A Philosophonics of Space: Sound, Futurity and the End of the World

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- In Silence John Cage refers to sound as a "transmission in all directions from the field's center."[1]
- Stockhausen cites St. Thomas, who speaks of "The exaltation of the mind derived from things eternal bursting forth in sound."[2]
- Edgard Varese remarks that he likes "music that explodes."[3]
- For critic Herbert Ruscoll, it is no surprise that the era of electronic music should coincide with the atomic age.[4]

There is a common trope beaming through these representations of aurality, and that is the trope of radiance. Radiance is a wonderfully synthetic metaphor - providing a bridge between sound as an individual, organic phenomenon present in the minutae of the world and sound spread out across the vast expanse of imaginable and fictive space. This union between the micro and macrocosm, also combines differing and at times opposing ontologies. Radiance offers the security of the object, long held as the foundation of being and knowledge.[5] At the same time, it suggests the fluidity and ephemerality of the event. By providing a compromise between the object and the event, radiance connotes a sense of organic process, of movement, change and complexity - the presumed essence of vitality itself - whilst maintaining a sense of identity and individuality. In an age where rigid structures are being replaced by malleable forms, where the borders of the object are beginning to bleed, sound, with its eventfullness, familiarity and security, becomes a very appropriate medium for the renogiations of time and space integral to such massive transformations.[6]

In contemporary discussions of the body in space, of information highways and virtual realities, radiant sound establishes a `ground' in the discourse of the future - be it utopian or dystopian - built from sound's long history of transmission (telephony, radiophony) and `spirit' (electrified by composers such as Cage, Varese and Stockhausen). This `ground' has also been adopted to some extent by the contemporary philosopers Derrida, Baudrillard and Lyotard, who use aural, spatial and incinderal metaphors to raise questions about being, technology, and the future. Thus radiant sound becomes a figure in different but related cultural fields: as a trope for many of the great modernist reconciliations, its history in organicism, romanticsm and individualism, provides a model for the individual dispersed across the electronic field. However, in the less beatifically inclined era of postmodernism, the representation of sound as radiant contains a strong cultural ambivalence towards the twentieth century, with its massive technological upheavals, its utopian promises and failures and its shameful record of war. In this context, the radiance of radiant sound is filled with darker connotations - for just as atomic warfare records the human form as shadows on a wall, the technological inscription and transmission of sound across space is seen to leave deathly traces of the body and of nature in the disembodied sound it produces.

The central issues of this paper fall between ideas of sound, space, technology and embodiment. There is no unifying theory here - just a series of connections that, I believe, are important for artists and theorists. Through these

connections, I hope ultimately to say something about the `immersiveness' of new interactive media, about the emergence of tropological space, and the collapse of literal space, about vision as an instrument for entering the future, about sound and the existential silence of outer space.

Audiophonic radiance

Within the concept of radiant sound, there is often expressed an ontological relationship between the sound, its audition and technology. For instance, in Silence John Cage describes sound as:

> Urgent, unique, uninformed about history and theory...central to a sphere, without surface, its [sound's] becoming is unimpeded, energetically broadcast...It does not exist as one of a series of discrete steps, but as transmission in all directions from the field's center. [S:14]

Here we have a sense of sound originating in a center and radiating out to interpenetrate with other such centers. Being "broadcast" it is reminiscent of the radio studio, having a "centre" it recalls the organicism of the abstract filmmaker Oscar Fischinger, who profoundly influenced Cage's understanding of sound.[7] Moving from the notion of a sound object, to that of an aural process (emblematic of life in general) to an idea of radiance, Cage refers to technology's ability to "liberate" sounds from objects, in the same way perhaps that sound liberates the "spirit" of the object, therefore providing a neutral avenue towards the essence of the sound itself. Amplification, for instance, allows sounds which otherwise would remain silent to be heard, radiophonic transmission liberates sound from the objectification recording imposes,[8] and radiophony, even when silent, provides technical assistance in the transformation of "our contemporary awareness of nature's manner of operation into art," allowing the art object to recoup the flux of life. In this way technology becomes a "process" within the overall metamorphosis of the cultural into the natural, while the artist adopts the manner of the being or becoming of sound. As a function of this becoming, which Cage describes as a "transmission in all directions from the fields center" the prostheses of technology radiate inwards, to the center of being, as well as outwards, to the broadcast medium. Through "technics" sounds can not only "be themselves" , as Cage would say, but they can be heard as such. And this hearing implies a technological ear, an ear that is perfectly disembodied and supposedly neutral, that has no necessary relation to the to the body of the listener in the same way that the reproduced sound has no necessary relation to the aural context in which it first occurs. With such an ear, the composer is infinitely present both in the unknowable interiors of "sounds in themselves" and the unbounded space of electronic transmission.

Cage's notion of a disembodied techno-subjectivity created through electronics or 'technics' is not at all unique. Throughout the nineteenth and twentieth centuries the phenomenon of electrical transmission was received within an already established belief system, which identified electricity with a spiritual and/or cosmic force, and transmission with the movement of the soul through worldly and heavenly spheres. While "broadcast" figuratively disseminates the "word" of the speaking subject, "radio", (from the Latin radius and the derivative radiare, to emit rays, and irradiatus, to illuminate, to enlighten intellectually"[9], suggests an origin of such dissemination in a center or Self which, inscribed with the theology of light, moves outwards to the world and cosmos alike. Imbued with religious and cosmic meaning, the transmitted voice occupies a conceptual space which electricity, and particularly the idea of the aether, also inhabits. Thus it is no coincidence that the early barkings of telephonic communication would echo with the spiritist's desire to reach beyond the living to "the other side", or that Thomas Edison would experiment with thought

transference and communication with the dead, or that the "magical" crystal sets of early wireless were received amidst a culture already familiar with the "wireless telephone" or "voice boxing" of mediumship.[10]

Communicating with the "other side" however is also engaging with the prospect of incorporeality, that is, with death. Radiant sound thus both glows and sears - it is double edged, and in a sense embodies the kinds of adulations and fears surrounding the use of sound technology and technology in general in the late nineteenth twentieth centuries. Radiance appears as electricity, as burning, as explosion, as residue, as model for organic life, as destroyer and liberator. For instance early "liberators of sound" made the connection between the release of sound and the explosions on the battlefield. Russolo, influenced by the experimental poetry of Filippo Marinetti, who created a war poem in which the sounds of combat are depicted by syllables, vowels and consonants, wrote in 1912 of the Futurists dedication to "add to the great central themes of the musical poem the domain of the machine and the victorious kingdom of Electricity." [11] Edgard Varese, in conceiving his unfinished work Espace, wanted there to be:

> 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.[12]

In The Liberation of Sound Varese writes that he wants to create a feeling " akin to that aroused by a beam of light sent forth by a powerful searchlight - for the ear as for the eye, the sense of projection, of a journey into space."[13] The effect of beaming sound is evident in his unrealized project, l'Astronomie, which Varese began in 1928. The work was a projection into the year 2000 AD and involved the representation of a series of catastrophes caused by 'instantaneous radiation'. A sketch of the piece was given to Antonin Artaud in 1932, and from it Artaud wrote There is no More Firmament, in which the narrative centres around the end of the earth initiated by a scientist who willingly annhiliates space through `celestial telegraphy' in order to establish `interplanetary language.'[14] In Varese's sketch, the final scene ends with the protagonist being volatilized into interstellar space, to the sounds of factory sirens and airplane propellors. At that moment, spotlights were to be beamed into the auditorium, blinding the spectators, while the "mob" in the drama are turned to stone.

Stockhausen also wrote music (eg. HYMNEN) for the postapocalypse, and situated his creative process within the context of electroacoustics which he likened to the 'synthetic industry', and the process of molecular manipulation:

> And the dream is that you can make different beings rise by going into the cell structure, into the nucleus. The discovery of the DNA code, for example, focuses on how you can create different species of beings by starting from the very smallest particles and their components. That's why we are all part of the spirit of the atomic age. In music we do exactly the same.[15]

Stockhausen sees no difference between his body, the sounds he composes, the inner nature of the sounds, the organization of the universe and the 'electric' force unifying all. He says:

> We are all transistors in the literal sense...a human being is always bombarded with cosmic rays which have a very specific rhythm and structure, and they transform his atomic structure and by that his whole system. ..We are an electric system - let's forget about our always dying bodies, so to speak, in order to be reborn in a different form.[16]

Being transistors, we are particularly vulnerable to sound:

> Sounds can do anything. They can kill...[therefore] We must know what the waves do to us - all the waves... cosmic rays constantly bombarding and penetrating our bodies.[17]

Philosophical radiance

Radiance, atomism, radiation, irradiation, molecular transformation, disintegration, explosion, catastrophe. The atomic bomb, sounding like thunder, leaves an eerie shadow, a photographic trace of the body on a wall - a surface of inscription. At the same time, atomic radiation penetrates the human cell, causing mutations within it's genetic structure, upsetting the intelligence that, vibrating within the smallest unit of genetic code, spells out what a human being will be. It is difficult to dissociate the idea of radiant sound manifest in the the writings of these composers from the hell fire of twentieth century warfare, a hell fire leaving traces of the body that are amplified, transformed and broadcast through twentieth century sound technology. This association developes a philosophical complexity in a recent work by Jacques Derrida entitled Cinders, in which he connects fire, radiance, the holocaust and sound technology.

Derrida uses the term 'cinder' to rename and reinvigorate his concept of the trace, which is the mark of a presence no longer present - a present absence. In Cinders he asks how the traces of being, the cinders still burning in our memories of the holocaust, still calling within the silence of cultural amnesia, can be made to sound. Specifically he asks, how these silent voices can be made audible within the text of Cinders itself, which, as he says "is destined for the eye". Derrida finds the answer in sound technology, he writes: "Then one day came the possibility, I should say the chance of making a tape-recording of this."[18]

Through the apparatus of the tape recorder the "voices" in the text will have their "specific volume". The previously heterogenous mediums of text and sound recording will be "reinvented by the other", providing as he says "a studio of vocal writing." [C:23] The text will thus become a polyphony, like the mixing of voices in a recording, the other voices, other readings which always occur within the text will become audible. What Derrida calls "phonographic act" effects this polyphony and dissemination, by amplifying the inaudible, or in Derrida's tropology, through the "pyrification of what does not remain and returns to no one."[19] Here Derrida is referring to the cinder, which supersedes the inscriptive and objective connotations of the trace, by embodying the vitalism of (an originary) fire of which it is a residue.[20] He writes:

> The all-burning is an essenceless by-play, pure accessory of the substance that rises without ever setting...without becoming a subject, and without consolidating through the self (Selbst) its differences...The all-burning...resembles the pure difference of an absolute accident...As soon as it appears, as soon as the fire shows itself, it remains, it keeps hold of itself, it loses itself as fire...That is the origin of history, the beginning of the going down, the setting of the sun, the passage to occidental subjectivity. Fire becomes for-(it)self and is lost. [C:42-46]

In appropriating the metaphor of fire Derrida also invokes a Heideggerian reading. The "setting of the sun" is a reference to Heidegger's expression Arben-land, literally "the evening-land", which refers to the Occident. Heidegger uses this expression in referring to the "monstrous" transformation which occurred in Western thinking whereby being came to be thought in terms of presence - specifically the presence of the object.[21] The "all burning fire" is a

reference to the pre-Socratic philosopher Heraclitus, who used the phenomenon of fire, which continually dies and re-kindles, as a symbol for the flux of life.

The metaphor of fire, which Heraclitus used to represent becoming or flux, could just as well be replaced by the metaphor of sound. Like fire, sound is temporal, coming into existence at the moment of its passing away, hovering between being and non-being, more of an event than an object. However this oscillation cannot be accommodated in Western rationalism, where a thing either exists or it doesn't, thus the event like nature of sound and fire is silenced, becoming a residue, in Derrida's terms, a cinder. The supreme violence of this silencing is all too evident in the incinderal remains of war - shadows on walls, lampshades, bodies turned into traces and objects. And outside of war, in the mundanity of daily life, the monstrosity of object centered thinking treats bodies and environments as if they have no place, or history or time of their own. As Derrida writes: "There are cinders only insofar as there is the hearth, the fireplace, some fire or place. Cinder as the house of being."[C:41]

It is possible to see his choice of the tape recorder as an instrument for releasing the silent call of the cinder in the broader context of radiance outlined above. Cage, composing before WW2, connects radiant being, made audible as radiant sound, with the occultist notion of electricity as a benign and spiritual force. For Cage, sound technology was a neutral instrument for revealing this force, this radiant essence of life. However, by the time of Derrida's writing, the tape recorder has developed darker significance. As both mechanism and metaphor, it records and amplifies sound as already radiant - as sound which hearkens to the the sound event, the flux of existence, but at the same time as sound which bears the traces of bodies made atomic, turned into objects by the fires of war. In the climate of ambivalence characterizing twentieth century culture, sound technology produces both the sounds of the cosmos (radio waves, Artaud's celestial telegraphy) and the explosions of cosmic catastrophe - in other words, the radiance of radiant sound echoes with the voices of those scorched by military and communications technologies. As well as evoking the disembodied voice of God, radiance imbues the disembodied voice of media with an electric timbre that says "I can be in any place at any time " and warns, "there is no longer any place nor any (human) time".

Incinderal virtualities

In many ways it is no surprise to find this question of human time and space orbiting the real and fictional spaces of contemporary cyberculture, and the complexities of radiant sound echoing through the sonic computations of virtual audio. As well as borrowing heavily from the rhetoric surrounding early telephony and radio, which after all, occurred in a period much less cynical than our own, virtual reality and other new media technologies also traffic in the very large and the very small. And like radiance also, this simultaneous opening and closure of space, this shift from one space, one ontology to another, involves the colonization of sound's metaphoric range.

Thinking of the VR helmet for instance, one could very easily return to Rudolph Arnheim's musing on the "heavenly atmosphere" or `stimmung' created when the radio listener listens through headphones in "the dark quest intimacy of their living room."[22] For just as the headphones concentrate the articulation of space in the ears, the VR helmet concentrates the visual field directly in front of the eyes. There is about as much space between headphone and ear as there is between the eyes and the helmet, and it seems that this relatively pedestrian matter of feet, inches, or centimeters, also involves more profound issues of existence and embodiment. It also seems that what glues the notion of "reality" to the computer simulation, has less to do with overcoming the problem of

distance figured in centimeters, as overcoming the ontology these few centimeters of distance represent.

Artists and enthusiasts have claimed, for instance, that by enabling the VR voyager to fly, to go through walls, to see objects from the inside etc., VR technology is capable of creating a new space of perception and embodiment. As one interacts with the three dimensional computer simulation in a totally `immersed' environment, there is the strong temptation to assume first, that the simulation is `real', and second that being "in" the picture means being part of the picture to the extent that one can say "I am in the picture - therefore I am".[23] Here "in" as opposed to "in front of" becomes the ground for Being itself. At the same time, the "presence" left out of the simulation is restored through the physical presence of the participant manipulating the equipment. This makes it almost impossible to avoid metaphors like "space" or "reality", while the participant's body becomes the map upon which the "embodiment" of virtuality is verified. This mapping has a literal counterpart in virtual audio, where the minute details of sound's sonic properties together with its movement through the virtual environment are computed, as are the topologies of the listeners ear, shoulder, neck and paunch.

The body thus enters a field of computation in which the illusion of infinite space is created through the collapse of physical space. And this occurs not only through the absence of a few centimeters between eyephones and eye, but through the substitution of total bodily movement, involving all parts of the body, to movement which is articulated only via the eye and the hand. In the same way that the three dimensionality and temporality of sound has been used to evoke a sense of `being'there' in cinema, the mobility of the body creates a sense of movement, change and flux in the virtual environment. However, in the same way that cinema sound has been reduced to an `effect', the movement of the body, and the body itself becomes an `effect'.

Friedrich Kittler points out that:

> The general digitalization of information ... erases the difference between individual media. Sound and image, voice and text have become mere effects on the surface ... Sense and the senses have become mere glitter.[24]

Kittler concludes that in digital systems all data flows, (including those of the body) "end in a state n of Turing's universal machine; numbers and figures become (in spite of romanticism) the key to all creatures."[25] Given this numerological hermeneutic, it is no coincidence that Peter Weibel refers to "genetic art" as a new art form in which the computer program rather than the artist directly creates the images, so that the process of the program is the creation of the work itself. According to Weibel, this "genetic art "simulates being alive." Elsewhere Weibel writes that Real electronic art is not based on the space of classical physics or on natural space, but on the space of endo-physics.[26] Another writer, Florian Rötzer, suggests that as the aesthetic distance between the subject and the image, screen or world, is cancelled out, the total work of art becomes what he calls "a total data work".[27] Like genetic art, the total data work would be axiomatically Cartesian and logocentric, but would carry genetic traces which allow for cultural mutation. One consequence of this is the emergence of hybrid identities, such as the programmer/artist, and the extinction of the unified stable subject, who, in the form of the romantic artist, has traditionally provided an avenue to the sublime.

What then fills the vacuum created by the cyberartist's exit from all that Art is supposed to be about? And how do writers, like Michael Heim, latch on to the cyber joystick whilst maintaining an organic, almost spiritual balance with the earth, an attachment to the sublime of traditional notions of art, and a metaphysical grounding in "reality"? In the trajectory of the posthuman, the

implosion of artist/programmer, object/event, or subject/object, is also an explosion from which no one survives. Thus for Heim, 'reality' is grounded in the ultimately finite constraint, and sublime space, of death. For Rötzer also, it is through gaps in the web of communication such as pain, shock, and war that argues that "the real still shimmers" and by way of the "accident" that reality will be experienced in the age of simulation.[27]

Whereas the impossibility of physical death in cyberspace is one of its main attractions (certainly for the flight simulators used by the military), this absence of death and of death's possibility does not emasculate the project. For death becomes the ultimate ground for the cybernaught, not in terms of individual death, nor even death of the planet, but according to Lyotard, in the death of the solar system. On a number of occasions Lyotard mentions the inevitalbe the destruction of the solar system estimated to occur in 4.5 billion solar years. The task of technology, is to create an alternate non organic system that will survive this catastrophe. Not only does the certainty of this event constitute perhaps the most sublime of deaths, but the end of the solar system represents a finality, a resolution, that puts ultimate limits on human endeavour. Such closure however, comes at the end of a narrative space in which all the utopian and apocalyptic concerns that have defined twentieth century culture's relationship to technology, are able to play out their fictions.

As a way of representing the body in space, according to a perspective that the logocentric apparatus has inherited form the renaissance, futurity is also associated with frontality, and opposed to anteriority. As a radiant, or irradiated subject, the cybernaught may transmit from a centre in all directions, nonetheless s/he is literally always looking in front. In front - to the absence of distance between the organic eye and the simulated scene, to the absence of difference between the real and the repesentation, to the unfolding in sequence of the virtual narrative, and to the future as a narrative of progress. This future space thus stands in for all the physical spaces which go missing in virtual worlds, and this future death defers the resolution of corporeality and the promise of transcendence that individual death promises. More than this, the future impossibility of organic embodiment provides the ultimate rationale for the numerical constitution, Cartesian co-ordination, and digital storage of the subject, who then shines with the necessity of survival.

This is the radiant subject of art - the channel to the sublime, now irradiated. The subject who shares with radiant sound, the security of identity with the eventfullness, change and flux of the event. As Baudrillard says, we no longer need the VR glove or suit because 'we have swallowed our microphones' and 'internalized our aesthetic image.'[28] We have become the post holocaust meaning of radiant sound - transmissive but rotten at the core. And the realization of this subjectivity occurs, not at the point of solar explosion as radiance would suggest, but at the point of total computation. At this point, the signal continues to survive in outer space; the space of the future, but sound, and any vibrational body, is immediately extinguished by silence.

Notes:

[1] Silence, Wesleyan University Press, Middletown, CT, 1961 p.14.
[2] Stockhausen: Conversations with the Composer, Jonathan Cott, Simon and Schuster, NY, 1973.
[3] Ferdinand Ouellette, Edgard Varese, trans. Derek Coltman, NY, Orion, 1968. p.52
[4] Ruscoll writes: Is [electronic music] this 'controlled chaos', this 'wild clumps of jagged sound, blips, squeals,' 'tonal ruptures and utter boredom', 'this aural nightmare', to use the words of various outraged critics, really here to stay? It seems to me that the answer is emphatically yes. .... the aural nightmare, the abyss of total freedom, is upon us, just like the Bomb. Neither is simply going to go away. Herbert Russcol The Liberation of Sound p.xxiv

[5] The concept of the sound object develops from the visualism of Western thought and its persistence in sound discourse can be partly explained by analyzing the familiar aphorism "seeing is believing." Belief is associated with knowledge, knowledge is embodied in theory and, as a quick look at etymology will show, the word "theory" is governed by the verb "to see". Associated with the Greek théoria, a seeing, is the idea of contemplation, which introduces the partitioning of phenomena into separate parts or categories in order to be viewed more closely. Contemplation is influenced by the Latin templum, meaning both a sacred edifice (cf. temple) and the "temple" of the head, and is associated with L. tempus _ time divided into periods_ as well as the idea of a delimited space partitioned off into a separate sector.See Eric Partridge, Origins: a Short Etymological Dictionary of Modern English., Macmillan, NY 1966, p.711 "theory" and 701 contemplàre. For additional etymological readings see Mark Krupnick (ed.) "Introduction" in Displacement:Derrida and After, Indiana University Press, Bloomington, 1987, p.22

[6] Considering the concept of the sound event, it is instructive to look at the etymology of the word "aural", which, from the Latin auris : pertaining to the ear, derives from "aura", originally Greek for "air" and adopted by Latin as "a subtle, usually invisible exhalation or emanation."Partridge Origins, op.cit., p.636, "soar".

[7] Cage writes that when he was introduced to Fischinger: He began to talk with me about the spirit which is inside each of the objects of this world. So, he told me, all we need to do to liberate that spirit is to brush past the object, and to draw forth its sound. That's the idea which led me to percussion. Daniel Charles, For the Birds Marion Boyars, London, 1981, p. 74.

[8] "The phonograph...is a thing _ not a musical instrument. A thing leads to other things"Silence, op.cit., p.125 Similarly, in 1952, when Cage first worked with magnetic tape, he discovered that sounds could occupy determinate spaces, measured in lengths of tape which corresponded to specific durations, and this correspondence was interpreted as a technologically motivated synesthesia , See Richard Kostelanetz, Conversing with Cage Limelight, New York,1988, p. 184

[9] See Websters New Universal Dictionary and Eric Partridge Origins, p. 552, "ray", op. cit.

[10] See Thomas A. Edison, The Diary and Sundry Observations of Thomas A. Edison, Dagobert D. Runes (ed)., Philosophical Library, New York, 1948; The Meta- Science Foundation "The Magic of Living Forever", audio tape, and Avital Ronell, The Telephone Book, University of Nebraska Press, Lincoln, 1989.

[11] Apollonio, Umbro, (ed.), Futurist Manifestos, Thames and Hudson, London, 1971.

[12] Ferdinand Ouellette , Edgard Varese, trans. Derek Coltman, Da Capo Press, NY, Orion, 1981.

[13]Varese, "The Liberation of Sound", in Contemporary Composers on Contemporary Music, ed. Elliott Schwartz and BArney Childs (NY:Holt, Rinehart and Winston, 1967) p.197

[14] STUPENDOUS DISCOVERY. SKY PHYSICALLY ABOLISHED. EARTH ONLY A MINUTE AWAY FROM SIRIUS. NO MORE FRIMANENT. CELESTIAL TELEGRAPHY BORN. INTERPLANETARY LANGUAGE ESTABLISHED. Antonin Artaud, "There is No More Firmanent", in Antonin Artaud, Collected Works, Vol.2, Trans. Victor Corti, London: Calder and Boyars, 1971, p.85

[15] Stockhausen: Conversations with the Composer, Jonathan Cott, Simon and Schuster, NY, 1973. p.37

[16] Ibid

[17] Ibid., p.82

[18] Jacques Derrida, Cinders, University of Nebraska Press, Lincoln, 1987, pp.22- 23, hereafter cited as "C"

[19] "Dissemination itself expresses in five words [il y a la cendre] what is destined, by the fire, to dispersion without return, the pyrification of what does not remain and returns to no one." Cinders, op.,cit., p.39

[20] "The best paradigm for the trace..is not..the trail of the hunt...the love of the

step for its imprint, but the cinder." C:43 Note: Because of the extreme density of this very poetic work I will not attempt a reading here, nor a full elaboration of the term "cinder". The text, being overtly concerned with the holocaust, is laden with esoteric metaphors and difficult not to read in the light of Jewish mysticism. However, the parallels with Derrida's concept of "trace" and "space(ing)" are many, such that the cinder occupies the chiasmus between the signifier and signified allowing signification to occur, and also occupies the absence within the "is" (being) of the "there is" which cannot be named but only unconcealed through the cinder. [cf.Heidegger]. For instance: "The name 'cinder' figures, and because there is no cinder here, not here (nothing to touch, no color, no body, only words), but above all because these words, which through the name are supposed to name not the word but the thing, they are what names one thing in place of another, metonomy when the cinder is separated, one thing while figuring another from which nothing figurable remains." Ibid., p. 71

[21] Heidegger:"Do we stand in the very twilight of the most monstrous transformation our planet has ever undergone, the twilight of that epoch in which earth itself hangs suspended?...Are we to strike off on a journey to this historic region of earth's evening?...Will this land of evening overwhelm Occident and Orient alike?" Heidegger, Early Greek Thinking, op. cit., p.17. The term Arben-land also appears in Jewish mysticism as the destiny of the Jewish people to face the land of the setting sun.

[22] The intimate radio voice creates, in Arnheim's words a `Stimmung' or atmosphere associated with the cosy parlour' on the one hand, and the `Heavenly Father ... unseen yet entirely earthy' on the other.Rudolph Arnheim, Radio, NY: Da Capo Press, 1972, p.76.

[23] See for instance computer animation artists Monika Fleischmann and Wolfgang Strauss, Der Prix Ars Electronica catalogue, 1992, p.104, or Steve Aukstankalnis, David Blatner, Silicon Mirage: The Art and Science of Virtual Reality. Berkeley: Peachpit Press, 1992pp. 21-22.

[24] Kittler, "Gramophone, Film, Typewriter", October 41, Summer, 1987, MIT Press, p.102.

[25] Kittler, "Gramophone, Film, Typewriter", op.cit., p.118.

[26] Weibel, Der Prix Ars Electronica catalogue, 1992, pp.44, 66.

[27] Florian Rötzer, "Fascinations, Reactions, Virtual Worlds and Other Matter", Book For the Unstable Media, V2 Orgznization, The Netherlands, 1992.

[28] Jean Baudrillard, "Virtual Illusion: The Automatic Writing of the World", lecture given at the Power Institute of Fine Arts, Sydney University, May 5, 1994.