The Language of Aural Space: Environmental Sound, Human Being and Experience

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Abstract

This paper explores the use of a combined installation and Internet strategy for gathering qualitative and quantitative data for practice-based research in the field of soundscape studies. It is focussed around the Sounding Shore project (www.marcusleadley.com) which was run by the artist as part of the Whitstable Biennale satellite programme in 2008 and the approach is being adopted as part of the practice methodology for the PhD. The installation used a Max/MSP patch to recontextualise field recordings, gathered along a stretch of coastline, into a randomised soundscape composition. This was played back, at the same location, using a wireless headphone network to create a seamless transition from the real to the mediated experience. The work was designed to interrogate the interstices between hearing and listening and explore the perceptual impact of separating aural and visual cues. The provision of an online resource before, during and after the event was invaluable for promotion and documentation.

A literature review has established a trajectory for the study of environmental sound which is moving beyond the consideration of sound as object or event towards a new model, sound as language. A theoretical investigation which draws on perspectives from psychology, linguistics, cultural theory and philosophy as well soundscape studies will be supported by a practice-led enquiry using field recordings and soundscape compositions to test participant perceptions of soundscape content, sonic relationships, classifications, degrees of abstraction and preferences. Online questionnaire and interview data will be collected through visitor interaction with sound installations and web-based content using custom software interfaces.

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What I'd like to outline today are some of the ideas, considerations and methods which are informing a practice-led PhD which I started in October of 2008. Now, I'm aware that the enquiry still has a long way to go so this is not about research outcomes. What I will focus on are aspects of practice developed during Masters study, their adaptation to function as research tools and how I've been attempting to structure and develop the intellectual enquiry.

Broadly speaking my PhD concerns the relationship between environmental sound and language. More specifically, I am exploring a hypothesis which suggests that the comprehension of individual sonic elements within the soundscape and the relationships between sounds in terms of cause, effect and consequence – sequential patterning in time – created the fundamental conditions from which human language developed. I'll be looking at this in more detail shortly, but first I'd like to talk about practice and specifically the *Sounding Shore* project I developed for the satellite programme of Whitstable Biennale last summer.

Whitstable is a small town on the Kent coast about 5 miles from Canterbury. Unlike neighbouring Herne Bay which changed considerably under the aegis of Victorian tourism, Whitstable remains a working port and dredging for oysters continues to this day. A cast iron harbour, built in 1832, helps define the character of the town. So too does a quayside fish market and a sea front where the gardens of weather boarded houses back directly onto a shingle beach. There's no promenade as such and no major roads near the beach so the area has a unique sonic character. And the idea of a field recording and soundscape composition project designed to encourage awareness of this sonic environment seemed a practical

and worthwhile option. My initial approach to the Biennale organisers was very simple: an installation based on recorded sound from the walk between the Old Neptune public house and the harbour (about a mile) which could be presented on the beach, using wireless headphones.

So I went to Whitstable for two days and recorded a number of soundwalks and studies of particular sound marks and keynote sounds. In the studio I edited down the recordings and isolated sections that I felt fulfilled the roles of representative, expressive and sensed aspects of the location as defined in Cresson's approach to the characterisation of the sonic environment. For about six years I've been using a website as a means of self publishing sound work and I set up a new section with some commentary, sound files and location images. I also produced a twelve minute soundscape composition from the recordings: a sonic précis of the location, highlighting its diversity and richness. This went on the site along with documentation. I was hoping that people would hear the field recordings and the composition and bring both experiences to the installation – which represented a third treatment of the material.

With the field recordings and composition I used a minimum of sonic treatment because the purpose here was to re-present the everyday. With the beach installation however I wanted to observe the effects of changing the speed, duration, repetition and direction of sounds and I wanted to relinquish control over the soundscape – return the recordings to nature if you will – so playback of sound files was randomised. I won't claim to be anything other than a Max beginner and I'm sure there are more elegant ways of doing this but I created four, four voice sample players using a random number generator and a metronome for triggering. This proved too chaotic and mechanical and I reintroduced a level of artistic control, in the form of metrical rhythm, by using the on-

set timings of certain words in a text based score to control triggering.

So what happened? The work was installed on the afternoon of 22nd June 2008. I invigilated in order to gather as much feedback as possible. About thirty people participated. And by balancing the recorded sound level with the ambient level the transition from the real to the mediated experience was pretty much seamless – remember that these sounds were recorded in the same location.

So, some observations. I expected people to move about more and explore the beach while listening but this wasn't the case. Mostly they stayed within a 10 metre radius. Part of this I think was that my presence created a sense of ownership over the equipment and indeed the people who went further away asked permission. One person in particular, who also stayed the longest with the experience, returned with an interesting observation concerning the emotional impact – a feeling of loss – connected to listening to sounds he clearly identified as being recorded at sunset during the afternoon. There is a long history in music aesthetics of debating the relationship between music and emotion and this to me suggests a parallel enquiry concerning the relationship between environmental sound, memory and emotion.

By far the most commonly observable response to the installation was a move from an outward focus to a more introspective attitude: people tended to close their eyes and cross their arms. This generally happened around the point when a person realised they were listening to recorded, not live, sound. I should point out that I deliberately didn't introduce the work as recorded – simply as the sound of Whitstable. One comment in particular, 'it's about listening to the sounds you don't normally hear', seemed to sum up my objective rather succinctly. Roland Barthes (1991), Pierre Schaeffer (1952), Barry Truax (2001) and Jean-François Augoyard (2008) have all proposed different forms of listening but there is general agreement that hearing is a faculty selected by evolution for its contribution to survival and orientation. Hearing is habitual, passive, often unconscious but always vigilant. So I read the response to an installation which partially disrupts the logical sequence of events and renders some sounds unfamiliar as an example of the transition from what Truax calls listening in search to listening in readiness: from the background processing of familiar sounds without conscious attention to the focused search for detail and information. Certainly, "What's going on?" and "what's making that sound?" were questions I was asked on several occasions. Indeed, the focus on the source of the sound rather than its acoustic properties supports James Ballas and James Howard's observations that recognition is always directed towards meaning. Terms like 'weird' or 'spooky' were used by a couple of participants and the commingling of the familiar and the unfamiliar is something to which Freud ascribes the ability to summon the uncanny in his essay, *Das Unheimliche*.

Children's experience of the work was quite different. By far the most common response was a search for visual correlates to sound. One little girl, turning frantically on her heels, asked "where's the doggy?" Her mother's answer, "he's in the computer" and the child's acceptance of this fact struck me as deeply indicative of the times we inhabit – how the separation of sound and source and the real and the virtual are ubiquitous cultural norms, learnt pretty well as soon as one can learn anything. The installation highlighted for me the absolute role of hearing as the focussing device that directs attention – not just serving the needs of survival but engaging with centres of longing, enthusiasm, interest and excitement.

On average, people stayed with the experience for between three and six minutes. A number were suitably engaged

to be interested in discussing the ideas involved. One person, on finding out about the written score became intrigued by the idea that the work might be about 'the gaps between words'. Another, to whom I explained the random nature of playback, said the work reminded her of an ancient Greek saying about a river never being the same twice. Plutarch reports this quote from Heraclitus as, 'you cannot step into the same river twice' (Haxton, 2003, p. 95). Mapping this idea onto the work potentially reveals a trajectory that takes us toward Nietzsche, discussion of the eternal return and toward Heidegger, modern existentialism and postmodern cultural theory.

So, all in all, one afternoon spent on a beach provided me with plenty of food for thought and I decided that there was a line of enquiry and a potential methodology for a PhD. Six months of research and the questions now driving the enquiry are:

- In what ways has increasing complexity in the environmental soundscape changed our aural awareness and perception of the everyday?
- Does a move from considering sound as object or event to sound as language represent a shift away from a modernist perspective to a more open ended, post modern and therefore contemporary viewpoint?

The first of these questions seeks to unpack our relationship between the sounding aspects of environment, changing patterns and purposes of human sound making and the nature of territory. Schafer talks poetically about the transition of the soundscape of antiquity to that of the rural and industrial world in *The Tuning of the World*. He briefly addresses broadcast phenomena and the dislocation of sound from source but his reading is that of a music educator with a strong attachment to the traditional tonal aesthetic of western classical music and is a direct response to the growing noise pollution associated with the rapid urban expansion of Vancouver in the 1970s. Barry Truax delivers a less judgemental assessment of contemporary soundscape issues in *Acoustic Communication* some five years later. However it is not until we explore the work of the research group CRESSON at the University of Grenoble that we encounter an acceptance and possibly even affection for the sound of the urban environment. Björn Hellströmm (Järviluoma, 2002, p. 61) expresses the important observation that CRESSON study begins from the position: 'diagnostiquer le bien'. It is the signification of quality which is important: a space that sounds good need not necessarily be quiet. But perhaps this reflects an aspect of French culture, evidenced by dada, musique concrète and the situationist movement, which embraced the urban, the mechanistic and the arts of noise.

In *1837: Of the Refrain* Gilles Deleuze and Félix Guattari (2004) identify 'sonorous and vocal components' and the 'wall of sound' as important in the demarcation and organisation of space. Birdsong is a mark of such a territorial refrain – as is the singing of a fearful child in the dark. This observation, like Murray Schafer's (1994, p. 177) concerning the way the sound of a church bell defines the boundary of a parish, reminds us that human territorial stampings are not so far removed from those of other species. Indeed, our electroacoustic ingenuity has allowed us to extend our comfort zone into the nomadic environments of altermodern transience. Roland Barthes (1991) may be concerned that noise pollution disturbs the formation of territory by preventing listening but, twenty years on, Iain Chambers (Cox 2004, p. 9) suggests that the private Walkman experience represents the domestication and customization of the external world which defeats the grand narrative.

My second question embodies two lines of enquiry. The first suggests that our comprehension of individual envi-

ronmental sounds and the relationships between them has been seminal in creating the fundamental conditions from which human language has developed. The second is an observable shift in the theorising of environmental sound over the last hundred years or so which moves from its consideration as object, to event and eventually to a language-like model, which reflects deeper cultural change.

The idea of a connection between environmental sound and language is not new. Indeed Schafer tells us that onomatopoeia mirrors the soundscape. However, it is Janis Nuckolls' ethnographic work which suggests that language begins with the human potential for ideophone performativity:

> 'the modelling of natural processes with sound by imitating the resonant, rhythmic properties of experiential phenomena' (Erlmann 2005, p. 66).

This idea is further supported by Paul Carter's observation (Erlmann 2005, p. 45) that echoic mimicry embodies an attempt to create, 'the condition from which the object of desire will emerge'.

During the 1960s psychologist James Gibson proposed a new approach to the study of hearing called ecological acoustics in which hearing is examined using the sounds people actually hear, not stimuli generated in the laboratory. This idea was taken up by Nancy VanDeveer in the 70s and further developed by James Ballas and James Howard in the 80s. Ballas and Howard draw on Albert Bregman's work which suggests that unpacking complex audio streams into identifiable sub patterns is achieved through parsing operations similar to those that determine linguistic grammar, syntax and semantics. Bottom up processing constructs a feature set that can be mapped to stored meaning (that is a car… etc). Top down processing combines expectations, rules and patterns to provide interpretations. In line with VanDeveer's findings temporal properties such as rhythmic patterns are found to be more important for recognition than

sound spectrum information – due to the potential for distortions of distance and intensity. Rhythm and repetition are defined as part of the soundscape's syntactical structure. The importance of rhythm is supported by Barthes (1991) and Lefebvre (2004) who both observe that its study is integral to an understanding of time and the everyday. It is in the abstract to Ballas and Howard journal article from *Environment and Behavior* in 1987 that we find the phrase, 'The general conclusion is that environmental sound is usefully thought of as a form of language'. Truax however is less convinced. He accepts that complex sound sequences can convey meaning but contends that such language aspects are

> 'localised, even idiosyncratic, and that the encoding of information is not as discrete digital units such as words, but in terms of a holistic image that can be recognised as a gestalt' (Truax 2004, p. 79).

While Gibson's work took one group of researcher towards this language model it set another trajectory which today appears in the field of ecological psycho-acoustics. Its exploration of how we experience our ecology as 'voices, sources and auditory objects' (Neuhoff 2004, p. 114) and not the undifferentiated pressure wave that arrives at our ears provides a fresh approach to understanding the nature of perception and a full assessment of this field will help move this PhD forward.

As for the cultural framing of this study I agree with Emily Thompson's reading (2004) of the period 1900-1933 which suggests that control over building acoustics, the developments in electroacoustic sound reproduction and a growing attention to issues of noise pollution were all cultural phenomena expressive of the first phase on modernism. All three evidence the will to control and perfect and serve the guiding metanarrative of progress that the era inherited from the 19th century. Sound is objectified and rationalised. And that which can be objectified can be subdi-

vided, classified and recombined. The treatment of sound as object can be seen in the compositions of Leo Ornstein, Henry Cowell and Luigi Russolo, Kurt Schwitters' sound poetry and, as soon as technological advancement permitted, the phonographic and tape works of John Cage and Pierre Schaeffer. Musique concrète remains one of the great sound classification and analysis projects. Murray Schafer acknowledges its influence and appropriates the term sound object for his own investigation in *The Tuning of the World*. He also notes the surrealistic aspect of any classification and taxonomy project – which perhaps highlights the parallels between musique concrète and the visual art form with which it coexisted. Schafer was however formulating his ideas in the 1960s. It is easy to forget that the majority of the ideas found in *The Tuning of the World*, published in 1977, had already been expressed in *The New Soundscape* in 1969. The cultural backdrop and intellectual climate of the '60s was vastly different from the 1930s which shaped Pierre Schaeffer's approach to sound. Skepticism had entered the frame: Kuhn, Derrida, Barthes, Foucault and Althusser were all considering the consequences of modernism. Carl Andre's bricks had been assembled. Where Pierre Schaeffer dismantles sound, R. Murray Schafer reassembles it. And with the emergence of the sound event, albeit subdivided into signals, symbols, keynotes and soundmarks, context re-enters the frame. He established the soundscape as 'a field of interactions' (1994, p. 131). Schafer's position may be highly judgmental but it opens the way for a multiplicity of readings. Truax's *Acoustic Communication* deepens the emphasis on meaning, hearing and listening, systems and elements, and context. It also proposes a model of acoustics based on the transfer of information not energy. Soundscape composition becomes the dialogic relationship between composer and sonic material which seeks the 'reintegration of the listener with the environment in a balanced ecological relationship' (Truax 2004, p. 241). While new readings do not now seem to emerge as major single authored texts, the recent proliferation of edited, multi authored anthologies: *Soundscape Studies and Methods, Aural Cultures, Sonic Process, Hearing Cultures* and *Autumn Leaves: Sound and the Environment in Artistic Practice* suggests the emergence of multiple narrative threads and the recombination of ideas from many fields. Eclecticism and creolisation are emblematic aspects of early 21st century postmodernism, or the altermodern if you prefer.

How then does this suggest a language-like model for the current state of our understanding of environmental sound? With objects, events and temporal structures the environment presents us with symbols, meanings and grammar. The universal, shared comprehension of these aspects provides us with what Chomsky calls our linguistic competence. Barthes (1991, p. 245) talks of a form of 'entirely modern' listening which takes place in inter-subjective space where listening also speaks: listening is engaged with the flow of significance where 'I am listening also means listen to me'. Our ability to comprehend environmental sound and place human made sound into that environment creates the dialogue that is essential to communication.

Finally, a word about the role of practice in the PhD. I am currently proposing two strands which represent adaptations of the *Sounding Shore* pilot project. First, is an installation-led strategy using composition and random techniques to gather qualitative information using interviews and questionnaires. The emphasis will be on finding evidence to either support or refute the relationship between environmental sound and language and I am currently exploring ways to encourage interaction with the electroacoustic soundscape. The second aspect is an extension of the website to host a range of audio works and sonic experiments to test various aspects of soundscape per-

ception. The use of the online environment will allow the broadest data capture area for a study with limited financial resources. Scientific rigour will be achieved through the use of WebExp2, a Java tool kit for designing and conducting online psychological experiments. This is under development at The University of Edinburgh School of Informatics. Quantitative data and its statistical analysis will be used in parallel with a consideration of the outcomes of the qualitative methods.

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Web links

University of Edinburgh School of Informatics: Web Exp2:

http://www.hcrc.ed.ac.uk/web_exp/ [accessed 27/04/2009]

http://www.marcusleadley.com [accessed 27/04/2009]