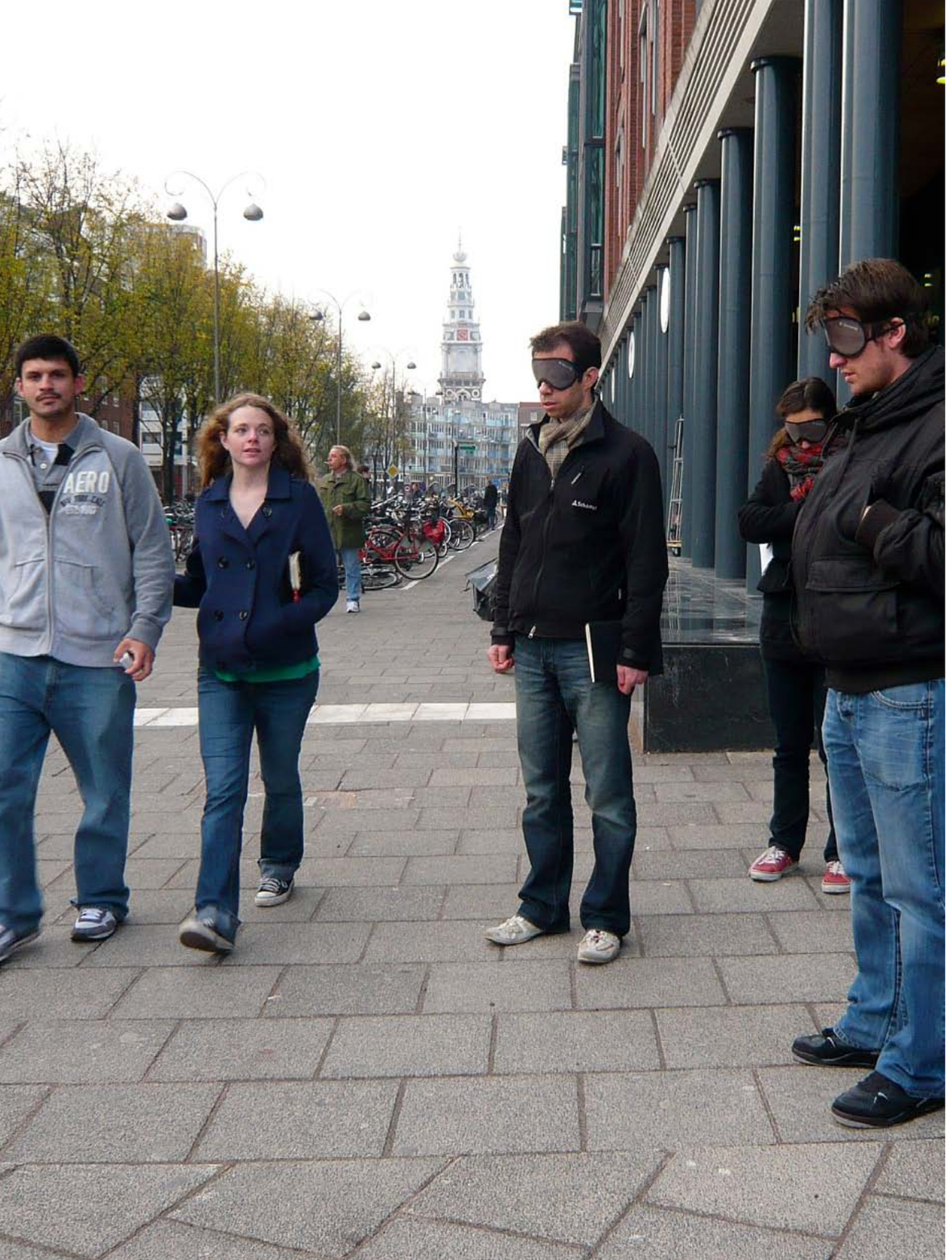


The audible space

Cilia Erens

Listening to see

An invisible medium surrounds us 24 hours a day. Listening to it usually happens subconsciously. The way space manifests itself to your ear, how our view is coloured by how we listen: you only discover that if you study it very specifically. What would the city look like if architects and urban designers considered sound in their spatial design?

When I studied town and country planning no attention was given to the audible dimension of 'the built environment'. Consideration for sound in that profession almost always concerns acoustics or noise pollution. The fact that clients and architects automatically construct audible spaces and, as organizers of space, influence sound patterns and create new ones only became clear to me when I examined the notion of 'audible space' as a sound artist. For me, audible space means listening to your surroundings as a three-dimensional space that is continually changing in tone, volume, movement and layers.

What does the audible space tell us? A lot. For as invisible as sound is, it also offers us insight. I started to listen more consciously to the surroundings, as though they formed a composition of adjacent and overlapping sound spaces that disclose something about the built environment and its occupants. That awareness increased when I started to make 'sound walks' in different cities. As I listened, I discovered what made the centre of Rotterdam, for example, sound so different to Amsterdam or Groningen. And I discovered just how varied 'city noise' can be — those distantly audible sounds or the prevailing blanket of sound generated by the city and its inhabitants. And I discovered just how little diversity resounds in many Vinex districts with their massive volume of new construction.

As a sound artist I have increasingly focused on sound themes that relate to the city — in addition to silence and collective silence. But always, the audible space was and is my starting point in creating new experiences for others and appealing to the imagination of my public. I usually organize my presentations in the form of sound walks, for groups or individuals.

Another aspect of my work is sound scans of public space, which can be combined with a particular recording technique as an instrument in studying the design of space.[1] In my workshops for students at the Amsterdam Academy of Architecture and elsewhere, listening on location, often with the aid of blindfolds, is the starting point in helping them to develop an initial awareness of their audible surroundings and to start analyzing and arriving at new questions.

Form studies at the Amsterdam Academy of Architecture

The representation of a masterwork

During one of the educational projects at the Academy of Architecture, we analyzed the interior spaces of buildings around Mr. Visserplein in Amsterdam, a square that borders the inner city. Centuries-old buildings, among them the academy itself, alternate with buildings dating from the 20th century, each offering a sound experience of its own. The 17th-century Portuguese Synagogue has a unique acoustic character in which outside sounds are all that indicate time. Electricity has never been installed in the building for religious reasons.

These listening sessions are confrontational. As soon as students start to listen consciously, they realize just how much buildings differ from one another in what they evoke. (Fig. 1) The undisturbed silence of the Portuguese Synagogue induced a sense of concentration that was far removed from the sense of disorientation that pervaded some 20th-century buildings with their hard materials and the humming of ventilation equipment. That was experienced most strongly in the concrete playground TunFun, located beneath the square. Here, the air conditioning drones in every nook and cranny.

This project resulted in a sound panorama of the square, which we could listen to with headphones, with the centuries-old silence of the synagogue as the audible highlight and the 'representation of a masterwork', as the underlying theme of the study was called.

'Wherever we are, what we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it fascinating.'

John Cage. *The Future of Music: Credo.* Lecture, Seattle 1937.

‘High and low, bright and dark, these are psychological properties of acoustical perception: impressions relating to locations whose reality is that of aural psychology rather than of physical space.’

Karl H. Worner. *Stockhausen Life and Work*. London 1973, p.155.

(Fig. 1) The Portuguese Synagoge, Amsterdam

(Fig. 2) ‘Sound-seeing Ypenburg: Encounters in the sound landscape of the drawing table’

The audible city boundary

The study project entitled the ‘audible city boundary’ focused on exactly that — the audibility of the city boundary. Can you hear that in the 21st century? In contrast to other Western European capitals, Amsterdam’s boundary has some sharp, physical demarcations, abrupt transitions from the city to the world beyond. Housing and industrial estates stretching for kilometres along arterial roads are largely absent. Can we listen to this as a quality in its own right, and how do we make it audible in a presentation?

Before we could listen to the city, I told the students about my experiences with audible space in a relatively new type of urban environment: the Vinex district of Ypenburg on the edge of The Hague. I had made a sound walk there in 2006 entitled ‘Sound-seeing Ypenburg: Encounters in the sound landscape of the drawing table’ (Fig. 2). What I discovered there was the audible effect of the one-sided population make-up and corresponding design. You heard a regular sound pattern, largely determined by the absence of double-income couples during the day and by the school timetable of the children. Unpredictable layers of sound, such as the rustle of trees in the wind, were lacking completely in some neighbourhoods. Trees were scarcely planted — that has since changed owing to complaints from the people of Ypenburg — or were too small to attract birds. That resulted in a ‘brick silence’ during the daytime and evening, except when the school opened its doors and the echoes of playing children reverberated off the stone walls. I came across similar patterns in parts of IJburg (Amsterdam) and Broekpolder (Beverwijk/Heemskerk), as though these new expansion districts had been rolled out as identical carpets of sound.

In the discussion that followed, the students wondered how that would affect the children who grow up there. And they asked whether you can design a square or neighbourhood sound. Can you consider sound as a factor in the design process?

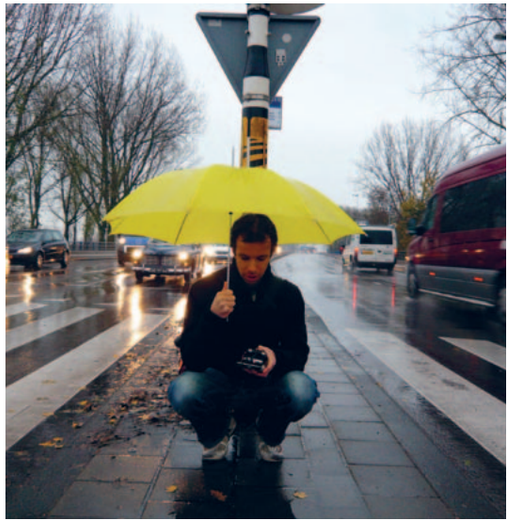
With this knowledge in our minds, we organized various listening walks at a number of strategic points in Amsterdam. We asked

ourselves at what point does the city really start to sound like an inner city. What does a road leading out of the city sound like? What does a city boundary sound like? We searched for 'earcatchers', sound themes that linger in the ear, as elements that can be measured.

Inner-city boundary
First of all, we examined the boundaries of the inner city. At Mr. Visserplein, opposite the academy, two roads into the city converge with one residential and retail street, the Jodenbreestraat. Wearing blindfolds, students started to distinguish elements such as reflection, layers in sound, sound movements and densities (Fig. 3). Behind them they heard diffuse and occasional sounds at different pitches on a small surface, such as the click of iron, voices, bike tyres on asphalt, the ringing of bells, the soft hum of engines — sounds that surface independently of one another and then recede again. And all this mixed with a continuous flow of noise from the passing traffic. It turned out that the blindfolded students experienced the audible boundary of the city centre more strongly than those without blindfolds.

City boundary
After that, we selected as city boundary the transitional area between the end of the Rijnstraat and the start of the A2 motorway to Utrecht. We examined whether, and how, we could make the idea of a city boundary audible in a final presentation. We started by listening to the A2 (Fig. 4). There was the prevailing, indifferent hum of motorized traffic, and closer to the road we heard the low-frequency, unambiguous soundtrack produced by engines and tyres on asphalt. Definitive proof that the city and its inhabitants were nearing came in the form of the rattling warning sounds created for blind pedestrians, which mixed with the din of engines. The end of the motorway had been signalled. Ten metres further and the sound landscape had changed completely. Suddenly the sound of traffic was reflected. And at precisely that point it mixed with the music and bustling noises emanating from inside a building. A loud bell sounded briefly through a speaker and blended with a metallic soundtrack that gradually intensified. And we also heard

(Fig. 3) Examining the audible boundaries at the Mr. Visserplein, Amsterdam



(Fig. 4) Listening to the A2 motorway

footsteps on slabs, tyres and horses hooves on asphalt, and the distant sound of a concertina coming from the same direction as a stationary vehicle with its heavy engine still running, from which something was being unloaded. In short, suddenly a diversity of city sounds that rose and receded again.

We measured the distance between the sounds furthest from each other in the transition zone between motorway and city. Sound homogeneity was located 340 metres away from sound diversity, a manifestation of the small-scale character that we also conveyed in the final presentation.

From analysis to planning

Subjects like homogeneity, scale and intricacy became audible to the students. They considered that an enrichment of their experience in professional practice. Articles about Jane Jacobs and a documentary on Rudy Stroink, with their approach to finely-woven structures as urban qualities, helped in the analysis of sounds.[2] Can we speak of the most compact audible city boundary in Europe? Can we recommend proposing this audible space for inclusion on the UNESCO World Heritage List?

Another question is whether such research offers pointers for 'composing' a desired urban sound landscape by creating conditions for redevelopment plans. In the case of Mr. Visserplein, for example, wide pavements and cycle lanes have been made since the square was redeveloped. Motorized traffic has been reduced, and as a result countless individual human traces are audible in this sound landscape.

I was familiar with the appearance of the chosen research sites, but that does not imply that I automatically heard what I saw. Relative silence is necessary to make diversity audible. Silence and diversity as two essential qualities for a human scale in an urban environment.

Can we also come up with objective criteria to measure the sound patterns of urban spaces and compare them with one another? Can those audible criteria be captured by any unit of measurement? And how could you then deploy them in a design process? The search for the answer begins with listening to the audible space.

Special thanks to Sabien de Kleijn, architect

1 Lino Hellings in collaboration with Shahidul Alam, Marjolijn Boterenbrood, Cilia Erens, Toye Gbade and Rob van Maanen. *The Route and the Destination: DNA of the Vlietzone in The Hague and Flyovers in Dhaka (Bangladesh), Lagos (Nigeria) and Sao Paulo (Brazil)*. The Hague 2011.

2 Lara Schrijver. *Review of Jane Jacobs' The Death and Life of Great American Cities*. www.archined.nl, 2009.
Kees Brouwer. *De strijd van Rudy Stroink*. VPRO Tegenlicht, 2009.