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The Loom Machines of *Boott Mill* (Lowell)

A Composition from the New England Soundscape Project

DANIEL A. WALZER

ABSTRACT

The author reports on the development of an original piece, *Boott Mill* (Lowell), in which he takes field recordings of loom machines from the Boott Mill Museum in Lowell, Massachusetts, and uses the recordings as the foundation for a fully realized composition featuring percussion, strings, keyboards and assorted musical textures.

CONSIDERING SOUNDSCAPES

Much of my lived experience as a composer and musician has focused on the craft of performing and writing pieces that follow certain stylistic tendencies. My professional and academic lives have afforded me a chance to live and work in distinctive geographic sites around the United States. Nevertheless, it wasn't until I began exploring the artistic possibilities of combining field recordings with live instruments and studio production that my artistic lens expanded. This article describes my personal journey to realizing a soundscape-inspired composition, *Boott Mill* (Lowell) [1], and the issues I experienced in the process. I describe how an open-ended collaboration in the recording studio brought the composition to fruition.

Over time I have begun to appreciate soundscapes and their many acoustic environments; each site engages a multifaceted range of influences on listening, cognition and how human beings perceive sound and space [2,3]. Thompson argues that soundscapes are more than just specific places; they are links to physical and cultural ways of being [4]. Thus, human beings experience, process and interact with soundscapes in a multitude of ways—each producing distinct emotional and cognitive responses.

In the fall of 2015, I began a creative project, the *New England Soundscape Project*, for which I gathered field recordings from urban, rural and historical locations across New England. Having received a seed grant from my employer to pursue this work, I began looking for sites that might reveal

some of the rich sonic histories of the region. To be clear, I pursued this project primarily for creative purposes, rather than for archival or research purposes. Nevertheless, over three years, my travels extended across six states, and I compiled several hours of audio.

In one instance, I received permission from the National Park Service to tour and record the sounds in an old textile mill in Lowell, Massachusetts, dating back to the early- to mid-1800s. Once known as the Lowell Machine Shop, the mill served as a focal point of the textile industry and a vital part of the city of Lowell [5]. Working looms still stood in the building, which was now the Boott Cotton Mills Museum. When I happened upon this site of major historical significance, the trajectory of the *New England Soundscape Project* changed. After receiving permission to record in the museum, I began wondering where the project might take me in the next several months and how the looms at the Boott Mill (seen in Figs 1 and 2) might fit into the bigger sonic picture I had conceived in my mind.

To record the looms, I used a Zoom H6 recorder. Accompanied by a park ranger, I had just a few minutes to capture as many different sounds as possible. The ranger had to turn certain looms on and off. This process took a few moments as each machine needed a little time to warm up. Standing a few feet away from each machine, I used an XY microphone capsule, a mono shotgun capsule and a mid-side (MS) microphone capsule. These are attachments that Zoom sells separately, and each one provides a different polarity pattern and directional pickup. I used the onboard preamplifiers on the portable recorder itself. Although I would have preferred to set additional stereo pairs into the unit's XLR inputs, it wasn't feasible to do so given the limited time I had in the space. In total, I recorded about 10 to 15 minutes of audio for later use.

The loom machines produced a series of compelling sounds. The first machine, used to load and direct the thread, generated a motor-like humming sound, not unlike an engine or low-level white noise. The thread's consistent movement through the machine served as an ideal drone and ambient effect. The noise of the threading kindles consciousness of a

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Fig. 1. Up close with a loom machine at the Boott Cotton Mills Museum in Lowell, Massachusetts. (Photo © Daniel A. Walzer)



Fig. 2. The spool and thread on a loom machine at the Boott Mill Museum in Lowell, Massachusetts. (Photo © Daniel A. Walzer)

time in history when human beings were increasingly being replaced by new technologies. Schafer notes that during the Industrial Revolution, laborers sought opportunities to support their families that involved enduring long shifts and difficult conditions in mill factories “as the working day was increased to sixteen hours or more” [6].

Once the looms were running, the clapping of movement took over. One, then another, then another, all with the same “duh-kuh-kah” sequence. Then five machines, and then a dozen. They produced a terrifically bombastic cacophony of rhythm. Imagine, for a moment, a series of loud typewriters in a newsroom of decades past, all clacking along. Each series of keystrokes produces a group of sentences—each sentence expressing a particular idea or communicating a specific event with singular purpose.

Drawing on the intricacy of the feelings I experienced in those few minutes of listening to the looms, it became clear to me that the process of recording, and subsequently *using*, the sounds needed to be undertaken respectfully. While I was not using the audio purely for archival reasons, it made sense that the sounds of the looms needed to be preserved in whatever composition came later. Admittedly, this was a new emotional and mental space for me to occupy as a composer, but it felt like the right approach moving forward.

COMPOSING TO THE LOOM?

I wanted to create a new underscore to the loom sounds but could not figure out where to start. The idea was to combine these field recordings with live instruments in a layering of rhythms and timbres. Ultimately, I wanted to explore the possibilities for bringing back to life the nostalgic sounds of the looms by combining them with live instruments. I intended to keep any postprocessing of the sounds to a minimum. Depending on how one hears the source materials, the rhythms might be tied, swung or straight. Therein lies one issue in critical listening—how “literally” do these sounds need to be analyzed and transcribed? Similarly, when considering the number of loom machines, should all sounds be transcribed and notated?

After listening back to the raw files several times, I found a section of about half a dozen machines clapping that I liked; I edited this section and turned it into a loop. Later, I found a clean section of the threading noise and created a long drone-like loop that would ultimately be tucked away in the mix—merely providing texture underneath the other tracks.

ON TO THE RECORDING STUDIO

In May 2017, I traveled to Austin, Texas, to work with a close friend and collaborator, Matt Parmenter, to create a full album of improvised soundscapes using many of the edited field recordings I had brought with me from the prior two years. Before our recording sessions, we discussed the sonic and musical possibilities and spent quite a bit of time carefully listening to the field recordings and identifying some sonic themes. Parmenter is a highly accomplished producer, engineer and studio owner; thus,

we had access to some of Austin's most creative and open-minded session musicians. We brought a few in with the intent of using the raw field recordings as a sonic blank canvas.

There are many ways to process and arrange field recordings to realize a new electroacoustic or acousmatic composition. A successful transition from conducting location recordings to a studio production would require some sensitive and pragmatic thought about what the soundscape might sound like as a composite of instruments and modern recording techniques [7]. Parmenter and I discussed this question over the several months before our first recording session in Austin. We discussed the instruments Parmenter had at his disposal, available studio musicians and what types of creative approaches could be realized over the course of our available time. Given that our combined listening and performing interests spanned multiple artistic and commercial influences, we decided to use the studio as a compositional tool without a predefined agenda. Our aim was to let each day's recording unfold as naturally as possible. With *Boott Mill*, we used the loom recordings as a kind of soundtrack for our composition process, and we locked into the rhythm of the loom machines to engage our creativity.

RHYTHM AS INSPIRATION

We found it helpful to view the loom machine ostinato (shown in Fig. 3) as a kind of groove unto itself.

Since the motors produced such a distinct sound, it felt natural to use the loom's natural rhythm as a virtual click track. Parmenter, who also functioned as the album's coproducer, imported my files and looped the track across several minutes in Cocks's Reaper. From there, we began building the new tracks from the bottom up. After experimenting with some harmonic ideas, I found that playing some improvised passages in a C Phrygian mode on the Wurlitzer electronic piano captured the sound I was looking for in the studio at that moment.

Layering distant toms and a bass drum sound provided a nice rhythmic accompaniment to the loom ostinato. The loom's three-note rhythm initially reminded me of a march. I layered several triplet-based tracks on a field drum, a snare drum and assorted percussion instruments. From there, we started layering cymbal swells, an electric bass track and some keyboard textures.

Each of the layered percussion tracks responded to the loom machine's triplet-based rhythm that can be found in Fig. 3. The aim of the percussion accompaniment was to support the loom's percussive "chatter" without being distracting. The bass drum, snare drum and suspended cymbal swells came about naturally. Most of these parts were improvised and not notated. The bass drum parts were whole notes and half notes. The snare drum part was similar to the rhythmic example shown in Fig. 3—supplemented by some simple flam rudiments and accents to make the part more like a bolero or a march. After listening back a few times,

Rhythmic Example #1

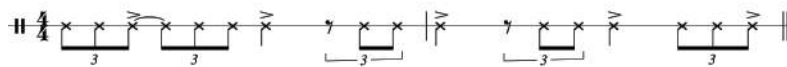


Fig. 3. The syncopated triplet rhythm produced by the looms. (© Daniel Walzer)

Matt and I felt as though we were building something ethereal and a bit atmospheric—much like something out of a video game. I played all the keyboard and percussion tracks, and he edited, mixed and played the electric bass.

A day later, we brought in a couple local string players to add some additional layers to the piece. The first player, a fine violist and violinist named Andrew Noble, locked into the modal structure of the composition and added several tracks of arco and pizzicato sounds on each of his instruments. He overdubbed some parts at the extremes of each range and had some great ideas. Noble noted that the upper ranges of his viola, particularly the harmonics and partials, produced an evocative and cutting sound. Parmenter and I provided him guidance and gave him room to get inside the track as he saw fit, which included introducing classical and folk influences. Noble mimicked the triplet rhythm of the snare drum by playing bowed and pizzicato parts in octaves and in time with the groove. The result was a thicker texture that made the strings sound like a much larger group of performers in the composition. Additionally, the player added some doubled pizzicato harmonics on both violin and viola in a few places.

Later that afternoon, cellist Tony Rogers came over with his cello and a pedalboard and iPad. After listening to what we had, Rogers began finding sounds in his setup that would complement the existing textures. Rogers used an app that emulated a virtual pedalboard and amplifier. He began experimenting with delays, filters and EQ to render his sound more electronic and cinematic. The blend of the cello's natural timbre with additional amplified tracks balanced out the improvised chords on the Wurlitzer electronic piano. Furthermore, the cello's amplified sonority gave the track the eerie and lyrical voice it desperately needed. Like Noble, Rogers had many ideas for the cello track and felt entirely comfortable improvising and layering different parts. Perhaps most importantly, Rogers layered a haunting pizzicato bass line that served as the introduction to the track. Figure 4 illustrates the combination of electronic and acoustic instruments we layered to give the newly arranged soundscape some cohesion.

After we completed the tracking, Parmenter and I listened back to all the tracks and decided on a general arrangement and rough mix for the composition. We felt it was important to keep the loom machine playing throughout the entirety of the piece. The composition starts with the pizzicato bass part on the cello along with the sounds of the loom. From there, the piece gradually builds in tension and finally resolves with the same pizzicato part and the loom machine gently fading



Fig. 4. Tony Rogers (cello), Daniel Walzer (percussion) and the Wurlitzer electric piano. (Photos © Daniel A. Walzer and Matt Parmenter)

out at the end. Although we tracked many more ideas, we felt that it was appropriate to keep the texture of the mix uncluttered. For *Boott Mill* (Lowell), our intent was to preserve the vintage nature of the field recordings with additional tracks that might engage the listener to draw a variety of associations with the recordings.

DISCUSSION

Lane has analyzed the many possibilities that composers explore when creating spoken word recordings. She calls attention to one approach that stimulates the listener to draw personal associations to a collection of similar sounds that tell a story in some way [8]. In our composition, the loom was largely left alone in terms of processing but was supplemented with acoustic and electronic instruments to create a kind of hypnotic loop that gradually builds in tension.

In his seminal 1977 text, Schafer explains that the soundscape functions equally as a research field and as a method for articulating the finer details of a given acoustic space [9]. Later, in his somber analysis of the Industrial Revolution, he argues that the rapid advances in technology and urbanization during that time introduced a range of harmful pollutants and damaging consequences to society [10]. Understandably, then, in conceiving the *New England Soundscape Project*, I wanted to record the loom machines in a respectful (and somewhat unobtrusive) manner so as to document their significance to the region.

My university's close proximity to Boott Mill gave me a rare opportunity to document the site through sound. In a sense, my aim was to sonically capture what Schafer refers to as a *soundmark*—"a community sound which is unique or possesses qualities which make it specially regarded or noticed by the people in that community" [11]. The documenta-

tion came about in what Pete Stollery refers to as "capturing, manipulating, and projecting" [12].

Using a variety of analog and digital technologies, Stollery advocates a compositional process that is deeply rooted in thoughtful listening and connectedness to the sonic material [13]. In other words, field recordings have merit all their own and *can* be used to inspire new modes of creative thinking and composing. Engagement with one's artistic practice deepens when the process is active rather than mindless and passive. Certainly, I did not live during the Industrial Revolution, nor did I grow up in New England. Nevertheless, my hope is that the intentional repurposing of the loom field recordings with assorted instruments, inspired by the World Soundscape Project, expands the interdisciplinary discourse of soundscape composition to include the recording studio as an additional site of creative research and collaboration [14].

Some months later, Parmenter and I wrapped up the mixing for this project. In total, we had created six new compositions on an album of nine tracks [15]. The composition discussed here serves as one example of how a group of open-minded collaborators used the recording studio as an instrument to create new soundscape-inspired compositions. As a composer, musician, educator and field recordist, I found this collaborative process both fascinating and quite a learning experience. The finished piece was featured at the 2018 New York City Electroacoustic Music Festival and at the 2018 International Computer Music Conference in Daegu, South Korea.

Demers [16] argues that field recordings *can* function as site-specific sonic works, provided that there is careful consideration by the composer of how the sounds reflect the particular space where they were recorded. Taking creative liberties with the field recordings must be thoughtfully considered if the intent is what Chattopadhyay refers to as "a

relatively convincing [sonic] universe through the mediation process” [17]. The process of discerning and communicating one’s personal authenticity through field recording is a highly subjective process. The project described in this paper expresses my evolving creative approach.

Looking back on the process from start to finish, I am gratified that the loom recordings found a new musical home in a soundscape-inspired composition and album. I now realize that my approach, at least in the beginning, was generally conservative and was informed by a respect for the Boott Cotton Mills Museum and its significance to Lowell, Massachusetts. As someone who did not grow up in New England, I felt much like a tourist in that I don’t have the same personal connection to this region that someone with deeper roots might have. Even so, recording the looms somehow gave me great satisfaction.

Reflecting on the entirety of the project, I would have liked to have compiled a larger library of the sounds and perhaps included video and photography of the site for a multimedia-inspired work. My limited access to the museum meant that I had to prioritize certain creative decisions. Another approach I considered was to take some snippets of the loom machine recordings and change their original timbres into something completely different.

Much of our time in the recording studio was improvised and fluid. In a future project, I may notate specific aspects

of the sounds I’m working with in a more formal way. Our harmonic and rhythmic choices for the composition were generally static. This was intentional, as the composition is meant to connect to the ostinato and repetitive nature of the loom machines. One alternative approach might be to create a more abstract piece with looser structures and musical content. Another option would be to incorporate the sounds into a live performance of some kind. It seems, then, that there are many possibilities.

As is the case with any iterative process, there exist some potential ambiguities in how to classify and “package” the creative work. Are the soundscape recordings “scores”? Is the finished recording a “composition” or a “soundscape”? Is it both? Likewise, and perhaps something that is often overlooked, what are the deliverables? Answers to these questions vary and are deeply subjective. In my case, it felt realistic to “deliver” an album of stereo mixes. I’m gratified that additional tracks from the album received fixed media performances at electroacoustic music festivals.

With some planning, field recordings can inspire new modes of creative sonic composition. In the future, I’d like to expand this project to explore multichannel surround-sound mixes and possibly an installation. I am indebted to a sympathetic coproducer and musicians who helped me realize this project’s potential. I look forward to seeing how the creative process unfolds in the future.

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