Sound Art and Time

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Abstract and Keywords

This chapter explores the relationship between sound art and time, focusing on a set of works that mark milestones in the history of sound art and that explicitly engage varieties of temporality. It begins with a discussion of Thomas Edison's invention of phonography, which allowed sound to be captured and gave it an untimely existence. It then turns to the work of John Cage, analysing it by way of Henri Bergson's philosophy of time. The essay goes on to discuss the notions of time, duration, and eternity in Maryanne Amacher's radio works, Max Neuhaus's installations, La Monte Young's *Dream House*, Jem Finer's *Longplayer*, and other works.

Keywords: sound art, time, duration, eternity, music, phonography, noise

'THE domain of music is time,' wrote Jean-Jacques Rousseau, 'that of painting is space' (Rousseau, 1966: p. 62). Rousseau's remark captures a long-standing philosophical division of the arts in terms of time and space. The visual arts, the argument goes, are the arts of space, concerned with forms that coexist simultaneously; poetry and music are the arts of time, concerned with events that are temporally successive. Two centuries after Rousseau, the philosopher P. F. Strawson pushed this idea to the limit, arguing that sounds 'have no intrinsic spatial characteristics' and could exist even in a world devoid of space (1959, p. 65; see also Santarcangelo and Terrone, 2015).

One could certainly contest Rousseau's overly-neat division of the arts—surely every art is spatial as well as temporal. Yet sound and the sonic arts do seem to have a special relationship to time. Sounds disappear in the very act of appearing—which is also an apt description of time itself.[1] Music organizes time and makes it audible, cutting into its flow, dividing it into segments, marking events, giving it shape (see Kramer, 1988). The expansion of music into 'sound art' intensifies this relationship between sound and time, opening up new dimensions and experiences of temporality. Here I want to explore this relationship between sound art and time, focusing on a set of works that mark milestones in the history of sound art and that explicitly engage varieties of temporality.[2]

Phonography: Untimeliness and Noise

There is not one origin of sound art but many. The earliest of these is the year 1877, when Thomas Edison invented the phonograph. Before Edison, every sound was fleeting or, as he preferred to call it, 'fugitive' (Edison, 1878). Of course, Edison did not and could not stop the flow of time or eliminate the evanescence of sound. But the phonograph did produce a temporal disjunction that confounds chronological sequence (future–present–past). It enabled the sonic past to return in the present and to reappear in the future like (p. 70) a revenant—for dead relatives to speak again, for Bachman's Warbler to reemerge from extinction, for the 'Amen' break to be endlessly reiterated and reanimated.

The archive of recorded sound came to constitute a sort of externalized memory, and like any form of memory, to assume the peculiar temporality of the virtual. Our biological memory subsists in a virtual state, always at once past and future, the memory of our sixth-grade classrooms or the lyrics to pop songs awaiting their reemergence into the present, which, however, does not diminish their virtual power. Likewise, audio recordings fundamentally elude the present moment. They are always at once past and to come, registering bygone sonic moments and casting them into an indefinite future that is never exhausted by playback in the present. Audio recording extracts a sonorous surface from a segment of the present and gives it an untimely existence. It rends that surface from the lived present, maintaining it as a pure reserve that can always be actualized in a new present but does not belong to it. Recording can also produce purely virtual events that have no foothold in any particular past. Ever since the experiments of Les Paul in the late 1940s, multitrack recording, overdubbing, and effects processing have generated sonic streams that have no existence independent of their recorded manifestation, no reference to a singular event in the chronological past. This non-reference to an empirical past confirms the basic temporal character of sound recording: its untimeliness, its unmooring from any particular past, present, or future.[3]

Why does the birth of phonography constitute one of the origins of sound art? Because, in severing sound from its present performance, audio recording allowed sound to be *installed*, played back independently of the live event, repeated in the absence of the performer and even the listener. Moreover, audio recording registered audible vibrations indiscriminately, heedless of whether they were emitted by a musical instrument, a human voice, wind through the trees, or a passing truck. As John Cage put it in 1937, phonography disclosed 'the entire field of sound' and with it 'the entire field of time' (Cage, 1961, p. 5). Music was thus subsumed within the broader field of sound or noise and was no longer the only sonic art. In the wake of Edison, sonic adventurers sought new names for artistic practices that explored this domain. Inspired by the mechanical clatter of the modern city, Luigi Russolo called it 'the art of noises'. Edgard Varèse and Cage called it 'the organization of sound'. Pierre Schaeffer called his noise compositions *musique concrète*. Today it is what we call 'sound art'.

John Cage: Time and Duration

Cage's landmark composition *4'33"* (1952) marks another origin of sound art. Cannily framed as a musical composition, the piece involves a score, a performer, a set of movements or sections, and presentation in a concert setting. Yet *4'33"* functions like a sort of window or door that opens the space of musical performance to its outside: to the extra-musical world from which the concert hall separates itself, and the extra-musical sounds music traditionally excludes. Cage asks the performer(s) on stage to be (p. 71) silent—or rather, to make no *intentional* sound—thus providing a spatial and temporal opening for ambient sounds and noises to flood in. The piece makes it evident that the musical situation is in no way necessary, that these sounds are going on around us all the time, and that we can 'perform' the piece or 'listen' to it (the difference becomes negligible) whenever we like. *4'33"* is thus at once a musical composition and an exit from music to a new domain of sonic art.

Likewise, *4'33"* engages two very different conceptions of time. The title, of course, refers to the time of the clock; and the performance of the piece is regulated by a stopwatch or timer. The typewritten text score notes that 'the work may … last any length of time'.[4] Yet once the time frame is chosen, it is inflexible. There is no brisk or languid performance of the piece, the temporal scope of which is precisely determined in advance and counted out in minutes and seconds, equal and neutral quanta. Yet just as *4'33"* opens the space of the concert hall to its outside, so too does it open time to its unmeasured flow. The frame is fixed and inflexible; but the audible content is always new and exceeds the bounds of the frame arbitrarily laid over it (or a portion of it). That is, what the piece discloses is the sonic flux of the world, the immemorial flow of sounds that precedes and exceeds the time of the musical work, the span of a human life, and indeed life in general. For, before there were human beings or living things, there was noise: the crackling of cosmic radiation, the rush of solar wind, the roar of the sea; and these sounds will continue beyond us. 'Until I die there will be sounds', Cage famously wrote. 'And they will continue following my death' (Cage, 1961, p. 8). What is true for the death of the individual is also true for the death of the species and, indeed, all life. It is this immemorial or ancestral time to which *4'33"* subtly attunes us.[5]

Or rather, the piece *tunes us in* to this time. Just prior to composing *4'33"*, Cage wrote two compositions for radio, *Imaginary Landscape No. 4* (1951) and *Water Music* (1952), and he returned to it again with *Radio Music* in 1956. Drawn to the technology as a tool of indeterminacy, Cage appreciated the fact that the radio spectrum constitutes an enormous, unpredictable, and ever-changing archive of music, talk, static, and other noises. As such, it's a sort of microcosm of the broader sonic flux, the perennial flow of sound. *4'33"*, then, functions as a sort of macrocosmic radio piece: for a few short minutes it tunes us in to the infinite and continuous flow of worldly sound that precedes and exceeds our attentive listening. 'Music is continuous', Cage often said; 'only listening is intermittent'.[6]

In a lecture given at Darmstadt in 1958, Cage further developed the distinction between the two conceptions of time disclosed in *4′33″*. The European art music tradition, he argued, has thus far been dedicated to the production of what he called 'time-objects', that is, 'the presentation of a whole as an object in time having a beginning, a middle, and an ending, progressive rather than static in character, which is to say possessed of a climax or climaxes and in contrast a point or points of rest' (Cage, 1961, p. 36). Such musical works rigorously control the flow of time, organizing it into distinct formal parts or sections, and giving it a generally teleological, narrative shape. Though formally inventive in other respects, Cage's own works (*Music of Changes*, for example) had been compositions of this sort. Yet Cage went on to affirm a very different conception of composition and, with it, a very different conception of time. Against musical (p. 72) 'time-objects', Cage celebrated compositions that consider musical activity as 'a process essentially purposeless', 'a process the beginning and ending of which are irrelevant to its nature' (38). Such music would not bind, regulate, or control time but rather model the ateleological sonic flux of the world.

The temporal distinctions at work in Cage's *4′33″* and the Darmstadt lecture resonate with a key distinction drawn by one of the twentieth century's greatest philosophers of time, Henri Bergson, who became an important influence on Cage in the 1950s.[7] For Bergson, most of what is conceived and represented as time is in fact not temporal at all but spatial. 'When we invoke time', he writes, 'it is space which answers our call'; 'the elimination of time is the habitual, normal, commonplace act of our understanding' (2007, pp. 4, 19). What does Bergson mean by this puzzling claim? Consider an analogue clock. Seconds, minutes, and hours are laid out side by side—equal, discrete, and homogeneous units that divide and measure the flow of time. The three hands of the clock move across these spaces to mark temporal passage. Digital clocks are not really any different; they merely emphasize the quantitative rather than the spatial aspect. But, for Bergson, quantity is inherently spatial: two identical units can only be differentiated by their spatial separation, which also enables them to be infinitely divisible (Bergson, 1960, pp. 75ff and 120ff). So clock time is what Bergson calls a 'quantitative' or 'discrete multiplicity', a neutral, homogeneous container that acknowledges no qualitative difference in its contents. The trouble with this conception of time—clock time—is that it can't account for the very essence of time: *that it passes*. If time consists of discrete, infinitely divisible moments, then how can one moment pass into the next? How could it leap the gap from one to another? The problem is not solved by making the interval infinitely divisible, for, rather than eliminating it, this only makes the interval smaller. And yet we know that time passes. Like it or not, we get older each day; and everything in the universe is subjected to the alterity and novelty that is bound up with time's passage. There must then be another, deeper conception of time that's not a discrete, discontinuous, or numerical multiplicity. This is what Bergson calls *duration*: time as a 'qualitative' or 'continuous multiplicity', 'a continuity of flow' in which past, present, and future permeate one another to form a genuine continuum.[8] Unlike clock time, which is homogeneous and cyclical, duration marks qualitative change in which each moment differs from the previous one and the one to follow. Where clock time is *extensive*, duration is *intensive*: it can't be divided without

changing in nature (Deleuze, 1991, pp. 40ff; see also DeLanda, 2002, pp. 26–27). Past and future are asymmetrical; and time is irreversible.

Cage's compatriot Morton Feldman drew just this distinction. Alluding to Bergson, he wrote: 'I am not a clockmaker. I am interested in getting to Time in its unstructured existence'; 'I feel that the idea is more to let Time be, than to treat it as a compositional element. No—even to construct with Time won't do. Time simply has to be left alone.' Recalling the distinction in Cage's Darmstadt lecture, Feldman remarked that his interest was 'not how to make an object, not how this object exists by way of Time, *in* Time, or *about* Time, but how this object exists *as* Time. Time regained, as Proust referred to his work' (2000, pp. 86–87). This interest in time-as-duration, in making music that would not control time but would flow *with* it and *as* it led Feldman, late in his career, to (p. 73) compose works of extraordinary length, for example, the four-hour *For Philip Guston* (1984) and the five-and-a-half-hour *String Quartet II* (1983). 'Up to one hour you think about form', Feldman wrote, 'but after an hour it's scale. Form is easy—just the division of things into parts. But scale is another matter. Before my pieces were like objects; now they're like evolving things' (quoted in Friedman, 2000, p. xxvi).

Like Feldman, Cage dispensed with the effort to control, segment, organize, and count time, and instead hoped to disclose a form of time that transcends human construction. 'The world, the real', he noted, 'is not an object. It is a process' (Cage, 2009, p. 80). And 'art', he was fond of saying, must 'imitate nature in her manner of operation' (see, e.g., Cage, 1961, pp. 9, 100, 155, 173, 194; and 1967, pp. 18, 31, 75). Hence, Cage endorsed a conception of music as a 'purposeless process', 'a process the beginning and ending of which are irrelevant to its nature' (1961, p. 38; cf 2009, p. 150). In place of the bounded, narrative conception of time characteristic of the classic musical work, Cage affirmed duration and simultaneity. He wanted his music to mirror and to become part of the open, ateleological flux of the world, and he affirmed that this flux is not singular but multiple, a conjunction of many different flows.

Maryanne Amacher: Sound, Time, and the Weather

In a late interview, Cage remarked that the work he was pursuing was 'less like an object and more like the weather, because in an object you can tell where the boundaries are, but in the weather it's impossible to say when something begins or ends' (Walker Art Center, 1981; cf Cage, 1979, p. 178 and 1990, p. 442). Cage often returned to the metaphor of the weather, which exemplified his conception of temporal duration and change: an ongoing, macro-scale, purposeless process driven by intensive differences. In 1975, in collaboration with Maryanne Amacher and filmmaker Luis Frangella, Cage composed the multimedia performance piece *Lecture on the Weather*, which he imagined as a version of both *4'33"* and *Imaginary Landscape No. 4* (see Kostelanetz, 2003, pp. 81–83). Amacher contributed environmental recordings of wind, rain, and thunder, while twelve voices simul-

taneously read passages from Henry David Thoreau's writings, and Langella flashed projections of Thoreau's drawings.

This same conception of time, sound, and the weather animated Amacher's own initial foray into sound art: the *City-Links* project she began in 1967. In its first iteration, Amacher installed microphones at eight locations around the city of Buffalo (at a steel manufacturer, a power company, the airport, along the Erie Canal, etc.) and transmitted the sounds via telephone lines to the studios of public radio station WBFO, where she mixed them live during a twenty-eight hour performance broadcast. *City-Links* is generally understood as centering on sonic space and the ability of telecommunications technologies to join remote places. The project is an equally powerful reflection on (p. 74) time. Like *4'33"*, it samples ambient sounds during a specified period of clock time; but it multiplies the sound sources in an effort to capture a broader region of the sonic flux and to foreground the differences that constitute it. This simultaneous presentation of multiple flows recalls *Imaginary Landscape No. 4*; and, like Cage, Amacher analogizes radio transmission to duration, the weather, and the sonic flux in general. In a programme note, Amacher wrote:

> The always available, tuning-in-whenever-you-want character of broadcasting appears in this schema as a link-circle surrounding the many discreet and interruptable events within the city. Who can interrupt broadcasting—a non-discreet and continuous presence in the city—there like the weather—whether we open or shut our windows, look or do not look, it is there. City Radio celebrates the availability of broadcasting as a resource media itself, in terms of composition and distribution, and as an ever-present tune-in source, yielding its own special kind of listening—a product available only through broadcast. The broadcast is not an already-made programmable item, or simply coverage. CITY-LINKS WBFO Buffalo links sounding resources of the city in the process of interacting and evolving a course. Broadcasting is here, not a reporting agent of the city, but becomes an event of the city: the media is used for process rather than as a commentary or coverage device. Because CITY-LINKS broadcast version is linking sounding resources of the city in the process of inter-acting or evolving a course, the tuning-in, constantly-there character of broadcasting requires that the piece be available for a minimum of 24 hours. Tuning-in to WBFO [is] like tuning-in the weather, seeing what it's doing now—seeing slight and bigger changes as its forming its course (Maier et al., 2011, p. 861).

City-Links discloses the very ontology of radio transmission as a medium, which Amacher likens to the weather, 'a non-discreet and continuous' process that subsists whether or not we tune into it. Where radio broadcast ordinarily presents completed time-objects ('already-made programmable items') or commentary on events ('coverage', 'reportage'), *City-Links* presents it as a real-time temporal flow that 'evolves a course', exhibiting small or large changes and interactions between various elements. Like the weather, such macro-scale processes unfold slowly—hence the long duration of the piece. Subsequent versions involved even larger time scales. *City-Links #4 (Tone and Place Work I)* (1973–

76), for example, was a two-and-a-half-year live transmission of sounds from Boston Harbor to Amacher's studio at the Massachusetts Institute of Technology, sounds from which she later drew in her contributions to the group exhibition 'Weather' (1973) at MIT and Cage's *Lecture on the Weather* (see Maier et al., 2010).

Max Neuhaus: Space and Time

The live mixing and transmission of remote radio signals was also crucial to Max Neuhaus's transition from music to sound installation. A celebrated avant-garde (p. 75) percussionist, Neuhaus began to tire of the 'onus of entertainment' that surrounded musical performance and sought alternative contexts for the artistic presentation of sound. Among his early projects, *Public Supply* (1966) invited listeners to contribute sounds by phoning the public radio station WBAI, where he mixed ten channels of audio and broadcast it over the New York City airwaves. The same year, Neuhaus's exit from music was neatly figured in his project *LISTEN*, which paid homage to *4'33"* while bursting its spatial and temporal frames. In various iterations of the project, Neuhaus invited audience members to meet at a concert venue, stamped their hands with the word 'listen', and silently led them outside on a walk through power plants, highway underpasses, and city neighborhoods.

In the years that followed, Neuhaus began to produce what he was the first to call 'sound installations', continuous fields of sound—generally complex drones—that shaped and coloured their chosen sites. This shift of interest from temporally bounded works toward site-specific works, he thought, connected his work more fully with sculpture and the visual arts than music, 'because the visual arts, in the plastic sense, have dealt with space. Sculptors define and transform spaces. I create, transform, and change spaces by adding sound. This spatial concept is one which music doesn't include; music is supposed to be completely transportable' (Neuhaus, 1994c, p. 42).

These remarks echo Rousseau's claim that the proper purview of the visual arts is space, while that of music is time. Indeed, Neuhaus frequently distinguished sound installation from music via the opposition between space and time. In a programme note from 1974, he wrote: 'Traditionally composers have located the elements of a composition in time. One idea which I am interested in is locating them, instead, in space, and letting the listener place them in his own time' (Neuhaus, 1994b, p. 34).[9] Two decades later, Neuhaus echoed this idea in the 1994 introduction to his collection of *Place Works*. 'Communion with sound has always been bound by time', he wrote. 'The works collected in this volume share a different fundamental idea—that of removing sound from time, and setting it, instead, in place' (Neuhaus, 1994a). In 2002, reflecting on his permanent sound installations, Neuhaus told an interviewer: 'The important idea about this kind of work is that it's not music. It doesn't exist in time. I've taken sound out of time and made it into an entity' (quoted in Zuckerman, 2002).

What should we make of these claims? Are we to believe that Neuhaus's installations do not exist in time or have been withdrawn from time? Surely nothing escapes time's incessant flow and alterity, least of all something so fundamentally ephemeral as sound, the very physical definition of which involves temporality: pressure differences in a given medium over time. To be precise, what Neuhaus's installations reveal is not the difference between time and timelessness, or the difference between time and space, but a difference we have already encountered: the difference between two conceptions of time. In his work as a sound artist, Neuhaus dispensed with the musical time-object, a bounded entity with an internal structure, marked by beginning, middle, and end, with points of climax or rest. Instead, his installations explore sonic duration, the very temporal flow of sound.[10] Take, for example, his most well-known sound installation, *Times Square* (1977–), an unmarked field of sound (p. 76) emerging from a subway vent on a pedestrian island in the middle of Manhattan. Twenty-four hours a day, seven days a week, for decades and counting, the piece has broadcast a continuous electronic drone.[11] Of course the listener's position, the ambient sounds in the neighborhood, the time of day, and other physical factors ensure that the piece is never the same, forming an open system that changes with the world around it in a manner similar to Cage's *4'33"*, of which it is a sort of unlimited extension. Indeed, the title of Neuhaus's piece is not incidental, not purely a designation of its spatial location. We might read it as 'time's square', that is, as a zone that marks temporal passage, difference, and change. Where Cage's piece delimits a segment of time and attracts ambient sound through silence, Neuhaus's installation demarcates a region of space and solicits environmental noises through a sonic continuum of indefinite duration.

Time is more directly at issue in another series of works Neuhaus pursued from the early 1980s until his death in 2009—what he called *Time Pieces* or *Moment Works*. Neuhaus was always attracted to the sound of bells, which he used to model the electronic sounds of several installations.[12] The *Time Pieces* go further, exploring the social and temporal functions of bell ringing. The four such works Neuhaus installed from 1989 through 2007 sound at regular intervals, marking hours or half hours. Thus they would seem simply to affirm the banal homogeneity of clock time. Yet these works are more temporally complex. Where installations such as *Times Square* reveal temporal continuity and passage, the *Time Pieces* mark the discontinuous time of the event and the difference between *ordinary* moments and *remarkable* or *singular* ones.[13] In modern towns and cities, bells toll merely to mark the hours of the day. But the traditional role of the bell was not only to indicate these ordinary, regular times but also to mark privileged moments: births, deaths, marriages, danger, bad weather, and so on. Such events constituted singularities in the ordinary flow of time, remarkable moments of change where what followed differed fundamentally from what preceded. Peals of bells thus referred not to the abstract, indifferent time of scientific measure but to social and communal rhythms and to events that syncopate those rhythms.

Neuhaus's *Time Pieces* engage both these conceptions of time at once. Sounding on the hour or half-hour, they function as clocks. But they do this in a peculiar way: by reversing and stretching the signal envelope of the bell stroke. The ordinary bell stroke begins with

a loud attack and then slowly decays. By contrast, the sounds in Neuhaus's installations emerge from the silence via a slow crescendo that gradually increases in volume until it's clearly audible to the attentive listener. At peak intensity, the sound abruptly ceases, leaving what the artist calls an 'aural afterimage' that lingers in the memory, enabling the listener momentarily to seize sound in its virtual state (absent but present, inaudible but audible) and time in its passage (present and past, actual and virtual). Like Cage's *4'33"*, Neuhaus's *Time Pieces* create aural vacuums into which ambient sound floods in. For a moment after Neuhaus's sounds cease, nearby noises (voices, birds, wind, traffic) that had been masked by the ringing drone are suddenly amplified until eventually settling down to their ordinary levels.

(p. 77) La Monte Young: Time and Eternity

We see then that Neuhaus's characteristic description of his installations—'removing sound from time, and setting it, instead, in place'—is misleading and that we should understand his work otherwise: not as withdrawing from time but as revealing, by means of sound, alternatives to the time-object and to clock time. The work of another sound art pioneer, La Monte Young, poses a related challenge to conventional notions of time, and does so through an affirmation of time's ancient philosophical and theological opponent: eternity. In the early 1960s, Young formed the Theatre of Eternal Music in an effort to free artists and audiences from 'the artificiality of measured time', and ever since has pursued 'the idea of a composition that could be without beginning and end' (Young, 2018, p. 63; see also Young, n.d., p. 12).

What exactly is 'eternity' and what is its relationship to time? In philosophy and theology, the term has two distinct meanings. On the one hand, it signifies the everlasting, the temporally endless, the sempiternal, that which extends infinitely into the past and future. In this conception, eternity is perhaps immeasurable and unquantifiable; but it is nevertheless compatible with time at its broadest scale: boundless, endless, unlimited duration. The material universe has often been conceived as eternal in this sense of the word. But 'eternity' can also name something very different: the atemporal, the timeless, or that which exists outside of time. Unlimited duration might be characteristic of the 'created' or material world; but that which creates or generates this world cannot itself be a part of it, and thus must transcend the material world and the change and temporality that characterize it. The source of the material world must thus be timeless, eternal in the second sense. As the medieval philosopher Boethius puts it, 'eternity' in this second sense

> is the complete, simultaneous and perfect possession of everlasting life … Whatever, then, suffers the condition of being in time, even though it never had any beginning, never has any ending and its life extends into the infinity of time, as Aristotle thought was the case of the world, it is still not such that it may properly be considered eternal. Its life may be infinitely long, but it does not embrace and comprehend its whole extent simultaneously … For it is one thing to progress like the world … through everlasting life, and another thing to have embraced the

> whole of everlasting life in one simultaneous present. (Boethius, 1969, pp. 163–164)

In the first conception, eternity is indeterminate, endlessly stretching away from the present moment in both directions. In the second conception, it is whole and complete, containing everything in itself. Hegel called the first conception 'the bad infinity'. Its image is the *straight line* 'which goes *out beyond* to this negation of its determinate being, that is, to the indeterminate'. By contrast, eternity in the second sense is determinate and affirmative. It is the 'true infinity', which is figured as a *circle*, 'the line which has reached itself, which is closed and wholly present, without *beginning* and *end*' (Hegel, 2004, p. 149).[14]

(p. 78) La Monte Young's work engages both these conceptions of eternity. In early pieces such as *Octet for Brass* (1957) and *Trio for Strings* (1958), he began to extend pitches to several minutes, and, over the course of his career, introduced longer and longer durations. His early *Compositions 1960* forecast this project. *Composition 1960 #7* consists simply of a single two-note chord, B and F-sharp, with the instruction 'to be held for a long time'. The duration is not specified, but one is led to conceive it as very long, even interminable. The ninth piece in that series is presented as an envelope containing a white index card printed with a black horizontal line, a theme continued in *#10*, which consists solely of the phrase 'Draw a straight line and follow it'. In 1962, Young composed *The Four Dreams of China*, which he imagined as 'a composition that lasts forever' (n.d., p. 12). In his programme notes, he remarked that the piece

> represents a further expansion of time structure; developing on the image of timelessness. I determined that individual performances of the work had no beginning or ending. Each performance is woven out of an eternal fabric of silence and sound where the first sound emerges from a long silence and after the last sound the performance does not end but merely evanesces back into silence, unless a group of musicians 'picks up' the same set of pitches again or from time to time, emphasizing the audible aspect of the performance. (ibid.; see also Young, 1991; and Young and Zazeela, 1969, 15–16)

Developing this idea, Young began to conceive of 'Dream Houses' in which as many as eighty musicians would live together, periodically contributing to the continuous performance of a single piece (Young, 2018, pp. 66–67; see also Oteri 2003). The daunting logistics of this utopian project led Young to a simpler alternative: replacing live musicians with electronic equipment. Sine wave oscillators and synthesizers could not only generate pure tones corresponding to the precise mathematical ratios that interested Young, they could also sustain those pitches indefinitely, or, at least as long as the hardware and electrical infrastructure would allow. In 1966, Young and his partner Marian Zazeela created a private Dream House in their Tribeca loft. The first public presentation of the project took place in July 1969 at Galerie Heiner Friedrich in Munich, where, for two weeks, Young's oscillators generated a field of sine tones fluctuating around 50 Hz ('the underlying drone of the city and all AC-powered equipment'; Young and Zazeela, 1969, p. 12) and

Zazeela projected pure light frequencies at metal mobiles. A decade later, Friedrich's Dia Art Foundation funded a 'permanent' Dream House in the former New York Mercantile Exchange building in lower Manhattan. The installation ran for six years before disputes within the foundation led to its dismantling and reinstallation elsewhere, finally in a space on Church Street, where it has existed since 1993, running for eight hours a day, four days a week.

The Dream House is thus heard only intermittently. Even if we take seriously Young's idea that the silences between presentations of the piece are part of its composition, the project falls short of the ideal of a truly eternal, endless work. After all, each Dream House had a beginning, and each presents a specific composition. Nevertheless, the (p. 79) installation gives the phenomenal impression of endlessness and eternal duration. The current Church Street version consists of thirty-five electronic frequencies that sound simultaneously in a sort of long duration mega-chord. The composition is a harmonic stasis with no melodic development; as such, it seems to go on and on.

This stasis suggests the second conception of eternity: timelessness or atemporality conceived as simultaneous totality or completeness. In the Church Street composition (the title of which is simply a long description of the pitches and ratios that compose it), everything is present at once, whole and complete. Of course it is tremendously complex, and it takes time to hear and grasp all its components. Different aspects of the composition are revealed as one moves across the space, feeling the peaks and troughs of the low frequencies, or, as one moves one's head, altering one's apprehension of the high pitches. But, even though we can't take it all in at once and experience it as unfolding in time and space, the composition remains static, whole, and complete, a microcosm of macrocosmic order. In a more conceptual sense, one might argue that the composition manifests a cosmic formula that has always existed in non-phenomenal form. Borrowing a distinction from classical Indian musical metaphysics, Young proposes just this. Ancient Indian thinkers distinguished between *āhata nāda* (struck sound) and *anāhata nāda* (unstruck sound). The former, Young explained to an interviewer in 2003, is 'the sound we can hear and feel manifest physically', 'the music we can experience as vibrations of air molecules'. By contrast, the latter 'is the Pythagorean equivalent of the music of the spheres', 'an abstract mathematical concept in the mind of God' (Oteri, 2003; see also Zuckerman, 2002).[15] The sounds we hear are made possible by a cosmic mathematical order that is inaudible but accessible to conceptual thought. With this in mind, we might conceive Young's Dream House composition not so much as an artistic creation but as a mathematical or acoustic discovery—a composition that has the same ontological status as numbers, sets, and ratios—which, as immaterial objects, might reasonably be claimed to be eternal and timeless. On this understanding of the piece, what we hear when we enter the Dream House on a given Saturday evening is simply the empirical manifestation of this cosmic formula or 'unstruck sound'.

We have, then, two models of the sonic flux and of its eternity. Young adopts a mystical-rationalist conception of sound aligned with the atemporality of number and fixed proportion. The drones or sustained tones that characterize his compositions and installations

are calculated and notated with mathematical precision, continuing the efforts of Pythagoras, Boethius, and Johannes Kepler to discern the cosmic harmony and make it audible.[16] An alternative model is offered by Cage, who also insists on the perennial nature of the sonic flux but conceives it as the eternal cacophony of noise, the chaos of worldly sound in all its irregularity, multiplicity, and endless duration. Rather than searching for the pure tone or attempting to calculate the underlying structure of the universe, Cage discovers the transcendental font of all music in the forces of sonic matter.[17] The drone—so prevalent in sound art over the past half-century—accommodates both these models. In the work of Neuhaus, for example, we find carefully constructed collections of sustained frequencies that solicit the worldly sounds of their environments and thus affirm indeterminacy and novelty. Amacher's early (p. 80) work—and so much field recording since—develops Cage's interest in worldly sound perceived in temporal slices but also Young's notion that a composition or sound installation might 'pick up' or periodically tune into an ongoing flow of sound and silence.

Clocks, Durations, and Deep Time

Since the 1960s and 70s, sound artists have explored variations on these basic models of sonic temporality. For example, like Neuhaus's *Time Pieces*, Christina Kubisch's *Clocktower Project* (1996) undertakes a *détournement* of the clock and of bell-ringing as a practice of marking time. In 1986, the Massachusetts Museum of Contemporary Art took over a sprawling industrial complex originally built in the late nineteenth century as a textile mill and decades later transformed into an electronics plant. For nearly one hundred years, the two bells in its clocktower rang every fifteen minutes of the working day, exemplifying the subordination of the bell to the quantitative rationality of modern capitalist production. The bells had been silent for a decade by the time Kubisch encountered the site in 1996 and decided to reanimate them. Striking the bells with their clappers, brushing them with her hands, and sounding them with various implements, she recorded an archive of sound samples and loaded them into a computer. Kubisch then surrounded the clocktower with sensors that register the location and intensity of sunlight, and fed this information into an algorithm that matches it with various sounds: a cloudless, sunny sky generates sharp, bright tones from speakers in the tower, while an overcast sky triggers more muted sounds. No longer attached to the quantitative time of the clock, the bell is reconnected to the solar cycle and to the vicissitudes of the local weather.

Where Kubisch's installation sets clock time adrift, Christian Marclay's twenty-four-hour video installation *The Clock* (2010) adheres to it as rigorously as possible. The video is meticulously constructed from a vast archive of film and television footage featuring clocks, watches, sundials, and time pieces of all sorts—clips precisely distributed and sequenced to form a real-time twenty-four hour clock. Every film, video, musical work, and performance takes time, but Marclay's installation makes time its explicit theme, drawing attention to what are often incidental or unnoticed elements in the film frame. And while most films and musical works are heterochronic, granting viewers and listeners a brief respite from quotidian life and time, *The Clock* is precisely matched to actual time, the

time of day outside the museum, gallery, or theatre. Yet, while screen time, real time, and actual time are precisely synchronized, *The Clock* nonetheless forms a parallel world—a specifically filmic world full of drama, boredom, work, sleep, sex, and death. And, though the video proceeds with the precision of a clock, its unusually long duration ensures that—at some moments, minutes, even hours—the phenomenal time of the viewer will drift apart from the objective time of the clock's mechanical march. *The Clock* continually engages narrative anticipation and then disrupts it, yanking the viewer back to the plodding regularity of the chronometer.

(p. 81) Ultimately, the drama of the film is generated by the tension between the two great geometrical figures of time: the *line*, on which we chart the events of our lives and the history of the world ('when I was 17 … '; 'in 1742 … '; 'during the Tang dynasty … '), and the *circle*, the endlessly repeating celestial cycle charted by our calendars (September 5; the first day of spring; the full moon). In just a few hours of the video, Jack Nicholson and Catherine Deneuve age by decades; but then, preserved in celluloid and digital code, they return to their youth as the film loops round again. Film preserves; but it also bears witness to aging and death. (How many now-dead actors do we see in *The Clock*'s twenty-four hours?) And while we watch the hands of the clock spin round and round on screen, we ourselves get older, ineluctably subject to what physicists call 'the arrow of time', the entropic force that propels us toward our dissolution.

An even more cosmic experience of time is proposed in Jem Finer's *Longplayer*, a musical composition launched at midnight on December 31, 1999 and projected to last a thousand years.[18] The composition consists of six pieces of music playing simultaneously: a twenty-minute piece for an orchestra of Tibetan singing bowls, and five variations of that piece that transpose its pitches up or down a few semitones and thus shorten or lengthen its overall duration. Every two minutes, each piece begins again but at a point slightly ahead of the previous starting point. The stuttered cycling of these six orbits ensures that the composition will not repeat until the year 3000. Akin to Marclay's video, then, Finer's project is a vast loop that operates like a slowly and fitfully moving analogue clock with six hands, or perhaps like an installation for six massive turntables. Alternatively, we might consider the six elements to form a sort of planetary system with six orbiting components. Before those orbits come into alignment again, our earth will make a thousand rotations around the sun. *Longplayer* currently runs on a computer located in the lighthouse at Trinity Buoy Wharf London and streams live on the internet.

Finer's piece connects with Young's desire for music that 'may play without stopping for thousands of years', 'music which, after a year, ten years, a hundred years or more of a constant sound, would not only be a real living organism with a life and tradition all its own but one with a capacity to propel itself by its own momentum' (Young and Zazeela, 1969, p. 16). Yet *Longplayer* presents questions not just of duration but of scale, and drives a wedge between conception and perception. We *know* that the piece is a loop, but, given its vast scale, it can't be sensually *experienced* as such. And so, as in Young's or Neuhaus's installations, our auditory attention is left to focus on the present, on what's happening right now. At the same time, however, this present is haunted by intimations of

futurity, death, and extinction. *Longplayer* not only exceeds the timespan of my life, your life, and that of any of our foreseeable descendants. It may also exceed the timespan of the human species (Eshun, 2002). It will most certainly mark the obsolescence of the technologies that currently support it: the Macintosh computers that host it, the SuperCollider software in which the composition is encoded, and PLS file format that enables it to stream on the internet. The project thus propels us to think about our human future and about the continuity of culture and technology. *Longplayer*'s successful performance depends on the steadfast stewardship of human beings (and/or machines) over multiple (p. 82) generations and media platforms, a commitment so readily subject to neglect, disregard, and forgetting.

The boldness of *Longplayer*, then, is matched by its fragility, which draws our attention to the fragility of humanity itself. Whatever becomes of Finer's piece or of music, culture, or humanity more generally, it's certain that, as the song goes, 'time keeps on slipping, slipping, slipping, into the future' (Steve Miller Band, 1979). Music begins and ends, but not time or the sonic flux that accompanies it, the ancestral immensity of which dwarfs and engulfs all human creation. Attentive to this vast scale and also to the more intimate scale of human perception and the local openings through which this ancestral time flows, sound artists have, for more than a half century, tracked the sonic flux in all its temporal passage, capturing and revealing time, duration, and eternity.

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Notes:

(1.) Hegel described sound as ‘a disappearance of the reality as soon as it is’ (2007, p. 194). For a similar definition of time, see Hägglund (2011).

(2.) I develop many of the ideas in this chapter more fully in Cox (2018), particularly chapter 5.

(3.) For more on the virtual temporality of recording, see Cox (2018, ch. 2), from which I borrow a few sentences here.

(4.) There are several versions of the score. I refer to the typewritten text version published by Henmar Press in 1960.

(5.) The term ‘ancestral’ is borrowed from Quentin Meillassoux (2008), who argues that scientific and philosophical thought grants access to an ‘ancestral’ time before there was any thought at all. The same, I propose, can be true of art.

(6.) For instances of this phrase, see Cage (1979, p. 3; 1989, p. 22; 2017, p. 312) and Kostelanetz (2003, p. 44).

(7.) For a discussion of Bergson’s influence on Cage, see Joseph (2003, pp. 47–56; 2016, pp. 146ff).

(8.) These arguments run throughout Bergson's work but receive their most sustained formulation in *Time and Free Will* (1888), 'Introduction to Metaphysics' (1903), 'Memory of the Present and False Recognition' (1908), and *Duration and Simultaneity* (1922). See the selections from these texts in Pearson and Mullarkey (2002) and the unabridged 'Introduction to Metaphysics' in Bergson (2007).

(9.) In interviews from the 1980s and 90s, Neuhaus repeated this claim. See, for example, his 1982 interview with William Duckworth (Neuhaus, 1994c), the 1990 interview with Ulrich Loock (Neuhaus, 1994d), and the interview excerpts in (Tarantino, 1998).

(10.) Though he coined the phrase 'sound installation', Neuhaus famously disavowed the label 'sound art'. Whatever his misgivings about the label, it has become established in art critical discourse, and Neuhaus is taken to be one of its pioneers.

(11.) Installed in 1977, *Times Square* ran more or less continuously until 1992, when Neuhaus moved to Europe and could no longer maintain it. Supported by the Dia Art Foundation, the piece was reinstalled in 2002.

(12.) See, for example, the description of *Times Square* in Neuhaus's 1992 drawing of the piece, https://www.diaart.org/exhibition/exhibitions-projects/max-neuhaus-exhibition.

(13.) The distinction between 'ordinary' and 'singular' points (or 'singularities') comes from mathematics, specifically the theory of differential equations, where the singular is what defies the rule of the ordinary and thus constitutes a point of inflection or change.

(14.) Miller translates *das Schlecht-Unendlichkeit* as 'spurious infinite' rather than the more widely accepted 'bad infinite'. A. W. Moore shows that, as with the concept of *eternity*, the history of the concept of *infinity* has been characterized by the central distinction between endlessness and completeness. See Moore (2001, pp. 1–2 and passim).

(15.) In these passages, Young draws from Daniélou (1968, pp. 20–21), who quotes and discusses the classical Indian musical treatise *Sangīta-makaranda*.

(16.) From the 1990s on, the titles of Young's compositions and installations have primarily been simply lists of the frequencies that compose them. On the Pythagorean tradition and its discontents, see Heller-Roazen (2011).

(17.) In a similar vein, composer and music historian Kyle Gann writes: 'In Cage's aesthetic, individual musical works are metaphorically excerpts from the cacophonous roar of all sounds heard or imagined. Young's archetype, equally fundamental, attempts to make audible the opposite pole: the basic tone from which all possible sounds emanate as overtones. If Cage stood for Zen, multiplicity, and becoming, Young stands for yoga, singularity, and being. Together they are the Heraclitus and Parmenides of twentieth-century music' (1996, p. 153).

(18.) For information on the project, see longplayer.org.

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