SPECIAL SECTION

Reflections on the Sonic Commons

O+A (Bruce Odland and Sam Auinger)

ABSTRACT

The authors discuss their large-scale public sound installations that transform city noise into spaces that encourage connection to our environment and our community through hearing.

We, Odland and Auinger, are sonic thinkers. We trust our ears, not our eyes. We observe the world from a hearing perspective (Fig. 1). Although this text is a visual medium, it chronicles a sonic journey of personal experience. As we made sound installations in public spaces, we learned about our culture by listening not only to the sounds it is proud of—the music, the signal tones, the vast charged hum of the economy—but also to the unintended hums and buzzes, the energy lost as sound vibrations as we burn fossil fuels and turn them into every aspect of modern life.

The overwhelmingly visual nature of our economy and culture is undeniable. However, we have felt the need to immunize ourselves against visuals as a source of truth because of their overwhelming repetition and unquestioning marriage to the economy.

Let us begin the story at a moment of discovery.

Rome, 1991: Resonant Harmonics and How They Affect Angry Workers

In 1991 the brilliant solar artist Peter Erskine invited us to work with him at Trajan's Forum in Rome. His *Secrets of the Sun* re-illuminated the ancient architecture with a beam of sunlight casting saturated rainbows on the timeworn surfaces. Challenged to action by this beauty, we started listening to the Forum, a combination of shopping mall and seat of government with all the grandeur of both.

The problem was that the grandeur had become purely visual. The vast atrium had been built for a different sound environment, a slave-powered Rome. In fossil-fueled Rome, the ancient arch had become a band shell for Vespas, cars, trucks, buses, horns and sirens on the passing thoroughfare, amplifying them and projecting them into the center of the forum. It was a devastating mess, creating major cognitive dissonance between the eye and ear. We either had to come up with a feel-good aerosol sound spray or learn to use our given modern soundscape—traffic.

In the upper galleries on the second floor of the market, we made a lucky find. Stacked by the hundreds were amphorae, the large ceramic vases used as shipping containers by ancient Rome. What follows must be considered in context. We, O+A, listen to everything. Everything. It is not unusual for one of us to drop a microphone into a river, a sugar bowl, onto a steel tension wire, a tunnel under the city of Salzburg or the

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Fig. 1. Odland and Auinger making a *4Ears* recording of the Sonic Commons in a back alley of the jewelry district of Seoul, Korea, 2007. (Photo © Bruce Odland)

Fig. 2. Amphora resonating to traffic at Trajan's Forum in Rome, 1992. (Photo © Mary-Ann Greanier)

focal point of a huge parabolic city in Southwestern Colorado. Thus dropping a microphone into an amphora and listening on headphones was not accompanied by the expectation of a huge reward. Imagine our astonishment to hear a "hallelujah" moment, with the sound of hundreds of church bells swirling in a very manipulated and processed sound-effect space, jaw dropping, profound, deeply mystifying and very real.

We had stumbled on a simple fact of physics. When bombarded by the sound-pressure levels of modern traffic, the amphora from ancient Rome was functioning like a harmonic resonator. It was selecting those parts of the sound vibrations coming from buses and Vespas, horns, voices and sirens that matched its dimensions and re-resonating them into a pool of beautiful melodies and harmonies. It was, in fact, a huge Helmholtz resonator (a closed airspace with an open hole that, because of its volume and the size of the opening, resonates to specific frequencies in reaction to broader sound vibrations outside, like the gourds on a marimba, or a plastic bottle when you blow across the top) changing traffic noise into music (Fig. 2).

The rest was relatively simple. We selected amphorae with compatible harmonies, put microphones inside and amplified them from solar-powered parabolic speakers located at architectural focal points. We bounced the tuned beam off the architecture to alter the forum's soundscape.

We will always remember the moment of our first test. Ours was but one part of a very large exhibition, with workers from all around the world. Frequent arguments were taking place in many languages and morale was low. We hooked up the tuned beam of sound. Within 10 minutes the arguing had stopped. The harmony from the inside of the amphora seemed to spread out to fill the architectural space and alter people's moods. Smiles soon accompanied light steps. We could not believe it. So we unplugged the device and waited. Arguments restarted almost immediately. We plugged it in again, they stopped. We left it running, named it *Traffic Mantra* and pledged that we would work more with this strange phenomenon.

Sonic Commons 1

The Sonic Commons can be defined as any space where many people share an acoustic environment and can hear the results of each other's activities, both intentional and unintentional. For instance, at any small-scale outdoor sporting game, the players, the fans, the nearby road with its unaware drivers and the passing jet are all part of the Sonic Commons. Just as we share the air we breathe, we are submerged in a sea of shared sound. We are all connected by the vibrations we make as we use energy in daily life. Because sound does not stop at visual or economic boundaries, the Sonic Commons encompasses both private and public space. An expensive private vehicle may sound quiet on the inside. Heard from the outside by a pedestrian in public space, it is just as loud as a cheap car. The individual gesture unintentionally influences the emotional atmosphere of the Sonic Commons.

The Sonic Commons is always changing shape and dimensions. Some defining sounds are constant, like the power grid, or seasonal, like the neighbor's air conditioning or migrating birds. Some, like rush hour and train whistles, follow the logic of the economy. The Sonic Commons is a complex multi-user environment leaving an accidental soundscape as a by-product.

Harmonic Bridge, 1998: Making the Sonic Commons More Humane

A new and brave experiment in revitalizing a broken economy with art was taking place in North Adams, Massachusetts, in the late 1990s, and we were called upon

to play a role in shaping the sonic atmosphere. The Massachusetts Museum of Contemporary Art (MASS MoCA) was attempting to build a large modern art museum in an abandoned electronics factory. There was, however, some alienation between the townspeople and the museum campus, exacerbated by the Highway 2 overpass that physically divided them.

The overpass might be considered an eyesore, a no-man's land of cement and traffic noise. To get from Main Street to the museum, a pedestrian had to pass underneath the viaduct and be bombarded by a shower of grey noise. To us this seemed like the perfect site for an urban transformation.

Since working in Rome, we had developed some interesting tools for just this sort of thing. Amphorae being in short supply in America, we were now working with "tuning tubes." Using a 16-foot length of aluminum tubing with a microphone placed at a harmonic node, we were able to generate a living overtone series in the key of C in response to the sounds of cars, trucks, motorcycles and pedestrians. As if a didgeridoo were being played by the passing traffic, the chaos of noise is reduced to the harmonic proportions of the resonating tube. A bus activates the lowest harmonic, a car the middle and motorcycles bring out higher harmonies. We installed one on each end of the bridge (Fig. 3). Beneath the bridge, we installed two specially designed "cube" speakers. The square cement cube with a flush mounted speaker beneath creates a hemispheric zone of sound that is in phase, couples with the architectural space gently and is impervious to weather. These mini-monoliths played back the harmonies of traffic passing overhead in real time. They activated the Gothic cathedral acoustics unintentionally formed by the overpass designers and invited pedestrians to enjoy the summer shade with the sound of North Adams resonating in "stereo" in the key of C. A blighted urban space was reclaimed as a harmonious passageway between town and museum.

MASS MoCA director Joe Thompson tells it best:

> The overpass is still just as imposing as ever—a landmark of urban renewal run amok—but what was once a harsh barrier between the museum and the town has been softened by Sam and Bruce's wonderful piece of sonic jujitsu. The speakers, encased in an elegantly crafted concrete block imprinted with tire treads, now boast a fine sheen, their tops worn slick by the thousands of people who have used them for benches, hanging out, literally feeling the music by the seat of their pants.

Sonic Commons 2

The Sonic Commons is full of asymmetry. Picture the tycoon making the helicopter commute from city to suburb, buried in noise-canceling headphones listening to Beethoven, oblivious that he overflies a veterans' hospital with a high-decibel rotor wash straight out of the sound track from *Apocalypse Now*.

The Sonic Commons is deeply affected by architecture that shapes the dimensions of all the sounds that bounce around in our cities until they are absorbed. Giant planes of glass and steel amplify and reflect the sounds of our fossil-fueled toys, making a harsh and disorienting offer to our ears. The various forms of architecture are a record of economic and political power, of materials previously extracted, fabricated and constructed. This three-dimensional city landscape functions as a sounding box for a different form of power—the roar of the modern city. The Sonic Commons is a moment-to-moment four-dimensional readout of the sound energy being used *now,* resonated and shaped by the architectural forms of energy *past*.

It is curious that humans, who hear almost as well as dolphins, have spent so little effort to decode this waveform, to seek its meaning, to delve into its information-rich secrets. In contrast, a great deal of effort has been spent in escape, denial, avoidance and replacement; the final result is a growing isolation. In an attempt to blot out the rising noise level, we plug up our marvelous hunter-gatherer hearing system with a commercial industrial application, the iPod.

HIVE MUSIC, 1997: Hearing the City as a Symphony

After working with the tuning of various cities in real time, we began to listen to cities in a new way—informationally, critically, musically; to hear new patterns and understand relationships between space, architecture, harmony, noise, human activity and social usages of public space. After hearing the harmony at the installation in real time, we continued to hear it when we walked away into the untuned city. The filters in our brain that tirelessly suppress the sounds around us found a new setting. We got control of the invisible knobs and could now use our ears to decode the city with or without the tuning tubes. The same phenomenon happened to our crews and visitors to our installations.

Thus, we took on the challenge of making a concert to bring this city symphony to new ears. The concert was to be made entirely of resonances and images taken from the city in real time, using the city as our oscillating, throbbing sound source, which we surfed in the instant with digital filtering. We originally named the concert *Cloud Chamber,* because the charged particles of energy that make up our city could for a brief moment leave audible and visible traces in our ears and retinas. The Kitchen performance space in New York City became the site of an ongoing sonic soiree, with guest guitarist Jimmi Harry playing a raga over the West Side Highway (tuned to the key of A) and DJ Spooky fragmenting recorded history over a Wagnerian climax of emergency sirens on 10th Avenue (in the key of E) while a gravel-voiced street volunteer sang about "American Blood." Video artist Chris Kondek scanned the streets with cameras mounted in the tuning tubes, mixing a surveillance epic in real time on multiple screens. It became evident that we were all in a resonating chamber tuned to the gestures of the economy: the rush hours, the traffic lights, the trucks transporting everything New York would sell in the morning (Fig. 4). Ultimately, we decided to call it *HIVE MUSIC* be-

Fig. 3. Bruce Odland, diagram of *Harmonic Bridge*, MASS MoCA, 1999. (Diagram © Bruce Odland) Two 16-ft "tuning tubes" create harmonic series from the noise of traffic on Highway 2 overpass in North Adams, MA, with two "Cube" loudspeakers activating unused "Gothic acoustics" below the viaduct in real time.

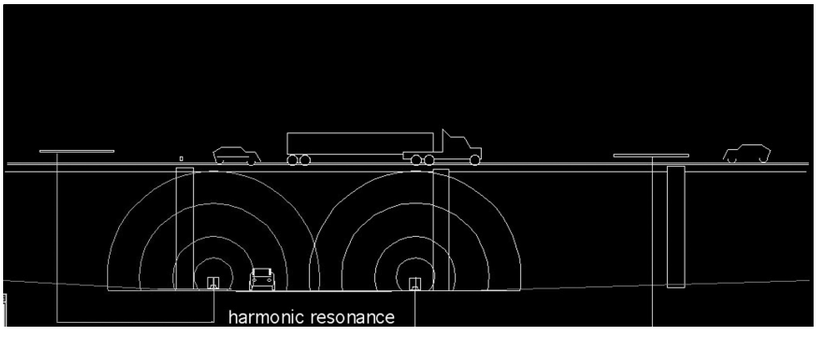

Fig. 4. Performance of *Cloud Chamber* at the Kitchen, 1997. Bruce Odland with "planet speaker." (Photo © Anja Hinricksen)

cause for the first time we understood the swarming sounds of the city—we heard the music of the human hive.

Sonic Commons 3

We all live in shared sound space whether we like it or not. It is as ubiquitous as the air we breathe. It is a shifting space with no fixed boundaries. Sound permeates the space, vibrates through the windows and walls; the subway vibrates the foundation of the urban cathedral, comes through the grating in the street. It is a never-ending story of how we use power and how the byproducts of that power reach us through space, resonating and coloring that space in ways we rarely notice or discuss. We do not have the language. The process is so subliminal that the language will have to be invented. Let's begin.

Blue Moon, 2004: Re-sensitizing the Ears of New Yorkers to the Moon and Tides

The concept was simple. Harmonize the plaza with three different lengths of tuning tube responding to the harbor soundscape, with the moon and tides controlling the sound mix. By hearing the longest tube's harmonies at low tide, the medium at middle tide and the short at high tide through a string of five blue cube speakers, visitors could reconnect to the sound environment around them and the patterns of the tides (Fig. 5).

The building process in this case was much more complex and involved negotiating a gaggle of committees, multiple security zones and public-space taboos. Electronics wizard Roland Babl had to design a tide-to-MIDI converter for us so that our electronics could read the water levels. Our technical director, Bill Ballou, had to safely and legally rig tuning tubes in shock cages in order for them to withstand boats and waves. In the end, however, it all came down to listening.

The plaza seemed quiet at first, protected from traffic by massive towers of glass and steel. However, the shelter from traffic allowed all the standing waves from ventilation systems, power grid, generators, air traffic and harbor sounds to be heard. Late one night, while tuning the installation, we heard the tuning tubes playing a minimalist epic. It turned out to be the power grids of New York and New Jersey beating out of phase with each other across the Hudson in the middle of the night.

The real story here is how altering the sound of a space changed the emo-

tional environment, the social "game," the perception of the architecture and the way people related to their surroundings. They slowed down, immersed in a harmonic version of the reality around them, entered a musical version of the world and relaxed. The low tones of the ferries arrived minutes before the visuals, the daily rhythm of tides and helicopters was revealed, a loop with nature emerged even on that artificial landscape.

Sonic Commons 4

By labeling our shared soundspace the Sonic Commons, we are reminding ourselves that certain things like air, water and humane sonic environments should be considered basic human rights. No one, for instance, would promote putting a library in the same soundspace as a boiler factory. However, slightly more subtle things happen all the time: the "healthy" juice bar environment mixes fresh juice with the industrial-grade noise of blenders, juicers and refrigeration compressors that steal the very feeling they promote; the Museum of Modern Art sculpture garden in New York City is a temple to sculpture but is bombarded by street noise like any taxi stand; the elementary school is by the superhighway; the pedestrian path is squeezed between two highways; etc. In our culture, the miraculous hunter-gatherer sense of hearing is constantly sacrificed on the visual altar. However, deafness is not the same as evolution. Back in the 1970s McLuhan wrote an article observing that when the senses are out of balance, it is a classic sign of insanity. Has our culture gone visually insane?

This, then, is a plea that comes from years of working in public space making art for the sense of hearing for people who are bombarded by the thoughtless industrial sound design that we, as urban dwellers, have accepted as inevitable. It is not. All infrastructure is designed. Our ears were simply not part of the design brief. Now that we hear the results of this oversight, we are encouraging study, discussion and revision. Part of what makes us human is the whisper, the gentle soft murmur, the ability to form complex thoughts in contemplative space, the ability to connect to our environment and our community through our hearing. We need to consider what type of offer our Sonic Commons is making to us and strive to make that offer humane. We are not advocating quiet for quiet's sake; we are advocating humane design that takes into account how we perceive and interact with the world. For if we are forced out of self-defense

Fig. 5. Five "cube" speakers play back real-time tuned Harbor soundscape at the World Financial Center Plaza, 2004. (Photo/illustration © Bruce Odland)

by the industrial soundscape to go deaf to the world around us, what all have we sacrificed?

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O+A are currently working on a new type of piece called 4 Ears, which allows them to document the Sonic Commons at a particular location and time and then play it back in gallery space with startling detail and dimensionality. It will also be released as the DVD The Sonic Commons. <www.o-a.info>.