At the tone the time will be...
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Nicolas Collins

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I began composing works for live electronic performance in 1972, and producing sound installations a few years later. From the start I've been very conscious that the role and perception of time are key distinctions between these two forms of "audio art." The relative balance of my activity in these two areas over the years is indicative of shifts in my attitude towards relationship of time to sound. What follows are some observations on the treatment of time in my installations over the years.

The time frame of composed music is essentially continuous: a composition starts and a composition ends; the listener may leave a concert midstream, but the music invariably marches on, barring unforseen accidents. Time here is not strictly linear -- well-crafted music sets up a tension between the clock and the body, yielding a sort of "lumpy time," in which the density of material and the rate of changes affect one's internal sense of elapsed time -- but it is by intent uninterrupted, and concert music invariably depends on the lack of interruption for the coherent conveyance of meaning. The importance of controlled duration is reinforced by the conventions of the concert hall: the seating, the typical duration of a composition, the average program length, the pauses between works, the intermission, etc.

Sound installations, on the other hand, can make no such demands on the audience. A visitor is free to listen for one second or all day. Whereas concert hall traditions evolved over a relatively long period to suit the requirements of an entrenched art form, sound installation is a rather young genre, and has adapted to existing venues -- primarily those designed for, or adapted to, visual art. A gallery or museum is not equipped, in terms of technology or tradition, to hold a viewer before a canvas for a set duration; nor can the typical venue for sound installation forcibly restrain the listener. In contrast to the ritual of the concert hall, the consumption of art is a simple extension of the day to day activity of seeing and hearing.

The perception of a static visual work, such as a painting, is not time specific; it has no pre-defined duration. The appreciation of an artwork may be instantaneous for one viewer, endless for another, and the time an individual spends before a canvas can vary from one visit to the next. To function effectively in a visual art context installations cannot assume the programmed time framework of concert music. The installation artist may decide to struggle against this inherently "unmusical" limitation of the gallery environment by trying to persuade the listener to remain long enough to hear the complete work -- by making the piece very short, or physically detaining the visitor, or using some other power of persuasion (curiously, museums often employ audio

means, in the form of pre-recorded lecture tours, to hold a viewer before a visual object for a set period of time before moving on to the next.) Or she or he can work within the visual art context to emphasize properties of sound other than those favored by the concert format: static or "timeless" sound, positionally-dependent sound fields, interactive and listener responsive control, etc. In the former case the sound artist exerts a composer's control over the listener, whilst in the latter accepts the visual artists' acknowledgement of the viewers' independence.

In my installations I have tried numerous variations on both of these strategies, as well as hybrids of the two. My first exhibited project ("Under The Sun," 1976) was an installation simply because I thought it was too long and had too little human performance to be a concert work: a long, inclined wire is plucked by a solenoid once per second, causing a loop of Teflon to jitter a few millimeters further down the wire with each shake; the wire is amplified, and the Teflon isolates different overtones as it moves along (in the same way that a light touch upon the string of a guitar at the 12th fret yields the octave harmonic.) Depending on the size of the exhibition space, it can take hours for the loop to travel the entire length of the wire, and very few visitors have remained for the duration.

The classic Pythagorean Experiment, on which this piece is based, is by nature cyclical: the first harmonic (one octave above the fundamental) is heard only once, when the wire is touched in the exact middle, while the second harmonic (the fifth above the octave) occurs twice, when the length is divided into thirds; the third harmonic is elicited at three locations, when the wire is split in quarters, etc. The periodic, proportional reappearance of the more recognizable lower harmonics divides the duration of the installation process into nested, similar-sounding phrases, such that a representative taste of the whole piece can be had in reasonable chunk of time. This nesting approach to time is a structure I came back to in several subsequent pieces: extended listening adds more detail or resolution to the impression given from the first glimpse, but there is no true large-scale "development" of the sort associated with traditional musical forms (beyond that of Phase or Process Music.).

Some of my other early installations dealt with manipulating the individual's perception of architectural space, primarily through relatively subtle acoustic cues. In "Niche" (1979) and "Water Works" (1980) a large tent was constructed from old sails and suspended from the ceiling. Each suspension point was linked with ropes and pulleys to a system of computer controlled winches (in "Niche,") or to a network of buckets with pump shifted water ballast in ("Water Works.") The undulating tent creates an everchanging architecture within the architecture of the exhibition space -- one that is seen, heard and felt as the fabric envelopes the visitors. "Niche" used computer-generated sound to highlight the resultant acoustical changes, while in "Water Works" I eliminated all electronic sound in favor of direct perception of the architectural transformation through its affect on ambient sound, as well as its visual and tactile elements.

As with “Under The Sun,” there is a cyclical timeframe to these pieces, as the tent rises and falls -- albeit with a complex phasing between the multiple suspension points. But I also parallel the temporal experience in the spatial domain: one can stand in one place and wait for the tent to raise and lower through a full cycle, or wander through the space and experience more succinctly most of the architectural variation. “Under The Sun” demonstrates a “take it or leave it” approach to time: the viewer is invited to listen in on an ongoing process, and “votes with its feet” by leaving when boredom set in. Under the tent, however, feet give the visitor a sense of control over the character and pace of the experience, rather than merely a means to end it.

I returned to the Pythagorean Experiment in “Under The Sun II” (1984). A long wire runs above a model train track, and the locomotive’s pantograph isolates harmonics as the train trundles back and forth down the track. The installation is dormant until the viewer steps on a switch, at which point current is sent to the tracks and the train resumes its journey from wherever the previous visitor left it. In 1996 I created a variant for Sonambiente in Berlin (“When John Henry Was A Little Baby”), in which the participants directly control the speed and direction of two trains. These pieces, in effect, give the viewer control over the position of the Teflon loop of the earlier work.

The starting and stopping of time by the viewer is very common to sound installations, and an ubiquitous aspect of the private consumption of recorded music, yet it should be noted that pause, cue and review buttons are virtually unknown in the concert hall. Although one of the most primitive forms of interactivity, this illustrates a fundamental contrast between concert and installation time.

In the mid-1980s my attention shifted towards improvisational strategies, composed structures, reductive signal processing, and other tactics that are only effective in the setting of a linear performance, and I lost my enthusiasm for doing installation projects. Then, in the early 1990s, I became interested in the parallels between present-day thinking about networking and shared responsibility and the traditions of early Spiritualism. I was able to incorporate various aspects of séance culture into both installation and performance formats, culminating in “Truth In Clouds” (1996-99), a “chamber installation” that has been produced in several versions.

Central to “Truth In Clouds” is a séance parlor, assembled from 19th Century furnishings and objets d’art -- ideally the work is situated in an actual period house. An inverted wineglass rests on a circular table in the center of the parlor. Through a network of hidden electronic technology, movement of the glass under the fingertips of the visitors calls up sounds from loudspeakers buried in the furniture and objects around the room, in emulation of the spirit rappings, disembodied voices and self-playing musical instruments that characterized real séances. Fragments of texts appear on the table top (computer generated and projected from above the table) and are heard -- spoken and sung -- from the hidden speakers.

A group of musicians plays in a remote corner of the parlor or in an adjacent space. They perform variations on excerpts of scores that date from 1350 to 1850, according to instructions generated by the computer in response to the movement of the glass -- the musicians are thus conducted from the séance table, via small displays on the music stands. In the more elaborate versions of the piece, actors and singers are similarly directed from the glass, and a narrative of tragic love unfolds over the course of the faux séance.

"Truth In Clouds" blurs the distinction between an installation, a concert work, and a social event. It is audience interactive, yet incorporates live musicians among those elements controlled by the public. But the live performers are not the focus of the work -- they sit at the periphery of the space, rather than center stage. The work starts up when the glass is moved, and shuts down after it has been still for a minute, and the narrative continues to develop only as long as the visitors actively participate. The piece encourages social interaction amongst visitors, both in direct pursuit of the task at hand (a séance demands the fingers of several hands upon the glass), and as a natural function of the setting.

This piece does not have the cyclical or static quality of many of my earlier installations -- there is narrative and musical development characteristic of concert work -- and so the challenge is to encourage visitors to stay beyond an initial "snapshot" impression. Several elements were designed into the piece primarily for that purpose:

> The density and sprawl of the experience provide a variety of stimulation and the temptation to wander and explore, especially when the work is distributed amongst several rooms; this can take time.
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> Narrative is a hook: whether projected on the table or spoken by the moose-head, a story once begun is difficult to abandon before its conclusion.
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> Following the precedent of video games, the control program is not static: the séance "player" ascends to higher levels of "reward" the longer she or he plays -- more exiting music, stranger noises, more rapid rappings, kinkier texts, etc.
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> The inherently social character of the parlor promotes lingering. Before and after playing the glass the visitors often settle into the comfy sofas and overstuffed chairs to chat, drink, smoke.
>
> If the work is installed in a country house, as preferred, the audience is held captive by its remoteness -- like the participants in an English "country weekend" murder mystery.

There is more than a whiff of "Hausmusik" in "Truth In Clouds": not only are the instrumentalists presented in a defocused, rehearsal-like setting, but the visitors themselves are made to feel "at home." There is an informal, relaxed feeling. The starting and stopping of instrumental performance, the coming and

going and chattering of the audience, and other "disruptions" that would shatter a concert are embraced in "Truth In Clouds." In combining aspects of concert and installation my goal was to acknowledge "music, interrupted" -- by the telephone, the children, the soup boiling over -, in counterpoint with the real life taking place outside a concert hall's doors. In this piece interruption focuses one's attention on the fragments of musical time, much the way the distractions of family life elevate the significance of those isolated moments of calm.