to make predictions about situations, actions, people and internal states [9].

The stance taken by participants of a locative narrative experience ensures that, however naturalistic the soundscape may be, it is arguably perceived as a mediated artifact. As Barry Truax suggests, interpretation of soundscapes can also ask the listener not merely to identify the depicted sounds but to contemplate their signification [10].

It is put forward here that the adoption of a *stance* primed for narrative engagement combined with perceptual ambiguity enables the listener to become a participant within a liminal space. Initiated by audio "props" [11], this guided imaginative experience holds the nascent potential for immersion and a sense of presence, which may be re-figured as Bergson's intuitive apprehension of phenomena [12]. The recollection of presence can be understood as *Transition-Felt*.

### References and Notes

1. S. Denham et al., "Making Sense of Sounds," *ASA Lay Language Papers* 163, Acoustical Society of America Meeting (2012); <www.acoustics.org/press/163rd/Denham_1pPP1.html>.

2. S. Denham et al., "Characterising Switching Behaviour in Perceptual Multi-Stability," *Journal of Neuroscience Methods* 210, No. 1, 79–92 (2012); <dx.doi.org/10.1016/j.jneumeth.2012.04.004>.

3. Possible links with neuronal bi-stability and perception of visual and auditory cues were highlighted in discussion with Jane Grant and John Matthias in October 2012.

4. E. Whittaker and J. Brocklehurst, *The Letters*, iOS App, 2013. Materials related to this article are available at <www.culturedebate.org>.

5. Recorded sound appearing to issue from real-world sources is noted in J. Reid et al., "Magic Moments in Situated Mediascapes," *ACE 2005*, *ACM SIGCHI*, 15–17 June, Valencia, Spain, 2005.

6. D.R. Begault, *3-D Sound for Virtual Reality* (London: Academic Press, 1994).

7. E. Evans, *Radio, A Guide to Broadcasting Techniques* (Essex, U.K.: Anchor Press, 1977).

8. R. Gerrig, *Experiencing Narrative Worlds: On the Psychological Activities of Reading* (New Haven, CT: Yale Univ. Press, 1993).

9. L.W. Barsalou, "Simulation, Situated Conceptualization, and Prediction," *Philosophical Transactions of the Royal Society* 364 (2009) pp. 1281–1289.

10. B. Truax, "Sound, Listening and Place: The Aesthetic Dilemma," *Organised Sound* 17, No. 3 (2012); <www.sfu.ca/~truax/OSS.html>.

11. K. Walton, *Mimesis as Make-Believe: On the Foundations of Representational Arts* (Cambridge, MA: Harvard Univ. Press, 1990).

12. H. Bergson, *Time & Free Will*, N.M. Paul and W.S. Palmer, trans. (New York: Cosimo, 1950 [1910]).

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## SOUND RESOURCES: ENVIRONMENTAL INSTALLATION

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*A short video describing the work can be found at <www.vimeo.com/56391839>.*

ABSTRACT

The author describes a recent sound installation that addresses an environmental issue as well as an issue with our sonic ecology.

While a Ph.D. candidate in Sydney, I was given the opportunity to create an installation in a small gallery space at the design faculty of the University of Technology in that city. Initially I wanted to create an experience that would reflect on my primary research interest, the use of electronic amplification at music concerts, underlining the important role loudspeakers play in contextualizing sound, whether musical or not. In that same period of time, I made a number of trips to the relatively remote Wolgan Valley, northwest of the famous Blue Mountains of New South Wales. The abandoned village of Newnes offers, in addition to many outdoor activities, the remains of early 20th-century coal and shale mining. Shale was mined for the extraction of petroleum in a complex procedure that was overtaken economically by the global oil industry. The industrial complex at Newnes was dismantled and abandoned in the mid-1930s. Now the site shows only the ruinous foundations with an occasional structure still erect. Images from its heyday show the area devoid of bush and trees; nowadays majestic gum trees again have taken over, suggesting human-made industries can be reclaimed by nature in a few generations.

Fig. 1. Jos Mulder, view of the installation *Sound Resources* slowly disappearing in dirt and noise, 2011. (© Jos Mulder)
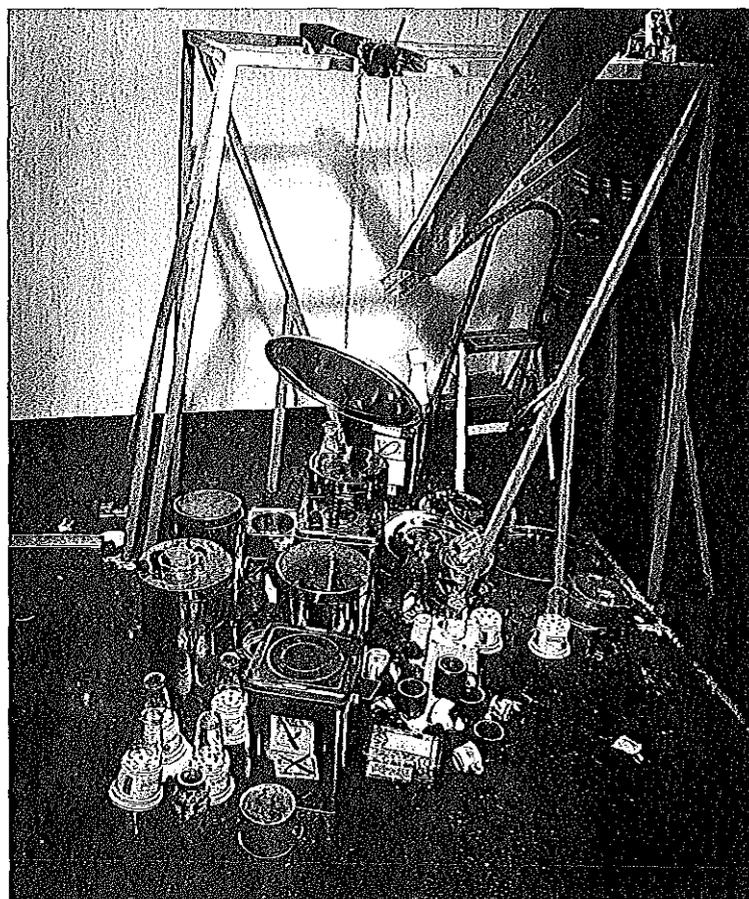
Mining has always been an important Australian industry; currently the continent's economy is maintained by the export of minerals, in large part brown and black coal. The acceleration of exploitation and export to maximize profits from the "boom" fueled by the growing Southeast Asian economies leads to much debate and, to some extent, a divide in Australian society.

The wealth of the resources boom can easily be recognized in a city like Sydney, even though the actual mining, processing and transportation takes place elsewhere, out of sight. For instance, the electricity grid is fed by large, coal-fueled power plants a long way away, close to the actual mines and out of sight, smell and earshot.

My installation piece *Sound Resources* (Fig. 1) was inspired by my environmental concerns and triggered by the abandoned works in the Wolgan Valley and the absence of noise and dirt there, as well as the actual pollution of mining and coalmining in our daily lives. Mining for the production of electricity was particularly in mind—electricity that in addition to many common usages can be used to power multimedia installations in museums and galleries.

In sketches for the installation I proposed a loudspeaker playing alarming sounds while over time chunks of coal would fall onto it, changing its response and over time destroying the speaker. In a later phase of the process, I got rid of the loudspeaker, allowing the falling coal to become the sound source and eliminating the need for sound reproduction technology, producing a motion-sensor-cued system powered by a small solar panel that dropped chunks of coal from a reservoir. The coal fell onto a rail, rolling noisily onto the gallery floor, which was filled with other noisy items: glasses, jars, tins, cans and so on. To allow for a more direct interaction, I placed a bucket with coal on a pedestal, allowing visitors to throw or roll nuggets along a second rail. They had the option to use their hands (i.e. "get their hands dirty") or use supplied BBQ tongs. Over a 3-week period, the gallery space filled up with coal droppings while at intervals creating noisy interruptions to the peaceful university life outside of the gallery. The installation became a pun on two separate levels, firstly in its title, "Sound Resources," referring to coal as both an energy resource and a semiotic resource; and secondly regarding the environment, reflecting on environmental concerns

from political, ecological and also in this case sonic perspectives.

The sounds of mining are absent in most people's lives. Rather than playing them back from the auditory perspective of a recording, I aimed to recreate such sounds in a different environment: as actual sources. Our hearing is very powerful when it comes to environmental cues. Sound carries much more meaning than what we perceive intellectually; that said, the use of loudspeakers diminishes its ecological, "everyday listening" aspects, transferring sound and framing it into an intellectual "real."

Loudspeakers can produce any sound imaginable, and digital technology allows us to create those sounds. Loudspeakers bring these sounds into the sonic environment and into the context of the situation in which a work is on display. In a similar way to a canvas or a TV screen, loudspeakers create a sonic frame that essentially underlines the importance of content over context, while abandoning the potential meaning and complexity of sound's ecological aspects.

### Acknowledgment

*Jos Mulder is an academic, a live-sound engineer and, since this project, an artist.*

## MUSICAL PHONOGRAPHY: UPENDING LISTENING EXPECTATIONS

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*See <www.colinwambgans.com/listen> for supplemental files associated with this article.*

#### ABSTRACT

The author explores capturing and hearing music within a broader sound environment and the cultural and contextual information that this method can convey.

Doing ambient recording I have noticed that taking Max Neuhaus's (or R. Murray Shafer's or Doug Aitken's) instruction to "LISTEN" to our sonic environments forces an encounter with music, as much as with natural or industrial sound. Whether it is played

in a cafe or off a cell phone, music is an increasingly common presence in our public spaces. These sounds rarely have a function beyond pleasant (or annoying) distraction. They are not intended for close listening, despite being organized into structures that listeners are accustomed to following. Yet, whether our intent is to listen or tune out, the music's form prompts our unconscious response.

I frequently find musical sounds arising unexpectedly in my ambient recordings. Rather than consider them distractions from "real"—that is, intended—soundscapes, I want to embrace these found musical sounds as sonic events on the same level as any other sound in a field recording. I have found that capturing music within a broader sound environment forces two comparisons: It gives the ear a framework to hear other sounds in the environment, and it suggests the cultural associations inherent to the music. Although these comparisons are directly due to music in the recordings, the recordings themselves cannot really be called musical; the music in them is too buried. Yet the ear and the memory are still drawn in and guided by its presence [1].

My piece *BatileDa,01* shows this simultaneous, dual effect [2]. When I set up a recorder on Bastille Day in a neighborhood outside of Paris, I was expecting to record an interesting French street and, I hoped, some firecrackers or jets. Inadvertently, I also recorded the distant but easily identifiable sound of someone practicing piano, mostly Bach's "Two-Part Invention, No. 4." Although often interrupted or obscured by other sounds, the music kept implying a coherence to the rest of the soundscape, even when absent. There was a gap between each repetition of the piece; during each, I found myself anticipating the music's return, heightening my listening. Even after the unseen piano player ceased practicing, it seemed like the music would come back.

This recording would have been an interesting object on its own, but I wanted to play with that sense of anticipation. I did this by making my own regular sound event. Every 30 seconds, I compressed the next 30 seconds into the space of 2 seconds, creating a sequence of 32-second phrases of normal playback followed by brief compressed playback. These two very regular, time-based elements—the Bach