

Wind as Compositional Material
An Independent Study

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Introduction: Personal Contexts

At the Longy School of Music in the Spring Semester of 2000, I studied Béla Bartók, both his compositions, particularly the string quartets, and his work as an ethnomusicologist. Listening to his field recordings, done on wax cylinders (state of the art for the time), I was struck by the vividness and immediacy of the peasant music (2000a). Bartók integrated the peasant melodies into his compositions, and his String Quartets are beautifully constructed examples of such integration (2000b). Raised in provincial Hungary, Bartók's study of peasant music brought childhood experiences to his life as a composer. If I were to do the same, what would I research and record?

I thought of Native American music as the equivalent for me. I began to consider some available resources, and discussed the topic with my advisor. During the discussion it became obvious that this idea was disingenuous. My exposure to Native American culture had been superficial and stereotyped and did not include its music. As a child, growing up on a farm in the American Middle West, I had loved being out of doors. Surrounded by grasses, crops, and trees, I gloried in their textures; textures of smells, sounds, and sights. Sounds other than these natural ones were from the occasional radio show or my mother playing the piano. It was an environment of silence and natural sounds, with man made sounds as the exception.

Even in school there were few and simple sounds; the voices of the teacher and students interwoven with rustling of papers or moving of chairs. Beyond the "toy band" experience, provided by my musically trained first grade teacher, there was no music in our township school. There were no multimedia enhancements to the classroom experience. The occasional school wide movie, shown in the small gymnasium, was a special "treat." Similarly, the few trips into Columbus to hear the Philharmonic during my childhood were rare events, surrounded by the mystery and excitement of a new and distant place as well as of an unusual sound world. However, the world that was most

familiar to me was the natural world. Eighteen years ago I moved to rural New Hampshire and reconnected with that natural one.

After study of Béla Bartók's String Quartets, I chose to compose a string trio for the Spring 2000 Student Composers Concert. Inspired by Bartók's Quartets I wanted a composition of similar intensity that would include emotional intensity. I recalled the experience of a winter ice storm. We live high on a New Hampshire hill and in January 1998 an ice storm wreaked havoc on our surrounding forest. That night was spent listening in the dark, fearful that the destruction might also include our home. Strong winds, buffeting ice laden trees, created a scene which became visible in the brilliant sunlight of the dawn. Giant pines, shorn of their tops and toppled, were covered by a contrasting crystalline coating of ice. After the tumult of the nighttime darkness, it was surreally light and silent. This experience, the memory of the multitude of sounds during the storm, provided the inspiration for my composition, a string trio. The goal was to capture the essence of this aural experience in notation, and hope that the performers could create a similar experience in the concert hall. To create a composition of contrasting sections, an AB form, I chose to begin with a contrasting "wind", the languid, gentle breeze of a calm summer day. The A/B contrast would also parallel the sensory effects of wind: the tactile experience of wind on the cheek, and the aural experience of the wind tossed object. The composition, *WIND & ICE, homage to Béla Bartók and Edward McDowell*, was the result.

Soon after the performance, my husband, David, and I were sitting on our porch when he observed, "This is a different kind of wind than those you composed." I realized that we lived in an environment where we experienced not just one kind of wind but, indeed, many. With each wind came a different experience. In New Hampshire for me, as in Hungary for Bartók, there was a sound world ready to be explored and integrated into my compositions. The present "independent study" project was conceived to continue my exploration of the sounds of rural New Hampshire, focusing on wind. What would the

result be, to record the wind and then manipulate the sound in the electroacoustic music studio?

Soundscape Composition

The term *soundscape* was coined by composer R. Murray Schafer. “The soundscape is any acoustic field of study. We may speak of a musical composition as a soundscape, or a radio program as a soundscape or an acoustic environment as a soundscape. We can isolate an acoustic environment as a field of study just as we can study the characteristics of a given landscape” (7). Schafer was the director of the World Soundscape Project initiated in the early seventies at Simon Fraser University, Vancouver, British Columbia. He describes it as:

A project headquartered at the Sonic Research Studio of the Communications Department, Simon Fraser University, British Columbia Canada, devoted to the comparative study of the world SOUNDSCAPE. The Project came into existence in 1971, and since that time a number of national and international research studies have been conducted, dealing with aural perception, sound symbolism, noise pollution, etc., all of which have attempted to unite the arts and sciences of sound studies in preparation for the development of the interdiscipline of ACOUSTIC DESIGN. (275)

Continuums and Comparisons

Overview

Jean-Jacques Nattiez, in Music and Discourse, Toward a Semiology of Music, compares composers on three parameters: the ratio of music (as defined before 1900 in Western music) to noise in their compositions, the level of responsibility for organizing the compositional material, and the use of abstract (acousmatic) versus referential sound

material. Nattiez feels that those twentieth-century composers who have contributed most to “shifting the border between music and noise” are Russolo, Varèse, Schaeffer, Cage, and Murray Schafer. Those composers who exert active control over their material are Russolo, Varèse, and Schaeffer, and “while they manifest considerable differences from one another, have one thing in common: their integration of the noise world into the musical world has not meant abandoning compositional responsibility” (48). He sees Cage at the other extreme, and Murray Schafer in the middle. Their approach to sound material he summarizes. “...Cage’s stance is radically opposed to Schaeffer’s [and Russolo’s] for whom ‘concentrated hearing’ must compel us to forget the natural origin of sound. For Cage, we must quaff our music from its source...by refusing to fall into what Canadian composer Murray Schafer nicely dubbed *schizophonia* (that is, splitting sound from its source)” (53). Again Nattiez considers Schafer’s work as a “synthesis” of these two opposing viewpoints. “Embracing the romantic tradition – the tradition of a Kleist who hears concerts in the sound of the west wind – Murray Schafer set himself to *hear* Vancouver. With a team of investigators, he went in search of ‘musically interesting’ noises; he suggested an *acoustic stroll* through a section of the city. The musical ear, if attentive to the symphony played by the world, will select certain sounds, and little by little the composer will again take the upper hand in the process” (ibid.). The electronic music piece which I composed for this independent study is titled *Winterbeech and Pine*. It fits on the continuum of compositional control and use of abstract materials closest to that of R. Murray Schafer (Appendix i).

***Winterbeech and Pine* as a Soundscape Composition**

The World Soundscape Project has evolved into a genre of electronic compositions involving composers from around the world. Barry Truax writes, “Although the term ‘soundscape composition’ has been coined by the composers working with the World Soundscape Project (W.S.P.) at Simon Fraser University to denote the pieces that they composed with source material recorded by project members..., the term

can equally well apply to works by other composers who may or may not have been influenced by, or even aware of, that work” (237). Truax writes:

The essential difference between an electroacoustic composition that uses prerecorded environmental sounds as its source material, and a work that can be called a soundscape composition, is that in the former, the sounds loses all or most of its environmental context...In the soundscape composition, on the other hand, it is precisely the *environmental context* that is preserved, enhanced, and exploited by the composer. (ibid.)

Wind can be used effectively as compositional material in such a genre. The timbres, textures, multitude of pitches, and rhythms created and “organized” by the wind, work both when used alone and when combined with processed sound samples. When I first conceived of recording wind, I assumed that I would utilize primarily processed sound samples. Once I “heard” the wind in the recordings however, I wanted to use a great deal of the material unchanged. For me, the excitement and interest of the composition lies in hearing the windscape transform throughout the piece, as the electronically processed material enters in contrasting voices. Barry Truax continues:

Soundscape compositions occur along a continuum between the natural ‘found’ composition (i.e., a soundscape whose organization is so compelling, varied, and interesting that a simple recording of it may be listened to with the same appreciation that one has for conventional music), through those that are painstakingly constructed from elements such that they *appear* to have plausibly occurred that way, to those that have been substantially manipulated for musical or other purposes, but are still recognizably related to the original environment...The artificial soundscape can never be completely referential because it is always being reproduced outside of its original context, which it can never entirely

restore. Likewise, it can never become wholly abstract without losing its essential environmental quality. It is the interplay between the two extremes that gives vitality to works of this genre. (237)

With this continuum in mind I wanted to compare my composition, *Winterbeech and Pine*, with other wind compositions. I searched the internet for recordings specific for wind, but found only one among the many recordings of natural environmental sounds. Perhaps this is because wind has a reputation for being difficult to record. In fact B.J. Nilsen, the composer recorded on the CD, HAZARD WIND, desiring a very pure wind sound, utilized sound samples of wind recorded by the prominent British recording engineer, Chris Watson. Nilsen's compositions – all sound samples are processed with no obvious intact soundscape recordings – are closer to the abstract, on the abstract-referential continuum, than is my composition, *Winterbeech and Pine* (Appendix i). I wished to make the “interplay” between the more abstract and the referential an integral part of the composition. In *Winterbeech and Pine*, the transformation of the drips and wind draws the listener into the soundscape on a microscopic level. You can hear the internal rhythm of the wind and texture of the drips as they are revealed in the evolution from original unprocessed sounds to processed material. The contrast of the familiar soundscape of the first three minutes to the “developed” themes enhances the sense of delight. There is the delight of adventure, of new sounds explored.

Wind as Motion

The sound of wind, familiar and soothing, can also elicit anxiety as the gusts become stronger and more frequent. It can feel ominous and cause fear, that this “crescendo” may herald a storm, leading to destruction. Wind and its “fellow traveler”

weather, is a force of myriad faces. It can be a gentle cooling breeze, welcomed on a hot summer day, or a force which stirs the seas to a frenzy. Schafer writes: “Illusory, capricious and destructive, the wind is the natural sound man has traditionally mistrusted and feared the most” (172-173). In rural life, contrasting with urban, the natural elements are more directly experienced. I recall on the farm in Ohio, wind gave the early alarm, warning of an electrical storm. *Hearing* the nuances of wind velocity and perceiving the frequency of wind gusts allowed time to seek shelter. Wind is the embodiment of motion. Created by the motion of molecules of air, moving in response to temperature, it touches everything in its path. It cannot be seen, but only perceived as motion, be it the “touch” on the body or the gestures of the objects stirred by it. Like wind, music is only heard and felt and is discussed in terms of motion : harmonic, melodic, and rhythmic. As I listened to my wind recordings, I realized that I was responding to them on an emotional level. As the wind *changed*, with “gusts” of increasing amplitude and frequency, I felt increasing tension. I recalled the ice storm of 1998, and the compositional process for the trio *WIND & ICE* which followed. I had utilized this same correlation – increased emotional tension with increased wind velocity – when I recreated the “wind” in musical notation for the string trio. I kept it in mind in the composing of this electronic music piece.

Compositional Process

Recording

With the technological advancements of the past half century, I was able to accomplish what was impossible thirty years ago, even for those at the largest institutions (Chowning, Soundscape Vancouver 1996). Using a portable minidisc recorder, a stereo microphone with a small foam wind shield, and headphones (appendix ii), I ventured out

into the snow and ice and recorded daily samples of wind. The microphone was hand-held and the minidisc recorder was carried in a back pack. Eight sessions of wind were recorded over seven days. My novice status in the recording world and general disregard for reading directions and manuals contributed to six sessions being nearly useless; the sounds were barely audible. After the settings in the minidisc recorder were corrected, listening through the headphones was like re-experiencing the thrill of childhood. A whole new sound world at triple forte! Now I had the opposite problem, and needed to adjust the recording level downward to avoid clipping. The eighth session – after editing out sounds such as a twig scraping across the microphone, a passing airplane, a bird call, and my own comments relating my frustrations and anxieties about recording in such conditions – yielded seven minutes of quality wind sound: more than enough for a composition.

Analysis of recordings

Direct Impact of Wind

The sounds of the wind recordings were, as I had envisioned, of two kinds: The sound created by the wind's direct impact on the microphone, "wind gusts", and those sounds of objects stirred by the wind. This mimics our experience of the wind, the tactile and the auditory. Wind gusts create noise and the sensation of pressure in the ears which is associated with the tactile. I was amazed how accurately the microphone conveyed this dual effect of wind.

Indirect impact of wind

In the environment around our home, there were two objects stirred by the wind included in the recorded samples; the needles of the tall pine trees and the dried leaves on beech tree branches left from autumn.

Voices and Levels

I conceptualized the organization of sounds in the recorded soundscape two ways. First, I considered different voices; one voice "tactile", the gusts of the wind; and two

voices “wind tossed”, the rustle of the beech leaves and the constant soft “whistling” of the pine needles high in the tops of the tall pines. I was also delighted by another “voice” not directly effected by the wind. The day of the final wind recordings, the snow on the roof was melting and falling as resounding drips from the eaves. It was such an interesting timbre, full of potential, that I incorporated it as the fourth voice in the sound world created by the New Hampshire wind.

Secondly, I organized the four voices into levels or layers. The background, heard as a soft, constant backdrop for more dramatic events, is the “sighing” of the pine needles high above the ground. The wind gusts and leaves are interrelated. The intensity and rate of movement of the leaves is directly proportional to that of the wind gusts. However, the timbre and texture of these two voices is so contrasting that it creates its own internal polyphony. These two voices, and their relationship, I considered as the middleground. The drips are foreground: when recording near the eaves, their sound dominated in timbre and amplitude (Appendix iii).

Preparation of Materials

Edited wind recording

In preparing the seven minute wind recording, I decreased the gain slightly and filtered the very high and very low frequencies, leaving those in the range of about 50 to 10,000 Hz. This gave me a wind recording which was more refined and with a more workable amplitude. The lowest and highest frequencies created distortions which were not part of the wind soundscape as I perceived it. Filtering the original recording, I was able to create a sound sample which more accurately conveyed my experience of the wind soundscape. I titled this processed sample, Wind Theme, fine tune. This sample and the sample of the drips were the source of all the material for my composition

Winterbeech and Pine.

Motives and Themes

I organized the sounds according to forms utilized in acoustic music. It seemed a natural way to work with the material. I appreciate what Neal Farwell has written, “I see no conflict between an acousmatic/spectromorphological approach and some levels of formal structure...The sonata form is not a ‘Holy Grail’ but the formulation (after the fact) of a historically successful approach to structuring abstract musical materials” (6). I am aware that, at this point in my development as a composer, electroacoustic language and concepts are still relatively new to me. This was also a consideration in my choice of more familiar musical language and concepts.

Foreground: Drips

The intriguing timbre and thick texture of the drips made this “voice” a natural one to develop into a theme. I processed segments through multiple high pass filters, and then joined the segments. The aural effect is one of movement from heavy, very “wet” drops, closely clumped, to light “dry” drips with some separation. In musical terms this theme develops as follows: marcato to staccato; pesante to leggiero. Layering these varied drip sounds and manipulating the volume of the various voices, created an aural tapestry. The drips move from wet to dry, background to foreground and loud to soft. There is an aural perception of motion on four levels: the dynamic, timbral, textural, and spatial.

Middleground: wind and leaves

From my wind recording, Wind theme, fine tune (wind and leaves), I isolated a 3 minute segment which did not include the drips. Feeling that I wanted a segment of about 1 minute, I decreased the duration by 50%. This created a shorter segment which was remarkably similar to the original except for a slightly perceived rhythmic flutter. It is definitely heard as a background pattern. Wanting this to stand out from the middleground, the unchanged Wind Theme, fine tune, I processed it through the Vst Plug-in Freeverb. Much to my amazement, this processed sound sample was completely different. This simple processing (simple from my perspective, not in terms of signal

processing) extracted from the wind a rhythmic pulse which had been present, but relatively inaudible. The compression of the shortened duration had combined with the feedback action of the reverberation to transform the pulse of the wind into a most interesting rhythm. This rhythmic transformation was used in another variation of Theme I, (the wind and leaves), in the development section of the composition

Background: wind in the pines

I extracted and filtered, with high pass filters, samples of the pine tree sounds. This created a high pitched whistling sound. I used different versions of this sample to enhance the power and intensity of the wind theme.

Construction of the Compositions

Winterbeech and Pine

The guiding concept of form for this piece is sonata form. The contours and textures of the Wind Theme, fine tune, provide the material for the presentation of Theme I. The drips from the eaves are Theme II. I made the decision to use the relatively unchanged sound sample of the original wind recording, Wind Theme, fine tune, as the major material of the “exposition.” It stands on its own compositionally, containing within it intriguing material later developed as a variation of Theme I. The wind elicits sounds from the forested objects by initiating, as “stirrings in the wind”, the vibrations essential to sound. The wind also gives shape to these sounds. As the speed and strength of the wind increases, more objects vibrate, louder and at a higher rate. This is aurally perceived as an increase in the complexity of pitches and texture, and a change of timbre. The latter is especially noticeable in the beech leaves as they are twisted and turned by the wind gusts. Although not regular in the sense of a regular musical rhythm or pulse, the wind has its own pulse as it ebbs and flows throughout the composition.

The wind soundscape, Theme I (Wind Theme, fine tune), fills the first three minutes of the piece, lulling the listener into the pace, textures, and timbres of this particular New Hampshire world of wind. At around three minutes, the drips, Theme II,

enter softly. Over the next minute, they “ebb and flow,” in volume and density, before subsiding to re-emerge in a varied form in the development section. These varied drips interweave with the wind and leaves (Theme I) through out the first four minutes of the development, ending just before the appearance of the first theme. Theme I, now varied, enters at eight minutes, immersed in the texture of the unchanged wind. It is perceived as a quiet backdrop; a fluttering machine-like blur. Around nine minutes, you begin to hear another variation of the wind theme (Theme I), as a “clapping” rhythm. The ear must be quick to catch this brief appearance. For a short time it is a “cat and mouse” game. Then Theme I plays itself out in clear rhythmic polyphony, joined by Theme II (drips) as the development section ends at twelve minutes. The two themes are united in the two minute recapitulation which elides with the development section at eleven minutes and fifteen seconds (Appendix, Score, *Winterbeech and Pine*).

WIND & ICE: homage to Béla Bartók and Edward McDowell with tape

Having composed this as an attempt to recreate the experience of wind, I was curious to hear them together. I layered a sound file of the performance, given at Longy in May of 2000, between files of Wind Theme, fine tune. I moved the two wind files to different starting points and adjusted volumes on the three files. In doing this I attempted to create “play” between the string trio and the wind. At times the wind was used to reinforce the trio and at others to be in a counterpoint relationship to it. It seemed as if the original composition was composed with the wind as fourth voice. I know that, indeed, the wind was “playing” in the back of my mind through the compositional process in the Spring of 2000.

Conclusion

This independent study is the culmination of work I began two years ago. Inspired by Béla Bartók, the ethnomusicologist, who recorded the peasant music of his

native Hungary, I recorded the sounds of the natural world surrounding my home. Focusing on wind sounds, I processed sound samples to use as material for an electronic music composition. The final composition, *Winterbeech and Pine*, fits into the general category of Soundscape Composition. In this genre, prerecorded environmental sounds are the source of compositional material, but the environmental context is both maintained and utilized by the composer.

This project has strengthened my skills in the electronic music studio and provided the opportunity to learn new technologies of sound processing and recording. I have researched the field of soundscape study and soundscape composition and gained an understanding of where my composition fits within the genre. This has fostered ideas for future projects; compositions based on seasonal variation of natural sounds or animal sounds are possibilities.

This past winter, when totally immersed in this project, I was struck by a comment made by George Crumb during his visit to Longy. I will end with his words. He said, in response to a question about the compositional process, “One cannot erase one’s roots, your acoustic and natural history, which effects you. You need to be true to yourself and *hear* your natural traits.”

Appendix

Technology Utilized

Hardware

Macintosh, G4, Dual Processor

Digi 001 I/O box

HHB PORTADISC MDP500 MiniDisc Recorder

audio-technia AT825 ONEPOINT X/Y Field Recording Microphone

Sony Headphones: Professional: MDR-7506

Software

Mac OS.9.0.4

Peak VST 2.53

Pro Tools LE

plug-ins: VST with Peak and Wave, Q10 Paragraphic Equalizer

Russolo

Varèse

Schaeffer *R. Murray Schafer*

Cage

Total

None

Composer responsibility

Abstract

Referential

Use of Materials

Soundscape Composition

Abstract

Referential

B.J. Nilsen

Continuums and Comparisons

Jean-Jacques Nattiez: Music and Discourse, Toward a Semiology of Music

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