

excerpt from:

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Wireless Imagination

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URES OF VIBRATION, INSCRIPTION, AND TRANSMISSION _____

The history of sound in the avant-garde can be described with relative ease when pegged to the familiar figure and functioning of the phonograph, or of any technology for that matter. Beyond that, we can detect three figures of a more abstract character—vibration, inscription, transmission—that begin to account for how sounds are located or dislocated, contained or released, recorded or generated.

VIBRATION

The figure of vibration was most pronounced in ideas of synesthesia,²¹ which were very widespread within French circles in the late nineteenth century and within modernism in general; synesthesia cropped up again among Russian artists around the second decade of the century, even as Kandinsky and Kublin moved to the German site of *Der Blaue Reiter* (see Mel Gordon's essay), and then again in the abstract "visual music" films of the 1920s and early 1930s, arriving in mass culture when the abstract filmmaker Oskar Fischinger's input was found accompanying Bach in Walt Disney's *Fantasia*. Nineteenth-century notions of synesthesia—that is, that the operations, affects, and objects of perception intrinsically corresponded to one another—derived from several sources, including

neo-Pythagorean ideas wherein the physical laws of vibrating strings reverberated to harmonically map the Universe, occult ideas of a cosmic coordination of essences, and scientific ideas that sound and light were distinguished by calibrated degrees of the speed of vibration. Actual sound occurred in synesthesia almost entirely as elements of speech and music, two sonic areas that *humans uttered* rather than heard. The phonograph in 1877 introduced the fact of worldly sound into culture, yet synesthesia repressed this and instead constructed the sonic attributes of the universe from human agency alone. Phonemes and tones in synesthetic sound systems might correspond to each other, to colors, to the regulated timbre of sound colors, to personality attributes, or to the meaning of phenomenal or cosmological traits. But wherever sound occurred, it was always manifested elsewhere, or other things were manifested through it; a sound had no autonomy but was always relational, being somewhere or something else, a constant deflection that ultimately stretched out to spiritually organize everything from essence to cosmos, always ringing with the voice and music. Synesthesia thereby subsumed the terrestrial world and its inhabitants only in the abstract and only through solipsism.

The constant deflection, deference, and relationality found in figures of vibration had very important consequences for the status of bodies and objects within space, and for the idea of a sound in the arts. Vibrations through their veritable movement generated a structured space and situated bodies and objects in that space. This process of situating did not outwardly transform the bodies or objects themselves, however, it just placed them in an ever-dependent relation within a larger system. Objects and bodies had little individual autonomy, and in the process of placement there were no mutations or fusions, and no surfaces were disrupted from either external vibrations or internal emanations, for this would have drawn attention to an individual situation. Because of the infiltrating and transmissive etheriality of vibrational space, the terrestrial anchoring of objects and bodies was largely ignored. Individual events of sound were subject to the same fate as objects and bodies, such that they

were not entertained through concepts of objecthood and corporeality, as commonly done within technological discourses during the same time. And the idea of an autonomous "sound" had to wait for the leverage of phonography to be felt within culture. A decade into the twentieth century, at the cusp of the major cultural incursion of inscriptive figures, Marcel Duchamp, in his conceptual approach to sound and aurality, satirized the inability of vibrational space to generate objects and bodies with his idea for an acoustic Venus de Milo, a life all her own but existing in neither stone nor flesh.²² Raymond Roussel similarly satirized synesthesia; in one of his novels, the names of flowers called out into a ravine echo back accompanied by their respective scents. This, of course, did not prevent the concurrent or subsequent repetition and elaboration of synesthetic ideas within the arts.

Although most figures of vibration evaporated out into the heavens, it should be noted that an exception can be found in "Ka" (1915), a story by the Russian Futurist poet Velimir Khlebnikov. The story employed the type of determinism and universality found in synesthesia, but at least it was sufficiently eccentric and ecological that it managed to stay on earth. Ka is a mythic figure, a time traveler capable of taking different forms, "the soul's shadow, its double, its envoy to the world some snoring gentleman dreams of."²³ Well into the story Ka is a bird flying near the source of the Nile, where he joins a circle of apes who sit around a fire reminiscing about the Roc bird. Then Ka fashions an oracular lyre, a remarkable instrument using a Pythagorean correlation between musical tone and historical chronology, derived from Khlebnikov's "Tables of Destiny," a set of calculations mapping the temporal relationships of past events.

Ka set an elephant tusk on end and at the top, as if they were pegs for strings, he fastened the years 411, 709, 1237, 1453, 1871; and below on the foot-board the years 1491, 1193, 665, 449, 31. Strings joined the upper and the lower pegs; they vibrated faintly.²⁴

Ka asks a beautiful female ape to sing, and she takes up the lyre and begins singing a song of the Fates.

She moved her hand across the strings; they sounded the thunder boom of a flock of swans that settles as one body onto a lake.

Ka observed that each string consisted of six parts, each part consisting of 317 years, 1902 years in all. And also that the top row of pegs indicated years when the East attacked the West, while the pegs at the lower end of the strings indicated an opposite movement, the West against the East. In the top row were the Vandals, Arabs, Tatars, Turks, and Germans; below were the Egyptians of Hatshepsut, the Greeks of Odysseus, the Scythians, the Greeks of Pericles, the Romans. Ka attached one additional string: between the year 78, the invasion of the Scythians of Adia Saka, and the year 1980—the East. Ka studied the possibilities of playing on all seven strings.²⁵

INSCRIPTION

While figures of vibration head for the heavens, figures of inscription pull sounds down to earth, much like Rabelais' "frozen sounds" that sit, the size of plums, upon the ground in a variety of colors, waiting for the spring thaw. One thing that attached inscribed sound to the earth's surface was its tie to technology. There was no effectively new technology associated with figures of vibration; it depended instead on the old technology of the ancient Greek monochord and other stringed instruments for its elaboration. Figures of inscription, on the other hand, were associated with the phonograph of the late nineteenth century and the phonograph not too long before it. The cultural implications of phonography were profound for the reasons stated in the previous section (see also my essay on Raymond Roussel and phonography in this volume), and these implications could be as evident as the jagged line that the stylus etched onto lampblack, paper, tin, or wax. First of all, the acoustic events in synesthesia only carried weight in concept because in actuality they consisted merely of conventionally pitched musical

tones and phonemes. An inscribed sound could be any sound, even a very distant or dead one, and the whole process of inscription was in no way limited to the prosaic sounds rehearsed within synesthetic systems. Inscribed sounds were, on the contrary, apperceptual, empirical, scriptural, and technological, capable of being seen, read, written, and drawn directly.

That the mechanical etching of any acoustic event could be seen spawned the idea in the late nineteenth century that the markings could be read and written and, therefore, could constitute a mechanically precise alphabet of *all sounds*, all that had been withheld and unexplored, an onset of plenitude that signaled anything from an unprecedented candor to the new imperial order. The notation of sound in musical notation and phonetics was crude in comparison, dependent as it was upon culture and interpretation, whereas phonography appeared to be the direct product of mechanics. Even conventional alphabets appeared to be superseded by the phonographic collapse of speech and writing into visible speech and vociferous graphemes. This hope against hope, premised on earlier ideas of universal alphabets, themselves based upon the hope that the Biblical lost language had just been misplaced, was confirmed by the way sound was finally brought into the visualist and scriptural logic of Western culture. The phonograph promised that all and any sound whatsoever could be created "without being uttered!" as Alexandrov enthused.²⁶ "Without being uttered" meant not spoken, not played musically, especially not by wind instrument. Inscribed sound, in other words, meant something distant from the conceit of nothing-but-consciousness, from the necessity of human agency and metaphysical presence. This was a sound that could be given up to the content of the world exceeding human concerns alone, capable of invoking an ostensible "nature" that was not uttered within the familiar bounds of human speech or musical performance, while at the same time being subjected even more effectively to the machinations of material culture.

There is obviously a major distinction, however, between the work of someone like Raymond Roussel and others during the early avant-garde, where sound is written on the *surface* of objects, and that of William Burroughs after World War II, where writing occurs submerged within a secretive *interior*, such as the site of genetic code, or in a way not easily readable, such as the reconfigurations of metallic particles on magnetic audiotape. It becomes difficult, after all, to read things at a subcellular scale without an electron microscope; but it is just this type of scientific thread that can enhance any agenda: anything can grow from a seed you can't see. There is another important relationship between the submerged inscription of sound and objects and bodies: inscription establishes the concreteness of "surfaces" in the interior that, in the process of reading or writing, may break through the skin or reconfigure the body (note the anomalous bodies in Burroughs' writings). Furthermore, as with genetic engineering, writing is a seed from which entire bodies may grow, but there also exists the possibility of severe mutation, injury, and destruction, set off simply by the act of reading and writing, of bringing the text to light, of turning a body inside out to expose the inscription, a violence that accompanies the technologization of the body and the abeyance of sonic movement.

TRANSMISSION

The most pronounced impression produced by figures of vibration was that of spatiality, whereas inscription reduced space into impressions upon a surface. Despite the fact that vibrational space was ultimately an ordered one and could exist in idealized representation alone, it did simulate the acoustic space that sound both creates and inhabits. The problem was that actual acoustic space included bodies and objects rarely positioned in harmonic relationship with one another, and rife among real acoustics were noises that raise havoc with any attempt to structure a system. Inscription technologically incorporated noises and mundane sounds of actual

objects and bodies but at the expense of diminishing the “vibrancy” of space, its expansiveness and mobility, its objects and bodies, into cipher, stasis, and autonomy. Figures of vibration lived in the space of an imaginary world, whereas figures of inscription destroyed the space of the real world.

Figures of transmission combined aspects of both vibration and inscription, fusing the spatial features of vibration with the objecthood and corporeality of inscription, but exceeding them both in terms of complexity. Transmission could situate objects and bodies in inharmonic, noisy, and terrestrial relations without consuming their autonomy. In the harmonics, chromatics, and syllabic/phonetics of vibrational space, the autonomy of an object was always consumed by the existence of another object being manifested through it from a distance; whereas in transmissional space the object was ostensibly replicated in itself as it was transported over an equivalent distance; that is, disembodiment meant that an object or body existed in two places at once, as opposed to object or body referring to a corresponding color, tone, affect, etc. Vibrational space that had existed only in representation was given breadth and depth once again by a *signal* silently crisscrossing space, bearing both sonic content and the objects that had been demobilized by inscription in a variety of manners, internal and external, point-to-point and centripetal narrowcast, broadcast, to and from an isolated inscription, to and from inscribed objects and bodies, to and from objects and bodies, and to and from the spaces they inhabit and that inhabit them. In other words, transmission was basically the return and invigoration of objects and bodies that had been fixed by inscription to the space implied by vibration.

Transmission also implied a proliferation and differentiation of objects and situated them in a totalizing notion of space. This particular characteristic can be explained by distinctions between phonography and wireless/radio. Phonography established the objecthood of sound and the ability to replicate a myriad of objects, but it did not strongly imply sounds from a distance.

Wirelessness immediately meant great distances, thus all the references to the expanses of the oceans, to crowds, to other lands, and to the otherness of the unexplored globe. This globalness was finally determined, however, within the framework of where the technology was footed politically and historically. Yet, this newfound and newly populated space was not acoustic; the distance between replicated objects was a vacuum that collapsed space to an ideal of instantaneous transmission and reception, a communication without mediation. Sound existed at either end(s), but in between there was nothing but silence, reduced to the trajectory of a signal. This structure was anthropomorphized in several accounts of radio and transmission in general to ideas of unmediated communication, thought transference, and signal as corporeal sensation. A technology that had already been heavily invested with human fears and desires was elevated to vitalistic, prosthetic, and necrotic tropes as when, for instance, F. T. Marinetti and Pino Masnata, in their 1933 *La Radia* manifesto included in this volume, proposed an artistic materiality that would be “a pure organism of radio sensations,” or when Khlebnikov in “The Radio of the Future” foretells of long-distance synesthetic healing without medicine and the transmission of an anthem of strength in production: “It is a known fact that certain notes like ‘la’ and ‘ti’ are able to increase muscular capacity, sometimes as much as sixty-four times, since they thicken the muscle for a certain length of time. During periods of intense hard work like summer harvests or during the construction of great buildings, these sounds can be broadcast by Radio over the entire country, increasing its collective strength enormously.”²⁷

Obviously, that transmission was restricted to earthly air did not mean that it was immediately wrested from the cosmos; instead, in early encounters one can find quick recourse to the spiritist notions of vibrational space. The Polish artist Stefan Themerson was capable of recuperating radio noise in a figure of vibration: “When I was 14 (in 1924) I built myself a wireless-set ... what fascinated me ... more than the fact of hearing a girl’s singing voice coming to my earphones from such strange places as Hilversum, was the

noise, to me the Noise of the Celestial Spheres, and the divine interference-whistling when tuning. It became an instrument for producing new, hitherto unheard sounds, which at the time no person would have thought had anything to do with 'music.'"²⁸

In another instance, André Breton, writing his "Ode to Charles Fourier" in 1945, late in the age of radio, teased the grand harmonies of Fourier down from the stars and navigated them across the diapasonic seas of an invocatory keyboard:

*Fourier what have they done with your keyboard
That responded to everything with a chord
Setting by the movements of the stars
from the capers of the smallest boat on the sea
to the great sweep of the proudest three-master
You embraced unity you show it not as lost but as totally attainable²⁹*

Just thinking about this oceanic expansion to all ends of the earth and the possibility for its instantaneous and simultaneous communication to a single moment of consciousness meant that the potent force of an unstructured, chaotic space was sent hurtling down onto individual means of expression, splintering them into fragments. Marinetti's "wireless imagination" credited wireless telegraphy with the collapse of syntax and analogy in *parole in libertà*. All conventions of relationality, traditionally confined as they were to local and manageable structures and comparisons, would break down once they were bombarded with a global infinitude of possible relations, all arriving at once with a newfound speed having "no connecting wires."³⁰ Wirelessness also operated less violently in Guillaume Apollinaire's 1916 story "The Moon King." In it a traveler seeking shelter is drawn into the subterranean passages of a mountain, where he hears sounds from a remote room. He finds there an elderly man he recognizes as King Ludwig II of Bavaria, thought to be drowned, sitting at an unusual keyboard instrument. When a key is pressed, Japan at dawn is heard.

The flawless microphones of the king's device were set so as to bring in to this underground the most distant sounds of terrestrial life. Each key activated a microphone set for such-and-such a distance. Now we were hearing a Japanese country side. The wind souged in the trees—a village was probably there, because I heard servants' laughter, a carpenter's plane, and the spray of an icy waterfall. Then another key pressed down, we were taken straight into morning, the king greeting the socialist labor of New Zealand, and I heard geysers spewing hot water. Then this wonderful morning continued in sweet Tahiti. Here we are at the market in Papeete, with the lascivious wahinees of New Cytheria wandering through it—you could hear their lovely guttural language, very much like ancient Greek. You could also hear the Chinese selling tea, coffee, butter, and cakes. The sound of accordions and Jew's harps.³¹

Then a train in the United States, urban noises of Chicago, vessels along the Hudson, prayers for Christ in Mexico, carnival in Rio, a teacup in Paris, a chorus in Bonn, hand games in Naples, and finally ten o'clock in Tripoli. Then the "king's fingers ran over the keys at random, simultaneously raising all the sounds of this world which we, standing still, had just toured aurally."³²

Edgar Varèse aspired unsuccessfully to use the radio-phonetic space that Apollinaire could only imagine in his unrealized symphony *Espace*, initiated in Paris in 1929 and occupying him for over a decade. In an argument sketched out in 1941, he wrote,

Voices in the sky, as though magic, invisible hands were turning on and off the knobs of fantastic radios, filling all space, criss-crossing, overlapping, penetrating each other, splitting up, superimposing, repulsing each other, colliding, crashing. Phrases, slogans, utterances, chants, proclamations. China, Russian, Spain, the Fascist states and the opposing Democracies all breaking their paralyzing crusts.

... I suggest using, here and there, snatches of phrases of American, French, Russian, Chinese, Spanish, German revolutions like shooting stars, also recurring words poundingly repeated like hammer blows or throbbing in an underground ostenato, stubborn and ritualistic.³³

In his biography of Varèse, Fernand Ouelette went a little further in

explaining his plans: "Varèse had imagined a performance of the work being broadcast simultaneously in and from all the capitals of the world. The choirs, each singing in its own language, would have made their entries with mathematical precision. The work would have been divided up into seconds, with the greatest exactitude, so that the chorus in Paris—or Madrid, or Moscow, or Peking, or Mexico City, or New York—would have come onto the air at exactly the right moment."³⁴ Similarly, the practice of German Hörspiel during the Weimar Republic is replete with works that use the radio to collapse disparate reaches of the world into a unity, as discussed in Mark E. Cory's essay, and many works that play themselves out over the ocean for purposes spanning global solidarity to radiophonic *Lebensraum*.

In transmission the unknown expanses of the psyche were as intriguing and explorable as those of the earth. They two were brought together in the psychotechnics of Surrealist automatism. Inscriptive, stenographic practices took down the "magical dictation" from the "mouth of darkness" (Breton), the noisy gate to the unconscious,³⁵ but the action of the unconscious itself, its "voice," was delivered to the Surrealist by way of a radiophonic narrowcast. Even the literary voice privy to having overheard the unconscious could be described along these lines: in his *Treatise on Style* (1928), Louis Aragon detailed the physiognomy of someone unable to hear such a voice:

*... your ear trimmed with a festoon of broderie anglaise, your ear the color of calves' feet, your tender ear of rubber, your ear, ever as waxy and buzzing as a hive, your little dirty cartilage that looks more like a poorly puffed fritter than a phonograph horn ...*³⁶

But when the ear that can hear is equipped with a sensitivity that radiophonically spans the oceans,

... more and more able to grasp in the grassy hollow of sentences the clear tinkling of a clinked glass that causes a man to die at sea each time, and the

*same ceremony takes place, the sailors line up at the flag at half-mast, plopl the bag in the waves carries the sleeper away.*³⁷

Likewise, the underground oracular voice of the unconscious was radiophonically transformed into a vast subterranean region that could be heard residing on the other side of the earth's surface. In discussing the "timbre" of Lautréamont's style ("I confer a very elevated meaning on the word style"³⁸), Aragon describes the work of the intellect as an acoustic mining:

*When the worker who was digging into the bowels of the earth—whether in knotty Asia or near the Italian sea, where the dust is lightest because it is made with the powder of statues—when this worker suddenly hears the steel of his pickaxe ring strangely, he bends over, questions the distant depth, and thinks he hears a dirge. To the bottom of the pit he glues an ear that is used to romances. What is this perpetual rumbling? A monstrous parade, an enormous troop which nothing wearies. Profuse resonance of subterranean carriages. The ebb and flow of hidden waters, where everything merges.*³⁹

Aragon's mining strikes an aqueous metaphor, which continues to flow while he describes the automatic speech of the poet Robert Desnos during the Surrealist "period of sleeps": "He spoke like no one speaks. The great common sea suddenly found itself in the room, which was any old room with its surprised utensils."⁴⁰ Here, the subterranean waters "where everything merges" are themselves transmitted into the room through the buccal spigot of a "sleep talking" Desnos, as though he were but a puncture on the surface of the earth and of consciousness, a breach through which can be heard "the echo of what we are tempted to consider as universal conscience" (Breton).⁴¹ Desnos was such an avid "sleeper" that he eventually pressed the patience of his listeners too far, as evidenced by the episode when an intolerant Paul Eluard, to awaken Desnos, emptied a jug of water onto his chest. In 1932, several years after leaving the Surrealist ranks, Desnos replaced the transmission technology of his own body for that of radio broadcasting proper, working in

Information et Publicité to create what he thought of as either an extension of poetry or a return to it: radio advertising. "I threw myself passionately into the almost mathematical, yet intuitive, work of adapting words to music, of fabricating sentences, proverbs and mottoes for advertising, the primary exigency of this work being a return to the people's taste in the way of rhyme."⁴² As his wife, Youki Desnos, recounts, "Robert's ambition—and how many times he repeated it to me—was outside of his pure poetic work, to create songs which could sweep through the streets, to be whistled by a boy pedaling a carrier tricycle, for example, or murmured from ear to ear by lovers."⁴³ In other words, Desnos abandoned the "universal consciousness" that populated the unconscious for the crowded unconscious of "the People." Goods and services lodged in the bodies of jingles and songs were recorded into the minds of thousands of French people in order to be irrepressibly repeated. Desnos thereby socialized himself by radiophonically transmitting an entirely denatured "period of sleeps" and extending the transmitter from the psychotechnical device of his own body to the crowd.

In terms of historical sequence, figures of transmission might seem like a return of sorts to the space of vibrations and objects and bodies of phonography, had these very figures themselves not been available since the late nineteenth century as well. A more complete account of their histories will have to wait for another occasion. They have been proposed here, along with the outline of art and phonography, as methods to cohere a wide range of scattered events and ideas; the cohesion need not be a narrative one. The following essays certainly supply enough information and analysis to gain further bearings on this history and will hopefully provoke research into the field of sound and aurality, sound recording and radio in the arts, that will delve into greater detail, propose other ways of theoretical and historical understanding across the arts in general, and engender a complex sense of artistic possibility among practitioners.

NOTES

1. For a discussion of the discursive and technological relationship of music to the aural arts see Douglas Kahn, "Track Organology," *October* 55 (Winter 1991).
2. This line of thought has been introduced by Frances Dyson in "Notions of Acoustic Truth," the unpublished abstract for her Ph.D. dissertation from the University of Technology, Sydney, 1990.
3. F. T. Marinetti, "Destruction of Syntax—Wireless Imagination—Words in Freedom," *Lacerba*, 11 May and 15 June 1913, translated in Richard J. Pioli, *Stung by Salt and War: Creative Texts of the Italian Avant-Gardist F. T. Marinetti* (New York: Peter Lang, 1987), p. 45.
4. F. T. Marinetti, *Selected Writings*, ed. R. W. Flint (New York: Farrar, Straus and Giroux, 1972), pp. 332–333.
5. F. T. Marinetti, "From the Café Bulgaria in Sofia to the Courage of the Italians in the Balkans and the Military Spirit of Désarrois," in *Selected Writings*, p. 332.
6. Guillaume Apollinaire, "The New Spirit and the Poets," published as an addendum in Francis Steegmuller, *Apollinaire: Poet Among the Painters* (Freeport, NY: Books for Libraries Press, 1971), p. 280.
7. *Ibid.*, p. 281.
8. *Ibid.*, pp. 281–282.
9. *Ibid.*, p. 282.
10. *Ibid.*, p. 281.
11. *Ibid.*, p. 279.
12. Kurt Weill, "Radio and the Restructuring of Music Life" (1926) in *Writings of German Composers*, ed. Jost Hermand and James Steakley (New York: Continuum, 1984).
13. *Ibid.*
14. Dziga Vertov, *Kino-Eye: The Writings of Dziga Vertov*, ed. Annette Michelson (Berkeley: University of California, 1984), p. 40.
15. Dziga Vertov, "Speech of 5 April 1935," cited in Seth Feldman, *Evolution of Style in the Early Work of Dziga Vertov* (New York: Arno Press, 1977), p. 13. For an astute comparison to Russolo's work, a source which influenced Vertov, refer to Feldman's comments on pp. 12–15.
16. *Ibid.*, p. 40.
17. See Krisztina Passuth, *Moholy-Nagy* (New York: Thames and Hudson, 1985), p. 289.

18. Sibyl Moholy-Nagy, *Moholy-Nagy: Experiment in Totality* (New York: Harper & Brothers, 1950), pp. 68, 97. Although it is unfortunate that this film is lost, the sound generated by this technique would probably have resembled a bird whistle of sorts, alternating with thin, scratchy sounds.

19. Luis Buñuel concurs: "Eisenstein's friends have tried to blame Alexandrov for the débâcle of the dreadful and shoddy production of *Romance Sentimentale*. But I saw Eisenstein making it with my own eyes, since he was shooting it on the stage next to me when I was making *L'Age d'or*." (Cited in Francisco Aranda, *Luis Buñuel: A Critical Biography* [New York: Da Capo, 1976], p. 87.) A full accounting of Eisenstein's participation in this film, along with his other early failures and frustrations relating to sound film, could not only fundamentally disrupt notions of Eisenstein's position on sound film but could also, because of his reliance on aural, musical, and synesthetic metaphors throughout his theoretical writings, require a reformulation of much more.

20. Harry Potamkin, "Playing with Sound," in *The Compound Cinema: The Film Writings of Harry Alan Potamkin* (New York: Teachers College Press, Columbia University, 1977), pp. 86–88.

21. Synesthesia exists only in a privatized articulation and even then within select few individuals, as evidenced by the variation of synesthetic systems listed in

Gordon's essay. The attempts to socialize these solitary perceptions into a communicative mode could only survive among ideologies of the artist as an innate generator of languages.

22. See Douglas Kahn, "Acoustic Sculpture, Deboned Voices," *Public* (Fall/Winter 1990/1991), pp. 23–34.

23. Velimir Khlebnikov, "Ka," in *The Collected Works of Velimir Khlebnikov, Volume 2: Prose, Plays and Supersagas*, trans. Paul Schmidt, ed. Charlotte Douglas (Cambridge, MA: Harvard University Press, 1989), p. 56.

24. *Ibid.*, p. 67.

25. *Ibid.*, pp. 67–68.

26. Harry Potamkin, "Playing with Sound," p. 88.

27. Velimir Khlebnikov, "The Radio of the Future," in *The Collected Works of Velimir Khlebnikov, Volume 1: Letters and Theoretical Writings*, trans. Paul Schmidt, ed. Charlotte Douglas (Cambridge, MA: Harvard University Press, 1987), p. 395.

28. Stefan Themerson, letter to Henri Chopin, reprinted in the review *Ou* 36–37 (c. 1969).

29. André Breton, "Ode to Charles Fourier," excerpted in Marcel Jean, ed., *The Autobiography of Surrealism* (New York: The Viking Press, 1980), p. 404.

30. Marinetti, *Stung by Salt and War*, p. 48.

31. Guillaume Apollinaire, "The Moon King," in *The Poet Assassinated*, trans. Ron Padgett (San Francisco: North Point Press, 1984), p. 80.

32. *Ibid.*, p. 81.

33. Dorothy Norman, "Edgar Varèse: Ionization—Espace," *Twice a Year*, (Fall–Winter, 1941), pp. 259–260.

34. Fernand Ouellette, *Edgard Varèse* (London: Calder & Boyars, 1973), p. 132.

35. André Breton, "Entrée des médiums" (1922), excerpted and translated in *The Autobiography of Surrealism*, ed. Marcel Jean (New York: The Viking Press, 1980), p. 101.

36. Louis Aragon, *Treatise on Style* (1928), trans. Alyson Waters (Lincoln: University of Nebraska Press, 1991), p. 106.

37. *Ibid.*

38. *Ibid.*, p. 105.

39. *Ibid.*, pp. 103–104.

40. *Ibid.*, p. 104.

41. Breton, "Entrée des médiums," p. 101.

42. Quoted from Robert Desnos, *Etat de veille (Waking State)* in Mary Ann Caws, *The Surrealist Voice of Robert Desnos* (Amherst: University of Massachusetts Press, 1977), p. 9.

43. Youki Desnos, "Desnos poète populaire," *Simoun*, "Robert Desnos" issue (1956,) pp. 52–54, quoted in Steven Kovács, *From Enchantment to Rage* (Rutherford, NJ: Fairleigh Dickinson University Press, 1980), p. 52.