Sussex Research Online

Distant echoes: evoking the soundscapes of the past in the radio documentary series 'noise: a human history'

Article   (Accepted Version)

Distant Echoes: Evoking the Soundscapes of the Past in the Radio Documentary Series *Noise: a Human History*

David Hendy, University of Sussex

Abstract

This article asks whether radio can ever successful evoke an accurate sense of the sound of the past. It does so through a reflective critical analysis of the 2013 BBC Radio 4 documentary series, *Noise: a Human History*, by its own writer and presenter. It explores how the 'sound design' of the series met the challenge of providing a *longue durée* history of sound without having recourse to authentic sound archive recordings for most of the period being covered. Through an analysis of key sequences, and by highlighting the significance of the broader context of production, it argues that it is possible for epistemologically valuable history to emerge, even via a medium that treats sound more as a device for evoking the imagination than as something possessing evidential status in itself. The article does this by invoking the series as a practical example of 'historical acoustemology', and by suggesting that in radio notions of subjectivity and perceptual mimesis are key to understanding the medium's success. In doing so, the article calls for a redefinition of the notion of the radiogenic – arguing for a move away from seeing 'raw' sound as the key ingredient of sound-design, and towards greater attention to the influence of radio's other characteristics as a time-based, institutionally-produced mass medium.

Keywords

Radio, Documentary, Soundscapes, Sound Design, History, BBC, Radiogenic, Acoustemology,

Introduction

Radio, like cinema, regularly features programmes that demand the sounds of the past. Period dramas and historical documentaries conjure the mood and feel of a lost moment in time through familiar tropes: church bells, the clatter of horses' hooves, the thunderous roar of battle, ancient chants, sacred rituals. Yet in almost every case these sounds are entirely ersatz. They are recreations, forged in the studio by technicians or downloaded from a vast library of ready-made sound effects. The mother of invention is necessity. For, though it seems obvious to say it, we have little direct access to the 'real' acoustic worlds of the past. James Leahy was confronted with the essence of the problem when asked once by a sound designer to identify the noises that might have characterised Paris in the 1860s. 'I hardly knew where to look', he recalls.

> All I could find were hints in some paintings and the novels of Zola. Museum collections of the artefacts of the era would also have been relevant. But, even then, what exactly did the construction sites characteristic of Paris in the era of Haussmanisation sound like? And the steam tugs and cranes handling the stone blocks brought in to construct the new buildings? (Leahy 2003, 61)

The problem, Leahy suggests, was simple: ephemerality. Since the technology of recording sound was not available until the dying days of the nineteenth century, for any modern researcher, as the literary historian Bruce Smith points out, 'there would seem to be nothing *there* to study' (Smith, B. 2002, 307)

A fictional representation, of course, will be granted a certain dramatic licence. Its sounds might correspond only very roughly with what we, as modern audiences, already *expect* the past to sound like - on the basis of having already absorbed a myriad other fictional representations. In film, anyway, sound is just one element of the package. For radio the problem is more challenging. It is a medium constituted of nothing but sound. There is also the question of genre.

Fiction might have some leeway in its deployment of historic sounds, factual programmes demand a closer degree of attachment to 'the truth', however loosely defined.

How then might a factual radio documentary series, avowedly concerned – of all things - with the history of sound itself, tackle this dilemma? How can it offer its listeners a continuous and reasonably accurate representation of the acoustic past when that very same acoustic past no longer survives in the form of recorded sound? Here, I hope, I can offer some pertinent personal insights. In 2013, I wrote and presented a thirty-part series for BBC Radio 4, *Noise: a Human History* (BBC Radio 4 2013) – the producer was the highly regarded British radio feature-maker, Matt Thompson. As the BBC's official publicity stated, it was a series that aimed to 'take us from prehistory to the present, encompassing the shamanistic music of our cave-dwelling ancestors, the babel of ancient Rome, the massacre of noisy cats in pre-Revolutionary Paris, the nerve-destroying din of trench warfare, right through to the cacophony of the modern metropolis' (BBC 2013). With a timeframe going back several hundred thousand years, it was a series about sound that threatened to be largely – and, for the medium of radio, dangerously - silent.

In this article, I wish to draw on the example of the *Noise* series to suggest that the past *can* be evoked in radio through specific strategies of sound design – though I should point out that 'sound design' is perhaps a somewhat misleading term for a process that to some extent evolved by trial and error in both the field and the recording studio. As well as drawing on thinking within both radio practice and 'radio studies', I also want to engage with a broader debate within academic history about the methodologies – and the value – of 'sound history' itself. In so doing, I want to suggest that the sound-design of *Noise: a Human History* seeks not just to work as *radio*, but also as a valid form of *history*. Historians are wont to regard the mass media as complex and inhuman machines that inevitably reduce, simplify, or exaggerate the complex historical truths they wish to convey. And indeed, sometimes they are. But not always. And perhaps in the case of radio there can often be an aesthetically *and* intellectually

satisfying mix – a genuine fusion, to quote the famous dictum of the BBC's founding father John Reith, of the broadcaster's famous desire 'to inform, to educate, to entertain'. If so, I venture, it is a fusion that is often forged in and through sound itself. Though, finally, I want to destabilize our sense of what constitutes the 'sound design' of radio. I will conclude by suggesting we widen the notion of the 'radiogenic'. Analysing a series such as *Noise* demonstrates that greater attention might fruitfully be given to the conditions of production, rather than focusing purely on the formal qualities of how 'raw' sound recordings are handled within a given sequence.

Sound History and Radio Sound

Despite sound's ephemerality, historians and archaeologists are more confident than ever that it is legitimate to *try* to 'hear' the past (see Smith, M. 2005, Scarre 2006, Blake and Cross 2015). Yet the various routes towards our lost acoustic pasts are not without difficulty. Mark M. Smith, for instance, worries deeply about what he calls the technique of 'performative re-enactment', where we might for instance try to recreate a mid-nineteenth century cannon boom by using salvaged cannons and gunpowder from the period and firing away in front of the microphone. However 'authentic', he suggests, the process tells us nothing about how the sound of cannon fire was thought about, responded to emotionally, or 'read' for information by those who heard it in the heat and dust of battle. Indeed, without sufficient appreciation of the context in which sounds occurred, Smith argues, 'we warp our understanding' (Smith, M. 2015, 57)

Counter-intuitively, this critique is entirely helpful to the task that *Noise: a Human History* set itself, of telling a history 'from prehistory to the present'. This is because Smith's real anxiety is our 'tight tethering' of sound to technology (ibid 55). To think of a *recorded* sound as representing the most useful evidence of the acoustic past is, he suggests, 'inherently ahistorical'. What he calls 'a catalogue of historical noises', is 'not only of very modest heuristic worth but, in fact, quite dangerous in its ability to inspire unwitting faith that these are the

"real" sounds of the past' (ibid 60). The problem is that recordings 'not only fail to communicate which constituencies heard what and how and why; they also lull unwitting listeners into thinking what they are hearing is freighted with the same meaning as the sound (or silence) in its original context' (ibid 59). To this, I would only add that in a more technical sense, recordings *always* represent a highly selective sample of a much bigger sonic reality. A living human being, turning his or her head while moving around, picking out some sounds, ignoring others, builds a dynamic and immersive impression of the surrounding space. A microphone has what Matt Thompson calls 'tunnel vision' (Thompson 2015). It will convey – and so leave behind in the recorded archive - only what it was pointed at.

So, far from recorded sound being the best - because the most tangible - form of evidence, it is more likely to mislead – or get in the way of us from asking more pertinent questions about the world in which that sound was unleashed. This line of reasoning not only challenges the very notion that sound which has been physically retained in the modern electromagnetic archive has a special status as definitive proof for the historian; it suggests that historians of sound should actively *avoid* relying on archival recordings – and, thus *un*tethered from technology, feel liberated to move beyond the modern era.

In venturing further back in time, though, how exactly does the historian proceed? Mark M. Smith's own recourse is, like Bruce Smith, to work with the notion of 'historical acoustemology'. The term 'acoustemology' – a linguistic fusion of acoustics and epistemology - emerged from the work of the anthropologist Steven Feld, who spent several years in the 1970s studying the Kaluli or Bosavi people of Papua New Guinea. Feld was interested in their language, rituals, and world-views – how the musicality of their culture was related intimately to the sounds of the rainforest in which they lived and its fauna. His study showed that the full meaning and significance of the Bosavi people's relationship with sound can only be understood when their close relationship with their immediate environment is also understood. 'Soundscapes', Feld explains, 'are not just physical exteriors, spatially

surrounding or apart from human activity'. They are 'perceived and interpreted by human actors who attend to them as a way of making their place in and through the world'. In other words, Feld concludes, soundscapes are 'as much psychical as physical phenomena' (Feld 2000, 173-200). *Historical* acoustemology swaps the anthropologist's emphasis on the specificities of place with another on the specificities of time – but retains an acute awareness that the significance of a sound will always depend on a very particular set of contexts. What comes to the fore is the act of listening – that human, cultivated process of selection and sense-making. As Bruce Smith explains, historical acoustemology invites the historian 'to investigate whether people heard things – and remembered what they heard – in ways different from today' (Smith, B. 1999, 48). For Mark M. Smith, too, it is precisely this investigation into historically contingent meanings that contains the potential for converting a descriptive catalogue of past sounds into something of heuristic worth. The key implication of this approach is that even more important than the survival of *sounds* from the past is the survival of 'sources explaining what those sounds, echoes and resonances meant to people at the time' (Smith 2015, 59). For the most part, such sources will be *written*.

All this, of course, is very much the perspective of the academic historian. And as Mark M. Smith shows, the primary concern has also been with how we might go about '*writing* sound history' (ibid, 55). *Noise: a Human History* was a *radio* series. As something made for a broad national audience of several million, it was required to be *attractive* to the distracted ears of a hugely varied array of domestic listeners. It was compelled – at least to some degree - to be entertaining and accessible as well as historically informative. Furthermore, not only could it *not* afford to dispense entirely with recorded sounds in order to avoid the existential threat of silence; it also had a more ambiguous approach to the *evidential* identity of any sounds it used, archival or otherwise. For, as the broadcasting historian and poet Seán Street has argued, there is something intrinsically ambiguous – mysterious even – that goes on with radio's treatment of sound, even when deployed for utterly serious ends. He writes, for instance, of hearing a scratchy and almost indecipherable recording of Florence Nightingale

– one of the oldest recordings in the British Library's sound archive. We treasure that sound, he argues, 'because the thin tones of the old lady, the rise and fall of the cadence and the breath of life in the audio recalls not just her, but also, in our imagination, the room she sat in to make the recording, the era and so on, all by inference and suggestion' (Street 2015, 7-8). On radio, Street goes on to say, sound is almost always *suggestive*: a 'symptom of the place in which it is created'. And 'whether the personal image we create of that place is based on realistic knowledge or not, it remains "true" *because* we have created it... There is a blend between the real and the abstract, the factual and the mythic' (ibid, 31-2).

To an academic historian this is unsettling. Mark M. Smith, for example, worries about what he refers to as 'the historical imagination' as a methodological route to the sonic past. But it is important to point out that Street is fully alert to the risk that if memory can be shaped in this way by the power of suggestion, then it is also possible 'to have false memory planted in the mind' (ibid, 21). His main point, though, is that a great deal of radio occupies territory suspended halfway between fact and imagination - and does so *productively*. He gives a practical example of this in an earlier programme by the producer of *Noise*, Matt Thompson. In the Prix Italia-nominated documentary *Out Counting Sheep*, Thompson makes use of the ambiguity of sounds he captured while recording shepherds and their flocks. In two climactic moments, Thompson combined the sounds of real sheep with a human voice that imitated and eventually subverted the sheep cries into 'a near human scream'. Thompson, writes Street, had 'observed that a sheep's cough is remarkably like a human cough, and used this device to blur distinctions, undermining perceptions, and engaging with at times uncomfortable parallels between sheep and human beings, particularly in terms of mortality' (Street 2012, 109). Walter Murch is just one of several film sound-designers who plays with the inherent ambiguity of certain noises. Referring to his work on both *Apocalypse Now* (1979) and *The English Patient* (1996), the film scholar Michael Jarrett notes how Murch distinguishes between edited *images*, which 'help us to know where we are in space... whether we're in the narrative past or present', and edited *sounds*, which, in their ambiguity, 'often blur one place into another' or 'link past and present' (Jarrett n.d.). The desire to

counterpoint data with feeling – to undermine one version of reality with a subliminal version - is not unique to radio, then. But, as Street's focus suggests, in radio we find that it is sound itself, unavoidably, which is required to do all the creative heavy-lifting

Now, if this goes to show that radio's approach to using sound as robust *evidence* – or even as a firm marker of time and place - is somewhat looser than historians might wish for, it also surely demonstrates the radio medium exhibiting an *acoustemological* approach which historians might otherwise have cause to admire. It does so through being something of an auteur's medium. For we can sense an individual response or vision - what John Grierson famously called, in respect to documentaries, the 'creative interpretation of reality.' As such, radio provides not a description of a place or a time but 'a sense of the feeling the sounds engendered' (Street 2012, 103). Fidelity matters. But it is fidelity less to the original sound in some abstract and objective way and more to the emotional context, 'the feeling that being there' creates (ibid, 104). It is this, I think, which brings us nearly full-circle, back to Mark M. Smith's earlier emphasis on the need to avoid a heuristically value-free catalogue of sounds and to focus instead on analysing what sounds have *meant* to those who experience them. Historians *and* radio producers are more interested, ultimately, in what lies *behind* a sound. For *both*, context is everything. This, in any case, was the reasoning that, in some inchoate way, formed in our own minds as, in 2011, Matt Thompson and I began working on *Noise: a Human History*.

Sound and the Past in *Noise: a Human History*

Right from the start we knew that whatever we did, we had to create something valuable *as history*. The internal BBC commissioning guidelines for Radio 4 were clear: for the five-days a week 15-minute 'narrative history' slot for which we were pitching, programmes needed to demonstrate 'intellectual ambition', have 'new things to say', contain 'complex arguments', 'elucidate and inform', show 'editorial authority' (BBC 2011, 95-7). As it happens, my own 'intellectual

ambition' was to use stories about sound in the past as a means of exploring recurring issues of power, inequality and struggle in social history – at both the macro- and micro- level. A specialist interest in broadcasting history had also taught me that although sound was often a means of social control– witness the Nazi obsession with radio –it could also be a medium of popular cultural exchange – witness the white suburban teenagers all across the United States listening furtively on their transistors to distant stations pumping out African-American rhythm and blues over the night-time skies in the 1950s and 1960s, challenging a fixed, mono-racial definition of what constituted 'American' youth culture. Sound has always been leaky, difficult to contain, promiscuous. And in showing that, I hoped to show too how social practices have rarely been self-contained - that *through sound* they often slip across political and administrative boundaries. *Noise* could reveal, for instance, the roughly parallel development, in Puritan England of a culture of 'restraint', suspicious of music and laughter and revelry, and across large parts of Arabia of the Wahhabi expunging of Islam's Sufi traditions. Or perhaps reveal the ways in which, through the trans-Atlantic trade routes established by slavery, musical traditions were carried between West Africa, America, Europe, and back again, mutating as they did so. The focus on sound was therefore, to some extent, a device – a means of 'de-centring' existing historical narratives. It was a way of encouraging a British audience to think a little less parochially about 'their' history.

Whatever intellectual pretensions we had, though, we also knew back in 2011 that our ideas would need to take radiophonic form – to be valuable *as radio*. They needed to be digestible and diverting. With luck they might be sonically striking. Here again, the BBC's commissioning guidelines were unambiguous: any series in this slot was required to have not just intellectual ambition but 'creative' ambition; it would have to record the past 'in the most dynamic and imaginative ways in audio terms'; it would have to be 'relevant to today' (ibid, 95-7). Each episode of *Noise* would be sandwiched in the schedule between the lunchtime news programme, *The World at One*, and the daily drama serial, *The Archers*. This meant we would need somehow to provide a distinctive 'break' – a change of texture and pace, perhaps – without being *so* distinctive that we would

put off the rather large audience we inherited (and which was probably still in the mode of listening for topicality) or turn away the equally-large audience of people just starting to tune-in for a dose of comforting fictional narrative. This was a Radio 4 audience we were dealing with, not specifically a *Noise* audience. It was an audience with a reputation for disliking anything that smacked of pretension or too many intrusive sound effects (see Hendy 2007)

Such are the background conditions of designing sound for a Radio 4 series. They demonstrate the extent to which a programme cannot be conceived as a self-standing artefact. Radio might contain elements of auteurism, but always has to operate within limits established by the aesthetic style of the network on which it is transmitted and a calculation of the audience's likely disposition. But this is not the end of it. For the *serial* nature of any series stretched across time also influences how it might sound. *Noise* was on five days a week for six weeks. It would need to announce its arrival in a way that demonstrated a degree of continuity – that made it more than the sum of its parts – but without becoming repetitive. Seriality demanded a careful balance of familiarity and novelty – a means of saying quickly and efficiently that 'here is *Noise* again', but that 'it's not the same *Noise* as you heard yesterday'. Our solution was to invite Joe Acheson of the Hidden Orchestra to compose a set of thirty slightly different signature tunes, with a recurrent rhythm and style but evolving slowly as the series progressed. The basic spine – what Acheson called 'a recognisable riff' - was based on a recording Matt Thompson had made when we were in Ghana: a skilled performer of the 'talking drum', who had beaten out for us the nearest equivalent in drum language to the words of our series title: 'Noise, noise, the history of human communication'. 'I liked the idea of hiding a message in the signature tune', Acheson recalls (2013). For each episode this hidden message was then re-performed and overlaid in the studio with other kinds of instruments and sounds, drawn from the British Library and other archives. These were selected to have a rough-and-ready, if slightly mysterious connection with the subject-matter of that day's transmission:

> The first episode uses… various Togan lithophones (musical stones), Ghanaian 'rock gongs'… flints being knapped and birds flapping their wings. As the week progresses we hear more drums, birdsong, wind in the trees, rainforest gibbons, echo-ey acoustics, and shamans – in week two these gradually give way to crowds, the babel of ancient Rome, stonemasons tapping, elephant growls, Indian sitars and Greek oratory. (ibid).

Later weeks had woven into the same basic signature tune other, more modern sounds: bells, gunfire, machinery, and so on. On each occasion, Acheson would use only sounds that would, as he put it, 'prefigure but not overshadow the content of each episode, highlighting those not fitted into the actual body of the programmes' (ibid).

The challenge presented by the serial, repetitive nature of radio was not, however, limited to the signature tune. Any particular sonic style or device used for any element of the programme might work across one or two episodes but would surely pall if repeated too often over the course of six weeks. This was important, because in effect it ruled out the very notion of the series having a sound 'design' at all. Our starting-point was to improvise with as many different ways of using sound as each episode might accommodate. Variety and surprise would be at a premium – though not, we hoped, to the point where a certain frenetic quality would creep in. After all, we reasoned, even variety and surprise can become predictable.

In Episode 21, 'The Conquering Engines', the theme was the industrial revolution and all the new sounds that arrived in its wake [1]. If there was anything like a 'typical' approach to sound design for *Noise*, here it was. It opens, not with the thundering sounds of factory work, but – counter-intuitively, we hoped - a rather calm and restful scene: me walking around the edge of Walden Pond, near Concord Massachusetts, on a quiet Sunday morning in mid-winter. I talk in semi-scripted fashion about Henry David Thoreau's life there in 1845-46 - his joy at hearing the sounds of nature around his cabin, his thoughts upon hearing a train passing through the woods nearby. An actor reads extracts from Thoreau's writing. The sound of the train, I suggest, is the harbinger of a new world, and the

scene shifts to England. Against a muted backdrop of a rattling steam train and then the hissing and clunking of workers in an iron mill, I introduce further readings, all from roughly the same mid-century period: Charles Dickens' description of a train ride from *Dombey and Son*, an account of arriving into a noisy Birmingham by the Scottish folklorist and geologist Hugh Miller, a report on conditions in an iron-mill from Thomas Carlyle, another from Thomas Barr on the deafness-inducing work-practices of Glaswegian boilermakers. There are lots of readings here, and lots of men, too: 10 minutes in, a change of pace and texture is needed. So we hear a performance of a 'waulking song' from Barra in Scotland, sung by women to accompany tweed-making, and a 1930s BBC radio documentary, *Steel*, which mixed recordings of labourers clocking on at a mill, voices itemising the vast quantities of raw material they worked with, orchestral music and chanted verse to weave together an aural epic. The radio recording is anachronistic, but as well as making a sonic change from yet more readings it serves a narrative purpose: it speaks indirectly of how, through the nineteenth and early-twentieth centuries, contemporaries worried deeply about the way organic, pastoral, human-scale rhythms of work, accompanied by conversation and gossip, were being replaced by machine-led rhythms, in which personal communication was drowned out. After this, the programme closes with a return to Walden Pond, where I reflect – slightly sceptically - on Murray Schafer's notion of the industrial revolution marking a fundamental breach between a 'hi-fi' world, where every nuance of the natural soundscape could be appreciated, and a 'lo-fi' world dominated by the flat-line of an industrial drone. I hint at the idea of industry and technology allowing us to hear *new* sounds as well as obscuring older ones, and at how people were learning to value listening in new, attentive ways – a pre-echo of themes in the next episode.

Perhaps the first thing to notice from this account of Episode 21 is that a great deal of 'information' about the aural nature of the industrial revolution is conveyed not through sound as such, but through readings drawn from contemporaneous texts. Like Mark M. Smith, we found that it was first-hand personal accounts of listening that best convey the *meaning* of sound at any particular time or place – accounts stored in books and memoirs and written

documents. That Thoreau heard a train in the woods near his cabin is interesting, but not as interesting as how its sound brought to his consciousness a vivid appreciation of the wider world - a world being connected-up through the building of railways, a world in which cultures would intermingle at an ever faster rate. Of course, this is not just an extract from Thoreau's book; it is an extract read aloud - *performed*. As well as conveying information, it therefore has a sonic quality of its own: the rhythm and flow of his words as they are recited, the accent of the actor doing the reading, and so on. These written sources are not separate to the sound-design, then, but part of it. As producer, Thompson, has to consider the accuracy and range of voices, the overall mix of accents, the need to avoid too much imbalance between male and female, young and old, and so on. These production considerations, as much as anything, are what go to make up the overall sound of the series.

As for the presence of what we might call 'pure sound' – the background sounds at Walden Pond, the sounds of trains and factory working – these are, in a strictly informational sense, largely superfluous. We hope it is something of an aural 'treat' for listeners to hear the strange and beguiling rhythms of the women singing as they work the tweed. The 'waulking' song conveys something of a 'lost' sound world, a remnant of something pre-industrial that has survived just long enough to make it into the recording age. Yet most other sounds are, frankly, acoustic dressing: a low-volume wash of recordings that, if nothing else, keep silence at bay. They remain relatively muted in the mix precisely because they carry little evidential weight in themselves. They are not, however entirely redundant. Beyond providing atmosphere, they also sometimes function neatly to bridge two separate scenes or stories – to act as a kind of punctuation for a narrative turn. The sound of a train simultaneously announces the end of a sequence about Thoreau, based in the United States, and brings us to a sequence about Dickens, based in England. As in film, sound provides structure: it marks boundaries without sacrificing continuity.

This is a familiar radio technique, of course. But it points up a deeper dimension to the sound design. In the series as a whole, I would argue that many of the

recorded background sounds have more of a *geographical* than an historical function. They convey a sense of the story being located in a particular place. Or, to put it more prosaically, they announce exactly where I am standing or walking as I speak. For a narrative that is global in its coverage, this geographical signposting is a vital means of ensuring the listener is not constantly disorientated. It also announces openly that what we are hearing is the sound of a particular place *now*, in 2012 or 2013. There is no pretence that we have recreated the sounds of the past. I am visiting places where events that might tell us something about the role of sound unfolded long ago. I am clearly there *after* the sound in question has evanesced out of existence, so that, more often than not, I am in an environment that is sonically inert. For there to be an audible sense of place for the listener at home, we have to actively *en*-sound such a place. One way of doing this is through movement – finding opportunities in all these places for me to move from 'outside' to 'inside', from open to enclosed, upstairs or down, along corridors, through doorways. Indeed, all other things being equal, places were often chosen as settings precisely because they presented these radiogenic opportunities for movement, and hence a shifting, dynamic acoustic quality. In Walden Pond, I could move away from the open shoreline into the more enclosed trees nearby, then talk as I wove along twig-strewn pathways. In London for a later episode, to discuss anxieties about rising urban noise in the nineteenth century, the listener heard extracts from Thomas Carlyle railing against the distractions of street musicians while I entered and then roamed around his 'Soundproof Study'. In New York, there were readings from Jacob Riis's classic work of social journalism, *How the Other Half Lives*, while I entered, climbed the stairs, and then went from room to room in a cramped and darkened Lower East Side tenement. On each occasion, as I moved about, the background acoustic changed – as did my voice, since I adjusted continuously to the immediate environment, almost shouting at some points and almost speaking in a hushed whisper at others. For Thompson, all this was a vital aspect of production:

> The acoustics rarely change over the centuries, so making a sound in an
> acoustic space recreates the past like nothing else. Because the ear

quickly gets used to echo it was important to move from space to space to illustrate the quality of those acoustics, quite aside from 'entertaining' the ear. (Thompson 2015)

Note that the sound-design here is not primarily being created from 'found sound' later mixed during studio post-production: it is being *performed* into existence by the conscious pre-selection of architectural setting and, crucially, by human movement. For a series with the word 'Human' in its title, this is no coincidence.

Sometimes, of course, a place is far from being sonically inert, even in the absence of movement. In Episode 8, 'Babble: The Noisy Everyday World of Ancient Rome', for instance, the programme opens with me wandering through the backstreets of Rome's Trastevere district late at night. In the background cafes and shops tout for business, shutters are pulled-down – sonic markers of commerce ebbing at the end of the day, night-time approaching. Meanwhile, the cobbled squares still bustle, not just with Italians but with tourists from all over the world. We hear French, English, Japanese, Spanish, Russian and Arabic voices – blending to create a linguistic melting-pot, a soundscape of libation, pleasure, casual social intercourse. It is viscerally alive with sound, and provides a neat contemporary simulacrum of the long lost soundscape I am describing aloud as I wander: the restless, clamorous noise of ancient Rome - the carousing, the swearing, the street-hawking, the laughter, the shouting, the occasional fighting - as revealed by accounts written some two thousand years earlier. As before, I am neither pretending to somehow 'be' in the past, nor claiming that it sounded back then *exactly* the same as it does now. What I *am* trying to do – implicitly – is to encourage the listener to make an imaginative connection, namely that it probably sounded *something* like this. As Séan Street shows, we are dealing in radio with sound as something *suggestive* rather than evidential. It is, meanwhile, those textual readings we hear recited in the foreground that once again provide us with real insight into the significance of this soundscape: from Juvenal and Seneca and others, we learn of an overcrowded city, a city where ideals of tolerance and a veneration of unbridled pleasure came up against class-based struggles over the desirable level and form of noise. We get, not a

descriptive catalogue of sounds, but a programme I hope Mark M. Smith would recognise as having heuristic worth.

A cynic might sensibly conclude that if it really was just old-fashioned written evidence which carried all the evidential weight in this episode, the sounds of me walking through Trastevere were nothing more than a superficial – even vulgar - dramatic device. Yet, although location recordings such as these carry no evidential weight directly, they always act as more than just atmospheric backdrops or, as I claimed earlier, as geographical signposts, or even just as opportunities to inject movement (and hence acoustic variety) into otherwise sonically inert environments. I would argue that they change the programmes at a more fundamental - indeed epistemological - level. They mean that rather than me being in an anonymous *anywhere*, I am in a tangible *somewhere*. And this matters. Why, for instance, am I not in a studio? There was no requirement from Radio 4 that the series be recorded on location. And indeed the whole thing would have been assembled a lot faster (and a lot more cheaply) if we had stayed put, with me in the studio linking a series of sound clips, readings, and archive recordings all gathered remotely. Instead, here I was unfolding my narrative in fifty-six separate locations in ten different countries spread across four continents – often in conditions of some discomfort and technical difficulty.

To explain why this effort was felt worthwhile, let me return briefly to the shores of Walden Pond and Episode 21. There, on a frosty-cold early Sunday morning, I was – by being there - able to experience something of what Thoreau had experienced for himself more than a century-and-a-half before. I heard the moisture dripping from the trees, ice crackling as it shifted on the shoreline, even, at one point, a train passing through the woods nearby. Now it is true, as Mark M. Smith and others point out, that how *I* respond to this soundscape in the here-and-now will never be the same as how Thoreau responded in *his* day (Smith, M. 2015, 57). Nevertheless, I would argue that something of an empathic connection is made. As a presenter one is able – one is *required*, perhaps – to step briefly into the footsteps of our original witnesses. In doing so, a radio programme audibly enacts what social anthropologists would recognise as the

role of embodiment and 'emplacement' in understanding sound's deeper meaning. This emphasises the importance of people's intimate and very personal relationship to the sounds in which they are bodily immersed. The primary route to such understanding is usually participant observation - not just observing the soundscape at first hand but participating *in* it through day-to-day habituation to a place and its people (see Feld and Brenneis 2004: 461-74). Naturally, a fleeting visit by a radio presenter will not amount to habituation as anthropologists would understand it. But in avoiding the Olympian 'Voice-of-God' style narration that tends to occur when a presenter stays in the detached – objective – environment of the studio, one provides an approach that is at least noticeably more personal – more *subjective*. We are creating a radio series that therefore also conveys at a meta-narrative level the essentially subjective nature of sound itself. We might think of it as historical acoustemology in action.

The 'default' aesthetic of *Noise*, then, was one which fused written accounts from witnesses with a wash of location sounds and an 'emplaced' presenter narrative. But the method had to be adapted radically to fit widely different circumstances. A reliance on written eyewitness evidence, for example, left us potentially exposed when dealing with *pre*history. Here we *en*-sounded the past through a reliance on history-by-analogy and through the extensive use of early ethnographic recordings, which we accessed largely, though not exclusively, through a partnership with the British Library's Sound Archive. In Episode 5, 'The Rise of the Shamans', for instance, we tackled the possible Neolithic origins of religious ceremonies. We wanted to explore how certain ceremonial sounds – drumming, incantations, the creation of acoustically unworldly environments, special effects such as the 'throwing' of voices – might help to explain the emergence of a priestly caste, and all the power-relations that evolved thereafter. One key source was the 1907 account of the Jessup North Pacific Expedition, in which Waldemar Bogoras details the rituals of the Chukchee people of Siberia. Extracts of Bogoras describing the various stages of a shamanic trance were read in English (but by a native Russian-speaker) against a carefully timed mix of British Library archive recordings of a very similar ceremony from the same part of the world. It was, we hoped, a mesmerising sonic experience for the listener. It

was not, of course, the sound of a Neolithic ceremony. But my narrative attempted to point out – as respectable archaeologists have done before me – that the use of sound to enter a trance-state and communicate with the spirit world has been extraordinarily widespread, especially among hunter-gatherer societies, for most of recorded history (see Lewis-Williams 2002, and Lewis-Williams and Pearce 2005). It was therefore not unreasonable to identify generic features and suggest that a Stone Age society – itself predominantly hunter-gatherer in nature and dominated by a rich array of supernatural beliefs - might also have had religious rituals that sounded *something* like this.

A later sequence in the same programme had me witnessing the 2012 Palm Sunday service at Wells Cathedral in Somerset. The service includes an acoustic trick concocted here in the thirteenth century: as a procession of clergy and congregation are about to enter through the door of the West Front, a lone chorister hidden in a narrow gallery high-up between the façade and the nave sings from a Psalm; his disembodied voice floats down to those below from a hole placed next to the carved stone head of an angel on the façade. Witnesses assembled by the West Front this 2012 morning are charmed but fully aware of what's happening. Their thirteenth century predecessors, with a more unshakable faith in miracles, would have felt as though the angel were singing - as though the whole West Front itself were coming alive. By recording this elaborate sonic 'hoax' in action, we were deploying history-by-analogy twice over: offering the listener a contemporary sound event as a means of illustrating a medieval sound event – which, in turn, might shed light on an emerging Neolithic sound world. Accompanied by hefty verbalised qualifiers, we suggested we might be witnessing the living remnants of prehistoric practices. We hint, too, at a broader historical point: that while the exact form of acoustic display deployed by the priestly caste will vary from place to place and from era to era, a common thread can be discerned - that what happens in this English cathedral might be seen as yet one out of many potential examples of what archaeologists refer to as the 'domestication of trance'. In this way, the sound 'design' helped us cut through some of the conventional distinctions made in the popular

imagination - between East and West, between civilized and primitive, between Christian and pagan. It helped us globalise the listeners' experience.

In stark contrast, a later episode dealing with the First World War – a stage in the timeline of the series that would, one might reasonably assume, allow access to a rich palette of real sound recordings – turned out to be one of the quietest of the whole series. Seán Street writes of *Noise* that the series provided 'sound pictures' of 'the din of trench warfare' (2015, 39-40). But if that were the case, it would only have been through an example of what linguistic and literary theorists call 'perceptual mimesis' – a process by which, through the sheer power of suggestion, words on the page provoke images in a reader's mind (Scarry 1997). An example of this operating through *sound* was demonstrated by Alberto Cavalcanti, who once famously described his experience of 'hearing' an airplane flying towards him in a silent film. The 'frightsome' engine noise he heard on screen, he later realised, had simply been created by the orchestra playing live – specifically, by an open cymbal being beaten more and more loudly with two soft-headed drumsticks. In retrospect he realised it had sounded nothing like an airplane, but the effect had been real enough (Cavalcanti 1985, 109). Similarly, throughout the episode of *Noise* dealing with the First World War I spoke in my narration a great deal about the relentless barrage of artillery in the trenches, yet we heard on air not a single rumble of gunfire.

The real question is this: why did we consciously choose to avoid the use of recorded artillery bombardment in the first place? One reason was the simple desire for authenticity. Historians of the First World War know of only one recording of an artillery bombardment that survives from the period, but its authenticity is still disputed (Goddard 2015). [2] A second reason was that even if the recording is genuine, as increasingly seems likely, such is its age and quality that it sounds to the modern ear strikingly thin, feeble, and frankly unthreatening – like a village firework display in the distance. It might be 'real', but it would not be able to tell the 'truth' I wanted to explore, namely the real, devastating experience of the fighting men. A third reason – and, for us, the most important one – was that inserting a barrage of Hollywood-style bombing and

gunfire sound-effects would somehow use up all the 'oxygen' in the programme, aesthetically-speaking. The written accounts from soldiers – of hearing and trying to make sense of gunfire, of listening to comrades dying in agony in No Man's Land, of sleeplessness and shell-shock, of recovery in hospitals – were, in their language, sufficiently vivid and emotional. Provided these readings had room to breathe, they appeared to us capable of provoking all the mental sound imagery that needed provoking. For the Radio 4 listener at home the only element of potential sonic 'disturbance' might have been suddenly hearing German being spoken: the poetry we chose to feature was from August Stramm, rather than the more celebrated British writers. By reading the poems in full in German, they could be appreciated as an onomatopoeic sound-work, as originally intended. We also hoped quoting from German sources helped universalize the experience of the British 'Tommy' – in other words that sound, once again, would chip away at our audience's sometimes nation-bound horizons. As for my own 'performance', that too was minimal, my narration recorded as I moved about slowly in a reconstructed German trench in Belgium, the only sounds audible on air being my own footsteps in the mud, a few splashes where pools of rainwater had accumulated, some crows cawing in the fields nearby. The austere emptiness of the overall soundscape felt to us to be the most suitable backdrop for what, overall, had to be a sombre, even distressing episode.

There was one other moment in the series that offered the same counter-intuitively minimalist atmosphere. It had come during an episode dealing with the 'invention' of sound-recording, and the social, cultural and cognitive implications of our new ability to replay the past. Most of it concerned the late-nineteenth and early-twentieth centuries, and was packed with music and archives. But our desire to 'hook' an audience which had just finished listening to the lunchtime news prompted us to open with a more contemporary example: the haunting case of victims trapped in the burning Twin Towers on 9/11. Many had left final messages on the answering machines of their loved ones; often, their families have found some comfort by replaying them. These recordings have since been retained as part of a 'Sonic Memorial Project', and we had

permission to use them. In the end, however, it seemed to us that to use such intimate and distressing sounds in what was after all a relatively brief prelude to our main story would be exploitative, even obscene – a kind of smash-and-grab journalism, in which other people's lives (and deaths) were being reduced to a sonic texture for passing effect. So we left them out. For Thompson there was a wider context to his decision:

> I believe every time a sound is played or song used, in an advert for instance, some of its power is diminished. This diminishment is the same as the amount of kudos or cash with which the person playing back the sound is rewarded: a 'conservation of sound' principle, like conservation of energy. (Thompson 2015)

At the time, our position was intuitive, perhaps inchoate. But if forced to define it more clearly now, I would say it was this: that sounds are never *merely* 'assets', to be used up freely as convenient, interchangeable acoustic building blocks from the radio producer's palette. There is a duty to respect their original context, their cargo of human suffering – even if at times that leaves an audible gap. As with the wartime episode, our sound-design here was being shaped, in part, by *ethical* considerations.

In many ways, it was 'audible gaps' such as this that helped mould the style of the series as a whole, for *Noise* frequently turned out to have a more muted design than I had originally imagined. Quietude, grew in significance as Matt Thompson and I proceeded. We wanted to leave as much 'space' as possible for the listener's own mental imagery to take hold. Yet even understatement had its limits. We knew that radio is rarely listened-to on repeat: it is a 'live' medium that needs to be comprehensible, at least to some degree, at first hearing. In the final resort, therefore, whatever else was going on there often had to be a few delicate sonic 'nudges' *somewhere* in the mix. Jennifer Ralston, the supervising sound editor for the US TV series *The Wire*, has described how she deployed a kind of sonic sleight-of-hand in response to the writer's insistence that a full-on musical score would be too manipulative. When Ralston wanted viewers to feel that no one was safe, a siren lurked in the background; when viewers needed to feel that

someone was watching, there was the subtle intrusion of whirring helicopters; when they were to feel that someone was in the wrong place, a train would pass in the distance. In this way, mood and meaning was woven into the background 'atmospherics' while an overall aesthetic of naturalism was maintained (Wickman 2014). Similarly, for *Noise*, Thompson would seize upon any fragment of sound found in the present that might conjure a particular place or, better still, transport the listener to a particular moment in the past. He would then weave it, *sotto voce*, into the background atmospherics, in what he hoped was not too literal a fashion.

The technique could be heard in episode 19, when we travelled to Stono, just outside Charleston, South Carolina, to tell the story of a 1739 slave rebellion. Our point of interest was the alleged role of drumming as 50 or 60 slaves had marched along the road by the Stono River. In the minds of the plantation-owners who quickly hunted them down, this sounded-like a threatening call-to-arms. For me, the whole incident also opened-up interesting and important questions about the meaning and importance of musical traditions brought across from Africa, how they mutated sonically in conditions of suppression and later evolved into more familiar African-American idioms of expression; more broadly still, it demonstrated how sound – and silence – has been deployed by the oppressed of history, as well as by the oppressors. But the more immediate practical challenge as programme-makers was the awkward sonic backdrop for telling this tale. The precise location of the 1739 rebellion turned out in 2013 to be a rather non-descript suburban highway - the most dominant 'atmospheric' that of a car passing every few seconds. We soon found a more neutral-sounding location on a nearby side-road lined with noise-absorbing live oak trees. Here, I dutifully wandered around narrating, as Matt Thompson tracked me with his microphone. At the time I noticed only a general air of calm, interrupted by the odd birdcall. Thompson, however, had noticed three other noises in the near-distance: some vultures, a powerful pick-up truck revving, several dogs barking. For him this additional mix of sounds, though unbidden, was brilliantly threatening: 'a metaphor for the suppression of the rebellion' (Thompson 2013) In the final mix, far from being edited out, these intrusions were pointed-up:

> For me the pick-up truck was the key sound – a direct descendant of the sound of those hunting down the fugitive slaves, possibly driven by descendants of those hunters. It was also reminiscent of the sounds of the recent murder of an African-American who was dragged to his death behind a pick-up along similar country roads by 'red necks'. (Thompson 2015)

We have no idea whether anyone listening at home consciously noticed these 'extra' sounds. But we hoped the feeling we had experienced on location in South Carolina would now be 'available' for any listener at home. The sequence had been manipulated, but with the honest intention of recreating sound's inherent subjectivity - that process of selective listening that makes any notion of an *objective* soundscape so misleading. In deploying the power of words, in re-imagining found sound, and in drawing – if only intuitively – on notions of embodiment, of emplacement, and of perceptual mimesis, it seemed to bring together in one instant all the techniques we had discovered, to conjure back into existence not so much the lost *sounds* of the past but the important *meanings* those sounds had once held for the poor, benighted people who lived – and died - among them.

History through Radio: Redefining the 'Radiogenic'

For me, two conclusions can be drawn from this reflective analysis of the making of *Noise: a Human History*. The first concerns how the radio medium can be a forum for creating sonic history of some heuristic value. Our methods clearly failed to coincide fully with those recommended by Mark M. Smith, and which many academic historians would regard as a measure of academic rigour. We indulged in the ambiguity of sound. We stretched definitions. We made frequent use of analogy - recent historical recordings substituting for the otherwise absent sounds of the past. But in our defence, I would point, first, to some careful scripting. Sounds were never represented as coming from any other period than that in which they were recorded; although continuities across time and across

social borders were highlighted, so too were the specificities of time and place; a series of qualifiers – 'however', 'maybe', 'perhaps', 'sometimes', 'possibly' - acknowledged the limits to our knowledge. More important than any of this, however, was that the overall sound-design of the series offered an auditory *enactment* of the principles of historical acoustemology. The stories and themes we tackled were focused overwhelmingly *not* on the sounds themselves but on the human responses to them – how they were experienced and thought about at the time, the range of meanings they held, their social and cultural significance: readings from the written extracts were integral – more important, in narrative terms, than anything else. Moreover, with me being placed as the narrator in the position of an embodied witness – a person, subjectively responding to a place, and to an account of real events related to that place – I acted as a kind of proxy for the human responses of those who had been there long before me. It would be arrogant to claim I was *reliving* their experience. But in reacting even a fraction – in shaping my thoughts and my voice to what I could hear and see and smell and touch around me – it was hoped that I might convey to the listener at least some of the immersive, situated nature of our relationship with sound.

The second conclusion I wish to draw from my analysis of *Noise* is related to our usual definitions of the term 'radiogenic'. These, I suggest, usually proceed quite sensibly from the basis that if radio is fundamentally a medium *of sound*, then programmes that have most self-consciously experimented *with* sound – that have featured sound in striking and arresting ways – epitomise radio fulfilling its potential as an art-form. Critical attention is subsequently concerned overwhelmingly on programmes that exhibit a rich and complex layering of original sound recordings, sound effects, and music. Indeed, the more such programmes allow sound to 'speak for itself', the more radiogenic they are judged to be. Hence we valorise as 'classics' programmes such as Lance Sieveking's *Kaleidoscope*, a highly wrought modernist montage of music, sound effects, and poetry broadcast by the BBC in 1928, or the 1960s 'new wave' of 'acoustic film-making' by radio auteurs in Germany such as Peter Braun, or more recent documentaries using 'wild' recording in the field to build-up 'a universe… woven from real sounds' (Hendy 2013, Madsen 2005 and 2010).

All these programmes are worthy of study. Yet radio is defined by factors other than sound. It is, as we know, a domestic medium - 'consumed' by a distracted audience that generally regards radio not as art but as an everyday, taken-for-granted utility. It is time-based – unfolding against the clock, listened to serially and at certain times of day. It is also usually commissioned by, or produced within, institutions – places replete with traditions, routines, standards. Above all, as I have argued elsewhere, it is 'always and everywhere produced for audiences' (Hendy 2000, 115). This much, we radio scholars traditionally acknowledge. But when discussing aesthetic issues such as the 'sound design' of a series, we often then forget the implications – namely, that the radio-*ness* of radio will be revealed in correspondingly complex ways – and not just through the degree to which 'raw' sound itself is being manipulated at any given moment. For radio is as much a medium of time as a medium of sound. With *Noise*, the fact this was a serial broadcast regularly between a news programme and a popular drama serial dictated a need for a strongly narrative style. The fact that it was broadcast episodically across six weeks meant it had to somehow retain its own character yet not become repetitive – in other words, to be instantly identifiable yet not too formulaic. The fact that the narrative was usually carried through me – or through actors reading from written sources – meant considerable effort had to be devoted to finding a variety of vocal styles and moods. That fact that individual recordings had a certain provenance – a history of their own – introduced a whole raft of ethical concerns about whether or not using a sound might also become a form of exploitation.

So it is not that the series lacked a sonic vision. It is that the sound 'design' was both *conditioned* by multiple factors and highly *dispersed* across the 'text'. It was shaped by where the programme sat in the schedule, or how bored or engaged we calculated the audience might be at any given moment. It revealed itself in the choice of background acoustic, or the way my body, as presenter, moved through a place, or in the casting of actors. And so on. Throughout this neither Matt Thompson nor I were behaving aberrantly. Although there was probably an expectation among those who commissioned *Noise* – and among those who

listened - that a series nominally about the history of sound would take sound itself especially seriously, it was in most other respects a 'typical' piece of radio. Few of the production considerations with which we were engaged were antithetical to the sound-design of radio more generally. They were *intrinsic* to it. Recognising this does not mean that we – or anyone else making radio – will have abandoned all aspirations to artfulness. These factors – these circumstances of production within a mass medium - *are* the very stuff of radio. It is in the act of metabolizing them all – in the tension between hope and reality - that artful radio is made and where the radiogenic is to be found.

Notes

[1] Episodes from the series can be heard online at
https://www.prx.org/series/33248-noise-a-human-history

[2] The disc recording is described as a 'Gas Shell Bombardment by the Royal Garrison Artillery near Lille on 9th October, 1918' (see Goddard 2016, Bergonzi 1990, Adamson 1991).

Sources

Acheson, J (2013), 'The sounds of music', *About the BBC* Blog, 15 March 2013:
http://www.bbcsomali.com/blogs/aboutthebbc/entries/b444e2d1-2f6a-3ad0-ba00-1ee632f82f10

Adamson, P (1991). The Gas Shell Bombardment record: some further thoughts, *The Historical Record Quarterly* 19: 13-15.

BBC (2013), 'Noise: a Human History', Media Centre press release, March 2013, http://www.bbc.co.uk/mediacentre/proginfo/2013/12/noise-human-history.html

BBC Radio 4 (2013), *Noise: a Human History*, Rockethouse Productions, North Berwick.

BBC (2011), 'Radio 4 Commissioning Guidelines, Spring 2011'.

Bergonzi, B (1990). Gas Shell Bombardment, *The Historic Record Quarterly* 17: 18-21.

Blake, E C and Cross, I (2015). The Acoustic and Auditory Contexts of Human Behavior. *Current Anthropology*, 56/1: 81-103.

Cavalcanti, A (1985). Sound in Films, in E. Weis and J. Belton (eds.), *Film Sound: Theory and Practice*. New York: Columbia University Press.

Feld, S (2000). Sound Worlds, in P. Kruth and H. Stobart (eds.), *Sound.* Cambridge: Cambridge University Press, 173-200.

Feld, S and Brenneis, D (2004). Doing Anthropology in Sound. *American Ethnologist*, 31/4: 461-474.

Goddard, L (2015). "A few feet of film run backwards": Tracing the Sonic Construction of Shellfire, 1914-1930, in M. Bull and L. Back (eds.), *The Auditory Culture Reader*, Second Edition. London: Bloomsbury.

Hendy, D (2000). *Radio in the Global Age*. Cambridge: Polity Press.

Hendy, D (2007). *Life on Air: a History of Radio Four.* Oxford: Oxford University Press.

Hendy, D (2013). Painting with Sound: The Kaleidoscopic World of Lance Sieveking, a British Radio Modernist. *Twentieth Century British History*, 24/2: 169-200.

Jarrett, M (n.d.), 'Sound Doctrine: An Interview with Walter Murch', http://www2.yk.psu.edu/~jmj3/murchfq.htm

Leahy, J (2003). A Slap of Sea and Tickle of Sand: Echoes of Sounds Past, in L. Sider, D. Freeman, and J. Sider (eds.), *Soundscape: The School of Sound Lectures 1998-2001*. London and New York: Wallflower Press, 54-72.

Madsen, V (2005). Radio and the documentary imagination: thirty years of experiment, innovation, and revelation. *Radio Journal*, 3/3: 189-198

Madsen, V (2010). A Call to Listen: The "New" Documentary in Radio – Encountering "Wild Sound" and the "Film Sonore. *Historical Journal of Film, Radio and Television*, 30/3: 391-410.

Scarre, C (2006). Sound, Place and Space: Towards an Archaeology of Acoustics, in C. Scarre and G. Lawson (eds.), *Archaeoacoustics*. Cambridge: McDonald Institute Monographs, 1-10.

Smith, B (1999). *The Acoustic World of Early Modern England: Attending to the O-Factor*. Chicago: University of Chicago Press.

Smith, B (2002). How Sound is Sound History? A response to Mark Smith. *Journal of the Historical Society*, 2: 307-315.

Smith, M M (ed.) (2005). *Hearing History: a Reader*. Athens, Ga.: Georgia University Press.

Smith, M M (2015). Echo, in D. Novak and M. Sakakeeny (eds), *Keywords in Sound*. Durham, N.C., and London: Duke University Press, 55-64.

Lewis-Williams, D (2002). *The Mind in the Cave: Consciousness and the Origins of Art*. London: Thames & Hudson.

Lewis-Williams, D and Pearce, D (2005). *Inside the Neolithic Mind: Consciousness, Cosmos and the Realm of the Gods.* London: Thames & Hudson.

Street, S (2012). *The Poetry of Radio: The Colour of Sound*. London and New York: Routledge.

Street, S (2015). *The Memory of Sound: Preserving the Sonic Past*. London and New York: Routledge.

Scarry, E (1997). Imagining Flowers: Perceptual Mimesis (Particularly Delphinium). *Representations*, 57: 90-115

Thompson, M (2013), 'A Microphone is not a telescope', *Making Noise* blog, 20 January 2013
https://makingnoiseblog.wordpress.com/2013/01/20/a-microphone-is-not-a-telescope/

Thompson, M (2015), personal written communication, 3 August 2009.

Wickman, F (2014), 'The Secrets of the Sound of The Wire', *Slate* online
http://www.slate.com/blogs/browbeat/2013/12/06/the_wire_sound_design_sound_editor_jennifer_ralston_reveals_the_sonic_secrets.html Accessed 31 July 2015.

Biography

David Hendy is Professor of Media and Communications at the University of Sussex, Brighton, England. Between 1987 and 1993 he was a producer for BBC Radio. In 2013 he wrote *Noise: a Human History of Sound and Listening* (London: Profile Books), based on his thirty-episode BBC Radio 4 series, *Noise: a Human History*. He has written and presented several other programmes for BBC Radio, including Between Two Worlds, a drama about the Victorian physicist and spiritualist Oliver Lodge. He now researches broadcasting and cultural history, and is writing a new history of the BBC to be published for its 2022 Centenary.

Contact Details

Professor David Hendy
School of Media, Film and Music,
University of Sussex,
Silverstone Building,
Arts Road,
Falmer,
East Sussex
BN1 9RG

Tel. 01273 873481

Email: d.j.hendy@sussex.ac.uk