of vanguard music today. Rather than offering a history of contemporary music, it
the genealogy of current musical practices and theoretical concerns, drawing lines
nection between today’s radical music and earlier moments of sonic experimen-
Via writings by composers, philosophers, and cultural theorists, Audio Culture
as the interconnections among such musical forms as minimalism, indeterminacy,
ue concrète, free improvisation, experimental music, avant-rock, dub reggae, Ambient
, HipHop, and Techno. It aims to foreground the various rewirings of musical com-
and performance that have taken place in the past few decades and to provide
al and theoretical language for this new culture of sound.

“Cox’s and Warner’s book is a wonderfully accessible anthology of essen-
readings for anyone—academics and enthusiasts alike—interested in the histories of experimental music and sound art.” —Debra Singer, Executive
actor, The Kitchen

audio Culture is the best introduction to the long historical fades and
eorethetical jumps of what millions in the 21st C. now listen to as
usic: overwhelming noise and disturbed silences, unfettered Improv
indeterminate obstacles, the performance of recording, electricity,
lectics, mistakes and just the thought of music.” —Douglas Kahn, author of
ea, Water, Meat: A History of Sound in the Arts, and Director of Technocultural Studies
the University of California at Davis

RIBUTORS: Jacques Attali • Luigi Russolo • Morton Feldman • Edgard Varèse • Henry Cowell •
age • R. Murray Schafer • Mark Slouka • Mary Russo & Daniel Warner • Simon Reynolds • Masami
Shiokawa • Marshall McLuhan • Hanns Eisler & Theodor Adorno • Pierre Schaeffer • Francisco López • Ola
alt • Brian Eno • Iain Chambers • Pauline Oliveros • J. K. Randall • Glenn Gould • John Oswald •
utter • Kodwo Eshun • Umberto Eco • Christoph Cox • Earle Brown • John Zorn • Anthony
n • Michael Nyman • Cornelius Cardew • David Toop • Ornette Coleman • Derek Bailey • Frederic
ki • George E. Lewis • Susan McClary • Kyle Gann • Steve Reich • Wim Mertens • Tony Conrad
harburne • László Moholy-Nagy • William S. Burroughs • Christian Marclay • Yasunao Tone • Paul
ar • Jacques Barzun • Karinheinz Stockhausen • Aphex Twin • Scanner • Daniel Pemberton • Ben
Casccone

oph Cox is Associate Professor of Philosophy at Hampshire College in Massachusetts. He writes
on contemporary art and music for Artforum, The Wire, Cabinet, and other magazines.

Warner is Professor of Music at Hampshire College, where he teaches electroacoustic music and art. His recent work is available on the Virtuette label.

ure: Peter Vogel, "Two Different Series" (1979)
Josef Szaszsfai
Design: Daniel Warner
Contents

Acknowledgments

Sources and Permissions

Introduction: Music and the New Audio Culture

Part One: THEORIES

I. Music and Its Others: Noise, Sound, Silence

Introduction

1. Jacques Attali, "Noise and Politics"
2. Luigi Russolo, "The Art of Noises: Futurist Manifesto"
4. Edgard Varèse, "The Liberation of Sound"
5. Henry Cowell, "The Joys of Noise"
7. R. Murray Schafer, "The Music of the Environment"
8. Mark Slouka, "Listening for Silence: Notes on the Aural Life"
10. Simon Reynolds, "Noise"
11. "The Beauty of Noise: An Interview with Masami Akita of Merzbow"

II. Modes of Listening

Introduction

13. Hanns Eisler & Theodor Adorno, "The Politics of Hearing"
14. Pierre Schaeffer, "Acousmatics"
15. Francisco López, "Profound Listening and Environmental Sound Matter"
16. Ola Stockfelt, "Adequate Modes of Listening"
17. Brian Eno, "Ambient Music"
18. Iain Chambers, "The Aural Walk"
Some Sound Observations

PAULINE OLIVEROS

Composer Pauline Oliveros (1932– ) played a key role in the development of a range of contemporary musical practices: tape music, electronic music, experimental music, minimalism, World Music, and Ambient music. In the early 1960s, she co-founded the San Francisco Tape Music Center, one of the first electronic music studios in the United States. She is well known for a series of haunting electronic pieces (among them Alien Bog, Beautiful Soap, and Bye, Bye Butterfly) that make use of analog electronics and tape delay systems. More recently, Oliveros has built her music around drones generated by her just-tuned and often electronically processed accordion. Throughout her career, Oliveros has actively advocated for the recognition of women composers both in her writings and through the Pauline Oliveros Foundation, inaugurated in 1985. The following piece was commissioned by Source, a San Francisco-based magazine that documented the American experimental music scene in the late 1960s. The article exemplifies Oliveros' lifelong investigation into the process of listening, its centrality to composition, and its importance for a holistic conception of human existence.

As I sit here trying to compose an article for Source, my mind adheres to the sounds of myself and my environment. In the distance a bulldozer is eating away a hillside while its motor is a cascade of harmonics defining the space between it and the Rock and Roll radio playing in the next room. Sounds of birds, insects, children's voices and the rustling of trees flicker this space.

As I penetrate the deep drone of the bulldozer with my ear, the mind opens and reveals the high pitched whine of my nervous system. It reaches out and joins the flight of an airplane drone, floats down the curve of Doppler effect.

Now, fifteen minutes since the beginning of this writing, the bulldozer has stopped for a while. The freeway one-half mile away, unmasked, sends its ever-shifting drone to join with the train whistle from Encinitas.

The bulldozer starts again moving the air like an audible crooked staircase before reaching its full power. As I lean on my wooden table, my arm receives sympathetic vibrations from the low frequencies of the bulldozer, but hearing seems to take place in my stomach. A jet passes over. Some of its sound moves through my jawbone and out the back of my neck. It is dragging the earth with it.

I would like to amplify my bowl of crackling, shaking jello. (Once in 1956 a bulldozer came through the side of my house while I was eating lunch. The driver looked at me, backed out, and continued to operate the bulldozer.)

I would like to amplify the sound of a bull dozing.

The bulldozer has stopped again. On the other side of the freeway, a dog repeats a high bark which curves downward. My dog has a tinkling collar. I would like to feel his barking.

Three days ago at UC Davis, I experienced a magnificent performance of Bob Ashley's Wolfman. My ears changed and adapted themselves to the sound pressure level. All the wax in my ears melted. After the performance, ordinary conversation at two feet away sounded very distant. Later, all ordinary sounds seemed heightened, much louder than usual. Today I can still feel Wolfman in my ears. MY EARS FEEL LIKE CAVES. Monday I am going to hear Wolfman again. It will be the fourth time I've heard Wolfman, and I can't wait to hear the feedback dripping from his jaws again.

My present bulldozer has started and stopped again. A faraway jet simulates a fifty foot tabla, accompanied by an infinite freeway tamboura.

I am tired of writing this article, but not of the opportunity it is giving me to listen and remember. My chair is creaking as restlessness grows. I wonder what God's chair sounds like? I would like to amplify it. I would like to amplify a spider spinning its web.

Loren Rush calls his new work Theater of the Mind. Since last night, he is still playing and singing in the theater of my mind.

The bulldozer remains silent. A very low frequency is shaking my belly. (7 Hz at high intensity can make you sick or kill you.) It is an automobile becoming more apparent as it passes, now accented by a motorbike.

(Once in a half-waking state, my head was held hard against a wall by the sound of a model airplane motor. I thought some cosmic dentist was drilling for my mind's tooth.)

The breeze is rising and blowing my papers about the table. The rustling in the trees sounds like tape hiss until it mixes with the next plane overhead.

Recently, a young man described his experience working in proximity to jet engines. After overcoming fear of the sound, he began to find sounds to listen to, such as small tinklings within the engine.

Why can't sounds be visible? Would the feedback from ear to eye cause fatal oscillation? Can you remember the first sound you ever heard? What is the first sound you remember hearing?

Why shouldn't a music department in a university devote itself entirely to music since 1950? Without a substantial body of new literature and instrumentation, the symphony and opera will become defunct—dead horses in the 21st Century. Who cares.

I often think of the title of one of La Monte Young's pieces which I have not yet had the pleasure of hearing: The Second Dream of the High Tension Wire.

In the Schwann long-playing record catalog there are special sections for railroads, sound effects, sports cars, test records, and honky-tonk piano, but none for electronic music.
When a concert pianist is on tour, he usually finds a tuned Steinway grand piano to play. What kind of sound system does the electronic musician find?

When I stopped writing yesterday, I went on listening. I attended dinner in a Syrian restaurant and ate a concert with my Wolfman ears. The house lights dimmed to a singing SCR (Silicon Controlled Rectifier). Spots came up and the bassoon soloist walked on the stage, bowed to the applause, walked off again and told someone to turn off the heating fan which was playing a duet with the SCR. He returned, bowed again to the new round of applause. His taped accompaniment began. I heard trees rustling in the speakers.

Loren Rush has synthesized a bassoon sound at the artificial intelligence center at Stanford. With John Chowning's programming, he can make it move in circles, ellipses, or figure-eights around two speakers. He can make the synthesized bassoon do a *glissando*. Loren has a lecture entitled "A Day in the Life of a Plastic Bassoon."

Next, a quiet trio played in the manner of Morton Feldman: accentuated, perfectly-cued car drones.

I listened to a Schubert octet in the recording engineer's sound booth. The speakers added their characteristics to the orchestration. As we watched the audience, the engineer said, "Those people are not listening to the music as it was intended. They should be having dinner."

I am inside my house now. Outside, sounds are attenuated by the insulation. I hear a dripping faucet and the ticking of my cuckoo clock. They combine and are joined by the refrigerator. The planes from Palomar Airport dwindle in through the furnace openings.

I have listened to many refrigerators. There is often a flickering between the sixth and seventh harmonic. Once, while in the process of drinking ouzo with David, Bob, and Orville, a refrigerator sent its harmonics out to surround my head with circles, ellipses, and figure-eights.

In 1963 I made a tape piece for dancer Elizabeth Harris. It was made from piano sounds. On the night of the first performance, I stood in the wings prepared to start the tape recorder. Suddenly, I heard the opening sounds of my piece, but the tape transport was not moving. The dance involved a mobile that was suspended from a strand of piano wire. When the mobile was lowered, it moved like a pendulum, causing the piano wire to vibrate.

In New York, Terry Riley led me fifteen blocks out of our way to hear a building ventilator. I wonder what microbes hear?

Sitting in a parking lot on my third day of article writing, I could listen to the stereophony of car starter garglings, motor wiggings, door squeals, and "bllaps" forever. It's almost like Debussy, compared to Saturday's Wagnerian bulldozer.

The best part of Lincoln Center is the tunnel from the IRT to the Beaumont Theater. Walking toward the theater, my footsteps greeted me from the approaching wall; midway, they followed me from the opposite wall. I listened to this more than one hundred and fifty times—an Alice in Tunnelland—while moving from the sedge of subway sound to Brechtian music drama.

"If the moon is ever visited, one feature of its environment will be known beforehand with certainty; the wastes will be noiseless except for vibration transmitted through the solid surface. Since there is no gaseous atmosphere, there can be no tread of footsteps heard, no rustle of clothing, and if an obstruction is dyna-
In one electronic studio I was accused of black art, and the director disconnected line amplifiers to discourage my practices, declaring that signal generators are of no use above or below the audio range because you can't hear them. Since all active processing equipment contains amplifiers, I found that I could cascade two pieces of equipment and get enough gain for my combination tones to continue my work, plus the addition of various amplifier characteristics as orchestration. I worked there for two months, and, for recreation, would ride my bicycle to the town power plant where I would listen for hours to the source of my newly found powers.

Saturday's bulldozer has gone away. The birds and insects share the air with waxing, waning plane and car drones. The insects are singing in the supersonic range. I hear their combination tones while the insects probably hear the radio frequency sounds created by motor drones, but not the fundamentals. If we could hear the micro-world, we would probably hear the brain functioning.

NOTES

1. [Atlas Ecolipticus is a graphic score rendered from star charts —Eds.]
II. Modes of Listening

Introduction

For centuries, European art music prescribed a particular mode of listening exemplified by the ritual of the concert hall: in a closed space, separated from the outside world and the sonic domain of everyday life, a silent audience, seated some distance from a stage, listened to performers on that stage produce a narrow range of timbres on a limited array of musical instruments. In the second half of the 20th century, these listening conventions were mapped onto popular music; and today, despite differences in genre and venue, they continue to define the ideal mode of listening to music, whether it be classical, jazz, rock, etc. Yet contemporary musical practices and technologies have problematized this traditional mode of auditory apprehension and have necessitated a new discourse around listening.

Radio and sound recording radically changed the act of listening to music, and altered the very nature of music as well. Music could now be detached from its source, from its ties to any particular setting and location. This made possible at least two new modes of listening. On the one hand, it allowed what Pierre Schaeffer termed “acousmatic listening”: listening to sound without any visual clue to its source. This shift was not only phenomenological but ontological as well. Thus, instead of existing as mere reproductions of live events, recordings disclosed ontologically distinct and autonomous soundworlds. In Schaeffer’s view, this afforded a new kind of experience: that of pure sound. On the other hand, recorded sound allowed music to infiltrate the spaces of everyday life, making possible “ambient” listening, music heard as an accompaniment to mundane activity: driving, shopping, working, etc. This idea was already envisioned in the early 1920s by Erik Satie and Darius Milhaud, who produced what they called “furniture music,” “music that would be a part of the surrounding noises and that would take them into account.” But it took the technology of recording to fully realize this idea.

Already in the 1940s, theorists such as Theodor Adorno and Aldous Huxley noted the pernicious ideological effects of such passive listening. Indeed, the Muzak Corporation had already begun using background music to regulate mood and increase worker productivity. Despite Muzak’s ubiquity and corporate success, the term “Muzak” quickly became a kind of musical insult, signifying bad music and a bad listening experience. Nonetheless, in the 1970s, progressive rock and experimental music composer Brian Eno began to see the liberatory possibilities of “Ambient” listening, the ways in which it afforded listeners a new experience of music and sonic space. The advent of the Walkman stirred similar reactions. Critics complained about its anti-social aspects. Yet, theorists such as Iain Chambers saw in it the possibility of actively producing a soundtrack for one’s daily perambulations.

live completely alone for four days
without food
in complete silence, without much movement.
Sleep as little as necessary,
think as little as possible.

After four days, late at night,
without conversation beforehand
play single sounds.

WITHOUT THINKING what you are playing
close your eyes,
just listen.

—Karheinz Stockhausen®
The advent of recording had an effect not only on listening practices but also on what sounds could be heard as music. Recording equipment allowed one to amplify and focus upon previously unheard or inconspicuous sounds. Moreover, as recorded entities, the sounds of trains or frogs, for example, could be placed on par with sounds made by violins or trumpets. From there, it was a short step to begin to perceive environmental sound aesthetically, radically transforming the nature of musical sound and composition. "This blurring of the edges between music and environmental sounds," wrote R. Murray Schafer in 1973, "is the most striking feature of twentieth century music."2

Within this new context—opened up by John Cage—Pauline Oliveros, J.K. Randall, and others began to extend not only Cage's compositional ideas but also his vernacular discursive style, which, however informal, helped admit into musical discourse a vast experiential domain foreclosed by traditional musical and musicalological approaches. Oliveros' musical phenomenology demanded an expanded sonic depth-of-field that took what traditionally might be considered distractions (the bulldozer outside, the radio playing in the next room) to be a significant part of listening, composing, and writing. For Randall, the act of consuming "Some Warm Pepsi and Part Of A Baloney Sandwich" was not outside but within the experiential totality of listening to Wagner's Götterdämmerung.

The advent of recording and broadcasting forever altered the experience of listening and drew attention to the act of listening itself. Contemporary music reflects these phenomenological changes and continues to work through the problems and possibilities inherent in these new modes of listening.

NOTES

2. See Schafer, chap. 7, above.

A profoundly influential theorist of late 20th century media, Marshall McLuhan (1911–1980) examined the ways in which communication and information technologies transform human subjectivity and community. His conception of "the global village"—the retribalization of the human race via a world network of electronic media—anticipated the Internet by nearly two decades. Throughout his career, McLuhan argued that radio, television, computers, and other electronic technologies are essentially prosthetic devices that vastly extend the human nervous system.

Indeed, throughout his work, McLuhan was interested in the human perceptual apparatus, the ways in which our senses (and their technological extensions) shape and are shaped by their environment. In this essay, written in the late 1970s, McLuhan contrasts the different worlds proper to sight and hearing. He argues that, while visual culture has dominated Western thought, perception, and imagination since ancient Greece, the late 20th century witnessed a rapid shift toward a very different mode of perception, that of the acoustic or auditory.

While in elementary school, Jacques Lusseyran was accidentally blinded. He found himself in another world of collision and pressure points. No longer could he pick his way through the ordinary "neutral" world of reflected light. It was the same environment that we are all born into but now it came to him demanding exploration:

Sounds had the same individuality as light. They were neither inside nor outside, but were passing through me. They gave me my bearings in space and put me in touch with things. It was not like signals that they functioned but like replies . . .

But most surprising of all was the discovery that sounds never came from one point in space and never retreated into themselves. There was the sound,