

# Open Research Online

---

The Open University's repository of research publications and other research outputs

## El Tren Fantasma: arcs of sound and the acoustic spaces of landscape

### Journal Item

How to cite:

Revill, George (2014). El Tren Fantasma: arcs of sound and the acoustic spaces of landscape. Transactions of the Institute of British Geographers, 39(3) pp. 333–344.

For guidance on citations see [FAQs](#).

© 2013 Royal Geographical Society

Version: Accepted Manuscript

Link(s) to article on publisher's website:  
<http://dx.doi.org/doi:10.1111/tran.12034>

---

Copyright and Moral Rights for the articles on this site are retained by the individual authors and/or other copyright owners. For more information on Open Research Online's data [policy](#) on reuse of materials please consult the policies page.

---

[oro.open.ac.uk](http://oro.open.ac.uk)

***El Tren Fantasma: arcs of sound and the acoustic spaces of landscape.***

Drawing on the example of Chris Watson's soundwork *El Tren Fantasma*, this paper considers how landscape is made in sound. Informed by the work of Michael Serres and Don Ihde it argues for an understanding of landscape as mediation. Drawing on the work of Brandon LaBelle, Jean Luc Nancy, Mladon Dollar, and Charles Sanders Pearce, the paper develops the concept of 'the arc of sound' as part of a socio-material approach to semiosis able to recognise the ways sound connects and differentiates contingently across heterogeneous spaces and materials. It shows how sound participates in the production of the railway corridor as a complex, animate and deeply contoured historically and geographically specific experience of landscape. Finally, it argues for an approach to landscape as mediation which pays equal attention to ontology and epistemology.

Key words: sound, landscape, semiotics, post-phenomenology, railway corridor

**Introduction**

The concept of landscape has become a lively area of debate and innovation within Geography. Authors concerned with landscape as a practical and experiential engagement have added significantly to empirical accounts of landscape particularly in terms of mobile practices such as walking, cycling, or indeed train travel whilst at the same time developing new theoretical approaches informed by a range of existential, vitalist and post-humanist philosophies (Lorimer 2005; Wylie, 2006, 2009, 2012, Spinney 2006; Bissell 2008; Crouch 2010a, 2010b). A major focus has been to critique and displace visuality and in particular linear perspective as dominant modes of engaging with and interpreting landscape (Rose and Wylie 2006). To date sound has been a relatively minor player in these debates. Sound can be an important component in the experience of landscape and certainly provides a rather different sensory world to that of the visual (Lorimer and Wylie 2010). Though there is an increasing wealth of work in the fields of auditory and sonic studies relatively little of this has engaged directly and explicitly with current attempts to rethink the concept of landscape even where landscape is the ostensible subject of the work (Leppert 1993; Smith 1999; Thompson 2002; Corbin 1998; LaBelle 2008). This paper contributes to ongoing debates concerning landscape, in terms of sound and mobile experience. Its starting point is the 42 minute sound work *El Tren Fantasma* (2011 Touch #TO:42 (CD)), sound recordist Chris Watson's sonic journey across Mexico by train, released in November 2011 to enthusiastic reviews from critics<sup>1</sup>. The

---

<sup>1</sup> Interviews and some samples of Chris Watson's past and current work can be found at

<http://www.chriswatson.net/>

The three tracks from *El Tren Fantasma* discussed later in this paper can be heard at YouTube as follows:

work is based on sound recordings made when Watson spent a month working for the BBC TV series *Great Railway Journeys of the World* documenting the final weeks of the railway line across Mexico from the Pacific to the Atlantic. The resulting programme 'Los Mochis to Veracruz' featuring celebrity chef and former railway platelayer Rick Stein was programme 4 in the fourth series and was first broadcast 26/January/1999. Perhaps best known for his work as a nature and wildlife sound recordist, Watson weaves together a series of intricate site specific movements which follow the train's progress across country. These bring the listener variously close and distant as the train moves through the landscape. The rasping of engine exhaust, the sound of metal on metal, the chirruping of cicadas, the gentle rustling of wind in the grass, the far off echo of the train's claxon and the insistent clang of the level crossing bring the passing train alternately disturbingly close and intriguingly distant. Sounds are looped and pitches and tones carefully shaped and segued to provide points of intensity and relaxation.

In order to explore this specifically sonic making of landscape the following sections begin by setting out a broader case for examining sound and landscape in terms of the processes of mediation. The paper then considers Chris Watson's sound work *El Tren Fantasma* in some detail before moving on to a theoretically informed discussion of sound and landscape in the context of Watson's work. Though the paper is concerned with sound, it is the mediating role of sound itself which is the focus of attention rather than listening practices as embodied experience. The purpose is to draw on the example of Watson's soundwork in order to explore the semiotic implications of Brandon LaBelle's concept of the arc of sound as active mediation which participates in figuring landscape as historically and geographically specific auditory experience.

### **Sound, landscape and mediation**

Sound problematizes space and spatial relations in ways which have important implications for landscape. Reflecting on the sonic experiences of jet fighters roaring overhead whilst walking through the Welsh mountains, Lorimer and Wylie (2010, 11) pose a series of important questions in terms of the listening to sound in the landscape. How, they ask, 'can spatial sense be made when there is no still epicentre or primary point for listening to a sound event?' They argue that sound is problematic for landscape because it does not provide 'an accurate impression of the topography in

---

Track 2: Los Mochis <http://www.youtube.com/watch?v=GYspPea2DPw>

Track 4: El Devisadero (The Telegraph) [http://www.youtube.com/watch?v=VjzUXN10\\_Ao](http://www.youtube.com/watch?v=VjzUXN10_Ao)

Track 5: Crucero La Joya <http://www.youtube.com/watch?v=SQd30kprDAU>

which sound is formed and bears no obvious relation to landscape.’ Rather they conclude, sounds shape their own distinct topologies (Lorimer and Wylie 2010, 11). Sounds mask, envelope, echo at a distance and reverberate deeply within bodies in ways which are specific to its phenomenal properties. For the philosopher Roger Scruton (1997), the world of sound contains events and processes such that conventional notions of spatiality and location are cast in doubt. Scruton adopts the example of pitch to argue that sound does not occupy space in a clear and unambiguous fashion. He says ‘sounds may be arranged on the pitch spectrum (a one dimensional space), but no sound can move from one place [pitch] on that spectrum to another without changing in a fundamental respect (a semitone higher for instance). Thus when sounds move through auditory space they are transformed rather than simply translocated. As a result he suggests that there is no clear orientation of sounds in auditory space: no way of assigning faces, ends, boundaries, and so on to them, so as to introduce those topological features which help us to make sense of the idea of ‘occupying’ a place or indeed ‘inhabiting’ a landscape (Scruton 1997, 14). The temporal qualities of sound are clearly important in this context and to this extent Scruton is certainly right to think of sound as event. The spatial qualities of sound are intimately bound into its temporal structuring. Sounds, intensify and fade they have distinguishing properties of attack and decay which are constitutive to our experience of them. Because sounds die away and because even as recordings they can only be held long term as some form of memory, code of practice or initiating algorithm, each instantiation of a sound is a specific utterance, a direct expression of process and practice. Striking a note on a musical instrument, verbally expressing a thought, the products of environmental or mechanical action or the activation of recording technology makes sound anew each time they are heard. Auditory landscapes therefore lack some of the familiar spatial and temporal structuring familiar from visual modes of experience. At the same time sound organised in the form of music appears as a ‘semiotic system without a content plane’ (Chanan 1994). Thus in comparison to text or graphic depiction of landscape great difficulties present themselves when trying to relate musical sounds to environments and social practices as representational content.

Thus sound arranged as art work, music, or installation does not seem amenable to the conventions of a symbolic content plane organised around the principles of single point perspective typical of say landscape paintings, photographs or authoritative authorial voice found in textual topographic description. Yet in spite of these qualitative properties, within social science the relationships between sound and landscape have frequently been interpreted in visual terms. The adoption of terms such as ‘sound mark’ and ‘figure and ground’, for example, used in soundscape studies and adopted directly from the conventions of visual perspective has come in for some criticism (Schafer

1977, 1993; Matless 2005; LaBelle 2007; Ingold 2007, 13; Lorimer and Wylie 2010, 12; Revill 2013a, 235-7). Yet the distinctive physical properties of sound and the physiological qualities of hearing suggest that sound has its own distinctive qualities which should not be treated as directly analogous with the visual. The substantially passive receptivity of hearing and its 365 degree field of reception ensure that sounds encompass us whilst at the same time seeming to reverberate deep inside our heads. Thus sound brings us into intimate contact with activities, actions and events which lie well outside the reach of other senses, behind us, round the corner or over the next hill (LaBelle 2010). As Brandon LaBelle has shown, acoustic spaces are shared, conflictual, intimate and vital, combining points of focus with points of diffusion in ways that both contrast and compliment other sensory experiences of landscape. Sound he says: 'locates us within an extremely animate and energetic environment that, like auditory phenomena, often exceeds the conventional parameters and possibilities of representation' (LaBelle 2010, xvii). For LaBelle sound is:

*promiscuous*. It exists as a network that teaches us how to belong, to find place, as well as how not to belong, to drift. To be out of place, and still to search for new connection, for proximity. Auditory knowledge is non-dualistic. It is based on empathy *and* divergence, allowing for careful understanding and deep involvement in the present while connecting to the dynamics of mediation, displacement, and virtuality. (LaBelle 2010, xvii)

Sounds interact and mask each other high or low, loud or soft, incessant or fugitive. Heard sounds give embodied sensation to feelings of depth, distance and clarity, delicacy and intimacy, transforming and animating the experience of landscape in ways which both compliment and conflict with those of visual perspective. Because sound is promiscuous as LaBelle calls it, polysemic and spatio-temporally complex, sounds question conventional notions of mediation which might place sound as either metonymy - a part standing for a greater whole whose objective presence is transmitted to us via recording media - or as metaphor - a symbolic representation whose verisimilitude mimics or performs landscape in some readily identifiable way. Yet there is certainly a sense in which sound seems to mediate landscape both intervening between world and perceiver shaping and transforming experience and acting as a point of departure for the creative cultural and emotional elaboration of landscape experience.

To this extent sound shares some of the problems of ontological status identifiable with the concept of landscape itself. History and usage of the term landscape do not clear up these ontological ambiguities. To coin terms from the practices of landscape itself it is hard to determine sometimes

whether landscape is being understood as either 'figure' or 'ground', product or raw material, a reflexively or decisively drawn arrangement or the environmental mass from which such figurations are drawn (Pearson 2006, 11; Thomas 2000, 166). The term landscape can be used to describe a physical arrangement of topography, the shape and lie of the land, but it also refers to depiction in symbolic form as text, graphics or numeric data, as guidebooks, paintings, maps or tables, or equally environmental experience as worked earth, footfall, memory, solitude or belonging. Thus the term landscape seems to suggest object and interpretation, conscious arrangement and random scatter, 'raw material' and 'artful construction', 'nature' and 'culture'. Any attempt to pin landscape down in one of these realms seems to result in a very partial conception which belies its historical and experiential diversity and richness. The history of the term landscape whether in its medieval Germanic sense as organised territory (or region) or indeed its sixteenth century derivation from Romance culture as an area of territory which can be surveyed in a single view, suggests a term which is actively transformative rather than passively descriptive (Muir 1999; Olwig 2002). Thought of as a verb rather than a noun (Mitchell 1994, 5), the sets of historically constituted practices and processes which animate and inform the term and landscape, the artefacts, entities, bodies and events in which these are embodied, make landscape a key form of geographical mediation. In this way, Matless (1999) understands landscape in historically contingent terms as a socio-material assemblage, a conditionally stable 'immutable mobile'. Thus landscape holds together a heterogeneous and contingent assortment of entities and practices including earth, politics, farming, photography, botany, economics, leisure, habit and creativity. From this position landscape is both an object of experience and itself a way of experiencing, its historically contingent representations in art and culture are intrinsic rather than epiphenomenal, they provide some of the media through which landscape is experienced as landscape. In this respect Wylie (2006, 532) is right to characterise landscape articulating simultaneously ontology and epistemology. Such a formulation recognises the mutual constitution of known, knower and knowledge in landscape and suggests its mutually constitutive properties as both affective and reflective at the level of lived experience. As a mode of being in the world landscape might be thought of as both what we know and how we know what we know. In landscape materials, mental activities and practical actions together shape both perceiver and perceived through processes of mediation.

Working from a formulation of landscape as mediation, this paper asks how is landscape made in sound? How is landscape shaped by technologies of recording and sound processing, or by the mechanised mobility of the railway? Thus the paper is concerned with the ways in which media of communication participate in the co-construction of landscapes as particular conditionally stable

assemblages, artefacts and experiences. Both the railway's smooth linear traverse providing fleeting and fugitive prospects, panorama and perspective and the media of sound recording, editing and production encoding, splitting, splicing and overdubbing its points of sonic detail and broad acoustic resonances, are key to creating and shaping landscape as a particular historically and geographically located form of mobile sonic experience. This paper therefore draws on the work of Michael Serres' and Don Ihde, two authors concerned in rather different ways with the conditions, processes, practices, artefacts and assemblages of communication systems as mediating and as themselves mediations. It takes as its starting point Serres' pithy assertion derived from Walter Benjamin that "our universe is organised around message-bearing systems" (Serres 1993; Connor 2002a, 2002b). Serres' notion of a world held together by communicative 'message bearing' systems suggests a central role for the making, exchange and play of 'meanings' in the broadest sense of the word. His topological project is concerned with articulating processes that lie 'outside of measurement but within relations' – 'the closed (within), the open (out of), intervals (between), orientation and directionality (toward, in front of, behind), proximity and adherence (near, on, against, following, touching), immersion (among)' (all Serres 1994, 71; quoted in Bingham and Thrift 2000, 290; see also Michael 2000, 27; but especially Born 2013). In this context meaning(s) and meaningfulness might be thought of as comprising a broad spectrum of contingent and contested differentiations, identifications, intentionalities and affectivities generated through the processes of movement through space/time.

Serres' assertion raises a range of questions concerning the nature of mediation, the making, transmission, transformation and dissemination of information, messages and meanings across space and time and through a multiplicity of substances, practices and agents. In this respect his project shares some common ground with the post-phenomenology of technology sketched by Don Ihde (2003, 2009). Ihde proposes a new and reinvigorated theorisation of communication as communicative interaction. He posits a situated contingent and relational approach to communication counter to the idealised abstractions of Habermas's communicative action and the formal binary oppositions of De Saussure's structural linguistics. A sense of communication as an immersive socio-technical medium shaping and giving meaning to experience is centrally important to the conception of mediation developed here. To this extent Ihde's work speaks to the notion of landscape as both what we know and how we know what we know and a conception of sound as simultaneously medium and message. His work resonates strongly with Serres' concern with prepositions ('to', 'from', 'in' 'with') as an entry into a multisensory study of mediation, connections and connectivity. The distinctive properties of sound are clearly important for thinking through such

issues of communicative practice; Ihde's early work was for example centrally concerned with the phenomenology of sound and the practices of hearing and listening (Langsdorf 2006). Key to Ihde's approach is the fusion of an existential phenomenology concerned with how human beings locate themselves and find meaning in the world and a hermeneutical phenomenology concerned with the ways in which systems, structures and equipment enable, constrain and afford experience (Verbeek 2005, 112). In contrast to the post-phenomenologies of Merleau-Ponty and others used productively in rethinking landscape (Wylie 2005, 2006, 2009, 2012, 2013; Tilley 2004, Ingold 2001, 2008; Pearson 2006), Ihde makes no a priori ontological claims in relation to perception and experience, rather his datum is respect for lived experience in its historical specificity. Ihde (2009, 44) champions what he calls a relational or interrelational ontology which is sensitive to historical specificity.

Where landscape is concerned, giving ontological privilege to differing historically and geographically specific ways of experiencing and making landscape is congruent with an idea of landscape as mediation, a means and medium of communication. Here landscape might be thought in its historical and geographical specificity as sets or regimes of practice and knowledges which communicate a particular way of experiencing the world through their embodied form as a contingently meaningful discursive assemblage of topography, practice and symbolic depiction (Revill 2007). Clearly landscape and sound are not simply commensurable, landscape communicates as a discursive regime, formation or assemblage whilst sound is a generic medium of communication. Yet there are important resonances to be drawn when thought together in terms of Serres and Ihde, sound like landscape is a medium whose properties of communication and expression are difficult to pin down outside the particularity of experience. Thus the work of LaBelle and others within the developing field of critical sonic studies provide a conceptual framework for understanding the experience of sound as mediation in ways sensitive to both its embodied physical properties in perception and the socially and culturally situated practices of making sound, listening, hearing and reception (Revill 2013b). LaBelle's work forms part of a concerted effort by anthropologists, cultural media and sound studies to recast the phenomenology of sound as a critical phenomenology which as Georgina Born says is fully historical (Smith 2004a; Sterne 2003), cultural (Connor 1999; Connor 2000, 23) and social (Feld 1996; Porcello 1998; Born 2011; 2013). In the context of such critical and historically located phenomenologies and especially Ihde's conception of communicative interaction, mediation is a complex interplay and mutual dependency of figure and ground, medium and message, the context specific shaping of phenomenal experience and the available tools by which we come to sense and make sense of the world. Together, senses of



shaping, sensing and sense making suggest a conception of mediation as heterogeneous and immersive communicative assemblage. Where Lorimer and Wylie (2010) see a radical disjunction between landscape and the sound of the jet plane in their personal experience as listener/walkers, this paper explores the ways in which such arcs of sound are intrinsic to the making of landscape itself. In this regard, the paper is sympathetic to Ingold's (2011, 14) assertion that the production of lived experience should be thought in terms of lines of flight, as trajectories of becoming launched into the current of time. Following Ingold's argument, mediation might be usefully thought of in this context as an intransitive verb, a process of ongoing transformation rather than a simple linking of A and B. From this position, mediation's substantive manifestations in landscape and the particular sounds of jet fighters, birds, or train horns provide specific shape, sense and sense making capacity through which worldly experience is made. Rather than an external imposition on the landscape, arcs of sound can be understood as media through which landscape is made and experienced in its historical, geographical and cultural specificity.

### **The sonic landscape of El Tren Fantasma**

Born in Sheffield, Chris Watson was a founder of the band *Cabaret Voltaire* (1973) named after a night club in Zurich which had been an early centre for Dadaist performance in 1916-17, the group was noted for their experiments with created and processed electronic sound. Watson left Cabaret Voltaire in 1983 and worked with Andrew McKenzie in *The Haffler Trio* a conceptual and sound art collaborative noted for their ambient industrial sonic fusions. His professional sound recording career began in 1981 when he joined Tyne Tees TV, whilst his interest and expertise in wildlife recording is reflected in his work for the Royal Society for the Protection of Birds during the early 1990s. Watson went on to handle field recording for a number of high profile nature programmes, documentaries and feature films, including the BBC TV Springwatch/ Autumnwatch series. In 2006 he was awarded an honorary Doctor of Technology by the University of the West of England 'in recognition of his outstanding contribution to sound recording technology, especially in the field of natural history and documentary location sound'. To date he has made six solo albums including: *Stepping into the Dark* (1996) a set of ambient location recordings spanning settings from Scotland to Kenya; and *Weather Report* (2003). LaBelled a filmic narrative this latter work documents elemental processes, rain, thunder and wind. The third and perhaps most critically acclaimed of the three 18 minute pieces collages and temporally compresses the sounds made as Icelandic ice floes crack and melt. *Weather Report* is on the Guardian newspaper's list of '1000 albums to hear before you die'.

The soundwork *El Tren Fantasma* (the Ghost Train) was created in 2011 from recordings Watson had made in 1999 whilst working with a film crew on BBC *Great Railway Journeys* programme. It consists of ten site specific tracks lasting between 3 minutes 15 seconds and 10 minutes 16 seconds. The now defunct railway belonging to the privatised and subdivided Ferrocarriles Nacionales de México (FNM), takes a circuitous s-shaped course coast to coast across the continent climbing eastwards 2,440m. from Los Mochis on the Pacific through the spectacular Copper Canyon in the Sierra Madre Occidental and descending to Chihuahua City (1,500m.). From here the line turns south through the central plateau and the Chihuahuan desert towards Durango, Aguascalientes and Mexico City before turning east across the Isthmus of Tehuantepec for Veracruz and the Gulf of Mexico. Along the way the line passes through mountains, deserts, traverses mining territory and the homelands of indigenous cultures, it cuts across ranching country and pine forests. It shadows main roads and skirts round shanty towns where human activity spills out over the tracks. By the time Watson arrived with the BBC team, the railway line was already partly closed to through passenger services and a central section of the resulting episode of *Great Railway Journeys* had to be undertaken by road. Interviewed for the BBC Radio 4 documentary series *Archive on Four* (30/10/2010) Watson lamented rail privatisation and the loss of this 'public' service. To this extent *El Tren Fantasma* expressly depicts a 'ghost train' a spectral echo, a nostalgic and melancholy memory.

In some senses *El Tren Fantasma* exhibits characteristics familiar in form and subject matter to many field recordings of railway trains made by enthusiasts. Yet in other ways the work breaks new ground for the audio recording of railways as the listener is enfolded in a complex sonic environment of proximity and distance, mechanical, social and natural sounds. Together the ten tracks of *El Tren Fantasma* provide an auditory journey based on a series of site specific works recorded at locations along the route. These condense, juxtapose, overlay and manipulate multiple recordings of wildlife, ambient natural and human sounds with the mechanical sounds of the railway, engines, wheels, warning horns and public address systems. Track 2 *Los Mochis*, for example, is substantially descriptive, place focused and scene setting. It starts with an urban soundscape of crowing cocks, barking dogs, radios playing Mexican music and passengers chattering as they board the train. The rumble of the train entering the station drowns out other sounds, a two-way radio crackles and the train pulls away screeching and hissing with mechanical intensity. Here the way sound apparently 'captures' the place specific moment of the railway station environment is most reminiscent of the archival imperative adopted by soundscape studies. A little later, at track 4 *El Devisadero* (The Telegraph) the points of location are on the train itself a microphone close to wheels and track sets

up a rhythmical repetitive beat which is looped, overdubbed and occasionally masked completely with the drone of engine noise manipulated to produce a cavernous hypnotic polycyclic beat. Occasionally Watson breaks the intensity of this micro focus by segueing the mechanical drone into a Doppler shift effect created by recording the trains' warning horn from the trackside, by doing this the listener's sense of space is shaped, questioned, disturbed and inverted. This and similar sections of the work have been variously likened to the soundworld of the avant-garde industrial punk group Throbbing Gristle, electronica specialist Brian Eno, or more recent Dubstep artists (Turner 2011). The following track (5) *Crucero La Joya* marks a change in mood. It features detailed recordings of specific closely recorded insects against the background drone of wind through grass and vibrant invertebrate life. These are recorded from multiple locations low down close to the earth. Only the sound of a clanging gong situated on a level crossing interrupts the sound of animate nature. In this track Watson returns to techniques principally associated with his nature and wildlife recordings. Collectively tracks of *El Tren Fantasma* develop a language for sonic art which draws on both Watson's experimental ambient industrial electronic work for example with the *Haffler Trio* and the place specific documentary 'truths' of his wildlife recordings evident in his early solo album *Stepping in the Dark* (1996). *El Tren Fantasma* also develops some of the techniques of temporal condensation which Watson explores in his filmic narrative *Weather Report* (2003).

Reviews of *El Tren Fantasma* consistently pick up three interrelated qualities of Watson's work, its juxtaposition and interconnection of natural and mechanical sounds, a sense of temporal intensity derived from Watson's technique of condensing sounds recorded over a longer time span producing a distinctively distilled documentary sense of archival preservation, memory and loss, and lastly the complex sense of space and time produced by the over dubbing of events recorded variously close and distant to the source of sound. One reviewer writes for example that 'the complex, three dimensional sound places you in a ghostly, auditory diorama' (Turner 2011). Though sometimes characterised as archive documentary, Watson is clearly aware of both the spatial and temporal artifice of work. For BBC Radio 4 *Archive on Four* he described the time and care taken travelling up and down the route by automobile seeking locations, gullies, canyons and promontories which provided the desired sound samples. Elsewhere the sense of contrivance is most clearly apparent in the station announcements which open and close the work. The words 'All aboard the Ghost Train!' which open and close the work were scripted for the station announcer at Los Moches some months after the Pacific-Atlantic service had terminated. These words set the scene for what could easily have become a simple travelogue in sound. Concepts of 'diorama', 'cinematic narrative' and 'aural landscape' adopted by reviewers certainly suggest attempts to make sense of Watson's work

through a familiar lens of spectatorship and visual perspective. It is certainly true that many reviewers interpret Watson's juxtaposition of mechanical and natural sounds in terms of the conventions of the technological sublime, a sudden mechanical shock or event which upon its passing allows the restoration of tranquillity of nature to be restored and the invasion of modernity to be subsumed within a reinvigorated natural order (Nye 1994; Revill 2012, 45). As Grady (2011) says '[i]ndeed, it might be with heavy heart that you hear the train's clanging signal bell presaging its oncoming passage. In this particular man versus nature fight for survival, it's the latter that wins by a knockout'. Yet rather than signalling a simple victory for either technology or nature it is a sense of transformability and mutability enabled by sound which equally characterises this work and which contributes centrally to its spatial and temporal complexity:

Flies hovering over carrion sprout metallic wings until disturbed by clanging bells. Violent jolts as you enter tunnels and the air sucked out on exit shapes itself into distant church choirs. Jet-streams form delicate chords and harmonies (Weatherall 2011).

The mutability of sound in electronic transformation by Watson produces a levelling and equitability between subjects, objects and events which transcends simple binary oppositions. For Watson the overlapping rhythmic patterns created by the train its scheduled passing, starts and stops, the repetitive drumming, clanking and clattering, the sounds of animals, birds, insects and ambient environments, provide the vehicle for an immersive and deeply interconnected sense of train and landscape.

### **Arcs of sound: sounding the railway corridor**

Though for instance there is little if any commonality between the soundtrack to the BBC Great Railway Journeys programme and Watson's soundwork, it still seems legitimate to talk about *El Tren Fantasma* in terms of landscape. Watsons' artful arrangement of natural and cultural sounds here echo and resonate with his earlier work descriptive of landscape. Reviewers routinely resort to terms such as diorama, panorama, 'cinematic narrative and aural landscape, as they describe and understand the experience of hearing the work. In Watson's *El Tren Fantasma* it can be argued that landscape is a product of at least three forms of mediating technological communications systems: the moving train making its sometimes rapid sometimes halting progress; the recorded work itself which creates a distinctively organised spatio-temporal web of overlapping, intersecting and juxtaposed sonic samples; and the trajectories of sound themselves which arc between, envelop

and transform bodies, artefacts and spaces. This section begins by looking at the third of these before considering the railway corridor as an historically and geographically specific form of landscape made in and experienced through arcs of sound.

### *Arcs of Sound*

In Watson's *El Tren Fantasma* sound connects and transforms as the train horn, echoes across ravines, resonates through canyons disturbs wayside wildlife and warns residents and travellers of the train's passing. The mutable repetitive grinding, drumming and squealing of the train conjoins masks and transforms natural and environmental sounds as the train threads its way across country. What LaBelle calls the promiscuity of sound as a spatial event, its capacity to transcend, transform and make heterogeneous associations may provides means to understand the sonic landscape produced by the railway. For LaBelle (2010, xix), the associative dynamics of sound are key to understanding the ways in which sound produces distinctive geographical experiences of connection and disconnection which are both intensive and diffuse, as they reverberate, resound, echo and decay in complex and unexpected ways. For LaBelle though sounds are associated with their original source, they also become their own thing, 'separate and constantly' blending with other sounds, thereby continually moving in and out of focus and clarity' (LaBelle 2010:.xix). The way in which each individual utterance of sound seems to detach from its source and become 'its own thing' can be understood in terms of sound's acousmatic qualities. The Lacanian cultural theorist and musicologist Mladen Dollar (2006) says the voice both belongs to the body, yet emanating from the orifice of the mouth appears to be disconnected from it. Its point of production and connection with the body (the larynx) is both hidden from us at the same time that the speaking subject seems to address us directly in sound. It is of the body, speaks for the body but is simultaneously detached, merely a resonance resounding and echoing from somewhere deep within. Such a formulation highlights the essentially distancing experience of sound as a heard event in space and time whether human voice, engine noise, warning horn or bird song. As an event sound leaves the point of its production, it both belongs to its unseen origins and takes on a life of its own, the acousmatic qualities of its production render arcs of sound simultaneously source and mediation.

As Nancy argues, the properties of sound like those of its close relation rhythm provide a multiplicity of possibilities enabling us to recognise and imagine the making of meanings beyond the strictures of linguistics. The physical properties of sound are important in this respect. Where light waves mask each other becoming opaque on surfaces, sound waves constantly collide and combine in space (Rée 2000, 31; Scruton 1997, 13). The result is that sounds always have what Rée (2000, 31-2) calls 'a

special kind of complexity'. For Nancy like Serres in *The Five Senses* the topologically enfolding qualities of sound are foundational to senses of self grounded in the recognition of self and other. Thus:

But what can be the shared space of meaning and sound? Meaning consists in a reference [renvoi]. In fact, it is made of a totality of referrals: from a sign to a thing, from a state of things to a quality, from a subject to another subject or to itself, all simultaneously. Sound is also made of referrals: it spreads in space, where it resounds while still resounding "in me," ... (Nancy 2007, 8)

In this context LaBelle's term 'association' might be thought overly neutral and essentially passive in terms of the very active processes at work in relation to the transmutable qualities of sound and its ability to echo, amplify, distort, mask, reference and refer producing meanings and meaningful experience as identified by Scruton, Rée and Nancy. Yet, a conception of sounds as associative rather than simply oppositional is a useful starting point because it gestures towards a rather different approach to the creation and elaboration of meanings in semiosis from that derived from either the binary oppositions of de Saussure or the logically related discursive chains of signification suggested by Barthes. In the context of a geographical politics of inhabitation couched in relation to landscape, Hinchliffe (2003, 215) argued in favour of a broadly defined spatial semiotics of connection and differentiation producing a world which is simultaneously inhabitable and affective. Here Hinchliffe cites Whatmore's plea for a material semiotics which extends 'the register of semiotics beyond its traditional concern with signification as linguistic ordering, to all kinds of unspeakable "message bearers" and material processes, such as technical devices, instruments and graphics, and bodily capacities, habits and skills' (1999:29). To these 'message bearers' may perhaps be added locomotive klaxons, warning bells or even trains themselves as they traverse the countryside. In this context Charles Sanders Peirce (1839-1914) provides an alternative approach to semiosis potentially useful in helping us understand the mediating role of LaBelle's arc of sound embodying, gathering, transforming and dispersing heterogeneous assemblages of socio-material entities and events described by Hinchliffe and Whatmore.

Though Peirce's theory developed, changed and became more complex between 1860 and its final iteration in the period 1906-10, a number of salient features remained constant (Short 2007). Rather than being composed from the binary oppositions between linguistic terms, Peirce's semiotics depends on a set of reciprocal relations between the sign (*Sign*), the thing to which it refers (*Object*)

and the receiver/recipient of the sign (*interpretant*). Though Peirce described the relationship between the sign, object and interpretant as one of determination, his notion of determination suggests influence rather than causality. Rather than the object *causing* or *generating* the sign, this relationship is perhaps best thought of as placing constraints and conditions, a set of affordances which shape successful signification (Silverman 1998, 4; Currie 2004, 120). Understood in this way, an interpretant, that which is shaped or influenced by an object, is not necessarily a reflexively conscious human but any entity which has some form of sympathetic resonance with conditions present in the sign. Whilst, the sign itself is not necessarily part of a closely coupled symbolic system (a language) but may equally be any entity, process, object or symbol which invokes a particular reaction in an interpretant. Further to this, Peirce consistently argued that only certain characteristics of an object are relevant to any one instance of signification thus objects, signs and interpretants may be connected in a multiplicity of ways which draw on the capacity of different characteristics and groups of characteristics to generate, shape and invoke chains of signification (Short 2007). This formulation suggests that meaning is made and translated through a signifying system by a set of contexts and affordances which entrain objects and capacities bringing them conditionally into and out of experience whilst never fully accounting for or exhausting the objects, processes or entities to which they refer. It expands on LaBelle's characterisation of associative sonic promiscuity whilst also resonating with Hinchliffe's conception of a semiotics which enables recognition of human *and* non-human times and spaces and their roles in the co-constitution of meaningful worlds (Hinchliffe 2003, 217). This formulation might recognise:

... chains of translation of varying kinds and lengths which weave sound, vision, gesture and scent through all manner of bodies, elements, instruments and artefacts – so that the distinction between being present and being represented no longer exhausts, or makes sense of, the compass and possibility of social conduct (Whatmore, 1999, 30).

Thus translation is never a one to one correspondence but always a space in which connections are incomplete, something left behind and something improvised by the act of translation itself. In this way as Homi Bhabha (1994, 1996) argues translation is always a culturally and arguably materially creative process. Thought this way, arcs of sound are never passive mechanistic chains but always elaborate creatively.

Thus it is the sense of trajectory which seems most important for LaBelle and for Watson in the way sound organises landscape in *El Tren Fantasma*. For LaBelle sounds are spatio-temporal events, arcs of rhythmic movement linking two points in time. There are echoes here of Deleuze and Guattari:

Auditory knowledge is a radical epistemological thrust that unfolds as a spatio-temporal event: sound opens up a field of interaction, to become a channel, a fluid, a flux of voice and urgency, a play of drama, of mutuality and sharing, to ultimately carve out a micro-geography of the moment, while always already disappearing, as a distributive and sensitive propagation (LaBelle 2010, xvii)

The assertive crackle of the station tannoy, the hiss and screech of brakes marking the departure of the train, indeed the progress of the train across country moving through and provoking a response from different sorts of resonant spaces, canyons, plains, mountains, stations, depot towns and cities, connect and organise people and territory, flows and circulations. The incessant roaring, rattling screeching of metal on metal unifies and differentiates, bringing locations together within the context of the journey whilst heightening the specificity of interactivity in each place. The train journey as sonic event produces heterogeneous communicative assemblages with a degree of ontological stability and coherence. Together these suggest processes of channelling and exchange congruent with communication conceived as both network and broadcast. On the one hand the fixed nature of the railway track and the regular scheduling of trains, whilst on the other sound emitted, transmitted, shed, thrown, radiating and spread across diverse topographies. As a point of departure the blast of the klaxon horn as arc of sound elaborates into the journey, the expectant departure and the humdrum rush-hour commute. Such a conception of sound seems in sympathy with the idea of rhythm as the means of connection between disparate milieus suggested by Deleuze and Guattari for whom rhythm is a quality of the difference produced by periodic repetition. Thought of as repetitive riffs formed from heterogeneous assemblages of social and material practices, artefacts and beings, such refrains are expressive and creative to the extent that they generate both difference and the spatial relations of territory in which difference is made meaningful. Communication between milieus is thus a co-ordination between heterogeneous space-times. In describing such lines of flight, refrains organise territories, register and inscribe understandings of the world and open up a 'virtual' world of possibility and becoming (Thrift and Dewsbury 2005, 105; see Deleuze and Guattari 1988, 345; see also McCormack 2002; Ingold 2011; Revill 2013b). Informed by a Peircean reading of LaBelle in the context of Ihde's postphenomenology of technology, the rhythmic capacity of sound to combine and differentiate across heterogeneous



time-spaces may be understood as linking apparently separate realms of existence not merely as the epiphenomena of tacit underlying processes but as themselves a set of ontologically generative processes. Such relationally produced ontological formations have their own creativity, coherence and conditional stability at the level of lived experience. As Barad suggests in her discussion of the ontologically generative qualities of diffraction and interference patterns informed by Judith Butler's work on performativity 'the primary ontological units are not "things" but phenomena – dynamic topological reconfigurings/ entanglements/ relationalities/ (re)articulations' (Barad 2003, 817, 2007; Revill 2013b). The sonic and the rhythmic might be thought of as key to such a figural and processual sense of ontology able to weave together a heterogeneous range of socio-material textures within spatially and temporally and thus culturally specific experiences (Cragg 2001, 200). In this way in Watson's *El Tren Fantasma* arcs of sound are folded and enfolded in complex ways producing heterogeneous chains of meaningful associations, referrals and distinctive senses of proximity and distance. These have distinctive implications for the historically and geographically specific experience of landscape.

#### *Sounding the Railway Corridor*

Most frequently within academic literature the experience of landscape from the train has been understood in terms of the idea of panoramic perception associated with the work of the cultural historian Wolfgang Schivelbusch (Bissell 2008, Revill 2011). Schivelbusch shows how travellers came to understand their experience of landscapes as one of passivity, detachment and theatricality. As exemplified by the use of terms such as 'diorama' to describe Watson's soundwork it is possible to hear listeners to *El Tren Fantasma* endeavouring to follow these visual conventions. However, Watson's is not alone in figuring a sense of railways and landscape as a complex sense of interconnection and mutual dependency (Revill 2012, 56-61). In this respect a sonic sense of train and landscape has been unjustifiably silenced by a dominant ocular centrism. In Edward Thomas's poem *Addlestrop* written in 1915 and published posthumously in his collected works (1920) the sound of a single blackbird punctuating the silence leads to an active and lively engagement between traveller and landscape. Whilst Henry David Thoreau's (1817-1862) account of train and landscape from his rural retreat near Concord Mass, in his book *Walden* (1854) provides a further distinctive example. For Thoreau (1995 edition, 80) 'the whistle of the locomotive penetrates my woods summer and winter, sounding like the scream of a hawk ...'. It punctuates and disturbs the quiet; its scheduled repetitiveness reverberates through farm, factory, wood and city. It marks a range of barter and transactions in which commodities and raw materials are exchanged transforming lives, materials and landscape in the process.

In Thoreau's account the train whistle, like the warning claxon in *El Tren Fantasma* is a spatial event in the sense suggested by LaBelle. It organises and distributes sonic rhythmic patterns; it calls out and provokes response, action and activity. It enfolds and engages across space and through time marking out a territory substantially shaped by the route of the railway. For both Thoreau and Watson the shrill warning call of the locomotive announces and punctuates, connects and cuts across, resounding reverberating and echoing. Curiously echoing Watson's segueing of natural and mechanical sounds, it is ambiguously both a modern intrusion but as natural and familiar as the 'scream of a hawk' or the chirruping of the Cicadas. For Watson's *El Tren Fantasma*, as in Thomas's *Addlestrop* and Thoreau's *Walden*, interruptions and repetitions make landscape through a sonic form of semiosis which produce distinctive acoustic spatialities. Connections and differentiations are made and remade by the routine passing of the train enabling specific semiotically generative interjections and ruptures. Whilst broader environmental resonances and echoes offer opportunities for reflection, reverberation, decay and memory which render the passing train an object of nostalgia even in the moment of its imminent modernity. In each case the trajectory of the train speeding along its predetermined course connects cyclical processes and singular events, spatiality and temporality with experiences of location, regionalisation, flow and circulation.

A sense of railways shaping lives and environments mediated through arcs of sound is shared by the cultural historian John Stilgoe. For Stilgoe (1983) such acoustic spaces are congruent with the railway corridor as a landscape formation made by and experienced through railway travel. Examining the impact of railways on North American culture during the period 1880-1930, Stilgoe's railway corridor, the 'Metropolitan Corridor' of his book's title, is a place of activity and transformation, connecting technology to society and environment by moulding spaces, structures and ways of thinking in new and different ways. Trains and rights-of-way 'transformed adjacent built environments', 'nurtured factory complexes, electricity generating stations and commuter suburbs while enfeebling Main Streets and other traditional places'. Thus 'trains, right-of-way, and adjacent built form had become part environment, part experience, a combination perhaps best called metropolitan'. Stilgoe concludes: 'the metropolitan corridor objectified in its unprecedented arrangement of space and structure a wholly new lifestyle'. Along the tracks and through the corridor 'flowed the forces of modernisation, announcing the character of the twentieth century'. Key to this for Stilgoe was the train whistle which he says 'organises the spaces of modernity... For one half-century moment, the nation created a new sort of environment characterized by technically controlled order.' For Peter Bishop (2002), like John Stilgoe, railway corridors 'gather' the elements

of landscape and culture, thereby creating new places, perspectives, meanings and experiences, within, around and beyond the territory defined by the railways' permanent way. Rather than creating uniform, linear and technologically determined spaces, sound produces this landscape experience as highly textured with multiple points of intensity, regions of dispersion and fields of diffusion. For Bishop railway corridors have a characteristic 'poetics of space', which is built around contrasting elements of the impersonal and the intimate, the public and the private, flow, eddy and stillness. In Stilgoe's *Metropolitan Corridor* like Watson's *El Tren Fantasma* or Thoreau's *Walden*, the sound of the train permeates and colours the environment, resonates through sensate and insensate bodies alike, questioning conventional notions of distance, touching directly, resonating, resounding and decaying inconsistently and unpredictably over a broad field, providing points of focus and infinite traces of faint echo. Hardly surprising then, that the sound of the train features so prominently in popular culture and personal memory, songs, stories and reminiscences. In *El Tren Fantasma* as elsewhere, such sounds evoke in the sonic landscape of the railway corridor historically and geographically specific senses of physical power, environmental transformation, personal reflection and collective hope.

### **Conclusion**

Drawing on the example of Chris Watson's soundwork *El Tren Fantasma*, this paper has shown how sound thought of as mediation produces distinctive conceptions of landscape. Informed by the work of Michael Serres and Don Ihde it has argued for an understanding of landscape as mediation and drawn some parallels between landscape and sound as media of experience which are both immersive and reflexive. The paper has developed a conception of mediation figured as a heterogeneous and immersive communicative assemblage which enfolds a contextual shaping of experience with the active resources used for sensing and sense making. Landscape thought this way in its spatio-temporal specificity is to some extent always both figure and ground and sound both medium and message. Thus following Ingold, mediation might be thought of as an intransitive verb which is ontologically productive across diverse materials and entities rather than simply a means of connecting subjects with objects. Drawing on the work of LaBelle, Peirce, Ingold and others, the paper has developed the concept of 'the arc of sound' as part of an essentially contingent approach to semiosis able to recognise the ways sound creates connections and differentiations across heterogeneous spaces and materials. The mutability of sound and its ability to echo, amplify, distort, mask, reference and refer are important for any attempt to understand how sound creates landscape as itself a form of mediation. Attention to the sonic certainly seems to open up our

understanding of the relationships between railways and landscape in a way which moves beyond the orthodoxies of Schivelbusch's conception of panoramic perception as a detached and objectifying form of visual perspective. In contrast the acoustic spaces of the railway corridor can be thought of as a simultaneously practical and imaginative space in which sound plays a key role holding together heterogeneous materials as landscape. By paying attention to sound, the railway corridor is landscape made in mobility through a multiplicity of overlapping disruptions, interjections, starts and stops resonances, reverberations interferences and echoes.

There may also be some broader implications here for the study of landscape within cultural geography. The 'landscape as text' metaphor has been rightly criticised by geographers concerned to pay due attention to landscape's affective and experiential dimensions. Such a move is certainly necessary if landscape is to be recognised as an active, embodied and vital object of study. Yet we cannot do justice to the vitality of landscape without recognising the historical and geographical specificity of landscape as it is experienced in a plurality of ways of being in the world. Recognising the ontological legitimacy of multiple versions of landscape requires us to examine the specificity in each particular assemblage of practical, social, material, reflexive and habitual as these forge particular modes of habitation understood by those who experience them as landscape. Doing this might require two things which have been central to this paper. Firstly, to look beyond systems of communication which are conventionally identified as semiotic and cultural and explore the sort of broad definitions of socio-material discursivity present in the work of Serres and Barad and implied by Hinchliffe and Whatmore. This implies a socio-material conception of semiosis which moves beyond the binary oppositions and fixed categories often associated with semiotic systems. Geographers can make an important contribution here by recognising and exploring the spatio-temporal complexities of semiosis. In this respect the resonances, interferences and echoes of sound are but one set of material possibilities for a broader conception of semiosis able to account for difference made through inter-relationality as Ihde might call it. In this respect Serres' *The Five Senses* has important things to say about mediation as an active property of heterogeneous materials, entities and events thought in relation to a conception of intransivity derived from Ingold. Secondly, it is also important to attend to the simultaneously immersive and reflexive qualities of discursive formations like landscape and communicative media such as sound. Together such discursive formations and communicative media are central to the relational conception of communicative interaction central to Ihde's post-phenomenology of technology. Understanding the complex ways in which communicative and discursive formations bind together medium and message as part of lived experience is important here. In this respect it is surely right to be equally

sensitive to both the ontological and epistemological dimensions of landscape. In this context it should become increasingly irrelevant to contrast landscape and culture or isolate cultural landscape as a distinctive object of study. Rather we should simply follow the materials of landscape, like the klaxon and whistle, as arcs of sound emanating from but unbounded by their points of origin, not simply for what they are, but for what they do and the relations they make in the production of landscape as historically and geographically specific experience.

## BIBLIOGRAPHY

- Barad K 2003 Posthumanist Performativity: How Matter Comes to Matter *Signs: Journal of Women in Culture* 28(3) 801-31.
- Barad K 2007 *Meeting the Universe Halfway: quantum physics and the entanglement of matter and meaning* Duke University Press, Durham and London.
- Bhabba H 1994 *The Location of Culture* Routledge, London.
- Bhabba H 1996 Culture's In-Between in Hall S and du Gay P *Questions of Cultural Identity* Sage, London 53-60.
- Bingham N and Thrift N 2000. Some new instructions for travellers: the geography of Bruno Latour and Michel Serres in M. Crang and N. Thrift eds *Thinking space* 281-301. Routledge, Abingdon.
- Bishop JP 2002 Gathering the Land: the Alice Springs to Darwin Rail Corridor *Environment and Planning D; Society and Space* 20 295-317.
- Bissell D 2008 'Visualising everyday geographies: practices of vision through travel-time', *Transactions Institute of British Geographers* NS 34 42-60.
- Born G 2013 'Introduction' in G. Born (ed) *Music, Sound and the Reconfiguration of Public and Private Space* Cambridge University Press, Cambridge.
- Chanan M 1994 *Musica practica* Verso, London.
- Connor S 1999 1999. CP: or, A Few Dont's By A Cultural Phenomenologist *Parallax* 5 (2) 17-31.
- Connor S 2000 'Making an issue of cultural phenomenology', *Critical Quarterly* 42(1) pp.2-6.
- Connor S 2002a 'Michel Serres and the Shapes of Thought', at <http://www.stevenconnor.com/topologies/>.
- Connor S 2002b 'Michel Serres's Milieux', at <http://www.stevenconnor.com/milieux/>.
- Corbin A 1998 *Village Bells* Columbia University Press, New York.
- Crang M 2001 Rhythms of the city: temporalised space and motion in J May and N Thrift eds *Timespace: Geographies of temporality* Routledge, London 187-207.
- Crouch D 2010 *Flirting with Space* Ashgate, Farnham, Surrey.
- Currie M 2004 *Difference* Routledge, London.
- Deleuze G and Guattari F 1988 *A Thousand Plateaus: capitalism and schizophrenia* Athlone Press, London.
- Dollar M 2006 *A Voice and nothing more* MIT Press, Cambridge, Mass..
- Feld S 1996 Waterfalls of song: An acoustemology of place resounding in Bosavi, Papua New Guinea *Senses of place* 91-135.
- Hinchliffe S 2003 'Inhabiting' – *Landscape and Natures* in Anderson, K Domosh M and Thrift N eds *Handbook of Cultural Geography* Sage, London 207-26.

- Ihde D 1976 *Listening and voice: a phenomenology of sound* Ohio University Press, Athens Ohio.
- Ihde D 2003 "If Phenomenology is an Albatross is Postphenomenology Possible?" in D. Ihde and E. Selinger eds. *Chasing Technoscience: Matrix of Materiality* Indiana University Press, Bloomington 117-130.
- Ihde D 2009 *Postphenomenology and Technoscience: the Peking Lectures* SUNY Press, Albany, N.Y.
- Ingold T 2001 *The perception of the environment: essays in livelihood dwelling and skill* Routledge, London.
- Ingold T 2007 Against Soundscape in A Carlyle ed. *Autumn Leaves, sound and the environment in artistic practice* Double Entendre, Paris.
- Ingold T 2008 Bindings against boundaries: entanglements of life in an open world *Environment and Planning A* 40 1796-810.
- LaBelle B 2008 *Background noise: perspectives on sound art*, Continuum, London.
- LaBelle B 2010 *Acoustic Territories: sound culture and everyday life* Continuum London.
- Langsdorf L 2006 The Primacy of Listening: Towards a Metaphysics of Communicative Interaction, in Postphenomenology in E, Selinger ed. *A Critical Companion to Ihde* SUNY Press, Albany, N.Y. 37-47.
- Leppert R 1993 *The Sight of Sound: Music, Representation and the History of the Body* University Of California Press, Berkeley.
- Lorimer H 2005 Cultural geography: the busyness of being 'more-than-representational' *Progress in Human Geography* 29 83-94.
- Lorimer H and Wylie J 2010 Loop (a geography) *Performance Research: A Journal of the Performing Arts* 15(4) 6-13.
- Matless 1999 *Landscape and Englishness* Reaktion Books, London.
- Matless D 2005 Sonic geography in a nature region *Social and Cultural Geography* 6, 5, 742-766.
- McCormack DP 2002 A paper with an interest in rhythm *Geoforum* 33, pp.469-485.
- Michael M 2000 *Reconnecting Culture, Technology and Nature: From Society to Heterogeneity* Routledge, London.
- Mitchell WJT 1994 *Landscape and Power* University of Chicago Press, Chicago.
- Muir R 1999 *Approaches to Landscape* Macmillan Press, Basingstoke Hants.
- Nancy J-L 2007 *Listening* Fordham University Press, New York.
- Nye D 1994 *The American Technological Sublime* MIT Press, Cambridge Mass..
- Olwig KR 2002 *Landscape, Nature and the Body Politic* University of Wisconsin Press, Madison, Wisconsin.
- Pearson M 2006 "In comes I" *Performance, Memory and Landscape* University of Exeter Press, Exeter.

- Porcello T 1998 'Tails out': Social Phenomenology and the Ethnographic Representation of Technology in Music-Making *Ethnomusicology* 42 (3) 485-510.
- Rée J 2000 *I See a Voice: a philosophical history* Flamingo, London.
- Revill G 2007 William Jessop and the River Trent: mobility, engineering and the landscape of eighteenth century 'improvement' *Transactions Institute of British Geographers* 32 201-216.
- Revill G 2011b Perception, Reception and Representation: Wolfgang Schivelbusch and the Cultural History of Travel and Transport in *Mobility in* P.Norton, G. Mom, L. Milward, M. Flonneau eds. *History: Reviews and Reflections T2M Yearbook* eds Éditions Alphil-Presses universitaires suisses, Neuchâtel Suisse 31-48.
- Revill G 2012 *Railway* Reaktion Books, London.
- Revill G 2013a Landscape, music and the cartography of sound in P. Howard I Thompson and E Waterton eds. *Routledge Companion to Landscape Studies* Routledge, London.
- Revill G 2013b Points of departure: listening to rhythm in the sonoric spaces of the railway station *Sociological Review* (forthcoming).
- Rose M and Wylie J 2006 Animating Landscape *Environment and Planning D: Society and Space* 24: 475-479.
- Scruton R 1997 *The Aesthetics of Music* Oxford University Press, Oxford.
- Schafer RM 1977 *The Tuning of the World*, McClelland and Stewart, Toronto.
- Schafer RM 1993 *the Soundscape: our sonic environment and the tuning of the world* Destiny Books, Rochester Vt.
- Serres M 1993 *Angels: a modern myth* Flammarion, Paris.
- Serres 1994. *Atlas*. Juilliard, Paris.
- Short TL 2007 *Peirce's Theory of Signs* Cambridge University Press, Cambridge.
- Silverman H.J. 1998 Introduction in H.J. Silverman ed *Cultural Semiosis: Tracing the Signifier* Routledge, London 1-17.
- Smith, B.R. 1999 *The acoustic world of early modern England* University of Chicago Press, Chicago.
- Smith B R 2004a. Listening to the Wild Blue Yonder: The Challenges of Acoustic Ecology in V Erlmann *Hearing Cultures: Essays on Sound, Listening and Modernity* Berg, Oxford 21-41.
- Spinney J 2006 A place of sense: an ethnography of the kinaesthetic sensuous experiences of cyclists on Mt Ventoux *Environment and Planning D: Society and Space* 24 709-32.
- Sterne J 2003 *The audible past: Cultural origins of sound reproduction* Duke University Press, Durham, NC.
- Stilgoe R 1983 *Metropolitan Corridor: Railroads and the American Scene* Yale University Press, New Haven and London.



- Thomas J 2000 Archeologies of place and landscape in I. Hodder (ed) *Archeological Theory Today* Blackwell, Oxford.
- Thompson E 2002 *The Soundscape of Modernity, an investigation of architectural acoustics and listening in early twentieth century North America* MIT Press, Cambridge Mass.
- Thoreau HD 1995 ed *Walden* Wordsworth, Ware Herts.
- Thrift N and Dewsbury JD 2005 'Genesis Eternal': After Paul Klee in *Deleuze and Space* Edinburgh University Press, Edinburgh) 89-108.
- Tilley C 2004 *The materiality of stone: explorations in landscape phenomenology* Berg, Oxford/
- Verbeek P-P. 2005 *What things do: philosophical reflections on technology, agency and design* University of Pennsylvania Press, Pennsylvania.
- Turner L 2011 Chris Watson El Tren Fantasma Luke Turner, December 2<sup>nd</sup> 2011 05:50 *The Quietus.com* <http://thequietus.com/articles/07512-chris-watson-el-tren-fantasma-review> accessed 25/04/2012.
- Weatherall A 2011 Chris Watson El Tren Fantasma *Caught by the River* <http://www.caughtbytheriver.net/2011/11/el-tre-fantasma/> accessed 25/04/2012.
- Whatmore S 1999 Hybrid Geographies: Rethinking the 'Human in Human Geography' in Massey D Allen J Sarre P *Human Geography Today* Polity Press, Cambridge.
- Wylie J 2005 A single day's walking: narrating self and landscape on the South West Coast Path *Transactions of the Institute of British Geographers* NS 30 234-47.
- Wylie J 2006 'Depths and folds: on landscape and the gazing subject', *Environment and Planning D: Society and Space* 24 519-535.
- Wylie J 2009 Landscape, absence and the geographies of love *Transactions of the Institute of British Geographers* NS 34 275-289.
- Wylie J 2012 Dwelling and displacement: Tim Robinson and the questions of landscape *Cultural Geographies* 19 (3) 365-383.
- Wylie J 2013 Landscape and phenomenology in P Howard I Thompson and E Waterton *Routledge Companion to Landscape Studies* Routledge, London.