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Sound Artist Orchestrates a London Bridge's Inner Violin

By ALAN RIDING

As the name suggests, the Tate Modern's Turbine Hall was once alive with the noise of electric generators. Then in 2000, after the machinery was removed and a power station became a museum of modern and contemporary art, the cathedral-like atrium fell silent except for the barely perceptible hum of a single generator still turning behind a distant wall.

Now sound has returned here, although no longer immediately recognizable. Sometimes it resembles the strumming of both low- and high-pitch harps, at other times the growl that precedes an earth tremor; one moment it evokes the clangs of the steamship engine room, the next a Minimalist electronic score for some avant-garde choreography.

In reality, what stops visitors in their tracks and has them looking around for an explanation is the "silent" sound of the Millennium Bridge, the 1,050-foot steel walkway designed by Norman Foster and Anthony Caro, which links the Tate Modern to St. Paul's Cathedral across the Thames.

Why silent? Because it is not what people hear when crossing the footbridge. Rather, it is the amplified sound of the bridge's vibrations that has been taken into Turbine Hall in the form of a sound sculpture created by the San Francisco-based American artist Bill Fontana. "Harmonic Bridge," as it is called, can be heard through July 16.

"The bridge is like a large string instrument for me," said Mr. Fontana, 59, leading a visitor across the bridge. "It even looks like a string instrument."

When it opened in June 2001, swaying like a violin in an orchestra, it was promptly nicknamed the "wobbly bridge" and was closed after just three days. With \$7 million added to the bridge's original \$25 million cost, 91 dampers and shock absorbers were then installed before it reopened in March 2002.

But like any man-made structure, it still emits an inner sound. And to capture this, Mr. Fontana has placed eight accelerometers, or vibration sensors, on the bridge, four on its thick suspension cables (attached by experts from Arup, the international engineering company that built the bridge) and four more on thin cables beneath the handrail.

These sensors pick up vibrations -- a deep sound from the thick cables, a higher pitch from the thin ones -- caused by passing boats, strong winds, rhythmic footsteps and waves striking the bridge's single midstream pillar. "Sound travels 10 times faster through steel than through the air," Mr. Fontana noted.

Each sensor is connected by wire to a control box inside the Turbine Hall, where the sound is amplified and mixed before being transmitted through 11 loudspeakers. And since the project is sponsored by Platform for Art, the London Underground's public art program, the same sound is also being carried by eight loudspeakers into the concourse of the nearby subway station.

Technology then becomes art when Mr. Fontana creates what he calls "a score of short spatial compositions." Specifically, using a computer, he selects the sound of, say, three or four sensors at a time and creates pathways for them to travel around different loudspeakers. He also controls the volume so that the sound fades in and out. Yet this serves only as a framework, since the actual -- live -- sound is constantly changing.

"My basic approach is that music is everywhere," Mr. Fontana explained, "and sounds are infinitely complex. My art involves focusing on something from the real world and delineating its musical structure."

Perhaps unsurprisingly, Mr. Fontana began as a composer of Minimalist music in the late 1960's. But a turning point came

when he lived in Australia from 1974 to 1978 and was hired by the Australian Broadcasting Corporation to record the sounds of the country. "I would go out with outside broadcasting trucks, set up in a landscape and make sound maps," he recalled.

His first art work as such was "Kirribilli Wharf," made in 1976, in which he captured the sound of waves splashing around a pier on Sydney Harbor in an eight-channel recording that was played continuously in a darkened gallery.

Many other unlikely confrontations of sound and place have followed. In 1983, for instance, on the occasion of the 100th anniversary of the Brooklyn Bridge, the sound of "Oscillating Steel Grids Along the Brooklyn Bridge" was carried to the plaza in front of the World Trade Center.

In his hometown, San Francisco, Mr. Fontana recorded the sounds around the Golden Gate Bridge and the Ferry Building, while for the 50th anniversary of D-Day in 1994 he took the gull cries and breaking waves of Normandy beaches to the Arc de Triomphe in the heart of Paris. And most recently here, he transmitted the sounds of Big Ben's clockwork into the Palace of Westminster. (Some of Mr. Fontana's "sound sculptures" can be heard on his Web site, resoundings.org.)

Still, the very size of Turbine Hall -- 500 feet long, 75 feet wide and 115 feet high -- poses a peculiar challenge. Over the last six years the Tate Modern has been commissioning artists to create temporary installations in the hall as a way of incorporating it into the museum. Among those who have done so are Louise Bourgeois, Anish Kapoor, Juan Muñoz, Olafur Eliasson, Bruce Nauman (with a sound installation) and Rachel Whiteread.

Yet, interestingly, "Harmonic Bridge" succeeds in filling this space more than some earlier physical installations. One reason is that the sound literally fills the hall. But another is that the sound is alive: rising and falling, always different, at once strange and familiar, mysterious and evocative, hypnotic and sensual.

Mr. Fontana could not be happier. Standing on the ramp that leads into the hall, listening to the otherworldly sound that he had conceived yet had never heard before, he whispered: "I love this space. I just love this space."