

[Excerpted from Pauline Oliveros, *Deep Listening: A Composer's Sound Practice* (Lincoln, NE: iUniverse, 2005).]

Deep Listening Pieces

Pauline Oliveros

Earth: Sensing/Listening/Sounding (1992)

Make a circle with a group. Lie on the ground or floor on your back with your head towards the center of the room.

Can you imagine letting go of anything that you don't need?

As you feel the support of the ground or floor underneath, can you imagine sensing the weight of your body as it subtly shifts in response to the pull of gravity?

Can you imagine sensing the subtlest vibrations of the ground or floor that is supporting you?

Can you imagine your body merging with the ground or floor?

Can you imagine listening to all that is sounding as if your body were the whole earth? There might be the sounds of your own thoughts or of your body, natural sounds of birds or animals, voices, sounds of electrical appliances and machines. Some sounds might be very faint, some very intense, some continuous, and some intermittent.

As you are listening globally, can you imagine that you can use any sound that you hear as a cue either to relax your body more deeply or to energize it?

As you sense the results of this exercise, can you imagine including more and more of the whole field of sound in your listening? (Near sounds, far sounds, internal sounds, remembered sounds, imagined sounds.)

As you become more and more able to use any sound, whether faint, ordinary or intense to relax or energize the body, can you imagine becoming increasingly aware of all the sounds possible to hear in any moment?

Can you imagine allowing yourself to express the sound of your breath as you continue your global listening and deeper breathing?

Can you imagine expressing any sound that comes naturally with your voice?

Can you imagine continuing this Sonic Meditation by sensing, listening, breathing and sounding?

Can you imagine that you are sound?

Ear Piece (1998)

- 1) Are you listening now?
- 2) Are you listening to what you are now hearing?
- 3) Are you hearing while you listen?
- 4) Are you listening while you are hearing?
- 5) Do you remember the last sound you heard before this question?
- 6) What will you hear in the near future?
- 7) Can you hear now and also listen to your memory of an old sound?
- 8) What causes you to listen?
- 9) Do you hear yourself in your daily life?
- 10) Do you have healthy ears?
- 11) If you could hear any sound you want, what would it be?
- 12) Are you listening to sounds now or just hearing them?
- 13) What sound is most meaningful to you?

Sound Fishes (1992)

For an orchestra of any instruments.

Considerations

Listening is the basis of sound fishing.

Listening for what has not yet sounded—like a fisherman waiting for a nibble or a bite.

Pull the sound out of the air like a fisherman catching a fish, sensing its size and energy—when you hear the sound,—play it.

Move to another location if there are no nibbles or bites.

There are sounds in the air like sounds in the water.
When the water is clear you might see the fish.

When the air is clear, you might hear the sounds.

November 1992
Fairbanks, Alaska

[Excerpted from Veit Erlmann, “Descartes’s Resonant Subject,” in *differences: A Journal of Feminist Cultural Studies*, Vol 22, Number 2-3: 10-30, 2011. Reprinted courtesy of the author and Duke University Press.]

Descartes’s Resonant Subject

Veit Erlmann

Resonance, as a quick glance at the *Oxford English Dictionary* shows, is an extremely multifaceted phenomenon, one that traverses numerous semantic fields, scientific disciplines, cultural practices, and discursive genres. Resonance can refer to the “amplification of wave or tidal motion in a body of water when this motion has the same frequency as a natural vibration of the body of water.” Physicists speak of resonance when “a particle is subjected to an oscillating influence (such as an electromagnetic field) of such a frequency that a transfer of energy occurs or reaches a maximum.” And in general language use, resonance denotes “the power or quality of evoking or suggesting images, memories, and emotions; an allusion, connotation, or overtone.” In the acoustic realm, resonance in the most general sense describes the “condition in which an oscillating or periodic force acting on an object or system has a frequency close to that of a natural vibration of the object.” Most significantly, however, resonance is also the concept at the heart of an influential theory of hearing according to which the perception of pitch ensues from certain structures deep inside the cochlea vibrating in phase with the oscillations of the outside air.

But it is in philosophy that resonance has perhaps given rise to the most conflicting interpretations... Denis Diderot openly flirted with the image of the philosopher who “listens to himself in silence and darkness” while his ideas make each other “quiver” in the way the strings of a harpsichord “make other strings quiver.”

Resonance calls into question the notion that the nature of things resides in their essence and that this essence can be exhausted by a sign, a discourse, a logos. An account of something such as resonance must therefore situate itself in a kind of echo chamber together with other things—signs, discourses, institutions, and practices.

It is the quest for this resonant space, for the convergence of reason and resonance, that shaped Descartes’s entire work. While he rarely tackled the issue of the union of body and mind head on... Descartes did broach the subject indirectly, in fields as diverse as physics, physiology, obstetrics, and music theory.

“The human voice seems most pleasing to us because it most directly conforms to our souls,” Descartes writes on the first page of his first known work, the *Compendium musicae*. He continues: “By the same token, it seems that the voice of a close friend is more agreeable than the voice of an enemy because of sympathy or antipathy of feelings—just as it is said that a sheep-skin stretched over a drum will not give forth any sound when struck if a wolf’s hide on another drum resonates at the same time [*lupina in alio tympano resonante*].” Descartes had written the *Compendium* at the behest of the Dutch philosopher Isaac Beeckman, who had taken the eighteen-year-old, freshly graduated scholar under his wing and monitored his acoustic experiments.

Resonance and sympathy, Descartes seems to suggest, are if not the essence then the condition of philosophy. Without resonance, a voice will fail to find a sympathetic reception. Similar to the principle operating between the skins of two drums (*tympanum*), the voice requires an eardrum (*tympanum*) that is tuned to the same frequency to be heard. If the voice and the eardrum of the other are, almost literally, not on the same wavelength, the speaker's words will be misunderstood, or worse, they will not be heard at all.

Why did he invoke resonance to refer to the pursuit of knowledge through friendly discourse in the *Compendium*, while in the *Meditations* the same referent names the perils that threaten the acquisition of certainty through disembodied reasoning?

As is well known, Descartes took a lively interest in anatomy. He dissected countless animals (which he obtained from Amsterdam's butcher shops) and read widely on medical topics. It is also safe to assume that he possessed a working knowledge of the anatomy of the human ear. His *Principles* and his posthumously published anatomical excerpts included short descriptions of the ear and several crude sketches (copied from the lost originals by Leibniz) of the cochlea, the stapes, and the tympanum. Descartes also liked to quote from *Institutiones anatomicae* by Gaspar Bauhin (1560–1624), a professor of anatomy at Basel University... Bauhin's work was less an original work than a synthesis of state-of-the-art knowledge produced during the latter half of the sixteenth century by what is sometimes called the Italian school of anatomy. Its leading figures, scholars such as Gabriele Falloppio (1523–62), Bartolommeo Eustachio (1510–74), Fabrici Acquapendente (1533–1619), and Guilio Casseri (c. 1552–1612), had also made major discoveries in otology, describing (and in some cases even producing some of the first, meticulously illustrated plates of) such key components of the ear as the aqueduct, the tensor tympani, the membranous labyrinth, and the tube linking the middle ear to the throat.

In contrast to the anatomy of the ear, however, the physiology of hearing during the first half of the seventeenth century rested on much shakier foundations. It clustered around two key concepts: *aer innatus* or *aer implantatus*, and echo. Known since the pre-Socratics, the "innate air" or "implanted air" was said to originate in the maternal womb, from where it found its way into the fetus's middle and inner ears. Its substance was of an ethereal kind, different from ordinary air and more akin to the Platonic *pneuma* blowing through the universe. Doubts about this special quality of the *aer innatus* were first voiced by Volcher Coiter (1534–76), author of the first monograph on the ear, *De auditus instrumento* (1573). Because of its direct communication with the outside air via the Eustachian tube, Coiter reasoned, the innate air had to be plain air after all, ill suited for the Platonic qualities attributed to it. Instead, the mediating role of the innate air had to be understood in mechanical terms, as a form of *actio et passio* between the sentient thing (the ear) and the thing sensed (air). Yet even though this mutual agreement is mediated by "the interposition of the membrane [*tympanum*] and of certain ossicles" as well as the "twisting and turning windings" of the cochlea, resonance does not come into play. The role of the cochlea, in Coiter's view, is to absorb surplus sound such as echoes and to "carry" the sound "without any disturbance" to the auditory nerve.

In summary, while the study of vision during Descartes's lifetime (and in no small

measure due to Descartes's own work) progressed more rapidly than research on the other senses, otology did witness something of a paradigm shift during this era. After centuries during which the tympanum held sway as a kind of corporal *tertium comparationis*, otologists shifted the focus of attention farther inward, toward the cochlea and the auditory nerve. Although the physiology of these parts continued to elude scientists until well into the nineteenth century, the shift was an important step in granting listening a modest autonomy by unmooring the sensation of sound from a form of unconscious calculus of divinely ordained harmonic proportions. But above all, the new anatomy and, with certain restrictions, physiology of hearing offered to Descartes a welcome terrain on which to pursue his lifelong project of rethinking the mind-body relationship.

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Auscultations

Steven Connor

Four months ago I woke up largely deaf in one ear. I assumed I had a blockage or infection of some kind and went off to a weekend conference in Reading. Three days later, there was no change. I read widely on the internet and found what looked like a match for my condition in what is known as SSHL, or Sudden Sensorineural Hearing Loss. By now I was experiencing little shoves of vertigo as well, and my left ear seemed filled with a continuous rushing sibilance, silver-veined with a soprano sine-tone. A visit to my general practitioner produced the advice that I should drizzle olive oil into my ear to soften the putative wax that was causing the hearing loss and tinnitus, preparatory to a syringing that would assuredly disperse it... A week after the onset of the deafness, I managed to secure a walk-in appointment at the Royal Throat Nose and Ear Hospital in London (not much easier than securing a walk-on part at the National Theatre), by dint of hypnotising my GP into thinking that she was the source of the knowledge, that I had myself gathered and imparted to her, that sudden hearing loss should always be treated as a medical emergency. But by the time I had forced my way into the presence of medically-qualified persons, there was, as I had already abundantly verified, nothing to be done. In a certain proportion of cases, hearing can spontaneously return after an episode of SSHL, which it is thought is often caused by an infection that interrupts blood flow to the cochlea. There are some indications that high doses of steroid can help reduce inflammation in the cochlea, if that is the cause, somewhat improving the prospects of the return of hearing. But this course of treatment needs to be started within three days of the onset of the condition to have much chance of having an effect. Although I was duly prescribed a 12-tablet per day course of steroids, a week had already elapsed when I began it, and there was predictably no improvement after another week. There has been no spontaneous return of hearing since, nor now will there ever be.

Indeed, the most distinctive feature of this episode and its continuing aftermath has not been what has been lost, but rather what has been gained, namely the continuo of tinnitus that now accompanies me, toning and texturing everything I say and hear. It was a surprise to me to learn how common this is. One in three people will experience some form of tinnitus, and about one in six have some measure of tinnitus at any one time. I am in fact very fortunate in that my tinnitus is scarcely distressing or disturbing. For one thing, it is monotonic, rather than pulsatile – it does not thud or bump, poltergeist-like, but hisses and sizzles away in more or less the same form, and at more or less the same level, all the time. If I do sometimes wish it were not there, it is not because it intrudes upon me, as psychotic voices do, but simply because it is so monotonous. I cannot say I love it exactly, but it has already started to become my carrier wave, my ground-bass (ground-treble, really), my auditory self-taste, something like the hum of my being, a personalised version perhaps of what Levinas describes as the *il y a* of existence.

The topic of internal sound has been of interest to many writers on sound and audiosophes. John Cage famously derived from his experience of the isolation tank the principle of the plenitude of sound and the unattainability of absolute silence. Take away all sources of external auditory stimulus, and you begin to hear the sound of your own bodily processes – the taps and gnashes of your teeth, the swilling and gurgling of saliva, the clicking and crackling that accompanies your swallows, the tiny rasps of breath in your nostrils, even the flicking of your eyelids. All of these are objective sounds, in that they can easily be detected and captured by microphones. Although the buzzes, bubblings and bangs of tinnitus resemble and can blend with these somato-sounds, it has been common since the middle of the nineteenth century to distinguish ‘objective tinnitus’ from the ‘subjective’ tinnitus that it is not possible for anyone else to hear.

Adam Politzer, whose textbook on diseases of the ear was the most influential work of otology of the second half of the nineteenth century, recorded cases of patients thinking they heard draughts in the chimney or the rattling of wagons in the street outside, but insisted that “[h]allucinations of hearing do not, on the whole, occur frequently in aural patients without the conjunction of an altered state of the brain” (Politzer, 1883). For the most part, sufferers from tinnitus are very clear that the sounds emanate from their ears or from parts of the head close to them. It is in fact far from clear what it means precisely to say that something comes from the ear, since the locative sensation of touch extends only a short distance into the meatus, and we have no direct means of distinguishing conditions and effects in different parts of the auditory apparatus. Occasionally, sufferers can hear, or even consciously produce sounds from the ear, which may be audible to others, though these are usually mechanical or pneumatic effects of a rather simple kind. D.B. St. John Roosa thought that “objective tinnitus aurium” of this kind was “usually intermittent in character and of a crackling nature,” and recorded a case of a patient who was driven by it into insanity and suicide (Roosa, 1891). Edward Woakes, who produced a lengthy study of vertigo and tinnitus in 1896, also recorded some cases of patients who could produce clicks and crackles at will, but thought them due to muscular contractions and of little clinical interest (Woakes, 1896). The recent discovery of oto-acoustic emissions has made it clear that the ear is indeed and in actual fact a sound-producing as well as a sound-receiving apparatus, and has had important applications, for example, in investigating deafness in children who are too young to give feedback in speech. But I am not aware of any work that suggests that these emissions are ever likely themselves to enter the auditory field.

If we hear sounds with our ears, with what organ do we hear what is going on inside the organ of hearing? What organ does the ear use to overhear itself? In one sense the answer is simple, for of course we do not hear anything at all solely with our ears, which act as a sound-gathering reservoir and a transformer of mechanical vibrations into electro-chemical impulses that can be interpreted as sound by the brain. So really the brain ‘hears’ the ear in the same way as it hears what is conveyed through it. But the experience of hearing does not correspond to this, and none of us experiences sound as being heard in or by the brain, any more than we experience the pain in our big toe in the brain. Rather, we hear things in a plaited simultaneity as both taking place in the ear and at the point from which we take the sound to be coming. The sounds heard in tinnitus do not usually have this quality of exteriority, and so cannot easily be referred

outwards to the world. At the same time, they are still characterised by a kind of split between the hearing location and the location of hearing, though in fact these are felt to be the same ‘place’, namely, the ear.

Politzer also reported that patients, who heard noises which resembled the noises they heard in their head, were made uncertain whether they came from inside or outside: one patient who had a ticking tinnitus could not judge whether or not he could really hear the ticking of a watch, and another who heard an almost continuous cricket-like chirping beside his ear was unable to distinguish it from real chirps imitating it emanating from a human mouth. My own tinnitus seems to interact with sibilants, overlaying voices with what I can only describe as a kind of hoarse lisp. Researchers have found that, in cases where hearing loss is not total, but only in a certain frequency band, the accompanying tinnitus tends to match that band. It is as though the brain were making up for the loss of sounds in that expected frequency range, by patching them in itself, in an auditory equivalent of one explanation for phantom-limb pain, the tinnitus here being a kind of auto-assuagement. If this is true, then there is a complex and curious bit of feedback going on in my case. I have lost certain higher frequencies, and have accompanying tinnitus which seems to have the effect, when combined with certain external sounds, of actually boosting some of the frequencies that have been lost. It is as though my tinnitus were a net thrown out to catch the frequencies that would otherwise go missing.

The uncertainty of the place, process and nature of head noises seems to bring an intense need to describe, identify and assign them. One way of giving them a local habitation and a name is to ascribe them to the influence of otherworldly visitants or possessing spirits. Early charms suggest that treatments for tinnitus would be aimed at expelling the spirit or other noisy entity. There is an Egyptian remedy for a ‘bewitched ear’ in the Ebers papyrus, which dates from around 1600 BC. Assyrian and Mesopotamian remedies, dating from around 700 BC, distinguished between three kinds of tinnitus, ‘singing’, ‘whispering’ and ‘speaking’, and offered differing treatments depending whether the left or right ear was affected. The assumption seemed to be that tinnitus was the sign of a haunting or possession (there is a tablet that declares, rather wonderfully, “when the hand of a ghost seizes a man, his ears sing”)... Eskimo traditions speak similarly of benign ghosts who make themselves manifest through tinnitus: “The most harmless way in which a ghost can manifest himself is by whistling, the next by a singing in the ears (*aviuiartornek*), by which performance he simply asks for food; and generally when singing in the ear is perceived, it is the custom to say: ‘Take as thou likest’ — viz., of my stores” (Rink, 1875). Such references may be compared perhaps with the curious references to the peeping and piping sounds made or conjured by sorcerers and soothsayers in the Hebrew Bible. John Potter records, among a number of ‘Internal Omens’ in the classical world, such as palpitations and twitchings, “a Ringing in the Ears; which if it was in the Right Ear, was a lucky Omen” (Potter, 1697).

As these kinds of supernatural explanations have lost their persuasiveness, attempts at assignation have more commonly taken the form of referring the tinnitus sounds to more familiar external sounds. A kind of half-way house is represented by the explanation offered by Gilbertus Anglicus in his *Compendium medicinae* of around 1240. Following his helpful suggestion for removing worms from the ear (he recommended sleeping with an apple pressed against the ear, into which the worm

would be lured), Gilbertus explained that “ringing in a mannes eris, or oþere noise liche blowing of hornes” was due to “a grete wyndi mater þat is in þe eere and moveþ vp and dovun and al abouten withinforþe and may not out for his boistesnes.” Relating tinnitus noises to more familiar external sounds could assist efforts at masking tinnitus sounds by finding sounds in the world to match or mimic them, as proposed for example by Jean-Marie Gaspard Itard in his *Traité des maladies de l'oreille et de l'audition* (1821).

Writers on tinnitus rarely fail to be impressed by their range and variety. Politzer included sounds that resembled waterfalls, ringing bells, the buzzing of a swarm of bees, the swish of leaves in a wood, the rumbling of a train, the chirping of crickets and twittering of birds.

Usually, physicians sought to tame and reduce the puzzling polymorphousness of tinnitus by assigning its different dialects to a small number of organic causes. “It is only by having recourse to some method of classification that we can hope to understand it” wrote Edward Woakes (Woakes, 1896). Woakes’s aim was to reduce to almost nothing the large and ungovernable category of ‘subjective tinnitus’, trusting that “[t]he rigid mapping out of the factors of a symptom will usually be equivalent to the transference of it from the category of subjective to that of objective phenomena.” Paul Allen similarly thought that “[u]nless we are able to connect this most important, distressing, and undefinable symptom with the discoverable morbid condition in the ear itself, we shall never diminish the number of cases of ‘nervous deafness,’ so called” (Allen, 1874). Woakes, therefore, offered his readers a chart which paired different causes to different sounds. Pulsating sounds were said to be due to hyperaemia (or anaemia), chirping, chat-tering or bell-like sounds resulted from venous congestion, tidal sounds arose from the irritation of various sensory nerves, and bubbling and gurgling testified to the presence of fluid in the ear (Woakes, 1896). J.P. Pennefather agreed that “the character of the tinnitus will often help in fixing the precise part from whence the morbid influence proceeds” (Pennefather, 1873), but he was less confident than Woakes would be of being able to track different sounds reliably to their anatomical source; often, he wrote, “the most fertile imagination is unable to realize the allegorical description which the patient gives.”

If one way to combat the indefiniteness of tinnital noises was to refer them outwards to noises in the external world, another was to round them up into full-blown hallucinations, a process that seemed to propel them inwards and outwards simultaneously. Shaped into auditory hallucinations, noises in the head are no longer fixed in place by means of similitude, but rather by being resolved into actual external sounds, or rather the illusion of them. It is hard to believe that this can have happened very often, since auditory hallucinations tend to be intermittent, while tinnitus is usually continuous. But it may perhaps have given some measure of relief to subjects otherwise tormented to distraction by experiences of hearing that were at once so definite and yet so unidentifiable. Perhaps such an experience may lie behind the early ascriptions of tinnitus sounds to ghosts and devils. There is some evidence to suggest that the hearing of voices among psychotics may sometimes be assisted by the prompts or scaffolds provided by familiar everyday sounds (knocking pipes, creaking floorboards, gusting winds or wavering gas jets). It may be that the default condition among human beings is the tendency to look or listen out for voices

in nonvocal sounds, a condition to which psychotics and non-psychotics who hear voices may be returning.

... In the early years of the twentieth century, Evan Yellon, a deaf writer on deafness, recommended a similar technique of converting the tinnitus into desired sound. Rather astutely, he referred his reader to the definition of dirt as matter out of place (a definition that readers often find itself hard to place definitively, its origin being assigned to Lord Chesterfield, T.H. Huxley and Mary Douglas), and suggested that noise might similarly be regarded as sound over which we have no control. Remarkably, he recommended using tinnital sounds as a kind of raw material from which to call up beautiful or desirable sounds from the deaf subject's past, which could then replace them:

[I]f we can learn to bring noise into harmony, it ceases to be noise, as in the general acceptance of the word, and becomes ordered sound. This means that we shall have won control over the chaos of sound by which we have been worried. Most, if not all, deaf people have it in their power to gain the control of which I speak. Incidentally, in gaining it, there will also be won the key to unsuspected power and consolation, and the freedom to a realm of dear delight. (Yellon, 1910)

Many patients with tinnitus seem impelled by it to a form of the great purgative obsession that human beings in all times and places seem to have had with regard to their bodies – the idea that all bodily and spiritual ills can be regarded as the result of some kind of alienness inside them that needs somehow to be extracted or extruded... Tinnitus, which seems at once firmly located and unlocatable, palpable and yet indefinable, does not so much arise in this space as give rise to it. The imagined space of the ear is particularly ambivalent and fascinating. Half anatomy and half imagination, this phantasmal space is a fitting locale for sounds that themselves similarly constitute an allegorical 'black box', in Michel Serres's conception, between the orders of the material and the informatic.

Tinnitus brings to a focus the question of what it means to hear a sound. If I do not hear a sound that is caused by some auditory event in the world, there are other ear-witnesses who can attest to what I have missed or ignored. But if I do not take notice of or register (oddly, the French word for recording) a sound that in any case only I can hear, in what sense can it be said to have taken place? Is the sound there (where?), if I do not pay attention to it? With what kind of ear might I turn a deaf ear to what presents itself to purely internal audition? It is commonly and rightly asserted that our hearing is highly selective, and that we are actively at work filtering sounds all the time by our more or less conscious acts of turning or tuning our attention. Freud suggested that the ego might be thought of in just this way, as a screen for excitations, rather than as a receiving command centre. Michel Serres suggests that the integrity and continuity of consciousness also depend upon the damping down or filtering out of internal noises. Sitting in the amphitheatre at Epidaurus, he experiences the sanative subduing of his own internal noise:

I listen, I wait, in the dense silence. Even the insects sleep, ever present in the muteness of summer. Diaphanous, the world calms the turbulent noise of my body. My organs fall silent – health returns. Illness comes upon me when my organs can hear each other. Silence in the great theatre, in the capital of healing.

The body no longer listens to itself, adrift in the pavilion of the immense ear of the gods. When a body will not remain silent, what voice do we hear? Neither voice, nor language; cœnæsthesia emits and receives thousands of messages: comfort, pleasure, pain, sickness, relief, tension, release — noises whispered or wailing. Æsculapius quietens these messages, and slowly erases them. We are healed better by leaving noise behind than by diving into language. (Serres, 2008)

This is why Serres can conclude that “transmission trumps listening, we are no good at receiving. Whether we are dealing with a black box or the very simple scenario linking a transmitter to a receiver, the pole which perceives or feels is encased in a series of black boxes. Listening is rooted in silence and deafness.”

Thomas Edison once suggested that the world of modern communications was ideally suited to the deaf, even suggesting that the deaf might come to have a sort of perceptual advantage in it. Perhaps tinnitus, that is so often the accompaniment of deafness, as if, as Edward Woakes put it, “to satirise the infirmity” (Woakes, 1896), as the sound that is not one, the sound that seems to have no place to call its own, is the fitter emblem of the condition of ironic or virtual hearing that is ours today

