The Relocation of Ambient Sound: Urban Sound Sculpture

Bill Fontana

Abstract—The author describes his sound sculptures which explore how various instances of sound possess musical form. He explains the sculptural qualities of sound and the aesthetic act of arranging sound into art. Detailed descriptions of three recent works illustrate how relocating sounds from one environment to another redefines them, giving them new acoustic meanings.

I. INTRODUCTION

lasting
Sounds leaving from
different places and forming
Sounding
a sculpture which lasts [1]

I have been working in the genre of sound sculpture since 1974. My explorations of the compositional aspects of ambient sound, however, date back to the mid-1960s. Relying primarily on the use of field recording, I have investigated a wide range of normal experiences of ambient sound to learn and document how various instances of sound possess musical form—musical form in this case being the broadest possible definition of interesting compositional relationships. The purchase, in 1972, of a tape recorder that was small enough to take with me wherever I went enabled me to investigate many different types of ambient sound situations. After six years of serious field recording, I began to realize how full of aesthetic possibilities these ambient sound situations were, and how unexplored or even lost such an aesthetic sensibility of them was in our Western culture. Helmholtz provided an example of this cultural blind spot in his 1862 treatise on acoustics, *On the Sensations of Tone*:

> The first and principal difference between various sounds experienced by our ear, is that between noises and musical sounds. The soughing, howling, and whistling of the wind, the splashing of the water, the rolling of carriages, are examples of the first kind, and the tones of all musical instruments of the second . . . [2].

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My transition from working with field recording to sound sculpture occurred as a solution to an unsolved question that became increasingly urgent as my experience with field recording grew: How can I make art out of ambient sounds?

Influenced by Duchamp's strategy of the found object, I began to realize that the relocation of an ambient sound source within a new context would alter radically the acoustic meaning of the ambient sound source. I conceived such relocations in sculptural terms because ambient sounds are sculptural in the way they belong to a particular place. To make art out of an ambient sound, the act of placing this sound would have considerable aesthetic importance.

In both my field recording and sound sculpture, sounds are not isolated from their contexts; in relocating sounds, I have been concerned with the contexts in which the sounds are placed and with the sculptural/spatial qualities of the sound source. For me, the richness and beauty of ambient sounds come from their interaction with a living situation. For this reason, I have installed most of my recent sound sculptures outdoors, in juxtaposition with actual contexts of ambient sound. In addition to the sound content, the acoustic conditions and architectural qualities of such contexts have played important roles in my selection of sculpture sites. The medium of radio has also proven an effective context in which to present ambient sounds. When played on the radio, a given sound is juxtaposed instantaneously with thousands of different ambient sound contexts. I have thus included live radio components in several recent sound sculptures that were site-specific, which

Fig. 1. The Austin J. Tobin Plaza of One World Trade Center, sculpture site of *Oscillating Steel Grids along the Brooklyn Bridge*, 1983.

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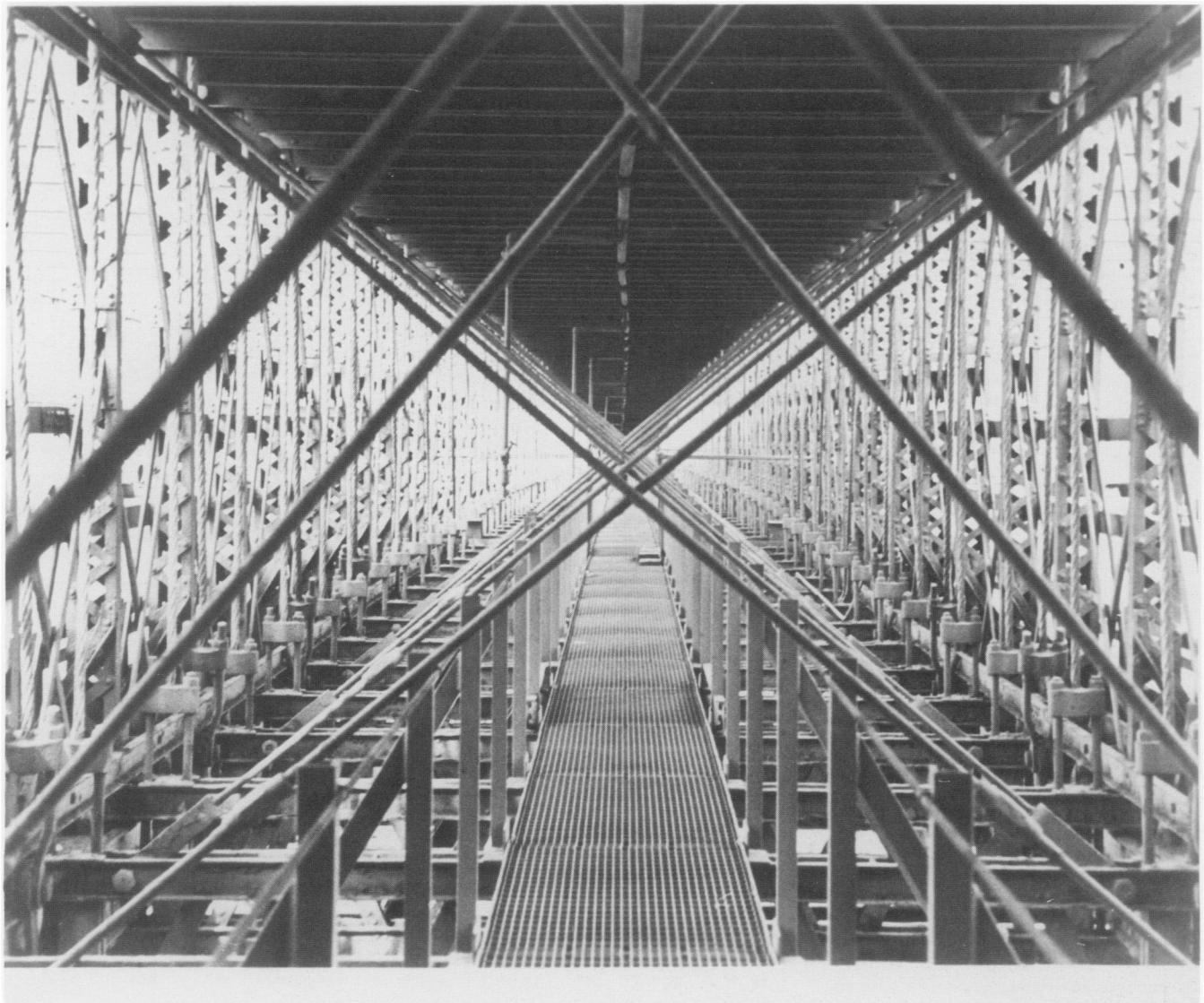


Fig. 2. Main catwalk of the Brooklyn Bridge where telephone lines and microphones were installed for the live transmission of bridge sounds to One World Trade Center. The sound sculpture *Oscillating Steel Grids along the Brooklyn Bridge* celebrated the centenary of the Brooklyn Bridge in 1983.

has had the effect of extending them in new and surprising ways.

In addition to their sculptural ability to belong to a particular space, ambient sounds are sculptural as volumes of space in terms of how a given sound source occupies its own sound field. Through multiple-perspective field recordings and live relocations of environmental sound processes, I have investigated this sculptural property of sound in many different circumstances. Real-time multiple-acoustic perspectives reveal qualities in sound sources that are not explicit in our typical perception of them. Such factors as acoustic delays, the Doppler effect and phasing reveal elegant musical structures in even the most simple of environmental sound sources. When a multiple-perspective rendering of the sounds of one place (either live or recorded) is installed in another space and played from a number of carefully positioned loudspeakers, dynamic and vivid relocations of the sound sources can be realized. When thinking about the transformed acoustic meaning that a familiar sound acquires when its whole sound field is considered, I ask myself, What is this sound that I am now hearing? The answer I give is that this sound is all the possible ways there are to hear it.

During the past few years I have had the opportunity to realize sound projects in New York, San Francisco, Hawaii, Alaska, West Berlin, Cologne, Paris, Amsterdam, Stockholm, Thailand, Australia and Japan. Three of these projects, described below, illustrate different ways of relocating an ambient sound source within a new environmental context.

II. *OSCILLATING STEEL GRIDS ALONG THE BROOKLYN BRIDGE*

The road surface of the Brooklyn Bridge is a studded steel grid. A car driving over this surface produces an oscillating tone, the exact frequency of which is determined by the speed of the car. The pervasive droning quality of this sound makes it musical (in the language of contemporary music). Many people in the immediate environment of the Brooklyn Bridge, such as pedestrians on the bridge's walkway or passengers in a car, respond negatively to the humming of the bridge, perhaps because the sound is so loud when heard close up.

For the centenary of the Brooklyn Bridge in 1983, I wanted to take this humming sound and put it somewhere else in New York City where it would be out of context and a surprise to hear. I

selected the large open plaza below the World Trade Center towers (Fig. 1). Acoustically, this large open space has a low ambient sound level, as it is far from traffic sounds and is surrounded by high buildings. The World Trade Center is also a contemporary New York landmark, while the Brooklyn Bridge is a much older one. Additionally, I find that the towers of the World Trade Center have a science-fictional quality that works well with and is shared by the humming of the Brooklyn Bridge. Loudspeakers were hidden in the facade of Tower One so that the humming sound of the bridge would become the sound of the World Trade Center towers. These humming sounds were transmitted live from the Brooklyn Bridge to the World Trade Center by means of equalized broadcast-quality telephone lines (Fig. 2). This meant that the normal changes of the day, such as traffic (less traffic meant faster cars producing higher pitched tones) and weather (thunderstorms occurring simultaneously at the bridge and the plaza created an interesting acoustical delay) could be heard, as well as the special sounds of the Brooklyn Bridge centenary (the parade, boat whistles and fireworks).

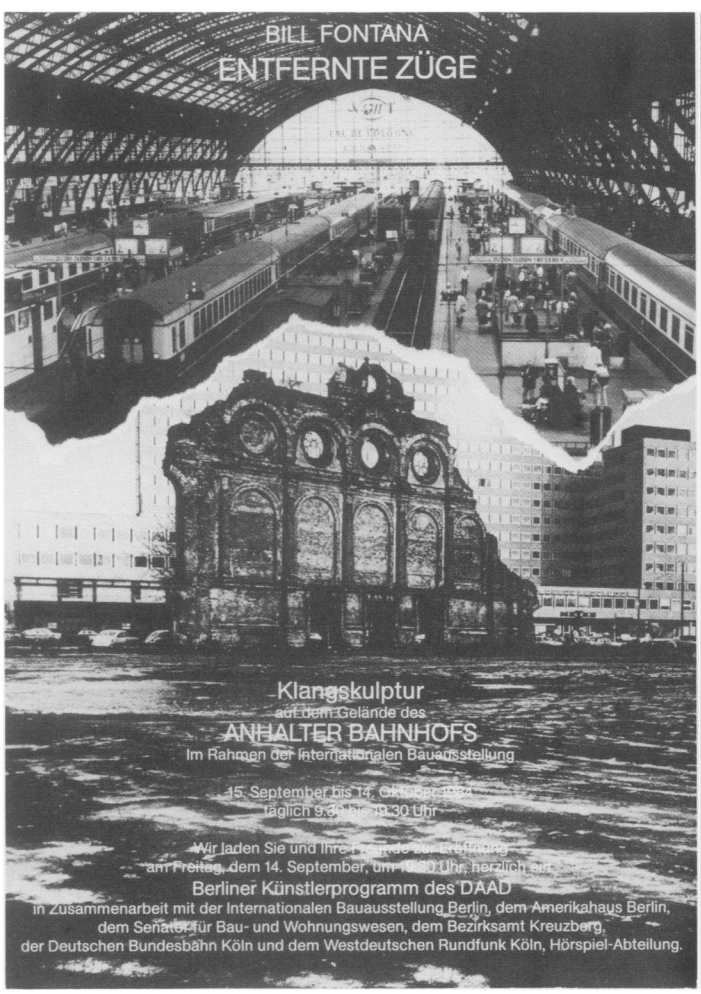
In this architectural context, the familiar humming of the Brooklyn Bridge became an acoustic paradox. The kinesthetic sense of this humming coming from somewhere about the plaza, from "somewhere up in the struts" [3] as the *Village Voice* described it, was an important formal element of the sound sculpture. The physical and spatial relationships of the humming sound to the architectural scale of the World Trade Center towers altered the acoustic scale of the humming. This alteration of scale gave the humming sound of the Brooklyn Bridge a new spectrum of possible acoustic meanings.

III. *ENTFERNTE ZÜGE* (DISTANT TRAINS)

In the fall of 1983, while living in West Berlin as a composer, I was invited to design a temporary site-specific work for one of several possible locations in the city as part of a city-wide architectural exhibition scheduled for the fall of 1984 [4].

I selected the former Anhalter Bahnhof as the site for *Entfernte Züge* because the ruins of this former train station were suggestive of sound to me. The first time I visited the Anhalter Bahnhof, the empty field behind the shattered facade seemed strangely quiet, as if haunted by the sounds of trains and people. This 'acoustical haunting' was so vivid that I decided to design a sound sculpture that would suggest the same experience to anyone passing through the site.

I wanted to take the sound of the busiest contemporary German train station and relocate it in Berlin at the Anhalter Bahnhof. After some research, I selected the Köln Hauptbahnhof, the busiest train station in Europe (see Fig. 3). There the sounds of the train announcements are nearly constant. Often several simultaneous announcements create a spontaneous kind of sound poetry. The sounds of the trains themselves, the signals at both ends of the



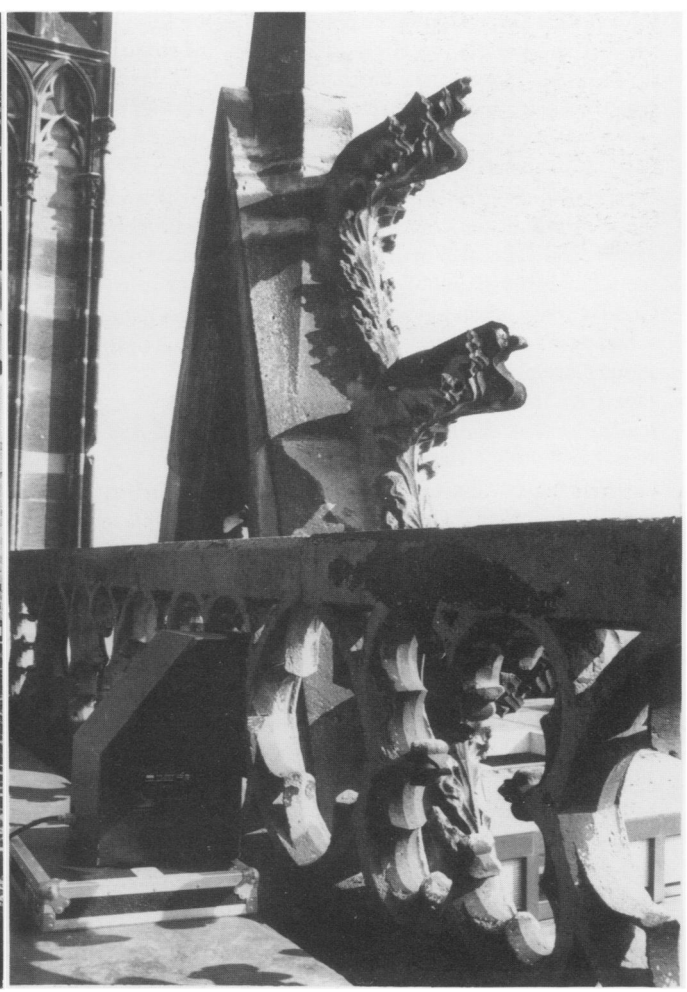


Fig. 3. In the announcement for the 1984 sound sculpture *Entfernte Züge*, the Anhalter Bahnhof is pictured below and Köln Hauptbahnhof above.

Fig. 4. One of the loudspeakers installed on the balcony of the cathedral for the 1985 sound sculpture *Metropolis Köln*.

station and the voices and footsteps of people are also ever-present.

My original design called for the live sound from the Köln Hauptbahnhof to be played at the Anhalter Bahnhof. As a live relocation of sound, the times of the train announcements coming from Köln would also be actual in Berlin. However, because of its political and geographic isolation within East Germany, West Berlin had only limited broadcast facilities, which made a live eight-channel audio transmission to the city impossible. The alternative was to make an eight-channel tape version in which the feeling of real time was preserved.

An important design consideration in this sound sculpture was how to install loudspeakers in the large empty field behind the ruin so that they would not be visible. Visible speakers would have greatly weakened the psychological impact of the sound sculpture. The loudspeakers also had to overcome the acoustic difficulties of projecting sound into a large empty place. The only possible solution was to bury the loudspeakers using a special construction. This was an ideal solution because, in theory, optimum loudspeaker dispersion takes place when the loudspeaker diaphragm is positioned on the same plane as the earth with the sound projecting upwards. Such a positioning of the eight loudspeakers gave the recorded sound of the Köln Hauptbahnhof great vividness and presence in the acoustic space of the large empty field. This also made the sound of the Köln Hauptbahnhof seem kinesthetically correct, despite the absence of an actual train station. Kinesthetically correct sound placement was an important formal aspect of this sound sculpture. In the realization of *Entfernte Züge* at the Anhalter Bahnhof, the loudspeakers were buried in two parallel rows that mimicked the position of tracks and platforms; this placement of the sounds of the Köln Hauptbahnhof made this work 'come to life'.

IV. *METROPOLIS KÖLN*

An invitation to make a live acoustic portrait of the city of Köln for a symposium to be held in September 1985 provided me with the opportunity to combine my interests in many different types of sounds into one large project [5]. In all of my previous sound sculptures, I had concentrated on relocating one type of sound source to a new context. In making these relocations, I had been concerned with the perceived scale of the sound source. I had manipulated this sense of acoustic scale by juxtaposing sound with the physical/architectural elements of the sculpture site. I had learned that this use of acoustic relocation and acoustic scale was a powerful method for altering the perceived acoustical meaning of ordinary and familiar sounds. For *Metropolis Köln* I would need to relocate simultaneously many different types of sounds to a suitable sculpture site and also to realize a live radio concert of the city's sounds.

The sculpture site of this work was Roncalliplatz, the large square plaza adjacent to the south facade of the Kölner Dom (cathedral). With its towering Gothic spires and overwhelming presence, the Dom is the dominant architectural element of this plaza. Because it has the feeling of being the center and heart of Köln, the plaza seemed suitable as the site for this live acoustic portrait. A total of 18 loudspeakers were hidden on the four sides of the plaza, each one corresponding to live sound coming from 18 microphones placed around the city. Six loudspeakers were hidden along a balcony of the Dom located about 80 feet above the plaza (Fig. 4). Twelve more loudspeakers were placed on the roofs of buildings bordering the other three sides of Roncalliplatz.

Live microphones were positioned at various acoustic landmarks around Köln; these included the Hauptbahnhof, four different bridges over the Rhine river, the clock and bell towers of six Romanesque churches, a pedestrian street, three locations in the Kölner Zoo and two locations along the Rhine river. These river locations created the constant sound of waves and water, each one having a different timbre: one came from a microphone that transmitted the sound of waves at the water's edge (Fig. 5), the other came from a hydrophone in the Rhine. The live sound from the hydrophone was broadcast to a loudspeaker on the edge of Roncalliplatz in the Old Roman Harbor Street.

During the day and early evening, the city was alive with many sounds and activities, with these river sounds providing a constant texture among many other sounds. In the evening as the city became quieter, the sound of the river would take over, apparently becoming the sound of the Dom. In the early morning and at twilight, the live microphones broadcasting from the Zoo became very active, as if sea lions, birds and apes were suddenly calling from the balcony of the Dom. On the hour, the Romanesque bell towers told the time from positions all around Roncalliplatz; the time they told was not entirely correct since they were all off slightly from each other. Ships passing under bridges, trams and trains making the bridges resonate could be heard from the Dom and the roof of the Römanisch/Germanisch Museum. A microphone placed under a manhole cover on a pedestrian street would broadcast the resonant and percussive sounds of footsteps and the sounds of muted voices. Microphones in the Hauptbahnhof would broadcast train announcements, the whistles from the Wagenmeister and the loud signals at the end of a platform. The changing combinations of these sounds heard from different positions around the

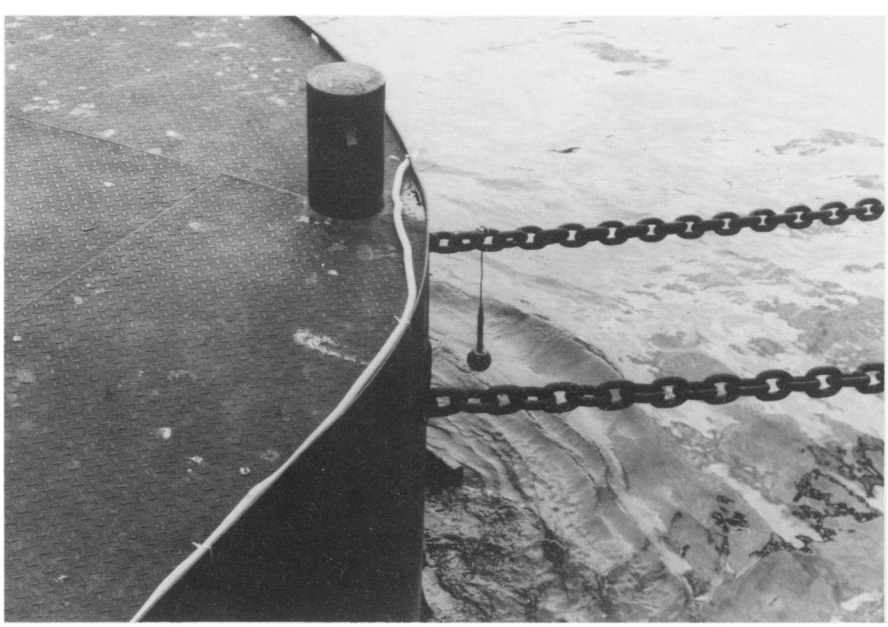


Fig. 5. A microphone located on a pier in the Rhine River transmitted the sound of waves to Roncalliplatz, sculpture site of *Metropolis Köln*.

large open space of Roncalliplatz created the compositional and spatial form of this sound sculpture.

In addition to the sound sculpture installed at Roncalliplatz, a live radio version was broadcast one Saturday during the noon hour. For this broadcast, I made a live mix that explored different combinations of the various sounds, both as they sounded at their source and as they sounded in Roncalliplatz. During this hour, the six Romanesque churches performed a score that I had prepared, which used different densities of bell sounds and different durations of silence to frame the other city sounds. Mobile radio listeners moving through the city with car radios or walkmans could hear a unique and spontaneous interaction of the live broadcast with live sound sources of the city. Unsuspecting persons who were not near a radio or the sound sculpture could hear the sound of the urban landscape change in the synchronized ringing of these six churches. It was my intention to turn the urban landscape of Köln temporarily into a musical sculpture.

V. FUTURE PROJECTS

My work with sound sculpture continues with several upcoming projects. In September 1986, I will realize a live acoustic portrait of Stockholm for Swedish Radio. Installed as a sound sculpture on the facade of the Stadshuset (Town Hall), it will both sound across a wide waterway and be broadcast as a radio concert. For the fiftieth anniversary of the San Francisco Golden Gate Bridge in May 1987, I will realize *Sound Sculptures through the Golden Gate*. This work will be a trilogy of adjacent sound sculptures corresponding to three adjacent acoustic zones found in the Gulf of the Farallones at the entrance to San Francisco Bay: the sounds of thousands of birds and marine mammals on SE Farallon, the underwater sounds of whales and dolphins between the Farallones and the entrance to San Francisco Bay, and the sounds of the Golden Gate Bridge with its foghorns and expansion joints. Microphones and hydrophones will transmit the sounds simultaneously to the San Francisco Museum of Modern Art and the Museum Ludwig in Köln. This work also will be a live radio event broadcast simultaneously throughout the U.S.A. and Europe [6]. In August 1988, I will create a live acoustic map of five Dutch cities. This work will be installed simultaneously in public spaces of five different cities in Holland.

REFERENCES AND NOTES

1. Marcel Duchamp, *The Bride Stripped Bare by Her Bachelors Even*, Richard Hamilton version, and G.H. Hamilton, trans. 3rd Ed. (New York: Jaap Rietman 1976).
2. Hermann Helmholtz, *On the Sensations of Tone*, Alexander Ellis, trans. (New York: Dover Edition, 1954) p. 7.
3. Guy Trebay, "The Music of Sound", *The Village Voice*, (26 July 1983) p. 59.
4. This temporary site-specific work was commissioned by West Berlin's redevelopment agency (International Building Exhibitions). At the time, I was a guest composer of the Berliner Künstlerprogramm des DAAD (Berlin Artists Program of the German Academic Exchange Service).
5. The invitation was proffered by the Hörspiele (sound play or drama) department of West German Radio (WDR) in Köln. The symposium was called *Acustica International*.
6. In the U.S.A., it will be broadcast by American Public Radio; in Europe, by WDR Köln as a feature event of the European Broadcast Union Convention in Köln.