Listening to urban sounds

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The sound world is attracting increasing attention in the human and social sciences. The emerging field of sound studies illustrates the diversity of approaches in this respect. It is immediately clear, from a quick review of the topics addressed and the fields under study, that sound environments of the past, present and future are the focus of considerable interest. It is no longer simply a question of working on noise pollution caused by motor traffic or the acoustics of concert halls, but rather one of developing pluridisciplinary – or even interdisciplinary – approaches, enabling us to describe auditory cultures and design everyday sonic territories in their full diversity and complexity. But what about *in situ* sonic perceptions? How are we to take into account the sonic experience of residents in the making of a city? What tools are available for such a task? This article seeks to explore these questions drawing on research work done at Cresson[1] over the past 30 years. In addition to articles and books, the reader should not be surprised to find references to self-published research reports and grey literature, often little known (though still available), which nevertheless represents the raw material of results added to the public domain. To suggest various lines of inquiry for a situated approach to the sonic environment, I shall address the notion of sonic effect, then sonic territories, sonic design and finally sonic memory.

The sonic effect as an interdisciplinary tool

The urban world originates in a contrasting, saturated sonic environment which needs to be described in its full complexity. It is essential to consider situations in which it is far from easy to distinguish or decipher signals. In the place of the high-fidelity sonic landscape that some tend to value and advocate in books on sonic ecology, this means researching other descriptive categories better able to account for the low-fi content of the urban sonic environment. The challenge is to describe environments in which distortion and amplification prevail, with masking, repetition, mixing, scrambling and ubiquity, the aim being to make sense of urban sounds, while avoiding the pitfall of over-hasty appraisal or prescription. The scale of the situation is particularly relevant in this respect, enabling us to relate to the circumstantial, ordinary, micrological dimension of the sonic experience and to describe the basic sonic phenomena which make up that experience, without separating acoustic signals from the space in which they propagate, from their perceptive compulsion, from their symbolic and social efficacy. In other words sonic phenomena only make sense if they are related to the concrete conditions of their appearance, to the built spaces and structures in which they may be heard, to the perceptive interpretations and configurations to which they lend themselves, to the social and practical uses which animate them (Augoyard, 1989).

Building on such ideas Jean-François Augoyard and the team at Cresson developed the interdisciplinary notion of the sonic effect. They worked out a genuine

[1] The Centre for research on the sonic space and urban environment (Cresson) is part of the Grenoble School of Architecture (Ensag). It has worked on the sonic dimension of inhabited spaces since it was set up in 1979. For a more detailed presentation of Cresson see www.cresson.archi.fr

theory of sonic perception asserting the necessarily situated character of listening, which acts as a matrix for reading ordinary auditory experiences. It would no doubt be necessary to cite specific situations to illustrate what a sonic effect is, listing the various disciplines by which it may be described (physical and applied acoustics, architecture and town planning, psychology and physiology of perception, sociology and everyday culture, musical and electro-acoustic aesthetics, written and media expression). We could also look at the cut-out effect, when a sudden drop in intensity occurs as we turn off a street or ventilation is shut off by mistake. A sense of falling prevails, of an articulation between before and after, with all the acoustic, spatial, social, psychomotor, aesthetic and symbolic developments that entails. We might also describe the various facets of the niche effect, when someone raises their voice in a crowd, chooses the best spot to make themselves heard or seizes on a moment of respite to speak out. In all cases, a sonic effect specifies a dynamic of interaction between listening and its context, highlighting the event-related component inherent in any sonic experience and revealing the work of configuration involved in any lived sound. No fewer than 60 sonic effects – including filtration, drone, anamnesis, erasure, ubiquity, reverberation, crescendo and mixing – were listed and described in interdisciplinary terms, proposing a basic sound grammar to explain everyday listening and serve as a tool for the design of sonic spaces (Augoyard and Torgue, 2006).

Territories to be heard

Various projects have focused on the relation between sound and territory. Starting from existing urban spaces we may look for their characteristic sonic features. This means working on the sonic identity of places and their power of attachment, as well as understanding just what qualifies a territory in terms of sound. Some, for example, have investigated the sonic quality of certain Swiss towns (Amphoux, 1991), the sonic ecology of railway stations (Bardyn, 1993; Rémy, 2001) or European ports (Bardyn, 1999), others the sound of streets as a factor in urban identity (Atienza, 2008). Work of this sort shows how our experience of urban territories is rooted in local sonic cultures and specific ways of hearing. In other words, studying territories in sonic terms leads us to describe qualified space-time situations. To do so, great methodological inventiveness has been deployed, witness the model designed by Pascal Amphoux (1994) to make the sonic world intelligible, based on three dimensions: habitat, environment and landscape. He distinguishes three manners of listening: a predominantly acoustic approach to listening to the environment, with an objectivizing tendency; a mainly social, medial way of listening which primarily targets questions of comfort; and a largely aesthetic, landscape-oriented stance mostly concerned with the beauty of the sound (Amphoux, 1996). This and similar tools provide a means of analysing the sonic world and intervening directly in the field.

This type of approach also contributes to the question of how sound makes territory. Rather than starting from a constituted territory to reveal its sonic qualities, the aim here is to show the generative power of sound with regard to territory. In other words territory is not a state but a process of marking space and time. It does not precede its sonic qualities and expression. Some mention of territorialization is surely necessary here, emphasizing that the mark makes the territory (Deleuze and Guattari, 1980). In this respect, we should in fact refer to an ethological model, putting the idea of territorial behaviour in the place of territory, preferring ideas of force and gradient to those of extent and limits (Augoyard, 1991). The performative slope of sound has been deployed in much research work, investigating the sonic content of public spaces

(Chelkoff, 1991b), the experience of people listening to portable media-players in public spaces (Thibaud, 2003; Pecqueux, 2009), the place of silence in the sonic composition of cities (Augoyard, 1980; Amphoux et al, 1996; Amphoux and Thibaud, 2001), or describing the way Metro buskers play (Masson, 2009).

Designing space with sounds

Architecture and town planning have also used the sonic modality to design built and developed space. In this context the aim is both to better integrate the sonic component in the urban and architectural project, and to rethink project activity making allowance for sound. Sound is both a dimension of the built environment in its own right and the operator of an original design posture.

In this field interest in the sonic world goes hand-in-hand with a concern for ways of living. The question of comfort has consequently been addressed, not by reducing residents to sensors picking up on their surroundings but on the contrary by making full allowance for their capacity to act and produce the environment they inhabit. Far from a strictly psycho-acoustic approach such work is developing new categories close to the notion of affordance proposed by James Gibson (1979) in his ecology of perception. This approach to sonic comfort leads to the introduction of notions of control, influence and reserve to conceptualize the complex interaction between residents and their environment, and thematize the idea of 'comfort potential' (Chelkoff, 1991a). By taking an interest in intuitive forms of know-how and ordinary sonic skills, a veritable residents' sonic culture was revealed and integrated in architectural design. Far from sticking to an exclusively technical approach, sonic comfort is to be sought at the junction between built systems (the set of material conditions making an action possible and effective), practical procedures (situated actions and gestures of the order of resident tactics), and more deliberate strategies of intervention (anticipating possible sonic situations) (Boubezari, 2003).

By proposing to design built space guided by an ecological approach to the sonic world, paying attention to residents' potential for action, this posture finds a particularly fruitful development in building experimentation (Chelkoff et al, 2003). According to this approach, the aim is no longer simply to design sonic ways of inhabiting and laying out domestic space, but also testing sonic prototypes on bodies in motion. Architectonic items (for example a public shelter, similar to a bus shelter) were designed, built, set up in peri-urban areas and subjected to the test of use, in order to record interaction between spatial structures, sonic configurations and potential for action. This pro-active approach gave rise to a reasoned catalogue of baseline archetypal sonic situations. A catalogue of this sort is organized on the basis of three inputs: articulation, monitoring the switch from one sonic environment to another; limits, focusing on the microsociological adjustment of social distances; and inclusion, observing feelings of belonging and how sounds blend.

Other work, more closely related to the urban scale and to mapping tools, led to an operational tool for sonic developments. Starting from a proposal to take an instrument for simply measuring noise one step further, Olivier Balaÿ and other Cresson researchers set up an observatory of the sonic environment in Lyon (Balaÿ, Lambert et al, 1997). This involved systematically inputting qualitative data registering the sonic life of the city, local sonic identities, variations in residents' perceptions and representations. By highlighting the way residents become attached to the environment in which they live and identifying criteria for assessing sonic quality, an observatory of

this sort opens the way for debate between the various stakeholders in urban development (Balaÿ, 2003).

Live memories of sound

A growing volume of current work is also focusing on the question of the past, of memories and the history of sounds. The temporal thickness of sonic environments has been questioned and documented in many ways, often unprecedented, drawing on unpublished material and new media. Research by Olivier Balaÿ (2003b) used 19th century literature combined with careful study of period architectural treatises. This provided an account of changes in the sonic culture of city-dwellers, and in the acoustic know-how and practice of builders at that time. Behind this historical venture is the search for new design methods. It seems fair to ask whether the sonic utopias of the 19th century may not help us to improve our designs for the sonic layout of contemporary cities (Balaÿ, 2003c).

But we may also take an interest in the most contemporary sounds by identifying and exemplifying the noteworthy sonic features of a new town such as L'Isle d'Abeau (Chelkoff et al, 2008). A team of researchers listened, recorded, selected, described and contextualized the sonic material of a micro-region (the new town and its immediate surroundings). Their findings were translated into a sonic map, revealing a territory through the sounds captured at a series of listening posts. This exploratory research opened the way for a much more ambitious and extensive programme which involved recording sonic environments past and present. The sound recordings made by Cresson since it was established in 1979 are now available online, at http://www.cartophonies.fr.

Such work contributes to the idea of sonic heritage as an immaterial, cultural heritage, be it ordinary or situated, and advocates taking account of the many contextual dimensions of sonic experience. In this respect, a recent European Union project, European Acoustic Heritage, also asserted the key role played by metadata in contextualizing our experience of European sonic landscapes (Kytö, Remy and Uimonen, 2012). These sound recordings are obviously vital as such, yet insufficient. They require a whole range of additional data for us to make sense of them, data both quantitative and qualitative, based on acoustic measurements and descriptions of experience. Considering our sonic heritage as a resource may prompt in situ experiment to explore from a different angle the various ways of listening to a space (Tixier and Houdemont, 2005).

Conclusion

The situated approach to urban sonic environments has given rise to many conceptual and methodological tools which enable us to account for the complexity of the phenomena being studied. The sonic-effect concept and the environment-milieu-landscape intelligibility model represent particularly effective frameworks for thought, at the meeting point between analysis and conception. Furthermore, inquiry of this sort on the sonic space has become fully operational thanks to various methodological propositions for approximating the in situ sonic experience (Grosjean and Thibaud, 2001).

The scope of detailed study of urban sonic spaces is gradually broadening to include the sensory environment as a whole. This in turn raises the question of the relation between sound and the other senses. In this respect, the connection between sound and vision has already been explored, in an attempt to understand how sonic

phenomena may be represented visually (Régnault, 2001), to cast light on the emergence of new types of sound and light designers (Fiori and Régnault, 2006) and to question the sensory ecology of underground spaces (Chelkoff and Thibaud, 2000). More broadly, the aim is to build bridges between the sonic world and that of ambiance. Which means that sound has the power to breathe life into ambiant situations (Romieu, 2009), embody affective tonalities (Thibaud, 2011) and sustain the imagination (Torgue 2012). This being so, it is time to turn our attention to the sounds of our surroundings and the part played by sound in installing an urban ambiance.

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