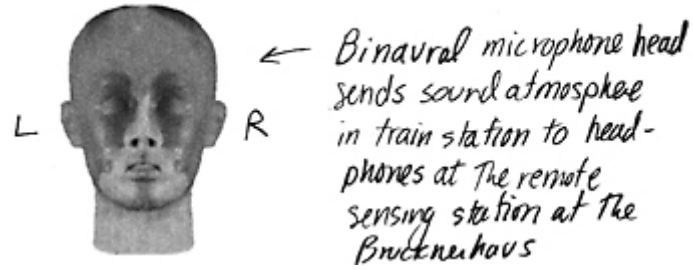
Max Res O+A 95
Sam Auinger/Bruce Odland



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digital communication layout: Gerald Schalek, Andreas Feichtner
Max is built by: Gerd Thaller

Max Res O+A 95
Is an installation by Bruce Odland and Sam Auinger, which links the Linz Hauptbahnhof with the Brucknerhaus in a harmonic and melodic interface of man, machine and information. The ambient sound of the train station is re-tuned real-time from a remote sensing station linked by information lines and computers. MAX RES, a non-human figure of cement, plastic, glass and steel stands in the terminal receiving and transmitting both audio and video, changing the atmosphere with harmonically altered resonance.

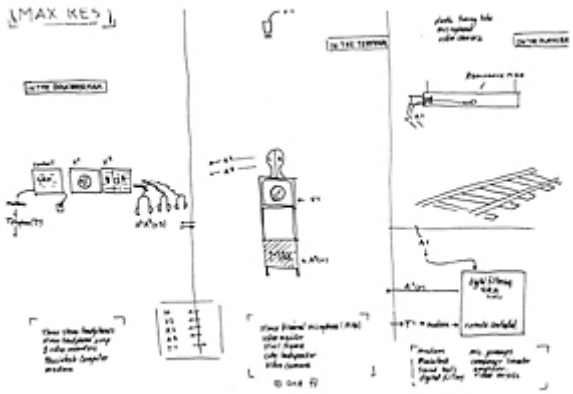
In the Terminal

— an overhead video camera watches the flow of traffic through the departure lobby.

— binaural microphone head sends sound atmosphere in train station to headphones at the remote sensing station at the Brucknerhaus.

— video monitor gives visual clues to the source of the sounds. It is the output from the video camera inside the tuning tube on the platform where the sounds are being collected.

— cement "Cube" loudspeaker plays back the tuned resonance from the train platform real-time.



On the Platform

All the various sounds coming from trains at many platforms, people, announcements, automatic doors, luggage carts, are reduced by the tuning tube to one harmonic series. The mic inside the tube hears all these activities as a shifting chord based on the fundamental length of the tube and its partials. This sound is sent into the controll room to a computer where it is digitally filtered, then played back in the moment on MAX RES' cement speaker. The result is a rhythmic, harmonic, melodic readout of the interfacing of people and iron age transportation machines. The videocamera is there to provide visual reference points as to what exactly the sources of the sounds are.

At the Remote sensing station

There is a train schedule. This is the rhythm chart for the sounds you will hear on the headphones. The trains are the main sound structure and generate a host of other sounds based on their timing: footsteps, voices, carts, steam blasts, announcements, doors, and most of the other sounds.

There is a clock to help keep time to the rhythm tracks. There are headphones. When you put them on you are listening through MAX RES' ears (the binaural head in the station). You not only hear the tuned resonance coming from the cube speaker, but also the acoustics of the terminal hall and its ambient sound.

There are video monitors. One is showing the same video as the monitor in MAX RES' chest, the source of the sounds being collected in the tuning tube on the platform. The other shows a view of MAX RES from a video camera on the ceiling overhead. You can watch the flow of people in the hall as you modify the hall's ambience.

There is a computer linked to the computer filters at the train station. When you select a change, a modem relays this change to a second computer and the chosen filter will now modify the resonances being sent to the cube speaker in MAX RES.

A HEARING PERSPECTIVE.
Bruce Odland and Sam Auinger

We are learning to make sense of the sound environment we live in by listening, hearing, exploring and attempting to understand it as a language. We collect, filter and expand resonances found in nature and cities to make the hidden voices audible.

When we make large scale sound installations in public spaces our starting point is that the basic environmental soundscape is the site. Architecture, history, acoustics and social dynamics of a given space are taken into account. Often there is a large discrepancy between visual and sonic aesthetics.

Sounds such as the sonic chaos of cars, helicopters, muzak and emergency sirens are often shut out of our mental picture of a space as noise. By listening to and studying these noises they become useful sound sources. Closer observation of these sounds often reveals a hidden music of interesting details, useful tones and harmonics, even a potential melodic interest.

We have developed a set of compositional tools to sculpt and transform our sonic environment. These special resonators, digital filters, speakers, matrix mixers etc. allow us to work on-site with our own kind of real-time Musik Konkret. We can extract the harmonic material from city noise, filter it, shape it and play it back immediately to transform the feelings, atmosphere and sound design of that environment. We are able to extract the melodies and make the hidden voices audible.

We do not import exotic sounds to the site. Instead we construct, deconstruct and amplify selected resonances found on that location. We use these existing sounds as our basic material and manipulate their overtone content real-time to reveal their inherent harmonic structure. The compositionally chosen overtones of the collecting resonators are distilled and altered with digital resonance filters to produce a rich harmonious chord which transforms the perception of the space, enhancing its aesthetic value in profound and unexpected ways.

Enlarging the selected musical resonances that are found at the site to a scale observable by the public requires a series of aesthetic and compositional choices. What is the usage pattern of the space and how can we create a perceptual shift that would enhance this in a harmonious way? Where within the architecture is the acoustical focal point? Which visual aspects of the site create a useful framework for listening? When visitors enter the site what will they hear

first? Do they pass slowly into a more harmonious and musically tuned version of the space as they move toward its architectural focus, for instance? What type of speakers must be created to couple with the space in an aesthetic way? Which of our tuning tools is most appropriate and what type of interactivity would enhance the visitors' appreciation? All these are compositional decisions when we make a tuning installation in a space.

Linz: Garden of Time-Dreaming 1990

The first exploration we made into this topic was dictated by necessity. In our work for Ars Electronica 1990, "Garten der Zeitträume" we wished to create an unusually delicate sonic transformation of the Schloßgarten Linz, an invisible web of sound that gave the feeling of falling through centuries of time. We found our imaginations blocked however by the ever-present sound of traffic which kept saying to the ears "Post-War, Post-War, Post-War . . .". So, on the hillside overlooking the main commuter traffic, we created an installation to transform the sound of cars into something more interesting and mysterious. A parabolic sound collector with a mic pointed at the road below collected the traffic sound, which was Vocoded, or morphed, with water, wind, electric guitar, and other sounds. The morphed sounds were projected through 5 speakers designed and built by us. These "Planet speakers" made of ceramic, sent a very directional beam of sound up the hillside, which reached the listener just before the ordinary traffic noise. This masking formed a protective barrier against the intrusive car sounds and allowed us to design the rest of the garden's sound atmosphere as we had planned. It also became an attraction on its own as the voices of different motorcars seemed to be released through the technology on a different level of perception.

Rome: Traffic Mantra 1992

In Rome in 1992 we were making a sound installation to support Peter Erskine's solar spectrum work "Secrets of the Sun". The amazingly rich visual aesthetic of the Traian's Forum site with its famous proto-gothic arched Aula by the architect Apollodoris was to our ears completely over-ridden by the bombardment of the noise of Rome traffic passing by on the busy via Fourth of November. It had now become a band shell for amplifying Fiats and Vespas. Rather than escalate and add a still louder sound of our own, we decided to use this ever present 20th century sound as our basic material and seek a method of transforming it.

An exploration of the available sound resources at the site included dropping a stereo mic into a Roman Amphora. It sounded as if all the bells of Rome were ringing inside but on withdrawing the mic it was merely an entrance to the forum. There we hung a single planet speaker of ceramic, powered by solar panels, and its focused beam of tuned traffic resonance played across the curved surfaces of the old roman architecture and transformed the sonic

ambiance in a harmonic way. What we could not have foreseen is that about that exact time an atmosphere of calm descended on the international crew of workers who, up till that point, had been arguing avidly in many languages.

NEW YORK: Infrastructure Harmonics 1992

After working in Rome we wanted to explore the possibilities of another richly noisy city, New York. Challenged by John Hanhardt of the Whitney Museum to find the metaphor for Amphora in America we decided to study New York's transportation hub, Grand Central Station. We became obsessed with the theory that there was a standing wave produced by trains, traffic, ventilation fans, electrical hums, lighting, air conditioning which was producing a harmonic series and that the terminal itself with its giant vaulted ceiling was like the amphora in Rome, resonating.

Why could we not hear this? The theory was that a single set of ears was unable to hear this chord — the scale was just too large to perceive. The waves were too long and the physical distances between harmonics too great. So we synchronized two dat recorders in the center of the hall, then separated in them space but not in time. Bruce walked the path of the commuters going to the trains and back while Sam stayed in the center of the terminal. Later when we synchronized these recordings and listened as if with four ears and two perspectives at once, the resonating chord immediately appeared. This chord is comprised of train motors at the fundamental resonated down the long underground tubes joining the main terminal, air-conditioning at the fifth, fans at the octave, and a sub harmonic produced by the giant ventilation fans on the roof. Remove either of the two channels and it disappeared again. GCT is like a huge resonating instrument playing a shifting harmonic structure that is an audio read-out of NYC's transportation hub

Berlin: Tuning Tube 1993

In 1993 in Berlin we were once again making a sound installation to support Peter Erskin's "Secrets of the Sun". This time the site was the proud 1956 parabolic structure donated by the Americans in the height of the cold war paranoia. First we listened to the sounds existing in the area; intense traffic, bell tower, fountains, picnics, people, cars, buses, i.e.: intense but normal large city noise penetrating the park-like visual look and amplified and reflected by the colossal post-war cement monument.

We chose to use a resonating tuning tube of 4 meters at the bus stop located at the main entrance. The tube's interior reinforcing a clear overtone series and reducing all incoming sounds to those possible intervals. Our rhythmic structure was the arrival and departure of buses, which activated the tubes' fundamental and first octave overtone every 5-10 minutes. The fountain in the reflecting pool nearby provided a tambura-like drone. Occasional interludes of people coming and going, or waiting for the bus provided melodic interest as their voices and footsteps were scanned and distributed on the upper partials. We tuned the position of the microphone in the tube to the flat 7th giving the whole a sort of blues scale.

For the position of the speaker, which would re-introduce this tuned resonance to the site, we considered for several days. Finally we chose to use a planet speaker on the cement floor of the plaza pointed up at the parabolic cement roof. Since the beam of sound it produces is very directional you could stand right next to it with the speaker almost at your feet and the sound still seemed to emanate from the arched roof above, its first reflection. There with very little power from the amps we could use the parabolic architecture to amplify the sound. Walking around the site and hearing this beam of tuned resonance coupled with the architecture changed the perception of the site making the dominating shape of the parabolic roof seem to float as if on wings. This form of composing with resonance, speakers, architecture and live input of a city as a sound source to generate all the sounds has one main benefit. It continually refreshes itself. It is never the same. As an interface it is always changing in response to its sound environment- with the traffic, visitors, season, weather and with the time of day. It transforms into a perceivable information of the interplay that is already taking place.

Sam at Croton Falls with TuningTube Video

(So we made a portable tuning tube of 3 sections of HPI plastic which had the interesting visual property of being like a black mirror on the inside. We added a video camera to document the sources of these extraordinary sounds, plus we had heard that seeing is believing.)