SOUND GARDENS

THE ACOUSTICAL DESIGNER NADINE SCHÜTZ COLLECTS SONIC SIGNATURES OF LANDSCAPES AND PUTS THEM TO WORK.

BY MICHAEL DUMIAK

KYOTO

Nadine Schütz, during a field recording with a parabola microphone at the Shisen-do temple. Her field recordings collect the spatial sonogram of the place: the sonic landscape.

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Paris may be the city of light, but it is enveloped in sound. This is the cacophony of streets, clinking of street café silverware, the sandbagged thunk of a pétanque ball landing in gravel in a park, hiss of a night breeze through willow trees on an island in the Seine, water sloshing up the embankment and down again from passing boats.

Nadine Schütz knows the sounds of the French capital better than most. She is one of probably very few people who have taken in the acoustic signature of La Grande Arche de la Défense with a 32-channel hard-shell sphere microphone.

For its part, La Défense is a monumental Mitterrand-era space, the last anchor of Paris’s axe historique with a contemporary arch set within sight of a Richard Serra sculpture on one side, a Hilton hotel in a vaulted concrete dome, a glass-paneled Catholic church, and a Joan Miró sculpture across a long rectangular plaza on the other.

This is what it looks like. With each passing week, Schütz knows more intimately what its geometry sounds like. She is using this understanding to aid her collaborators at the French landscape architecture studio BASE (Bien Aménager Son Environnement/Build a Super Environment), which is planning a refresh of the open places at Défense.

Schütz has come to perceive spaces a little differently from her peers engaged in landscape architecture: that the sound experience of the outdoors can be just as open to design and composition as any other element. It’s not easy to do, but possible. The landscape is an instrument, or more. It is a musician, she says.

The 35-year-old designer was born within earshot of the largest waterfall in Europe, at Schaffhausen in Switzerland. Her family moved first to a suburb of Zurich and later to Lucerne. She didn’t like it much to begin with, but she became fascinated with the city’s new concert hall, by Jean Nouvel, and its summer festivals, where Boulez convened an academy of young musicians from around the world to play contemporary music.

Schütz’s two complementary approaches to environmental sound. Left, the “sonorous urban” approach, which bridges distances and creates links to the environment. Below, the “sonorous garden” approach, to generate immediate experiences and make the landscape elements sing.
You have to wait for it to dry. Then you can make the first hole. You start playing with a single hole until you master the pieces that can be played with a single hole. Then, you have the right to make the next one," she says. "It takes a year to construct your flute, learning hole by hole. It gives you all of this physical understanding of sound, how the different pitches are actually happening. It is not just the mechanical thinking, how you have to behave to change the tone, but why the tone is changing. You understand it at five years old."

Her mother as a girl had gone to this same teacher to build and learn the flute. When her grandmoth-er died, Schütz played the flute in memory of her. Schütz also now plays violin and piano, and uses electronics to manipulate found and composed sound. She says she likes to play instruments she doesn’t know how to play. She plays the theremin, an instrument that is played without touching it, a kind of antenna responding to human gesture and the related changes in electromagnetic frequency, going quieter and quieter the closer you get to touching it. Played on a modified, more mechan-
Christophe Girot puts it a bit differently. “This is a whole domain present in landscape, and it is not researched at all. It is considered a nuisance. There is noise and there is silence, and nothing in between,” he says. “But there are ways to modify the acoustic quality of a space and make it more pleasurable, more comfortable.”

Schütz met Girot at the Swiss Federal Institute of Technology (ETH) in Zurich, where she studied architecture and urban landscape design. Girot is the chair of landscape architecture at the ETH. She first worked for him as a freelance exhibition designer. Their conversations led to collaboration on an exhibition launched in 2010, the Camera Obscura Auditiva.

Schütz used a directional parabolic microphone—what she calls a “big ear”—mounted along with a rotating optical device to create an interactive black-box exhibition space atop a building terrace. The slowly rotating lens on the roof of the black box projected a camera obscura view of Zurich on a screen set below. If the microphone picked up a lot of acoustic activity in a particular part of the exhibition space, prerecorded sounds from the city—which were synced to the rotating image, and directed to a speaker dome—would be reproduced more realistically above the screen. If an area was quieter, the composed sounds would become more abstract, spherical, hardly recognizable from their source. “This panorama made people aware that the city was not just about noise, but, in a way, about sound,” Girot says. “Zurich has its own sound.”

Schütz stayed on, producing a doctorate with Girot as her adviser and cofounding an audiovisual lab at ETH. Into the field she went for case studies, taking her spatial microphones and spectral analytics to Shisen-dō Temple garden in Kyoto, Japan; the Parc des Buttes-Chaumont in Paris; and the Villa d’Este gardens at Tivoli, Italy. She experimented with different kinds of microphones and recording techniques to work out prototypes for sonic landscape configurations. She combined these with spatial studies to consider the effect of sound in placing a listener in time, given factors such as the cultural origin of a place and its contemporary use. One experiment led her to the Parco dei Mostri gardens commissioned in 1552 by Duke Pier Francesco Orsini at Bomarzo north of Rome. “You have acoustic spaces overlaid there: the soft and scattered ambience of forest acoustics, and the strong reverberating sound emanating from the accessible Orcus statue mouth,” she says. “There inside the mouth is a table cut from stone. You might imagine an impressive effect as Duke Orsini raises his voice and welcomes guests from inside.”
granite is laid out in a pattern, with two islands emerging alongside seating space under sequoia, ash, elm, maple, and pine canopy. Several tall and slender lampposts are set in place, four of them with space inside for suspension and wiring of speakers. The posts create an imaginary parallelogram that includes the building entrance, metro station, and the islands closer to the street. Schütz aims to use that space as a kind of buffer zone to the street and to introduce small, subtle sound interventions: pipes in the poles will relay sounds sampled from adjacent neighborhoods, recomposed into more abstract sonic landscapes. At the top of the poles closest to the buildings are mobile metal elements that will move in the wind, like the cables on sailboats in the harbor, a sound transported to pedestrian level by contact microphones. Together it should create an acoustic foreground, a layer between the traffic, plaza islands, and building facades bounding the square.

Currently the installation work is held up waiting for a long-promised permitting letter from the Paris city hall. Schütz is a little worried about it. Mounting the equipment should not take too long, but if the plaza construction works finish before that happens, it means extra security and installation on site for the sonic elements. That could pile up expenses.

These kinds of peripheral costs are a hazard in any emerging field. Outside of concert houses and studios, project managers are unaccustomed to forging sound-infused projects into the world—especially in the hurly-burly of a place like Paris—comes with its own more current gremlins, above and beyond technical snarls and popping microphones.

Cutting through neighborhoods and circling Paris is its notorious beltway, the eight-lane Boulevard Périphérique. As the beltway moves through Porte de Clichy, two sleek buildings are rising above it: the large new Renzo Piano-designed Tribunal de Grande Instance de Paris courthouse and legal complex, with a forecourt plaza taking shape in front of it. The project’s planners became worried about the monotony of the plaza’s acoustic environment, surrounded by two glass-walled buildings and the highway, but also, in Paris’s still deindustrializing periphery, wanted to connect it with the emerging network of nearby urban public spaces.

“My idea is to create an acoustic theater using the lighting poles,” Schütz says. She took recordings on the site and in the immediate neighborhood to get a sense of the impact of the building physics on the surroundings and to use as compositional material. The plaza, designed by the architects Moreau Kusunoki and the landscape architecture studio Emma Blanc, is still in progress; shaded granite is laid out in a pattern, with two islands emerging alongside seating space under sequoia, ash, elm, maple, and pine canopy. Several tall and slender lampposts are set in place, four of them with space inside for suspension and wiring of speakers. The posts create an imaginary parallelogram that includes the building entrance, metro station, and the islands closer to the street. Schütz aims to use that space as a kind of buffer zone to the street and to introduce small, subtle sound interventions: pipes in the poles will relay sounds sampled from adjacent neighborhoods, recomposed into more abstract sonic landscapes. At the top of the poles closest to the buildings are mobile metal elements that will move in the wind, like the cables on sailboats in the harbor, a sound transported to pedestrian level by contact microphones. Together it should create an acoustic foreground, a layer between the traffic, plaza islands, and building facades bounding the square.

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planning around acoustic elements. It is just the sort of item a client abandons: A court complex is a place where busy people have to be anyway, so why bother? In this case, the next few months at the Tribunal will be indicative of the city’s intention.

For her part, Schütz says in France, and not only in France, she is seeing growing consciousness about the importance of auditory qualities in built environments, interest in working with surface geometry, and understanding acoustics so as to have an auditory impact on space, in urban contexts, and also farther afield.

It is what brought BASE to her. Schütz is using IRCAM’s processing capabilities and top-notch studios near the Centre Pompidou to analyze impulse responses taken with an ambisonic Eigenmike, which takes in the entire sphere of sound around it. An Eigenmike looks like a gleaming, expensive wiffle ball.

**OPPOSITE**
Sonograms show spectral simulation of Pleyel crossing site in wind, sun, and rain. These images are based on superimposing a short clip of a site recording (two minutes, 50 seconds) including a passing train, with the sounds of elementary instruments.

**BELOW**
The site of the planned crossing at Saint-Denis.
Clément Willemin, one of the BASE studio partners, says they’ll use Schütz’s work to lend consistency to one of four new gardens that defines the remade square. Willemin says this will include grounding materials, furniture, and lighting; there will be shade umbrellas in the garden and water elements. Willemin says small hidden speakers will feature in the design. “It’s possible the sound will travel through the umbrella. You can actually have metal sheets producing sound through vibrations,” he says.

Schütz is also being brought in by the French architect Marc Mimram to integrate sonic landscaping in the engineering work that underpins the design of a planned 300-meter (985 feet) bridge spanning a railway junction in Saint-Denis. The idea is that elements of the bridge itself can bring new acoustic dimensions to this kind of space—a place in which to pause, and not only pass—in time for the Paris Olympics in 2024. Schütz’s work is further included in an ongoing bid for a public housing project at Trappes-en-Yvelines, one of the tough banlieues north of the city.

Considering acoustics in outdoor settings, as Girot points out, is mostly confined these days to suppressing sharp noises, putting up baffling walls. It has a richer recent tradition in acoustic ecology, as pioneered by the composer and environmentalist R. Murray Scha fer; or in the interventions made for war, as in early British coastal warning systems, or contemplation, as with a student project under the Estonian interior architect Hannes Praks that put oversized megaphones in the woods for listening.

Garth Paine, an Australian composer who directs the Acoustic Ecology Lab at Arizona State University, says there’s much more to explore. Paine once created small floating planted pods for the Royal Botanical Garden lake in Melbourne with microwave stations set into them. They generated sounds that were based on the local weather conditions and set at an ambient level—sounds the composer associates with budding and photosynthesis. Passersby could not tell where the sounds were coming from. They started listening much more carefully. Paine got to know Schütz at IRCAM during his recent residency there, and they share an interest in what could be called guided listening. “You’re introducing sound not just to have a sounding object in space, but to direct people’s attention to listening,” he says. “You can guide their listening to actually understand the environment more deeply than they would otherwise.”

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