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Soundscape Composition as Global Music: Electroacoustic music as soundscape*

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The author covers the background of soundscape composition, as initiated by the World Soundscape Project at Simon Fraser University, and soundscape documentation as an activity that is being increasingly practised worldwide. Today there are two striking manifestations of this work: the increasing globalisation of the electroacoustic community, and the increasing sophistication of digital techniques applied to soundscape composition. In addition, the tradition of listening to environmental soundscapes as if they were music is inverted to suggest listening to electroacoustic music as if it were soundscape. What analytical tools and insights would result? The theoretical concepts introduced in soundscape studies and acoustic communication are summarised and applied first to media and digital gaming environments, noting the extensions of both their sound worlds and the related listening attitudes they provoke in terms of analytical and distracted listening. Traditional approaches to acousmatic and soundscape analysis are compared for their commonalities and differences, the latter being mainly their relative balance of attention towards inner and outer complexity. The types of electroacoustic music most amenable to a soundscape based analysis are suggested, along with brief examples of pieces to which such analysis might be directed.

1. INTRODUCTION

I grew up hearing the old cliché about music being 'the universal language'. After the failure to establish a universal written or spoken language, such as Esperanto, I suppose it seemed, at least to the western mind, to be a plausible alternative. However, as I gradually became aware of the music of other cultures and started being deeply affected by some of them, it also became clear that even though music as a social practice seems to be found everywhere in the world, musical thinking – and the concepts and social practice it leads to – is far from uniform. In fact, the more I learned about music from other cultural traditions, the more aware I became of listening to it (particularly through recordings) with very different ears. At best, one can hope there is some analogy between what we may call listening from inside and listening from outside.

On the other hand, there are two terms in common usage today: world music (or world musics) and economic globalisation (Herman and McChesney 1997), both of which seem linked to McLuhan's 'global village' concept. First we have the diaspora of various cultures which often extends worldwide and which inevitably brings about musical crossfertilisation and evolution – one only has to think of the history of black African music and its transition to North America and popular culture to find a dramatic example. Cultural critics, however, point to a more disturbing facet of this globalisation: the increasing hegemony of American popular music worldwide and the resultant homogenisation of culture that threatens its local manifestations. As Attali (1985) reminds us, music is not only a reflection of the social order but is tightly allied to economic power and its interests. We are in danger of coming full circle to a new version of the old cliché: Muzak as the universal language!

2. THE SOUNDSCAPE CONCEPT

In the late 1960s, R. Murray Schafer (1969, 1977) suggested a radically different concept: the soundscape as the 'universal' composition of which we are all composers. This bold concept, intended as an alternative not to music but to the problems of noise, led to the formation of the World Soundscape Project (WSP) at Simon Fraser University in the early 1970s. Although in common usage the WSP often got abbreviated to 'the soundscape project', Schafer clung to the idea of its global basis, and in 1975 conducted a tour through Europe to make recordings and study five villages in each of five different countries.

The main purpose of the WSP's work was to document acoustic environments, both functional and dysfunctional, and to increase public awareness of the importance of the soundscape, particularly through individual listening sensitivity. In current terminology, the goal is to put 'acoustic ecology' on the environmental agenda. However, given the importance of local action, one of the WSP's first major publications was

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The Vancouver Soundscape, a booklet plus two records which appeared in 1973. Twenty years later, most of the recordings were reissued on a double CD, where the second CD consists of documentary recordings and soundscape compositions derived from digital recordings made in Vancouver in the 1990s. Not only was the Vancouver project probably the first systematic study of the soundscape of a city, but the 20-year span with the follow-up project gave a unique aural portrait of the rapid evolution of the city and its soundscape. Such longitudinal work is rare in acoustics and noise studies, and should be encouraged in soundscape documentation, since both personal and cultural memory lacks the ability to track such aural changes in the environment.

The Vancouver study also set the frame of the city for other work to follow. In the last decade, city 'portraits' on CD, varying in the degree to which they mingle documentation and composition, have appeared for Madrid, Amsterdam, Lisbon, Brasilia and others. Many other unpublished compilations and individual research results have also been carried out. In other words, it can be argued that the WSP's influence has spread worldwide as a concept practised by locals, rather than by outside experts. In fact, following the 1993 Tuning of the World conference in Banff, Alberta, the international organisation known as the World Forum for Acoustic Ecology (WFAE) was formed, which maintains an extensive website and soundscape newsletter and journal, as well as an on-line discussion group. In 1998, a Swedish group organised an international conference in Stockholm on the theme of acoustic ecology, and an administrative structure was set up during the conference for the WFAE consisting of both national or regional groups and individual members. In other words, the type of system that has emerged from this evolution can be described as an international network with local nodes.

So does this mean that the soundscape is a shared global experience? Although it is clearly the concern of a dedicated group of individuals who are networked worldwide, soundscapes are inherently local and particularised. To be sure, there is a disturbing analogy to economic and cultural globalisation which is a force for homogenisation, and that is the pervasive and invasive influence of technological sounds and noise. Almost everything about technology promotes standardisation and uniformity, right from the micro level of hums and broad-band noise, through to the influences that produce 'lo-fi' soundscapes in every urban centre, as well as their surroundings (Schafer 1977, 1993).

It is a simplification, but one which is suggestive: hi-fi soundscapes are varied and uniquely local; lo-fi soundscapes are uniform and about the same everywhere. From an ecological standpoint, the hi-fi soundscape is populated by many individual 'species' which are the result of local conditions. They are information rich and, most importantly, are most richly interpreted by locals who understand their contextual meanings. The lo-fi soundscape is created by the hegemony of only the most powerful sounds which eradicate, or at least mask, all local varieties. Even more seriously, the lo-fi soundscape seems to create a common habit of non-listening, one which soundscape theory argues is detrimental both to the individual and to the soundscape as a whole since it can deteriorate unchecked (Truax 2001).

3. SOUNDSCAPE COMPOSITION AND THE ELECTROACOUSTIC COMMUNITY

Today, the electroacoustic community is becoming increasingly global. Here I refer both to the group of student and professional practitioners, and to the common experience of people in industrialised countries to hear more sound via electroacoustic reproduction (Truax 1992b). Schafer (1969) originally described the electroacoustic listening experience as 'schizophonic', suggesting it was an aberration. Today, such 'aberration' is increasingly the norm. I have described one aspect of this trend as the creation of surrogate environments through the use of background music, radio, television and recordings. Foreground information comes as often as not from national and international media sources, rather than from one's neighbourhood, perhaps even more readily in most cases. So-called 'virtual reality' is increasingly becoming an aspect of 'normal reality' and one wonders whether the younger generation is capable of distinguishing the difference, or even if they care to.

At the professional level, the electroacoustic community, like many other sectors of society, is becoming increasingly global in its communication practices, mainly through the internet. What started out as a national communication medium for electroacoustic composers in Canada sponsored by the Canadian Electroacoustic Community (CEC), originally called 'cecdiscuss', has quickly become an international discussion forum now called 'cec-conference'. Although local announcements are often made (where sometimes it's not always clear what city they refer to or the location of the person making the announcement), every topic is assumed to be of international interest. It is not coincidental that this group is increasingly using the same tools, and any topic related to a new technical development is guaranteed to provoke dozens of responses and a pooling of opinions and experience. Whereas the local studio used to be the centre of electroacoustic music, private studios and workstations using some variant of standard commercial hardware and software is now the norm. It is as yet unclear what the personal and artistic ramifications will be of this global network of individuals working separately with similar tools. Will it inspire uniformity or diversity?

A subset of the professional electroacoustic community overlaps with its sister organisation, namely the acoustic ecology discussion group. That is, artists coming from the electroacoustic music community join with those coming from other acoustic-based backgrounds, such as field recordists, sound artists, and those involved with acoustic design in a variety of contexts, around a common interest in what I have called 'soundscape composition' (Truax 1992a, 1996, 2002). At SFU, this activity evolved spontaneously from the documentation or 'found' soundscapes of the WSP. Since most of the participants were composers, they began applying electroacoustic techniques towards processing the recorded sounds, creating compositions that range from those whose sounds are transparently manipulated to those that are much more transformed. However, to distinguish this latter approach from *musique concrète* and acousmatic music, I have argued that the original sounds must stay recognisable and the listener's contextual and symbolic associations should be invoked for a piece to be a soundscape composition. Music created through soundscape composition cannot be organised with much similarity to instrumental music; in fact, a broader definition of music such as 'organised sound' must be invoked if soundscape composition is to be included.

A particularly interesting trend in soundscape composition is the use of multiple loudspeakers for reproducing the work, the performance practice called 'sound diffusion' in electroacoustic circles, originally pioneered in France and now increasingly practised worldwide. So-called 'classical' diffusion takes a stereo image and projects it during the performance into the performance space via multiple loudspeakers, guided by a performer at a mixing console, usually centrally placed. Given the visual and directional bias of most musical performance in theatres – audiences staring at a stage area – this experience is inherently more immersive. However, the stereo source, as developed as it has become, presents a 'bottleneck' because of the limitation of two discrete channels.

At SFU we have been creating a multichannel computer-controlled diffusion system (Truax 1998) through a collaboration with a local engineer, Tim Bartoo, whose company called Harmonic Functions created an 8-channel prototype unit (the DM-8) and more recently commercially available 16-channel and 64-channel units (the AudioBox) marketed through Richmond Sound Design. The central idea is that a number of discrete source channels of sound can be projected either statically or dynamically onto a number of output channels connected to speakers. Despite the complexity of the signal routing involved, the result can be remarkably similar to situations found in the acoustic environment – discrete sources come from independent directions. There is no natural analogy to the stereo image created through panning where the *same* sound comes *simultaneously* from two different sources with varying loudness levels. Even echoes involve a delayed version of the source. The auditory system, presented with this paradoxical effect, resolves the ambiguity by creating the illusion called a 'phantom image', which appears to emanate from somewhere between the two speakers (which in the case of headphones means inside one's head!). However, phantom images are very unstable and even a slight movement off centre from the two speakers shifts the image towards the louder source. In contrast, even just eight channels of discrete source material (what is technically called 'uncorrelated' signals) creates a convincing soundscape where component sounds can be localised in the manner experienced in acoustic environments.

In my 1997 composition using this approach, called *Pendlerdrøm* (*The Commuter's Dream*), I created the experience of being inside the Copenhagen train station using four separate stereo recordings, unprocessed but played simultaneously so that individual sounds came from different directions, as is typical in a busy station (Sound example 1). A local train arrives, and the listener appears to get on it as the scene shifts to the inside of the enclosed train compartment. After a short ride, the doors open and the person (modelled as a commuter) gets off and leaves the station. However, at two points in this scenario (inside the station and inside the train) the sounds gradually become musically transformed, suggesting that the commuter through tiredness and familiarity goes into an inner world or daydream (Sound example 2). Sounds that were previously heard in a more natural context in the station come back in loops or time-stretched (Truax 1994b), emulating the processes of memory and dreams. A loud percussive event (a digitally enhanced train compartment door slam) triggers the return to reality just as it might in everyday life (Sound example 3). Thus both the sound materials and the form of the piece are derived from soundscape experience. Moreover, through listening to a simulated soundscape in this manner, the listener may perceive it differently in the real world when it is next encountered. By combining a very specific environment with an experience analogously shared by many people in industrialised countries, this piece shows the unique blend of local and global that soundscape composition can achieve. It also shows that soundscape composition can deal with urban soundscapes and the totality of soundscape experience, not just natural soundscapes.

The soundscape composition, with the interdisciplinary conceptual background of soundscape studies and acoustic communication, and the technical means of granular time-stretching (Truax 1988, 1990) and multichannel diffusion (Truax 1998), all of which have been developed at Simon Fraser University over the past 35 years, provides a well-developed model for the musical use of environmental sound. The characteristic principles of the soundscape composition as derived from its

evolved practice are: (a) listener recognisability of the source material is maintained, even if it subsequently undergoes transformation; (b) the listener's knowledge of the environmental and psychological context of the soundscape material is invoked and encouraged to complete the network of meanings ascribed to the music; (c) the composer's knowledge of the environmental and psychological context of the soundscape material is allowed to influence the shape of the composition at every level, and ultimately the composition is inseparable from some or all of those aspects of reality; and ideally, (d) the work enhances our understanding of the world, and its influence carries over into everyday perceptual habits. Elsewhere I have described the ideal balance that should be achieved in such work as matching the inner complexity of the sonic organisation to the outer complexity of relationships in the real world, without one being subordinate to the other (Truax 1994a). Thus, the real goal of the soundscape composition is the reintegration of the listener with the environment in a balanced ecological relationship.

Given its by now lengthy history, the idea of listening to environmental soundscapes as if they were music can now be regarded as a tradition. What appeared radical to John Cage's musical world and to R. Murray Schafer's more environmentally concerned audiences has now established itself as a useful, if not absolutely necessary, condition for living in a sonically imbalanced environment. The genre of the soundscape composition emerged from this basic idea, largely inspired by the work of Schafer's World Soundscape Project at Simon Fraser University, but with a European detour via Luc Ferrari. At one end of the continuum of soundscape composition practice is the 'found soundscape', or what is referred to as phonography – that is, recorded soundscapes with minimal or no alteration that can be listened to as if they were music, in the sense of an organised sound structure with differing levels of meaning (Drever 2002; Westerkamp 1994). At the other end of the continuum I have proposed is the abstracted soundscape which remains clearly identifiable as to subject matter, but which incorporates sonic elements that have been abstracted to varying extents from their original source.

I would now like to suggest inverting this increasingly familiar concept to suggest that we listen to electroacoustic music as if it were a soundscape. What analytical insights would result and which analytical techniques would be the most useful for obtaining those insights? In fact this idea is not entirely unprecedented in the sense that various forms of audio-based communication, beginning with radio and background music, evolved to create extended artificial environments of sound over the last century. Even the early Telharmonium (Weidenaar 1995) was piped into upscale restaurants in New York to create a pleasant musical ambience – and coincidentally to increase liquor consumption, a side-effect that has been observed in modern times as well (Milliman 1986) and no doubt accounts for its longevity as a popular practice! George Orwell, among others, noted the use of radio as what we now call an 'accompaniment medium' in middle-class households in England before and after the Second World War, and by the 1960s in North America, with radio targeting particular demographic subgroups, the use of radio (and even television) as a surrogate environment was widespread (Mendelsohn 1964). The contemporary forms of personal portable audio formats extend this idea with mobility and greater user selectivity (Bull 2000, 2006). Film soundtracks are designed to create sonic environments according to a set of conventions understood by the audience (and only loosely related to the real world), but arguably the largest amount of capital for auditory environment design today is invested in the digital game industry where complex and detailed soundscapes are the norm, both for realistic and fantasy worlds. Since surrogate electroacoustically designed environments are a familiar feature of most listeners' daily experience, certain types of electroacoustic music may seem to be simply a more concentrated or specialised type of soundscape to be listened to in a similar manner.

4. BASIC SOUNDSCAPE CONCEPTS

I find it striking how easily applicable the basic, and rather simplistic, soundscape categories still are for the analysis of all such electroacoustic soundscapes. It is significant that those categories are strongly related to perceptual habits, such as 'keynote' sounds for background listening, sound signals for foreground perception, and 'soundmarks' for those sounds recognised as having cultural and symbolic importance within a community. These concepts rely heavily on the listener's understanding of and ability to interpret such sounds, as well as pointing to the shifting levels of listening awareness and the importance of social, cultural and psychological context for soundscape perception. With a typical radio music format, the recorded music often functions as a background ambience, with recurring elements such as the station logo functioning as keynote sounds. The station attempts to attract foreground attention to the ads through a variety of strategies, and within the ads highly symbolic and culturally interpretable sounds are used to provide associations and reinforce a product image, often in the manner of the soundmark.

In terms of their structural function, keynotes provide background continuity, and signals provide foreground encoded and interpretable information (which can become a keynote if heard frequently enough) and can be become soundmarks if given uniqueness by cultural and social associations that transcend an immediate situation. Unlike the arbitrariness of the linguistic sign,

the specific aural qualities of environmental sounds become tied to their interpretation, and such sounds cannot be changed arbitrarily without cognitive disruption. It can be noted that electroacoustic music as a form of intensely designed communication may also provoke these basic kinds of listening and interpretation strategies even if the sound material doesn't particularly resemble environmental sound.

The theory of acoustic communication (Truax 2001) expands on these concepts to include how information is extracted from sounds (i.e. listening) and exchanged, both acoustically and in the modern mediated forms of electroacoustic discourse which among many of its effects includes extensions of the sonic repertoire and their arbitrary sequencing and embedding, whether through amplified sounds imposed on an environment or the personal layering of sounds such as with the Walkman and iPod. Historically, this technological development involves not only the expansion of the language of electroacoustic sound, but also the expansion of the electroacoustic listener's listening strategies in both directions of attentiveness along a continuum from what I've termed distracted listening (e.g. habituation to media and music as environment) to analytical listening (e.g. the discernment of sound qualities, good and bad reproduction, separable parameters of sound, and on to spectromorphology). Denis Smalley (1992) has similarly classified different levels of surrogacy related to different listening strategies provoked by the distance between the sound and any real-world references.

What acousmatic music and soundscape composition share is the primacy of listening, the ability to extract information at different simultaneous levels, and a recognition of the ability of sound to shape space and time, including the creation of sound spaces through diffusion practices. Where they diverge is more of a matter of emphasis regarding the role of context. Electroacoustic music recognises the abstracted aspects of its language while acknowledging its movement towards some point of absolute abstractness, whereas soundscape composition begins in complete contextual immersion and moves towards the abstracted middle ground. In terms of the balance between inner and outer complexity, phonography resides largely in outer complexity, abstract composition in inner complexity, with soundscape composition and some of the more abstracted forms of acousmatic music based on the interplay between the two.

5. ELECTROACOUSTIC MUSIC ANALYSIS AS SOUNDSCAPE

Returning to my theme of listening to electroacoustic music as if it were a soundscape, perhaps the first point to emphasise is that in terms of the intention/reception dialectic (Landy 2006; Weale 2006), I am mainly referring to the listener's perceptual strategies, whether or not they correspond to the composer's intentions. Electroacoustic music analysis as informed by soundscape concepts would seem to apply best to works that range from 'realistic' to 'abstracted', and less so for works that tend towards abstraction either in sound or syntax. However, even with more abstract works where sounds have little resemblance to the real world or to its syntactical structures, those works may still be listened to 'as if' they were soundscapes, i.e. at the level of metaphor. Also keep in mind that the soundscape of the real world is not static and that it increasingly includes electronic additions (both as sounds and gestures) that listeners become familiar with in everyday life. The jump cut that is so foreign to the acoustic world of connected transitions was introduced in visual form in the film montage, then in the auditory domain with the tape edit, the cueing of dissimilar segments in radio broadcasts, and today the even faster digital edits and sequences, such that it is now commonplace in the everyday soundscape (e.g. the rapid switching between sounds in digital alarms). Likewise, the layering and crossfading of the mixing studio finds expression in iPod listening, cellphones, and background music soundscapes. One can ask: is the acoustic environment becoming more abstract and is the abstract becoming more environmental?

Two of the structural strategies I have observed in the practice of soundscape composition (Truax 2002) are works which rely on a fixed spatial perspective (or series of such perspectives) and those which rely on moving perspective. Denis Smalley (2007) provides an extensive catalogue of what he terms 'space-forms' found in both the soundscape and acousmatic music. Fixed perspective works imply a continuity of space, with temporal flow created by sonic events. Wishart's landscape with real and unreal elements, or Emmerson's mimetic sounds or abstracted syntax come to mind here as electroacoustic equivalents (Emmerson 1986). Denis Smalley's *Valley Flow*, Natasha Barrett's *Little Animals*, Wishart's own *Red Bird* (with its inner and outer soundscape in conflict), Simon Atkinson's *Nocturne*, and Bernard Parmegiani's *Dedans/Dehors* seem to work well as examples of this fixed perspective, at least in some extended sections. Likewise, text-based works (Lane 2006) may be based in a fixed perspective or else involve a moving, narrative path. Works with moving perspective rely on spatial transitions, usually simulated or evoked, such as the classic use of doors as transitional spaces in acousmatic music. These works create a sense of travel and narrative. Francis Dhomont's *Espace/Escape* and *Novars* seem to juxtapose the fixed and moving perspective as their main structural concept, whereas Justice Olsson's *Up!* takes us on a incredible Freudian journey through sexuality and the subconscious world, showing that such journeys needn't occur only in physical space. I would argue that the 'outer

world' of such pieces may include the inner world of memory, dreams and metaphor as fluid imagery unconstrained by the acoustics of real spaces; hence the variable perspective offers an unlimited range of approaches.

Soundscape composition has yet to be mentioned in any standard textbook (though with the publication of Leigh Landy's new book, *Understanding The Art of Sound Organization* (2007), that gap has started to be filled). However, it risks being treated by future commentators, analysts and historians as merely another style or subgenre of electroacoustic music, rather than as an organising principle, a set of listening strategies and therefore a reference point for all electroacoustic music with real-world references. This paper therefore concludes with a call for electroacoustic music studies to integrate soundscape concepts within its standard analytic practices.

6. CONCLUSION

The concepts of 'local' and 'global' provide an easy dichotomy for many issues that extend across the cultural and social realms. It is commonplace to think of an ongoing struggle between them at various economic, social and political levels, with environmental and cultural concerns often being at the forefront. Therefore it is not surprising that both music and the soundscape can be understood as reflecting those tensions – the hegemony of monolithic global capitalism pitted against the infinite variety of local cultures. Homogenisation and standardisation battle with individual uniqueness. Even within the world of electroacoustic music, one might characterise its more abstract, acousmatic forms as being 'universal', in the sense of transcending any specific cultural reference, as distinct from soundscape composition that is always rooted in a specific context. However, such polarisation is not useful, in my opinion. A nuanced interplay between the global and the local, between the abstract and the contextual, the shared and the specific, can be much more satisfying to the listener. At the level of everyday listening, I have argued that both acoustic and electroacoustic soundscapes are frequently intertwined and experienced with familiarity. And just as the soundscape can be listened to as if it were music, or at least organised sound, so too can electroacoustic music be listened to as if it were a soundscape, even if an imaginary one. This is not to say that we shouldn't be constantly aware of the dangers of cultural hegemony and homogenisation at all levels of social experience. However, electroacoustic music by its very nature offers an exemplary forum for the alternative use of mass-produced technology to give voice to individual forms of expression that can reference both the local and the global.

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