eccentric professor, with an equally unique sartorial sense.

“Stick-thin, she dressed and behaved with utmost eccentricity. For instance, she might wear ugly, vividly colored print dresses offset by electric blue tights and tennis shoes. Her wild, wavy hair would often be a different color than its natural dark brown.”

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Donna Arnold, now a music reference librarian at University of North Texas, was a former student of Newlin’s. She recounts her years at UNT when Newlin would produce eclectic new music and multimedia concerts with a taste for humor, irony and satire especially when it came to conventions and her pedigree as a Schoenberg scholar. Arnold remembers Newlin being very supportive of her students, often collaborating with them in performances. She “actively involved her students in many controversial and unusual projects and performances. Her faculty recitals were extravaganzas.”

Figure 3: Newlin at University of North Texas circa 1970. Photograph by Donna Arnold.

Like in Richmond, Newlin gained a reputation for her inclusive, free-form concerts and became somewhat of a cult figure in the area.

“In Denton, Texas, she became a cultural icon and folk hero not only to music students and students in general, but also to hippie radicals who were not part of the university. They all came to her concerts, which were always packed; if someone arrived late, it was standing room only.”

31 Arnold.
32 Ibid.
Newlin presented concerts at UNT with an open-ended view of new music similar to her later years in Richmond, when she expanded into popular music. Her musical experimentation at UNT aligned with the developing movements of the late 1960’s and early 1970’s in tape, electronics, and computers, along with minimalist, and Fluxus inspired work. Her concerts reflected this variety and inclusion.

“her computer-generated sounds and visual imagery in the darkened concert hall created an all-enveloping atmosphere that kept audience members of that time spellbound. Sometimes the works were enhanced by activities of live performers…In contrast, some of her pieces had no computer sounds or visual imagery at all, but instead featured live performers in action.”

Newlin was also an early participant at Bell Labs as a resident composer in acoustic research. The program initiated by Max Mathews in the 1960’s became a famous incubator for computer music research. Interestingly, Newlin tells a story about how she may have had a hand in the program’s inception. While teaching at nearby Drew University 10 years earlier in the 1950’s she would put on Sunday afternoon concerts of 12-tone music by Schoenberg.

“(Drew) University is not very far from Murray Hill, where people like John Pierce, who invented Telstar, and Max Mathews…and many others were. John Pierce and Max Mathews came to one of my concerts one afternoon, and they heard me playing twelve-tone music and talking about it. They became aware of the mathematical manipulations that were going on. Max left that concert and said to John, as I heard only much, much later on, ‘You know, the computer could do something with this.’”

This story made it into Joan Peyser’s *The New Music* but without Newlin’s name attached. It read, “The project at Bell Labs began in 1957 when Max V. Mathew…director of the behavioral research department of Bell Laboratories,

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33 Arnold.
34 Duffie.
attended a concert of Schoenberg’s 12-tone works.” Ten years later Newlin would be asked to join a cohort of composers in that very program. Arnold recounts that Newlin would premier works she had been creating at Bell Labs at UNT, interspersing them with other experimental genres. Unfortunately, no video documentation of these works exists although some audio documentation remains at UNT’s libraries.

Dotting these electronic pieces and experimental music on Newlin’s concerts were works which reflected a playful and sometimes overt iconoclasm. In a piece entitled “Serial Music,” Newlin, carries a box of Rice Krispies onto the stage. She proceeds to pour the cereal into a bowl, pour milk on it, and eat it with a spoon in front of a microphone. Picking up all of the snap, crackle, and pops was part of the overall effect. Arnold describes another biting satirical piece entitled “Tape Music” which pokes fun at the foibles of the then new technology.

“It involved her standing and tearing off pieces of cellophane tape in front of a microphone, during which we co-presenters, showing our mounting disgust, eventually stopped her by wrapping her with duct tape till she could no longer move her hands or arms. We then led her off-stage.”

Most of these pieces were satirical takes on Dika’s exalted reputation as a Schoenberg disciple or on the heavy pretense surrounding experimental music. “She programmed them between computer pieces, or occasionally even next to works for traditional instruments.”

While these concerts excited her students and the community at large, they left her at odds with the faculty, who Arnold reveals had a hard time parsing her

36 Arnold.
antics from her more serious scholarship. In some of the final pages of Newlin’s 1980 memoir *Schoenberg Remembered* there is a revealing passage that acknowledges these conflicts if not the personal integrity behind them.

“(Schoenberg) had taught me...to stick to my principles at whatever cost. Even when this brought me into violent conflict with him, he’d always respected me for defending my beliefs. In later life, when there might sometimes have been a temptation to let things slide for the sake of surface harmony in a personal or professional situation, I was inspired by the steadfastness he’s displayed...There is no doubt that this cost him, as it has cost me, both friends and money, on many occasions. I don’t think that either of us ever seriously regretted it.”

Perhaps all of this confrontation and experimentation both in her personas and performances had to do with her peculiar childhood that wasn’t much of a childhood at all. While normal teenagers are supposed to be experimenting, rebelling, and finding themselves, a 14-year old Newlin was sitting in double counterpoint class with Arnold Schoenberg. Reflecting in an interview with People magazine in 2003 about her latest work as a punk rock singer she said, “I feel like a child more than I did as a child...I try more and more to live day by day, to do something because it feels good.” One has to only imagine the sacrifices she made as a youth to follow her passion and what happened in the aftermath of that experience. Arnold calls it “a long process of radicalization.”

“(Newlin’s) recollections make it clear that Schoenberg had a very forceful and controlling personality and domineered his protégés unmercifully. Although they revered him and were anxious not to offend him, they all struggled to devise some means of breaking away and being themselves.”

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38 *Arnold.*
40 *Arnold.*
In an essay from a 1974 edition of *Perspectives of New Music* called “Why Is Schoenberg’s Biography So Difficult to Write?” Newlin discusses the difficulties in completing her biography of Schoenberg and alludes to the pressure she and her fellow pupils faced. “How to avoid being paralyzed by Schoenberg yet at the same time not to reject him – it is a conflict we all went through.”

The conflict doesn’t seem to end with Schoenberg but also in reckoning with her past within Schoenberg’s circle. Newlin’s memoir makes clear that Schoenberg treated all of his students with the same sardonic wit, but Newlin wasn’t always properly credited or included in subsequent activity within her cohort. Leonard Stein, who was Schoenberg’s assistant at UCLA from 1939-1942, features prominently in Newlin’s memoir, often on the receiving end of many a funny Schoenbergian razz during class. Stein went on to an important career in academia and in performing and editing Schoenberg’s works. He was also head of the Schoenberg Institute in Los Angeles from 1975-1991. While Newlin and Stein’s paths were similar in their background at UCLA and through their subsequent Schoenberg scholarship, Stein ended up having a more of prominent role through the institute. Elizabeth Keathley, a professor of music at University of North Carolina, Greensboro, was hoping to meet Newlin at an international Schoenberg conference in Los Angeles in 1991 but discovered that Newlin had not been invited. Responding to her inquiry, Stein said “Well you can’t invite everybody.”

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It cannot be overstated that the obstacles for women in academia or in any public arena in Newlin’s day, as well as the persistence of male chauvinism were formidable challenges even for an ambitious and apparent savant like Dika Newlin. It was a different story for Newlin 10 years later in 2001, when she attended a symposium at the new Arnold Schoenberg Center in Vienna. The Viennese media were enamored with Newlin, in her brightly colored clothing and shock of orange hair, interviewing her for newspapers and television. “The symposium audience was delighted when Dika shuffled to the piano to demonstrate the four-note motif of Schoenberg’s second chamber symphony, which she had incorporated into the theme song, Alien Baby, for a horror film, Five Dark Souls.”

Keathley also sensed “that her celebrity at this symposium was some small recompense for her years of marginalization by the academic music establishment.” Her relationship to the academic establishment was a complicated one as she both engaged with it and sought to subvert it. One can understand this relationship better knowing that institutions, journals and academic establishments went through periods both lauding and overlooking her.

Where does this all lead us with Dika Newlin? Obviously, there is a wealth of information yet to be uncovered, parts to be pieced together. A more complete catalogue of her work is needed for a start, as well as further documentation of her performances and activities at University of North Texas. During a trip to Nokia Bell Labs in 2018, I inquired about any remaining records of Newlin’s work there. The director of Experiments in Art and Technology could not find any documentation but

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43 Keathley.
44 Ibid.
noted that the program had a history of covert operations. The Bell Telephone Company, a tax-payer funded virtual monopoly in telecommunications, did not want to leave a paper trail behind in funding avant-garde composers in experimental music. If her multimedia works and a more complete catalogue of her chamber pieces could be established, we would have a good start. It would be advantageous to have Newlin’s story more widely known, as a trailblazing scholar, performer and composer who crossed the barriers between academia and underground punk and pop culture, long before it was culturally acceptable to do so.

I only first encountered Newlin’s work through my teacher Joe Maneri at the New England Conservatory in the late 1990’s. Maneri, had studied composition with conductor Joseph Schmid, who had been a student of Alban Berg and Arnold Schoenberg. Maneri brought up Newlin often and encouraged me to read her book *Bruckner, Mahler, Schoenberg*. I remember loving the sparse title and seeing a picture of a 14-year old Newlin on the jacket of Maneri’s copy of *Schoenberg Remembered*. I tried to imagine what it was like to be that young, in college, and studying with Schoenberg! Although they never met, Maneri described seeing Newlin perform many years earlier at a new music concert in New York City in the 1950’s and being transfixed by her presence and performance. Often, he would talk about wanting to visit her at VCU. He was well aware of her punk rock activities, the leather outfits and the bands she was forming with her students, and he loved it. Although Maneri was already in his 70’s at the time and not in the best shape, I regret not taking him up on a road trip to Richmond. I would so much have liked to have
met this enigmatic, orange haired lady in platform shoes and leather who could write a song called “Alien Baby”, meow Schubert songs, and sing Pierrot Lunaire.

Figure 4: Newlin in Pierrot Costume circa 1970. Photograph by Donna Arnold.
Chapter 3: Tuning Judith Berkson

On the homepage for the Huygens-Fokker Foundation, a center for microtonal music in the Netherlands, there are to-date over 4500 scales listed which were developed with Scala, a flexible free software application for constructing microtonal scales. These scales encompass “just intonation scales, equal and historical temperaments, microtonal…and non-Western scales.” Their ingenuity is staggering. One can find tunings of all kinds, from Arabic scales, to 11-limit, to French Baroque Meantone, to a scale called “686/675 comma pump scale in 46-tET.” The Scala scales can easily be used on a comprehensive list of digital audio workstations in recording, processing or composing. I am undoubtedly grateful for the platform and microtonal community but have personally been pre-occupied with a completely different side of microtonality, one which works on hearing, and ear-training by playing microtones acoustically through singing or on instruments. This has been the basis of my latest work.

In this chapter, I will discuss my background in microtonal studies and performance, and how I have applied that experience in teaching others and in developing my own pieces. I will discuss the way I think about virtuosity and non-virtuosity within microtonality to affect both the performers and the listeners and will discuss how I use repetition and tuning to find altered metal and physical states. I will also put my work in discussion with other composers and microtonalists who share

similar values in singing and playing microtones acoustically, and who explore techniques in virtuosity and non-virtuosity to create specific sound experiences.

My techniques in hearing and singing microtones were influenced by my teacher Joe Maneri (1927-2009). Maneri founded a course in microtonal theory and practice at the New England Conservatory which he taught from 1972-2006. The course continues to be taught by composer Julia Werntz at NEC. The class centers around the textbook *Preliminary Studies in the Virtual Pitch Continuum* which was co-written by Maneri and Scott Van Duyne. The textbook is a comprehensive manual in 72-tone equal temperament with a notation system of accidentals referred to now as *Sims-Maneri* named for the two Boston-based composers most identified with the 72-et notation; Maneri and Ezra Sims (1928-2015) who was based in nearby Cambridge, Massachusetts.

The textbook is modeled after aspects of *Gradus ad Parnassum* by Johann Joseph Fux and follows a pedagogy similar to species counterpoint with exercises of microtonal whole notes against whole notes, adding half notes, and quarter notes. It also uses methodology from Arnold Schoenberg’s *Harmonielehre* and techniques in serialized harmony. In the forward to the book the authors elaborate on the reasons behind this.

“In the absence of any common agreement as to microtonal compositional style, we have followed the teaching techniques of these masters (Fux and Schoenberg) by insisting on simple rhythms and simple study forms derived from a synthesis of elements of the species counterpoint technique, the traditional harmony voice-leading technique and serialized harmonic construction”.

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47 Maneri/Van Duyne (1986, 1).
The thinking behind these simple rhythms and simple study forms would be to allow the composer “to focus on the physical sounds of the intervals,” using simplicity as a means to hear more clearly. Another pedagogical stance within the exercises is an attempt at avoiding overt stylistic behaviors. Maneri and Van Duyne wish to provide a simple or “neutral style” so that the composer or theorist “will have a background from which to create their own theories about the composition of microtonal music. Our carefully graduated studies will develop his ear to a level of aesthetic discernment without consuming him with an overly theoretical approach”. Maneri felt that the techniques used in postwar 12-tone music and serialism were not suited for hearing microtonally, that the music had to be slowed down, yet another reason the exercises were written in whole and half notes with simple rhythms.

Figure 5a: Joe Maneri/Scott Van Duyne, Preliminary Studies in the Virtual Pitch Continuum, Accentuate, 1985.

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48 Maneri/Van Duyne (1986, 2).
49 Ibid.
It is important to contextualize Maneri and Van Duyne’s pedagogical stance within the framework of new music and more specifically microtonal music when their book was first published. The book title referring to the “pitch continuum” forms a slight but deliberate distinction. As opposed to working exclusively from just intonation and the overtone series, Maneri was interested in the continuum of sound and in working with smaller pitch material. He settled on 72-et, a system of twelfth tones theorized by Ivan Wyschnegradsky with 6 divisions to the semitone. While these small divisions suited Maneri’s music, 72-et also proved useful to both just intonation and equal temperament composers since it contained the standard 12-tone temperament and accurately represented partials up to the 12th partial. By the mid 1980’s when Maneri and Van Duyne’s book was first published computers and synthesizers had started to easily reproduce just intonation microtonal tunings. Maneri felt that working with programable interfaces could potentially distract one from learning how to play the sounds acoustically. Maneri wanted to train a generation of musicians who could hear the pitches and play them.

What was unique about Maneri’s class was that it fused microtonal composition, ear training, performance and improvisation into one methodology. The first part of the class was a warm-up period of singing microtonal exercises in 72-tone equal temperament, a system which includes 6 pitches per half-step (see Fig. 5b). Later we would present our assignments with everyone in the class either singing or playing each other’s exercises. The last part of the class would be open to composers

50 Wendy Carlos’ album Beauty in the Beast was released in 1986. A seminal work in electronic microtonal music, it uses scales devised by Carlos as well as just intonation and Pelag and Slendro tunings traditional to Balinese gamelan.
to share their pieces and would also be a time for extended group improvisation. This combination of listening, playing, composing and improvising worked as a comprehensive methodology where each activity helped reinforce the other. Everyone was strengthening several skill sets. The act of playing was an extension of writing, the writing was an extension of listening and the listening was an extension of singing in a cycle of experience. Improvisation too brought a further layer of connectivity between the disciplines, a certain letting go of systems, of correct or incorrect intonation, providing a space to freely explore.

Figure 5b: Microtonal Accidentals in 72-ET from Preliminary Studies in the Virtual Pitch Continuum

I use a combination of the techniques from Maneri’s course as well as my own experiences singing microtonal works by Maneri as well as Ezra Sims, Gerard Pape, Enno Poppe, Julia Werntz, Charles Ives, Steve Coleman and Georg Friedrich Haas in teaching microtones to others. Aside from a couple players, the ensemble which performed my piece Hevrusa, at Wesleyan in 2018 did not have experience playing microtones. I will be describing the first rehearsal and what I like to do particularly with students who have never encountered them before.

The first rehearsal began with all ten players singing. From my experience singing brings a strong understanding of how microtonal pitches can be heard and produced through one’s own body before transferring onto an instrument. We started
by singing a unison pitch for a minute duration with staggered breathing. Afterwards we analyzed the sound as a group. Was the pitch as unison as we could make it? Were some voices too loud or too soft? Too low or too high? We sang the unison a few times more and with each subsequent try, we would come to a more unified tuning and consensus within the group. Our ears became more alert to the subtle discrepancies in our pitches from one another.

After feeling satisfied with our intonation, we then followed the unison with a pitch a half step above it and then returned to the unison (See Fig. 6a). We repeated this half step exercise and followed it up with more group analysis. Were some people slightly higher or lower? Did we return to the original note or was it slightly different? These questions brought our attention to the slight variations in pitch we were all making. It strengthened our sense of tuning and brought us into deeper listening state. For the third exercise we repeated the same half step exercise, and on the third time we only went up by a quarter tone (See Fig. 6b). For some in the group this was the first time they had sung a quarter tone. I do not like to say too much at this point, so that everyone can develop their own relationship to their pitch without my influence.

I then split the room into two, having one half of the room sing the quarter tone exercise followed by the second half so that each group could listen to each. This alternating from listening to repeating helps internalize the material, growing more familiar with the quarter tone. There is a lot of negotiating and repetition at first to come to a consensus about the quarter tone as a group. At this point I demonstrated for the group, but I hold off on demonstrating until I feel that we had gotten a
substantial enough chance to use our own ears and imagination to find the notes. I feel this empowers everyone not to be entirely dependent on copying an outside source but to develop an inside source.

![Fig. 6a](image1)

![Fig. 6c](image2)

Figure 6a-c: Judith Berkson, Microtonal Exercises for *Hevrusa*, 2018.

One mental image which I share, and which works for me in singing the quarter tone is that there is a specific and strong reverberation in my body, more so than with other microtones, which is focused in my chest and neck. The quarter tone also has the most activity in terms of beating. Another important strategy that I’ve used is referencing. I asked people during the exercise right before they sang the quarter tone above, to build a reference by imagining a half step slightly “flat” or alternatively to hear the original unison slightly “sharp”. Both references can work in finding that “in-between” note and getting a sense for the space between a half step. We then practiced the exercise in reverse, singing down a half step three times and on the third singing a quarter tone flat instead (See Fig. 6c).
The mental images and techniques are strategies that I’ve collected over the years to sing microtonally. After a certain point working with imagery, I no longer thought about the microtonal pitches in a referential way. They have become ingrained, but I still find them helpful in teaching. Next, we added the sixth tone. The sixth tone is a very small interval and suggested thinking of it as a shade of pitch. One technique I shared was “overblowing” or over-reaching the tone so that it is slightly sharp, almost like a caricature of being out of tune. I learned this technique while studying with Joe Maneri, who had a humorous way of demonstrating the sixth tone by singing an idiomatic operatic cadence and ending it “badly” or flat (See fig. 7). This out of tune resolution sung by Maneri has always stayed with me and I find it elucidates the sixth tone quite accurately.

![Image of sixth tone](image.jpg)

Figure 7: Joe Maneri (cited by Judith Berkson) Example of a Flat Resolution.

After singing for around 40 minutes, instrumentalists then transferred to playing these microtonal exercises on their instruments. I divided the group into sections; cellos, voices, guitar and clarinet and we would alternate from group to group, giving each other feedback on our pitch accuracy. Towards the end of the rehearsal we were comfortable with the pitches enough to start working on the beginning of *Hevrusa*. Knowing that I would be working with musicians new to microtones, I constructed the piece in pairs of players who face each other so that
tuning could be shared on a smaller level, within each pair, which would then add up to a composite sound. The piece begins with a microtonal dyad played by the first pair of accordion doubling on voice and cello. Subsequently, each pair, five in all, sings or plays a similarly held chord but on different tones. The whole sequence of pairs is then repeated three to four times. By the end of rehearsal, we had completed this sequence and starting to feel grounded in how our microtones were sounding.

Figure 8: Judith Berkson, Hevrusa, 2018. (excerpt)
This practice rooted in hearing and playing microtones has been central to my work. The experience of hearing and tuning microtones within my own voice has brought my attention to new physical experiences as a resonating body. I am particularly interested in the voice sustaining a microtonal pitch with another instrument or repeating that microtonal pitch in harmony with other instruments many times over, as a challenge to the singer. This practice reveals a hidden virtuosity that remains on the surface simple but is actually quite difficult. The effort in listening, concentration and physical endurance together with the resonating beating patterns in the body and ear make for an addictive and physical experience as a performer that has been central to my recent work.

The techniques I encountered through Maneri’s course have impacted me specifically in relation to working with slower and simple rhythms. While suggestions for whole tones and half tones were initially conceived in the Maneri/Van Duyne textbook for the purposes of introductory work and études, they nevertheless have developed for me into a style of writing. The longer durations open up the possibility for me to experience the beating patterns created by the voice in longer durations, to hear them in stereophonic and feel them in and around the body. Longer durations of held microtones also allow for an ongoing negotiation of pitch, an evolving dialogue in tuning; a second, third and fourth chance to key into the correct pitch. I have been able to gain specificity and accuracy through working with long durations through my compositions. This has proved to be an invaluable learning process.

Long note durations and repetition also lend themselves to physical states which I’ve been investigating in my practice. Breath and body have always been a
part of the singer’s experience and pedagogy. Through my background in bel canto I am familiar with cycles of breathing and replenishing of breath which are required to sustain the long phrases in the repertory. As in techniques in yoga and meditation, breathing is a calming, stabilizing force which can set off parasympathetic responses in the body where one experiences the pleasurable, rejuvenating act of breathing. This is also present in the sustained pitches I work with, as the breath expels and replenishes there is desire, or a need to continue in the breath. This restorative repetition of breath is balanced with the mental and physical effort needed to support and sustain the microtones. The beating patterns felt throughout the body add another layer to the experience. These elements in combination create a balancing act between calm, intense effort, and resonance in the body. This, for me, creates an idealized state best described as not so much a combination, but a unique state of being.

Returning to the idea of hidden virtuosity, in Paolo Virno’s book *A Grammar of the Multitude* he writes of virtuosity as “an activity which finds its own fulfillment in itself without objectifying itself into an end product…it is an activity which requires the presence of others which exists only in the presence of an audience”.\(^{51}\) He continues with an interesting discussion on the pianist Glenn Gould who stopped performing in public altogether and shifted towards making studio recordings. According to Virno, in order to make Gould’s virtuosity non-political, that is not contingent on an audience, Gould brought his activity as a performing artist as close as possible to the idea of labor by leaving behind extrinsic products. While the

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recordings of Gould could never betray the fact that he was indeed a virtuoso pianist, by withholding his virtuosity from the public sphere, the music could once again be engaged with on its own terms. This idea of withholding virtuosity is something I think about often as a performer and as a composer.

While I believe that virtuosity has an important place in live performance and can be fulfilling to strive for as a performing artist, I am less interested in revealing too much virtuosity. As Gould preferred to hide away his virtuosity in the studio away from the public, I prefer too that it remain in a sense hidden, so that listeners can engage more directly with the music itself. I look for this balance or tension between virtuosity and simplicity in the way that I sing microtonally. While I am aware that it is a specialized technique and may be labeled virtuosic, I de-emphasize its microtonal novelty through simple rhythms and repetition within a larger sonic theme, presenting it as a part of the whole instead of a solo performance. (See Fig. 9)

![Sheet music](image)

Figure 9: Judith Berkson, *Partial Memories Part III*, 2019. (excerpt)

Even as I seek to hide the voice’s microtonal virtuosity, democratizing it within a larger framework of sound, I also wish for elements of its virtuosity to come through. Virtuosity can have a powerful effect on both the performers and the
audience as they watch another person do something incredibly challenging. For Gould, this public gaze perhaps veered into an objectification which posed a threat to his artistic process. At its best, this cathartic witnessing can feed our imaginations as we watch a rare feat. Seeing the performer reach towards human limitations through a durational piece, one may be taken along with them in a feeling of transcending one’s own body along with the performer, experiencing the thrill and the effort involved.

The performer also works in a heightened physical and mental state engaging with the music. I look for these altered states of mind and body through my own music and performances and work with virtuosity to inhabit them even while withholding or hiding its presence within the music.

Another artist who exemplifies this heightened physical and mental state through idiosyncratic virtuosity is the guitarist Mick Barr. Barr’s solo guitar music under the moniker Ocrilim comes out of genres in metal and hardcore but is also influenced by minimalism and ethnographic music. Barr’s guitar playing is highly technical, a quality found in metal to begin with, but the effect of his pieces is not meant as a virtuosic display. “Virtuosity has never been a goal for me and how I play guitar. Just seeing what I can personally do with it and pushing myself to explore that further.” (M. Barr, personal communication, April 25, 2019) The intricate fast-paced lines repeat and develop. They are highly amplified. As one listens to and follows Barr’s lines, it becomes cathartic to follow his physical performance and be subsumed by the energy he puts forth. The catharsis becomes a communal experience, something familiar to metal and punk audiences. Barr’s technical playing or virtuosity is the means to this physical and mental state.
While Barr pushes his abilities to the limit he doesn’t identify as a virtuoso or even as someone who plays well. “I've always strove more to create music that felt like my own over trying to play things well and impress others.” Removing the connotations that virtuosic display is a means to impress others we are still left with the technical display and its purpose. For Barr, “the feeling of playing at the edge of my abilities has always held some sort of mystique for me as well. Pushing it almost to the breaking point and then trying to push past.” Pushing past his abilities allows him to reach for this “mystique” and causes audiences to respond vicariously. Barr is creating a technique of his own, not necessarily following flashy tropes in guitar playing. “I’ve never been interested in playing well or learning about the instrument very much.” This rejection of virtuosity, or in a sense non-virtuosity, exists side by side with his unique technical abilities and musical language.

The dichotomy between virtuosity and non-virtuosity may not be such a strict binary. Emily Wilbourne discusses the idea of vocal failure as a virtuoso technique in her article ‘Demo’s Stutter, Subjectivity, and the Virtuosity of Vocal Failure.’ She looks to the character Demo in Francesco Cavalli’s Il Giasone, a stuttering hunchback, who represents a frequent comic prototype in commedia dell’arte. Cavalli uses repetitive musical figures in the score to heighten the character’s impediments. Although Demo is a foolish figure, the role is a demonstration of vocal ability and the performer’s skill. According to Wilbourne, “The performance of vocal failure is thus a moment of extraordinary virtuosity.” The use of virtuosity to reinforce vocal failure is fascinating. In watching Demo, the audience experiences the singer’s

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virtuosity while simultaneously enjoying the character’s failure, or non-virtuosity leading to multi-layered experience of the voice. In this case, virtuosity and non-virtuosity work together to enrich the singer’s performance, the believability of the character, as well as enhance the sonic underpinnings of the work.

I look for this multi-layered experience as well in my music where microtonal singing may register as virtuosic, or as failure, or as part of a larger sound structure. The ability to perceive these qualities simultaneously is interesting to think about and as Wilbourne suggests, might be specific to the voice itself. In its location “both inside and outside our bodies…the voice fabricates subjectivity while necessitating a subject to undertake the act of fabrication.” In other words, voice has the ability to represent humanness even as it is perceived as material, or a timbre, an instrument or a character. This can be the trickiest aspect of working with one’s voice but also its most rewarding. What is the voice representing and what control do we have over it?

For me, I return again and again to the microtonal voice perhaps because of this question. The sound of voice within a work adds a humanness that I look for, especially microtonally because the voice demands that the person must work to create the pitches. There are no buttons to press or fretboards to look at. This effort as well as the voice’s humanness is coded in the larger sound which for me enhances the microtonal experience. The microtonal pitches seem less cerebral, more alive and relatable with the voice in general as well as acoustic instruments.

Turning to two contemporary microtonal composers, Marc Sabat and Toby Twining, I will address our shared interests in hearing microtones on acoustic

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instruments and voice as well as our practices which encompass teaching microtones to others. For Marc Sabat the experience of just tuning was first realized when he was a child playing on his violin, an instrument through which he continues to be compositionally informed. For Sabat, working with acoustic instruments in mind is essential.

“there are things which people have always imagined, written about, or theorized, but no one really heard as music. The music that I make works with just intonation, an approach to tones that many have written about since ancient Greek times. But only very few composers tried to write it down, to see what this sounds like."

Sabat moved to Berlin in 1999 where he worked with Wolgang von Schweinitz on creating Extended Helmholtz-Ellis JI Pitch Notation, a notational system devised for the composition and performance of new music using the sonorities of just intonation. “It introduces new accidentals, which raise and lower pitches by specified microtones and provide visually distinctive ‘logos’ distinguishing ‘families’ of natural intervals based on the harmonic series.” (See Fig. 10)

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55 Ibid.
Sabat, like Schweinitz was interested in the acoustic dimension of the sounds, hearing the tones and realizing them. “You are working with your ear and not just with a technique. So, it is quite intuitive”.57 When asked what drives his writing, Sabat responded, “Sometimes it might be a structure, a shape, but mostly just a sound. Particularly sound that I would like to hear again and again”.58 I relate very much to this idea of sound as the initial basis of a work, and to the idea of intuitiveness in hearing. While I am not interested in using just intonation exclusively, our practices focus on a similar engagement with sound, with instruments and with notation as a means to reproduce the pitches in the physical realm.

Sabat also has an inclusive practice which involves playing and teaching microtones. While in residency as a teacher at Ostrava Days in 2017, Sabat opened

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57 Sabat/Vesely.
58 Ibid.
his studio for extended sessions of playing and listening. Composers and students could both improvise together and realize pitches through Extended Helmholtz-Ellis JI Pitch Notation. Sabat also makes available all of his scores, recordings, and writings for free online. I admire this commitment to sharing information, to playing and improvising, and creating platforms to teach microtonal skills to performers and composers.

Like Sabat, Toby Twining also has an interest in just intonation and has created notational systems to have his music realized. Twining studied at University of Illinois with Ben Johnston who was an early and important influence.\textsuperscript{59} Over the course of many years Twining had his own vocal ensembles and taught them to sing in just intonation. In his work \textit{Chrysalid Requiem} Twining uses overtone singing, vowel sounds and extended techniques to realize just intervals. Through the process of writing the piece he developed a musical vocabulary which has set the tone for his music ever since.\textsuperscript{60} In his piece \textit{Schoenberg Dreaming} Twining modulates microtonally through a series of just intervals resulting in accidentals that cause pitches to sound far from their written location on the staff.\textsuperscript{61} To offer interpretive flexibility and playability, Twining uses one staff to notate the just ratios and a staff below in equal temperament. The player can choose to work from ratios or cent values. (See Fig. 11)

\textsuperscript{59} Twining, Toby. “Composer Toby Twining Talks about His Microtonal Music.” Interview by Anton Rovner, Anton. \textit{Journal PMN}. 2016. 64-68.
\textsuperscript{60} Ibid, 65.
\textsuperscript{61} Ibid, 67.
Figure 11: *Excerpt from* Schoenberg Dreaming *by Toby Twining*

This dual presentation in the score acknowledges that playing, or hearing, the piece is as important as the tuning concept behind it. Twining also has run workshops in microtonal singing with his ensemble, openly sharing his techniques and showing a commitment to establishing performance practices in microtonality.

Another curious thread that winds between Sabat and Twining is Arnold Schoenberg. In interviews Twining has stated his admiration for Schoenberg’s music but it is interesting to note that Sabat also begins his treatise “Extended Helmholtz-Ellis JI Pitch Notation” with a prescient quote from Schoenberg.

“The overtone series … still contains many problems that will have to be faced. And if for the time being we still manage to escape those problems, it is due to little else than a compromise between the natural intervals and our inability to use them – that compromise which we call the tempered system, which amounts to an indefinitely extended truce. This reduction of the natural relations to manageable ones cannot permanently impede the evolution of music; and the ear will have to attack the problems, because it is so disposed. Whether there will then be quarter tones, eighth, third, or (as Busoni thinks) sixth tones, or whether we will move directly to a 53-tone scale … we cannot foretell. Perhaps this new division of the octave will even be un-tempered and will not have much left over in common with our scale.” 62

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I became aware of this quotation while studying Schoenberg’s *Theory of Harmony* with Joe Maneri. It seems odd that Schoenberg, who was so deeply rooted in the twelve tempered notes would keep being cited by microtonalists like Sabat, Twining and Maneri. Schoenberg’s long shadow continues to follow us through Dika Newlin’s story as well. This *Theory of Harmony* quote points to Schoenberg’s expansive imagination in foreshadowing the implications of music’s tempered future.

In conclusion, I have combined my formative background in Maneri’s microtonal courses with my experiences as a composer and performer to develop my own concepts in both writing with microtones and teaching them to others. I value actively engaging with pitches, hearing and playing them on instruments or in the voice, to develop a sound and a style of working. Recently, I have applied long durations of tones, repetition and simple forms to my techniques in microtonal singing. I use virtuosity to push myself physically through repetitions of sustaining micro-pitches, bringing myself to altered states of mind, body and listening. While I wish to reveal the effort or humanness in my performance, I simultaneously want the virtuosity to be subsumed by a larger sound or theme in the music, to in a sense hide virtuosity so that the sound and the performance are one.
Conclusion

In this thesis project, I have brought together three subjects; my interpretation of Éliane Radigue’s *Arthesis*, an introduction to the work of Dika Newlin, and a discussion of my microtonal practices. *Hearing Voices* is meant to be an expansive term and may refer to hearing the artistic voice, the human voice, as well as the voice which has gone unheard. Through this format I wished to explain some of my recent activities as well as the composers which have been informing them.

My practice involves playing and composing as well as interpreting other people’s work and I created a writing structure which included all of these disciplines. In interpreting Radigue’s *Arthesis*, I wished to learn about her process in creating the piece but also to challenge myself to perform a piece that not only used methods and technology new to me but was perhaps not meant for interpretation at all. In the case of Dika Newlin, I wished to give to voice to someone who had a multi-faceted career as a performer, composer, teacher, actress, local cult figure, and septuagenarian rebel but who has been largely overlooked despite of, or perhaps in spite of these qualities.

In looking at my own tuning and microtonal practices I wish to give voice to my background in singing and playing microtones through my studies with Joe Maneri and his course, and to describe my methods in hearing and teaching the pitches to performers who have not necessarily had any previous experience. I discuss ways in which I navigate virtuosity as a means to experience altered physical states through intense effort, while at the same time attempting to explore simplicity and non-virtuosity as a means for breaking through to new and unknown creative spaces.
And finally, I contextualize my work by discussing composers Marc Sabat and Toby Twining who share an interest in teaching microtones which are sung and played on instruments, as well as guitarist Mick Barr who uses repetitive, physical and technical playing but does not refer to himself as a “skilled” player or as a “virtuoso.”

In bringing together Radigue, Newlin and myself I have sought to create in writing what I experience as a musician; the continual shifting from playing, composing and interpreting that define my practice. I wish to share and hear their voices in the broadest of terms. In the case of Radigue, I sought to engage with her voice performatively. In the case of Newlin, I am only hoping that others will begin to engage more with her body of work, her writing and performances.
Figure 12: Judith Berkson, *Partial Memories Parts I, II, III*, 2019.
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