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The Loudspeaker in Art Practice: A Preliminary Taxonomy

The loudspeaker is emblematic of and synonymous with sound as a creative medium in the second half of the twentieth century. From Robert Rauschenberg's combine painting *Broadcast* (1959), Jean Tinguely's *Radio Sculptures* and *Radio Drawings* (1960–1972), and Dick Raaijmakers *Ideophones* (1970–1973) to the immersive environment of Char Davies's *Osmose* (1995) and [The User]'s hybrid sound work *Silophone* (2001), the loudspeaker, functioning as a form of acoustic display, projects the audible content of artworks, whether abstract or conceptual, representationally mimetic or expressively poetic. The critical potential of the loudspeaker's contribution to aesthetic practices, however, has all too frequently been subsumed under discussion of the ontological status of the sound it carries, amplifies, displaces, reproduces, translates, and transforms. By focusing on the loudspeaker as a component inextricably embedded in works mobilizing sound, it is possible to productively address the irreducibly mixed, multimodal condition of contemporary art practices.

The history of both media technologies and audible art practices can be seen orbiting around the fixed point of the loudspeaker. Since Johann Philipp Reis's first experiments with electromagnetic transduction in 1860, Alexander Graham Bell's patent for the telephone in 1876, and Ernst von Siemens's patent for the moving coil transducer in 1877, the loudspeaker has undergone only incremental change for technical improvements to yield greater clarity or increased power. Unlike nearly all other forms of media-technological innovation, the fundamental mechanism of the loudspeaker has not changed substantially over its history: the technology produced for Bell's telephone is still in use in much of the most advanced sound-making devices of the twenty-first century. But even though the loudspeaker has been present in nearly all audio technologies that produce sound electrically or digitally since the third quarter of the nineteenth century, the loudspeaker does not want to be seen. Examining the role of the loudspeaker in art practice affords a critical position from which to interrogate the immunity granted to a ubiquitous technology that has had a profound effect on the way society both listens to and amplifies itself.

After framing the status of the loudspeaker as technical apparatus, this essay reads through selected sound works and reveals a preliminary taxonomy of affordances and deployments of the loudspeaker for artistic practice. From the analysis of these works, three areas of focus emerge that center on the manner in which the loudspeaker is used in practice. The first examines the creative disposition of the loudspeaker in the form of a bare cone, pointing up an attempt by artists to pare down sound technology in the service of embedded audio within both objects and the environment. The second looks at works that overtly use or draw on the cultural references associated with commercial speaker enclosures to critique modes of listening and communication. The last section addresses the exploration of headphones not only for the creation of individualized listening experiences but also to function as the subject of works examining interior psychological and perceptual phenomena.

With an ear toward the effects produced by the loudspeaker in the interpretation of these works, its role as a component in both artistic and cultural practice is rendered audible. Attention to the operation of the loudspeaker in the forms of the bare cone, the commercial enclosure, and the headphone begins to develop a mechanism to address a range of issues in artistic production, from reproductive veracity, audiovisual parity, and geographic proximity to acoustic abuses of power and the narrative intimacy of amplified speech.

For all the breadth and range of aesthetic possibility suggested by the loudspeaker, it is not a neutral object. From a technical standpoint, the frequency response of most loudspeakers – the amplitude at which it reproduces each frequency – is rarely if ever an accurate reproduction of the source. This alteration of tone color in amplified sound production redoubles what film theorist Rick Altman describes, discussing audio reproduction in film, as the spatial signature of audio recordings generally: the acoustic fingerprint left by a recorded object or location is carried forward by the mechanism of reproduction.[1] Never an accurate mimetic double, the loudspeaker itself codes the transmission of the sound being reproduced, sometimes suggesting other reproduction mechanisms of like kind, but altering, however subtly, the character of the sound.

In consumer products, the loudspeaker is almost always hidden from view. Imitating the screen that hid Pythagoras from his pupils, the tweed Tolex cloth of a guitar amplifier, the plastic earpiece of the telephone, the screen of the cinema, and the housing of the headphone each hide the loudspeaker from the listener, concealing the source of the sound.[2] The conflation of sound and technology produced by the loudspeaker hidden in these devices obscures the sound producing mechanism and reinforces the normative media-specific relationship between the viewer/subject/audience and the information delivered. The audience of artworks employing consumer audio technologies therefore engages the content reproduced by the loudspeaker in a form that is both coded by the media-specific conditions of its use and inseparable from its multi-modal context. The loudspeaker is ubiquitous in the early history of video art, for example, enabling the television to function not only as a display device

1
Rick Altman, *Sound Theory, Sound Practice* (New York: Routledge, 1992), 24.

2
Known as "acousmatics," the pupils of Pythagoras only heard their master from behind a screen, purportedly to ensure that they follow the content of his lecture unsullied by his visage. This term is mobilized by the French composer/theorist Pierre Schaeffer in his 1966 *Traité des Objets Musicaux* to indicate a sound presented in the absence of its source.

FIGS. 1a–c Bruce Nauman, *Stamping in the Studio*, 1968. Video, black-and-white, sound, 62 min.

for video but for audio as well. Works like Bruce Nauman's *Stamping in the Studio* (1968), Carolee Schneemann's *War Mop* (1983), and Gary Hill's *Mediations (Excerpt from a Remake of Soundings)* (1979/1986) connect action to audible trace effectively demonstrating Samuel Weber's point that "television – despite its name – involves the transmission of sight and sound."[3] As an embedded component masquerading as the source, the loudspeaker presents sound as a material support, a sound that is reciprocally coded by the apparatus in which it is housed.(FIGS. 1a–3f)

As a device enabling the amplification of sound, the loudspeaker allows sound to travel across substantial local distance, relaying explicit information via signals and sirens, implicit instruction by way of the voice, or musical content operating as background or foreground. Before the first large-scale public address loudspeaker systems were used to amplify the 1919 Liberty Loan Rally in New York City, the role of conveying acoustic information across geographic space was limited to bells, air sirens, and amphitheaters.[4] In the twentieth century, the loudspeaker takes on many of the roles once held by bell towers in public squares, churches, temples, and mosques, knitting together geographically proximate communities. Bells, and by extension sirens and other mass-signaling devices, "prescribed an auditory space that corresponded to a particular notion of territoriality."[5] Public loudspeaker-based works in artistic practice share some of the same aural effects of this use of bells within the landscape, such as Sam Auinger and Bruce Odland's public sound works (1987 to present), many of Walter Fähndrich's *MUSIK FÜR RÄUME (MUSIC FOR SPACES)* (1980–), and Max Neuhaus's *Time Pieces* (1989–2007). Each of these artists mobilize loudspeakers to spread sound over distance, enabling a source to reach exponentially greater numbers of listeners, highlighting communal experience while recontextualizing the regularly occurring sounds of the environment around the work.(FIGS. 4, 5)

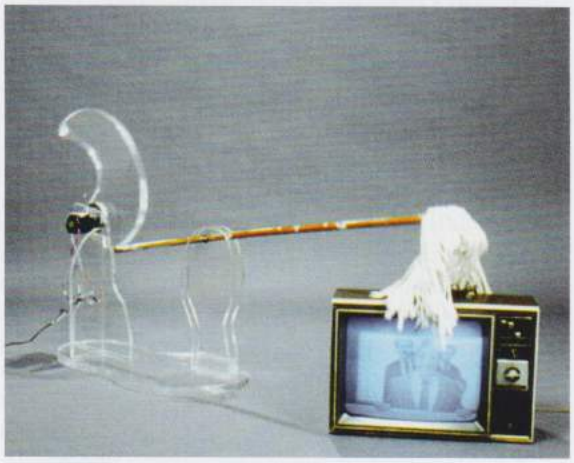


FIG. 2 Carolee Schneemann, *War Mop*, 1983. Kinetic sculpture: Mop, Plexiglas, motor, custom hardware, and monitor. On monitor: *Souvenir of Lebanon*, 1983. Video, color, sound, 6 min.

As the component that renders transmission systems such as telephony, radio, and the Internet audible, the loudspeaker creates the condition of possibility for the spatial displacement of sound over non-local distance as well, and further, when transmitting recorded audio, it grants access to temporally displaced traces of captured sound. In this guise, the loudspeaker allows the sounds of different locations in cities – or between several cities – to be mixed together as in Maryanne Amacher's decades-long *City-Links* series (1967–1981). Similarly, Keith Sonnier's architectural dislocation of telephonically connected gallery

3 Samuel Weber, *Mass Mediauras: Form, Technics, Media* (Stanford: Stanford University Press, 1996), 109.

4 See Seth Cluett, "Acoustic Projection and the Politics of Sound," *Tacet Reader* no. 03 (2014), 83–119.

5 Alain Corbin, *Village Bells: Sound and Meaning in the 19th-Century French Countryside*, trans. Martin Thom (New York: Columbia University Press, 1998), 95. Originally published as *Les cloches de la terre* (Paris: Albin Michel, 1994).

FIGS. 3a–f Gary Hill, *Mediations (Excerpt from a Remake of Soundings)*, 1979/1986. U-matic, NTSC, color, sound, 4 min.

FIG. 4 Sam Auinger and Bruce Odland, *Harmonic Bridge*, 1998. Permanent sound installation, MASS MOCA, North Adams, MA. The cement "Cube" loudspeaker plays back a hemispheric field of harmonic resonance generated in a tuning tube on top of highway bridge just above.

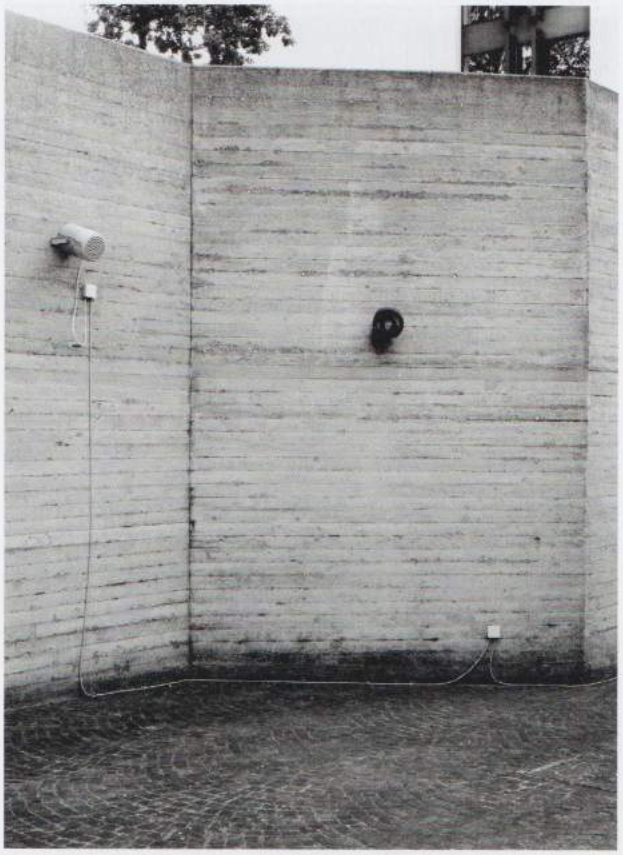
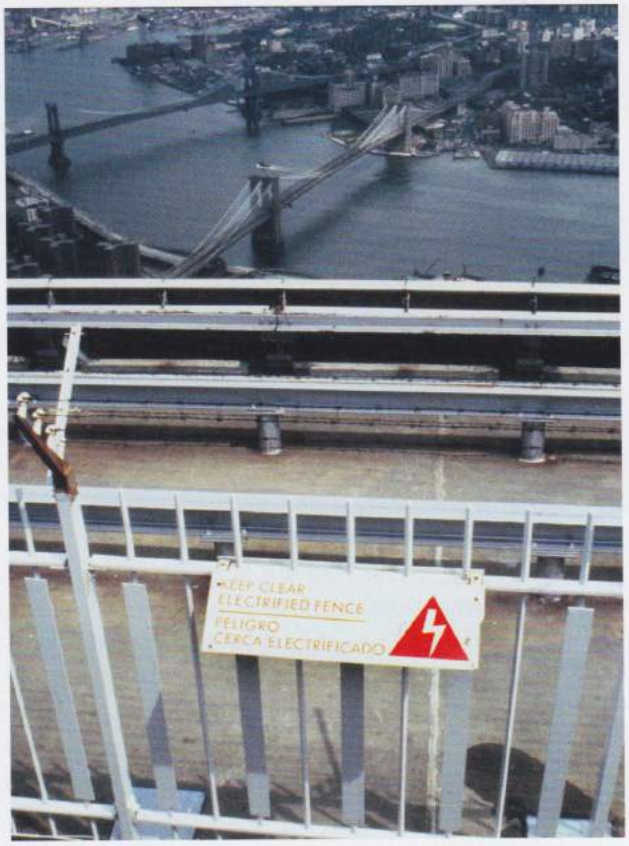
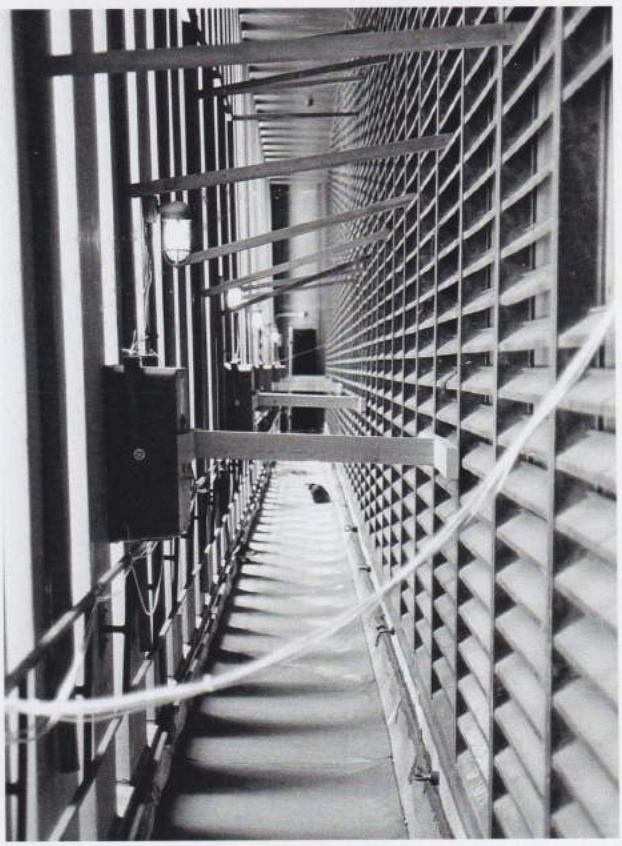


FIG. 5 Walther Fähndrich, *MUSIK FÜR RÄUME (MUSIC FOR SPACES)*, Sprengel Museum Hannover, 1995.





FIGS. 6a, b Bill Fontana, *Brooklyn Bridge*, 1983. Sound sculpture.

spaces in *Air to Air* (1975) and Bill Fontana's unidirectional re-presentation of live sounds from the Brooklyn Bridge transplanted to One World Trade Center in his *Brooklyn Bridge* (1983) demonstrate a common fascination with the uncanny effect of the dislocation of sound from source through technological means.(FIGS. 6a, b)

Deployed as an aesthetic component, the loudspeaker has functioned alternately as a presentation space, frame, substitute, surrogate, and prosthesis. This polyvalent potential makes it productive as a critical device because, through it, the manner in which sound operates within works of art can be critiqued, considered, and assessed with greater clarity. By attending to the cultural productions of the twentieth and twenty-first century from the point-of-audition of the effects produced by the loudspeaker, many of the factors that limit the clarity of arguments regarding sound as an artistic medium come clearly into focus.

Bare Cones

The bare loudspeaker cone is one of the most curious artifacts of the artistic use of sound. The bare cone is commonly employed in situations in which the loudspeaker is intended to function architecturally or blend seamlessly into the built environment, an object, or a landscape. When the loudspeaker is divorced from the coded consumer trappings of media technology (the cabinet, screen, or brand markings of a commercial enclosure), a direct cultural referent for the technology is substantially though not completely diminished. However, even the outward appearance of the cone materials themselves – paper, Mylar, plastic, Kevlar – still suggest a technological context for their use; the quality, cost, and origin of the bare cone is often coded in the materials employed by the artist. The bare cone becomes a voice excised from its media-specific body, and regardless of content the absence of an acoustically tuned enclosure dramatically alters the sound while situating it more completely in a new spatial condition.

Ulrich Eller's installation *Geräuschelager* (2000) employs 213 bare cones lined up one after the other on industrial metal shelving in a warehouse. Making use of myriad brands,

shapes, and sizes of historic speaker cones extricated from their housing, the varied materials and technological origins of the loudspeakers transmit a single, noise-based sound source. Though the sound source sent to each is identical, each loudspeaker imparts its audio-technical signature on the sound it (re)produces. As the listener moves through the work, each speaker colors the volume and timbre of playback, and the individual character normally eschewed by works employing multiples becomes a subtle revelation for the listener. Movement through the work reveals change and difference, as the sound of the whole gives way to the local awareness of each singular sounding object. Highlighting the technological multiple as an archive of sonic difference, Eller's clinical display of bare speaker cones points up an index of the loudspeaker as a discarded marker of technological consumption and overproduction.(FIG. 7)

In *Microtonal Wall* (2011), Tristan Perich displays fifteen hundred identical miniature speaker cones in a regular grid, fitted perfectly into a laser-cut aluminum housing mounted to the wall. Perich inverts the conceptual strategy of Eller by sending different, single sine waves through each of the identical loudspeakers. The resulting gestalt, heard from afar, is perceived as white noise, while from close-up the atomized components of the whole are revealed as singular elements within a field of sameness. Where the installation condition of horizontal display in the Eller encourages the listener to observe a single source within and across time and technology, Perich emphasizes the individual experience of the listener as they become bodily aware of change performed through their movement.(FIGS. 8a, b) Like Pe Lang and Zimoun's *Untitled Sound Objects* (2008) and Richard Garet's *30 Cycles of Flux* (2013),(FIGS. 9a–10) Perich's use of loudspeaker cones creates a modern display of the multiple that causes tension where locally individuated and globally unified perceptions oscillate in and out of focus.

In the 1992 site-specific work *Partitur* by Qin Yufen, dozens of three-inch black cones playing the sound of cloth rustling are draped seemingly haphazardly over common metal clothes dryers. Beyond a mere delivery device, the bare cone here functions as a trace of, or surrogate for an implied material, providing the audible presence of a visually absent source. In contrast to the varied formal conditions of the works of Eller and Perich, Qin Yufen's use of sound is often carefully constructed within theatrical installations that make use of everyday household items. The bare cone in *Partitur* is one of many iterations in Qin Yufen's output that examine similar objects (sheets of fabric, items of clothing, laundry drying racks) mobilized to work with and against the conditions of the exhibition space. *Partitur* uses the folding aluminum laundry drying racks seen throughout many works in her oeuvre: but where previous iterations see the drying racks draped with clothing, paper, or stacked architecturally, in this work, loudspeakers play the sounds of hands working with fabric. As also in her work *Home is Here, Home is There*, for example, the loudspeaker thus becomes a placeholder for a physical action critiquing the "irksome parts of housework"[6] evoked as a memory rather than an explicit material condition.(FIG. 11)

Eller, Perich, and Qin Yufen's works deploy the bare loudspeaker to open the interpretive potential of sound in installed environments, lessening the effect of an explicit relationship to a

FIG. 7 Ulrich Eller, *Geräuschelager*, 2000. Klangkunstforum, Park Kolonnaden Potsdamer Platz, Berlin, 2000. 16 galvanized shelves positioned in T-shape, neon ceiling lights in identical form and dimensions, 213 loudspeakers of different type, 24-channel composition, cables, feed technology.

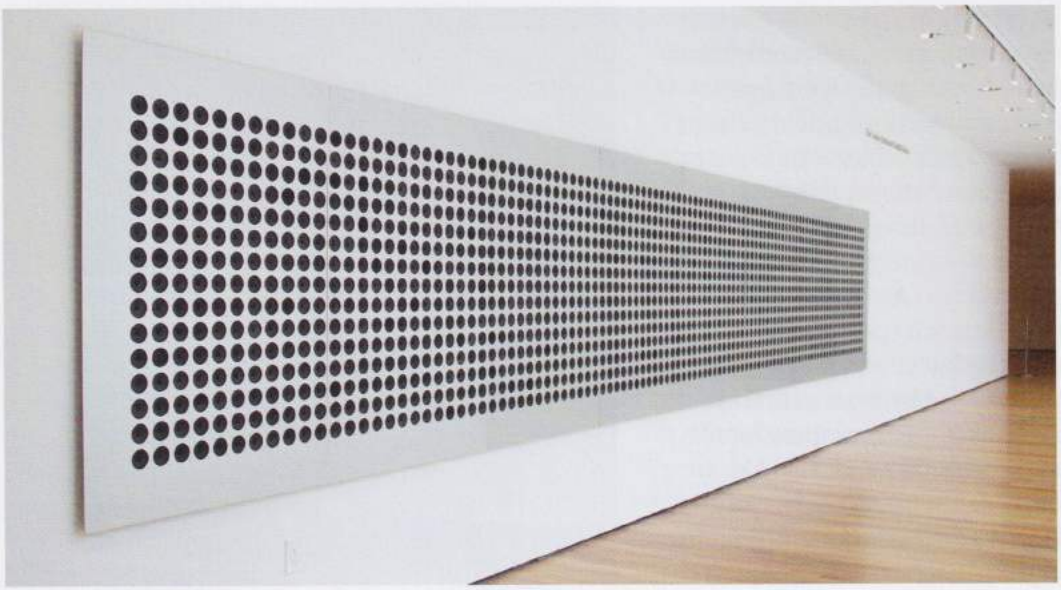


FIG. 8a Tristan Perich, *Microtonal Wall*, 2011. 1,500 1-bit speakers, microprocessors, aluminum

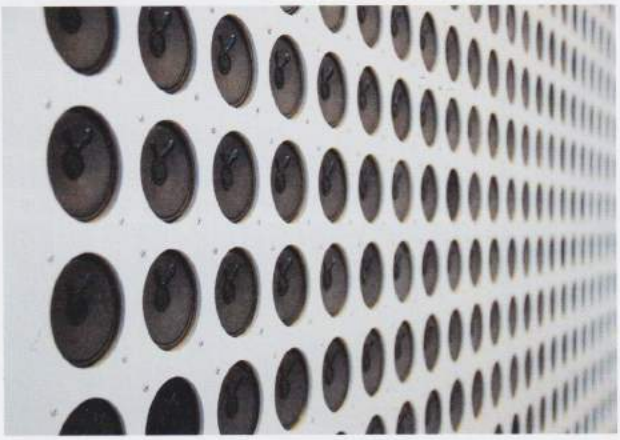


FIG. 8b Tristan Perich, *Microtonal Wall*, 2011. Detail.

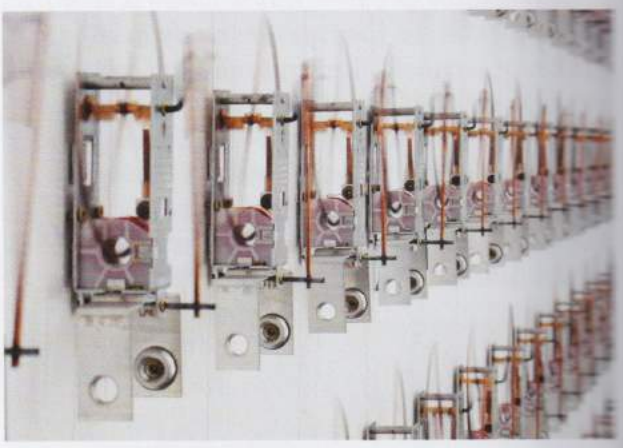


FIG. 9a Pe Lang + Zimoun, *Untitled Sound Objects*, 2008. Detail.

FIG. 9b Pe Lang + Zimoun, *Untitled Sound Objects*, 2008. 450 pendulum motors on wall, 570 × 290 cm. Installation view Ecole Nationale Supérieure d'Architecture, Rennes.

FIG. 10 Richard Garet, *30 Cycles of Flux*, 2013. Sound installation. Installation detail from *Extraneous to the Message* at Julian Navarro Projects, NY, 2013.

FIG. 11 Qin Yufen, *Partitur*, 1992. Sound installation (laundry rack, loudspeaker, cable, Walkman, car amplifier, audio tape, stereo) ca. 120 × 440 × 500 cm.

media device, and allowing the audible to operate more as phenomenon than product. The degree of occlusion, the physical placement, and the choice of material become crucial components in the way a piece is read by the public experiencing the work. The outward spatial condition of bare cones becomes a sculptural decision whose effects are compounded by the relationship between the content of the sound produced and the type and manner of their distribution. By shedding the enclosure and reducing the footprint needed to project sound, the bare cone efficiently embeds sonic phenomena and semiotic content into both architectural spaces and soundless objects.

Enclosures

The consumer loudspeaker enclosure carries with it the legibility of the media of which it is a part or from which it was repurposed. Enclosed loudspeakers overtly cue a focused listening space in the surround or ambisonic multichannel work of artists like Jacob Kirkegaard, Jana Winderen, and Stephen Vitiello, or provide material for sculpted structures built from the post-consumer detritus of disused hi-fi components, boom-boxes, and radios in the work of Benoît Maubrey, Maia Urstad, and Alexis O'Hara. Functioning symbiotically within haptic and image media technologies, enclosed loudspeakers project the soundtracks of video art and film, complete the immersive space of virtual reality, or enable the communication potential of the telephone. Further, the ubiquity of loudspeaker enclosures in public space and the proliferation of sound systems for use in both homes and entertainment venues provide an accessible vocabulary of experience to exploit toward the expressive or critical intent of the work.

During the same period as his now-iconic sound works *Forming Sounds* (1971)(FIGS. 12a–c) and *Echo* (1973), Dennis Oppenheim produced a large-scale kinetic installation entitled *Table Piece* (1975). In this work, two marionette figures (without strings) of the kind seen so often in Oppenheim's work, one in black, one in white, sit at opposite ends of a sixty-foot long table; black at one end and white at the other, the table traces the gradient between the colors of the marionettes. The mouths of the marionettes move as the speaker inside each repeats the words "white, light, black, dark" into a microphone. The words are broken up and randomized by phoneme and projected over four loudspeakers placed at regular intervals on the underside of the table. The resulting spatialized performance of language gathers meaning as the individual phonemes congeal into words. *Table Piece*, like much of Oppenheim's body of work, deals with issues of the body and power that view the site of production as a ritual performance space. By exaggerating the table dimensions, using the visual dichotomy of black versus white, and diffusing the sound over the physical distance between the marionettes, Oppenheim elicits the impression of tension and misunderstanding. The deliberate placement of consumer audio devices emphasizes the spatial expanse of the table, critiquing the transmission-loss produced during the reconciliation of verbal exchanges by people holding polarized views.(FIG. 13)

Camille Norment's installation *Dead Room* (2000) creates an oversized loudspeaker enclosure that may be entered by the listener.(FIG. 14) By inverting the position of the speaker cabinet and the listener, the room is encapsulated by acoustic treatments and lined with colored vinyl-wrapped foam. Legible alternately as a stylized car audio subwoofer and the padded cell of solitary confinement, this work extends from

FIGS. 12a–c Dennis Oppenheim, *Forming Sounds (Phyllis and Dennis Oppenheim)*, 1971. Video, Betacam SP, black-and-white, mono, 7:11 min. Video stills.

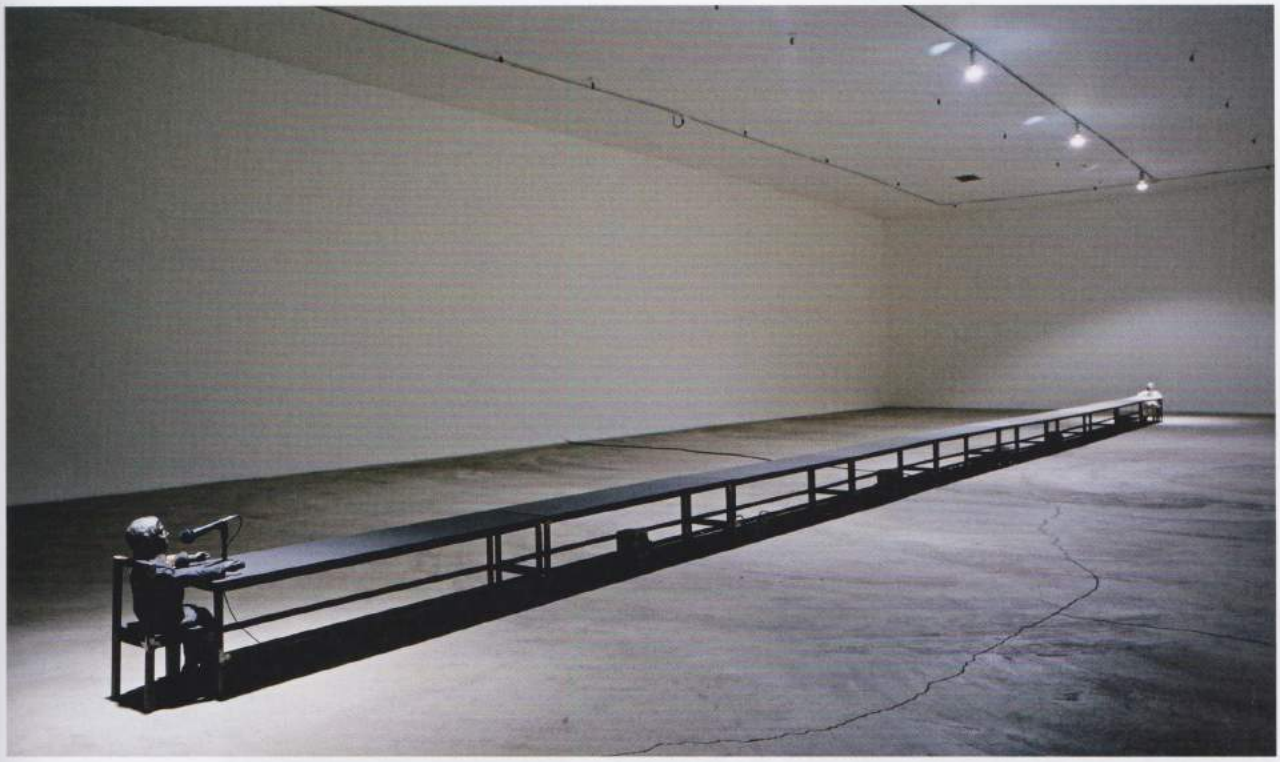


FIG. 13 Dennis Oppenheim, *Table Piece*, 1975. Figures at each end equipped with a speaker system located inside the head, plus an exterior control device that activates the lower jaw in perfect lip sync to external voice control input. Both units are attached to a stereo system which allows the figures to carry on a dialogue. Steel, wood, and formica tables and chairs; 2 wood, felt and cloth figures with mechanical jaws which activate an exterior sound system consisting of four speakers, 2 microphones with stands, an electronic control box and mixer for audio tape. 120 × 180 × 60 cm, approximate dimensions. Collection, Cartier Foundation, Paris.

Norment's long-term engagement with the social politics of designed objects to address topics of technically-mediated experiences, identity, and the body. When the listener enters *Dead Room*, an air pressure increase is created by sub-audible tones emanating from subwoofers enclosed in the space, creating a feeling of suffocation and anxiety. In the absence of any audible sound, the work makes the speaker enclosure itself a habitable space that can be entered and explored. The acoustically dense air caused by the tones inside the enclosure additionally cancels frequencies in the voice of anyone who tries to speak within it. This denial of voice points to the history of noise abatement and silencing in African American communities and the public use of sound as a delivery system for oppression by highlighting the use and abuse of auditory technology in the built environment.

In his 2009 solo exhibition at the Abbaye de Maubuisson, Dominique Petitgand uses hi-fi loudspeakers distributed throughout the grounds to create a series of audible characters for the viewer/listener to encounter while traversing the space of a medieval monastery. The works in the exhibition point up the solemnity of the site by presenting sounds that refocus the spatial experience of a structure intended for silence. In *Les ballons* (2006/2009), the sound of ricocheting rubber balls is used to superimpose notions of play over a space of contemplation;

FIG. 14 Camille Norment, *Dead Room*, 2000. Architectural sound installation, 360 × 360 × 240 cm.

in *Je parle* (2009), children's voices break the silent focus of the space, interjecting broken phrases: "jamais [...] on ne se regardait pas" ["never [...] we were not looking at each other"].(FIGS. 15, 16) In contrast to the visually charged works of Norment and Oppenheim, Petitgand eliminates any outwardly visible referent, using the loudspeaker to create aural spaces that unfold into an awareness of mental imagery for the listener. Mounted on plinths as well as gallery walls and ceilings, the overtly placed consumer loudspeakers in Petitgand's work explicitly overlay a conceptual space on the extant architectural condition to examine culturally situated listening while ensuring that the work is heard as having been added to the space. On par with the multichannel video

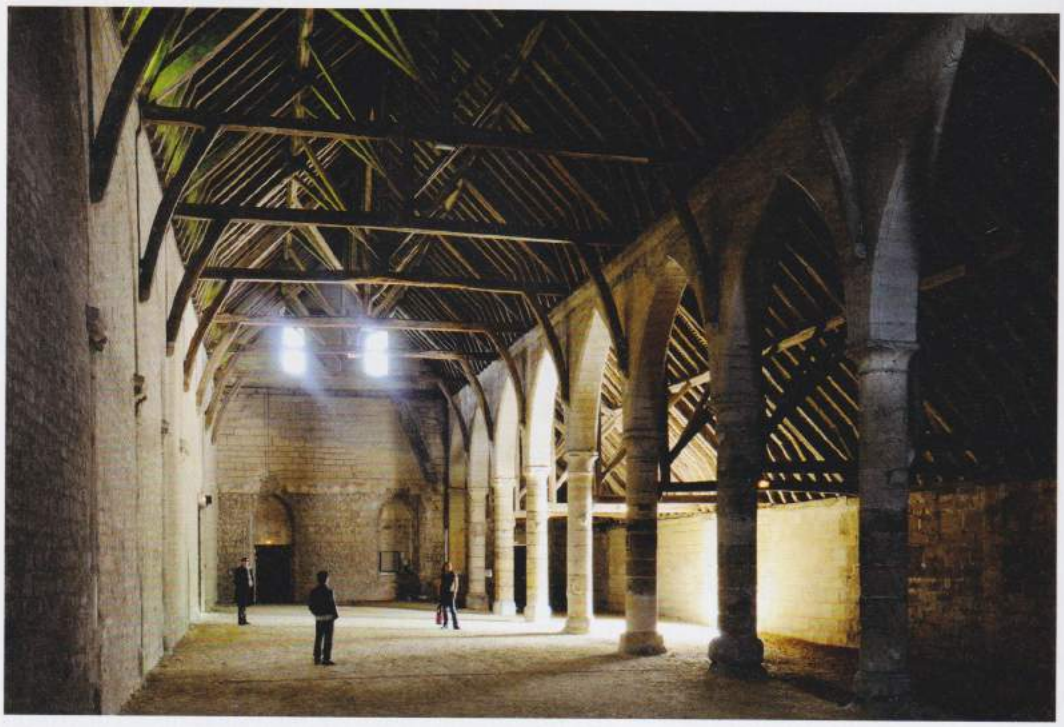


FIG. 15 Dominique Petitgand, Les ballons, 2006/2009. Sound installation with 4 speakers.

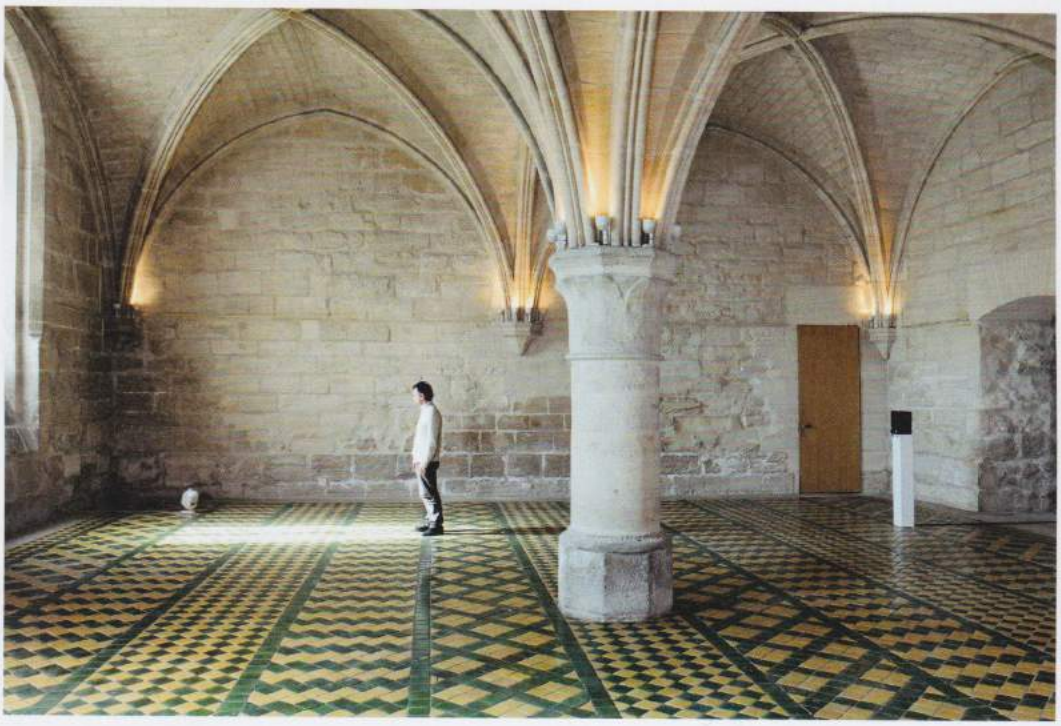


FIG. 16 Dominique Petitgand, *Je Parle*, 2009. Sound installation with 4 speakers.

works of Douglas Gordon, Christian Marclay, and Mary Lucier, Petitgand creates auditory environments using loudspeaker enclosures to deliver material at once arrestingly literal and poetically obfuscating.

Within the outward visual trappings of branded enclosures or the explicitly stylized use of loudspeakers in purpose-built structures, the boxed loudspeaker brings with it the legibility and implied use of media and architectural spaces familiar to viewers. All loudspeakers can operate in art practice as a means of presenting sound in parallel to other content, and by extension, the sound they produce within the works is done so both with and against other sensory modalities. Consumer loudspeaker enclosures, however, compound the dynamic semiotic relationship between fixed or moving images and the always already time-based content of sound, further complicating the multimodal experience of the work by referencing their use outside of artistic practice.

Headphones

At once a generalized curatorial space solving the problem of sound isolation, a ubiquitous consumer space enabling personal soundtracking, and a professional listening environment in the service of fidelity, the headphone has long been a component in the production of sound works, a subject within multimedia practices, and the display apparatus for linear audio works as an autonomous artistic medium. Not simply a convenience for isolated presentation and distribution, the headphone, as a culturally prevalent technology, codes and is coded by its everyday use.

As a common curatorial conceit, the headphone has been explored as an exhibition space with increasing frequency since the turn of the millennium. The two most notable examples of this practice are the *Volume: Bed of Sound* exhibition mounted by MoMA PS1 in 2000, where numerous headphones are strewn about a large comfortable surface presenting a survey of artists' sound works, and more recently in the 2008 exhibition *21:100:100* at the Melbourne International Arts Festival, where headphones descend from the ceiling of the exhibition space, resting on placards providing written descriptions of sound works by one hundred contemporary artists.

The use of headphones in this form, however, begins with the genre of artists' cassettes in the late 1970s in exhibitions such as *Sound* (1979) at the Los Angeles Institute of Contemporary Art and *A Sound Selection* (1978) at Artists Space in New York.[7] Headphone listening stations, whether for purpose-built works, playback of music, or used in sound works related to the exhibition theme, have become standard in sound exhibitions since the widespread consumer adoption of stereo headphones in the mid-1960s.[8]

In 1974, Richard Serra and Nancy Holt created *Boomerang* for broadcast on a local television station in Amarillo, Texas. A classic of early video art, *Boomerang* is a single-channel video with monaural audio consisting of a close-up of Holt wearing headphones against a solid background.(FIG. 17) As Holt speaks, her voice is echoed back to her through the headphones she is wearing; her spoken voice on camera and the sound of her vocal echo returned to her are mixed and audible for the viewer. The headphone, employed here as a conceptual conceit, exposes the operation of an interior listening that mirrors thought in its opposition to and practical exclusion of exterior stimuli. By hearing herself at a delay through headphones, Holt reflexively confronts the improvisation of her externalized speech in the same

FIG. 17 Richard Serra, Nancy Holt, *Boomerang*, 1974. Video, color, sound, 10 min.

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...in-depth discussion ...these early exhibitions, ...Seth Cluett, "Ephemeral, ...mersive, Invasive: Sound as ...ratorial Theme 1966-2012," ...na Levent and Alvaro ...scual-Leone, *The Multi-...sory Museum: Cross-...sciplinary Perspectives on ...ch, Sound, Smell, Memory, ...Space* (Lanham: Rowman ...tlefield, 2014), 114–115.

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...available since the ...of the century and ...throughout both World ...Wars, the introduction of ...first stereo headphone ...the American company ...in 1958 is a milestone ...consumer audio consump-...tion. Since the increased ...competition from Philips, ...Sony, and Sennheiser ...the 1960s, the headphone ...remained a fixture.

form in which she is generating that speech. This chaotic mental juxtaposition of the present moment with a reflected echo of the recent past derails the thought process of content generation and destabilizes her vocalizations. And while traditionally conceived notions of feedback from cybernetics suggest that the return processing of information enables adaptation and continual refinement, the normative feedback loop (hearing oneself speak) is countered in *Boomerang* by the delay initiated through the headphones. The headphones in use here isolate the speaker from the expected feedback loop exposed to the listener through the layering of the source and its modification.

Bernhard Leitner's project *Kopfräume/Headscapes* (2003) "is a three-dimensional sculptural work exhibited on audio CD."[9] Literally translated as "Headspaces" or "Headrooms" and described by the artist as "Headscapes," this work is presented with the explanation that these pieces "do not represent exterior space, but were conceived and created specifically for the interior of the head" and that it is an "audio CD for earphones only." Like much of Leitner's monumental, architectural, minimal works, *Kopfräume* presents a series of isolated sound objects subjected to panning manipulation to imply movement, as well as reverberation, equalization, and amplitude cues to suggest distance. More than just an artistic application of the 3-D stereo test record fads of the 1960s, Leitner aims to construct architectural geometry in the mind by taking advantage of the headphone's ability to control the spatial perception of sound. By eliminating the dependency on real physical space, the headphone makes possible the condition of isometric head placement required to ensure repeatable experience of intangible yet perceivable shapes made with sound.(FIG. 18)

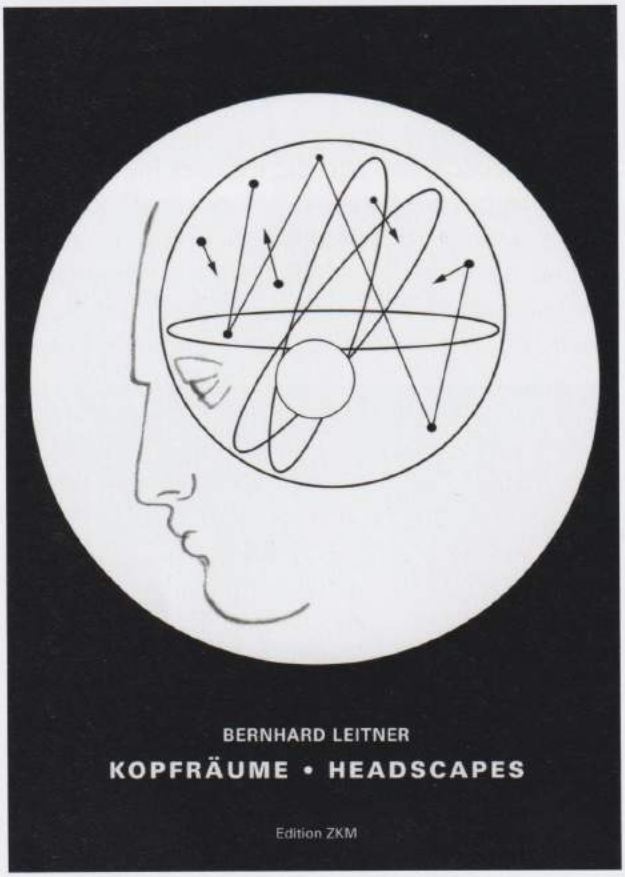
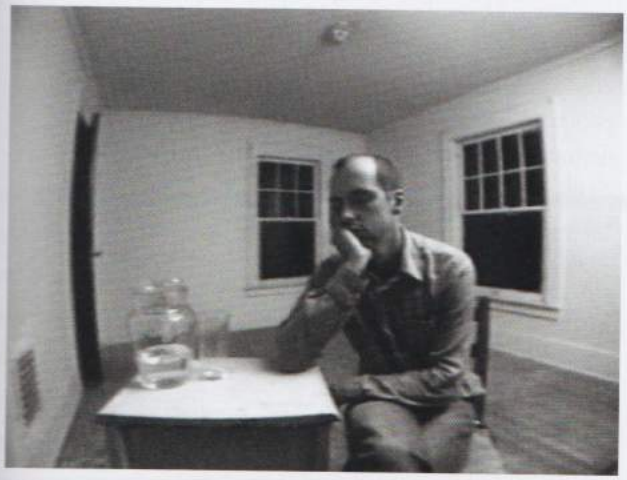


FIG. 18 Bernhard Leitner, *Kopfräume/Headscapes*, 2003.

In *Reasons for Knocking at an Empty House* (1983), Bill Viola incorporates headphones as an integrated component of a larger, multimodal scene. In this work, a CRT television monitor sits atop a white plinth opposite a roughly constructed object that vaguely resembles an electric chair. Two loudspeakers are placed in the far corners of the room and a pair of headphones is mounted to the back of the chair so that, when sitting, the gallery-goers are able to sit at eye-level with the video screen and easily place the headphones on their ears. The video image is a medium close-up at eye level of a very tired, almost delusional Bill Viola.(FIGS. 19a–c) As Viola sits, drinks water, and breathes, the sound of these actions, close-mic'd through a lavalier microphone, are playing in the headphones above a bed of whispering, thoughtlike voices. When a silhouetted figure occasionally strikes Viola from behind, the sound comes through the speakers placed in the installation space. In this work, interior sounds that are conceptually mimetic of the non-linearity of thought are paired with the close-mic clarity and unreal detail of body sounds played directly to the ear. In bypassing the air and entering the body directly via the headphones, the juxtaposition of these sounds with the loudspeakers' jarring exterior rendition of Viola being struck turns the room into an exploded representation of Viola's own body - the raw sounds of his pragmatic interiority and the invasive, inescapable violence of the exterior world.

In the form of headphones, the loudspeaker serves as a technology that can become

9 Bernhard Leitner, *Kopf[illegible] Headscapes* (Ostfilder[illegible] Hatje Cantz, 2003).



FIGS. 19a–c Bill Viola, *Reasons for Knocking at an Empty House*, 1983. Video, black-and-white, stereo, 19:12 min.

instrumentalized through action in either the physical space of sound-walks or on-screen in video art. Functioning as an isolated listening space, headphones allow for the controlled fabrication of aural space, enabling both the abstracted experience of structure and the narrative experience of place and story. Further, the direct, private connection to the ear and the corded tether turns the headphone into a device emblematic of and critical toward power relationships, at once reflecting the intimate trust of close listening and the potential danger of sonic abuse of power. The ubiquitous use of the headphone as a display device for curatorial convenience has obscured the rich conceptual territory explored by artists and composers. In current use, the headphone provides both solitude and soundtrack for commuters as well as mobility and monitoring for freelancers. And while the recent ubiquity of headphone listening may place these portable listening systems in the critical territory of devices aimed at distracting the masses, they also create a productive venue for artists willing to engage its myriad affordances.

Conclusion

Functioning, in its various uses, as a material support, a cultural object, a static technology, and an invisible source, the loudspeaker is only one lens through which to understand the history of sound in the visual arts and music. It would also be productive to consider this history in the context of some of the other through-lines that move across the past fifty years of sound practice: long strings (Ellen Fullman, Alvin Lucier, Gordon Monahan, Paul Panhuysen, Johan Goedhart), the voice (Janet Cardiff and George Bures Miller, Christof Migone, Cathy Lane, Martin Riches), or kinetic movement (Ed Osborn, Trimpin, Edwin van der Heide, Terry Berlier). Understanding the loudspeaker's operation as a component – and by extension sound-as-component – reveals a technology whose effective capacity is derived from a productively multivalent relationship to the sound source(s). By both tacitly facilitating the auditory characteristics embodied by media in everyday life and actively representing the content, material, and intent of the artist, the loudspeaker has productively extended the audible reach and expressive potential of the creative work of the last fifty years.