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THE MUSICAL AND THE NATURAL: EXPRESSING
THE ANALOGY

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We try many ways to reflect and recall Nature. We can talk about it, we can depict it, or we can evoke it by somehow attempting to mirror the processes of which it consists. How can music contribute to an understanding of the natural? Or is everything in music a convention of humankind, pure in its abstraction away from the sensations of Nature?

The notion of 'Nature' itself is ambiguous enough. If we consent to use it to define some thing or condition apart from our activity as humans, we are admitting the existence of an absolute in this world, some state to which all our deviations will be inevitably compared. There are natural laws that describe how the world supposedly always works, but these are very resistant to application to the cultural and creative spheres of our lives. Cultures gain autonomy by developing slowly and firmly in distinct but workable directions; if we wish to take the value of different cultures seriously, we may need to separate them from one another in our evaluations of them, without measuring them all against some single scale of value which stems from Nature, as this would suggest a single direction towards which societies should aspire.

This is the relativistic argument, which is quick to call Nature a construct, an ambiguity prematurely fixed to justify one human convention or another. That is what happens whenever Nature is reduced to a point of defense for any kind of cultural propaganda; what is natural is thought to be better than the artificial; more authentic, more real, closer to the Earth.

If only it were so easy! If only we could create something and know that what we have made is worthy enough to be called natural. But Nature is not something we can create. If we believe in it, we may be able to evoke it or mirror its manner of operation. But its greatness lies in its ability to precede and support all our attempts.

Music is a challenging creative activity to consider, because it lives so clearly apart from any representational aspects. As a creative process, or as an object listened to for aesthetic enjoyment, it may be an alternative to Nature, as a human activity which is not found out there. Music does not mirror the natural world, though it may make use of natural laws. Out of all arts, it contains the least apparatus to describe the world. Yet it paradoxically contains an ability to take us outside ourselves, and if it takes us to the surrounding world, it takes us to Nature.

If a musical phrase or event seems to represent anything outside itself, it does so only by analogy. So concluded Eduard Hanslick, ¹ the noted 19th century rationalizer of musical aesthetics. Of course, he also realized music's great power to touch our emotions. This too he claimed occurred just by analogy, firmly attacking the view, current in his day, that music was some kind of language of the emotions. But this statement seems little more than a clever ruse, for how does the process of 'analogy' work? How can the arrangement of sounds which we find pleasing have anything to do with the order of the Earth?

Suggesting that music might be an analogy to Nature does not tell us much. It is like Aristotle or John Cage's ² qualification of mimesis; it is not the imitation of Nature objectified, but the mirroring of Nature "in its manner of operation." We do not represent the natural as a thing, but as a way in which things are related to one another. This suggests many ways to look for the natural in music. How do sounds appear? How do they fade away? Think of the range of sounds that the Earth is able to offer us; what is common to the way they begin and the way they end? There are all kinds of attacks, all kinds of decay, but the sounds are usually the result of changes between and in things; collision, breaking up, motion, or call to communicate without the definite syntax of words.

All kinds of natural noises can be made musical to the extent that we are able to abstract them away from Nature and put them into the musical system. But how does this lead to the possibility for combining sounds into chords and harmonies which humanity finds pleasing? Is there any absolute natural law that guides such resonance? Surely the variety of human musical cultures seems to suggest the contrary. One species, so many kinds of music. What ties them together and limits their diversity?

There are certain natural absolutes that surround our ability to appreciate sound. Only certain frequencies can be heard by our ears; from about 20 to 20,000 Herz. This is a kind of natural limit. There are also limits of sensitivity to volume in decibels, from about 25 to 75 dB, and also a maximum number of events we can perceive as separate in any given second. ³ These are limits at the intersection of the natural and the human, where biological fact sets the range our perceptions can fill. So music takes place under limits of dimension — still, is everything within these limits to be considered 'natural' music?

Not if one changes the question into a quest and searches for kinds of music that make us more sensitive to what surrounds us, and not just everything within the sensual limits of our species biologically defined. Let us consider the natural behavior of sound itself, and consider how it has been organized by human tempering.

Initially the world offers us a plethora of sounds. As always, humans need to simplify to turn the world into something we can use, something we can reorganize and shape into our own comprehensible structures which fascinate us. Pythagoras plucks a string, a single tone is heard. We could call it C. If the

string is shortened, higher pitches are heard. Why do we call them 'higher'? They seem smaller, less full, less round. (These different terms occur in the languages of different cultures.) If the string is divided in half, a note of the same pitch as the first is heard, but an octave higher. We call it *c*. But what does this mean? How is it both the same and not the same? This is the kind of question which must have touched the earliest theorists of music, as they discovered something fundamental about the relation between human and sound. Smaller divisions of the original string whose lengths are in rational ratios to the original produce tones which are also heard as harmonious to the ear, in successively smaller intervals as the ratios decrease. The next got is *g*, giving us the interval of the fifth. Then comes another tonic, *c'*, a fourth above the previous note. Then comes *e'*, a major third above, and *g'*, a minor third higher.

So far all the notes in this set, known as the harmonic series, can be played on any piano. In fact, if you press any of the upper notes silently and hold them down while you strike the lowest note, the fundamental, the higher pitches will faintly resonate. This is because they are contained within the original note. Because of the structure of the human ear, sounds are perceived in certain ways. Because of the way sound waves behave, certain higher notes can be derived from lower ones. Any single pitch is not only itself, but contains certain overtones out of the harmonic series. Other instruments contain more or less overtones at different levels of the series. If you play the lowest note of a flute, you will find that successive overblowing will also produce notes from the harmonic series.

The seventh partial of the series, following *g'*, does not appear on the piano. It is somewhere between *b'* flat and *b'* natural. It may not appear in our tempered scale, but it is often heard in folk music of various peoples, and especially in the blues, as the famous blue note, neither minor nor major, associated with indefinite emotion. Further on in the series also appear untempered notes, and these too have been utilized in some kinds of music.

Why this long and somewhat technical digression? Because there is something which is natural about the harmonic series. It is an illustration of the way sound behaves in Nature, what happens to the pitch of vibrations that are altered in regular ratios. It is of course not some independent law within Nature, but a product of the way our ear interprets natural processes. It is a basic fact of our relation, then, to the world, in the place between humanity and Nature. If nothing else, it begins to explain why a certain simple series of notes is present in many kinds of music throughout the world.

Why does the piano not contain all of the notes in this series? Because it was developed with other aims in mind. The developers of this instrument wanted a tool on which to play similar melodies in many different keys, facilitating movement up or down between tonalities at will. Melodies and harmonies needed to sound nearly identical in any key, which is contrary to the harmonic series. The series gives you a rich series of overtones for any single fundamental pitch,

but if you switch to another starting point, a different series results. It is not conducive to a harmonic music which moves from key to key — this requires a tempering of the original scale to provide a uniform set of notes — twelve in the octave — from which to select compatible combinations.

Is it possible to argue that music based on the pure harmonic series is closer to Nature than that based on the principle of equal temperament? You would need to look to mimesis for the answer; listen to the howling of the wind. There too you will hear a conflagration of partials and overtones. There are the pure resonating tones of natural harmony — listen closely to that note in between major and minor — it seems to present an ambiguity which cannot be resolved into a caricature of happy or sad.

But even so, it is only in contrast with musical convention that we can assess the naturalness of a sound. We have grown up with systems of music which have sung to us through our lives. They become as real or as fixed as anything else. True, it is possible to make instruments which resonate more closely with the way sounds naturally behave, but this still does not affect our need to simplify musical conventions.

It is so easy to tell the audience that the music means something having to do with Nature. This is the forest, this is a canyon, this is for seals, this is for whales. The meaning of music seems so malleable that we will take it to mean whatever we are told. This flexibility is both its magic and a danger; but I submit that music successfully evokes Nature only when it teaches us a new way to listen in and to the world around us, not announcing what it will do, but simply doing it.

Searching to distinguish what is human from what is not, we could try to assess every incoming sound, listen to it appear and disappear. Does it have to be produced by human means? Or could we envision an extra-human process which could lead to it? How does it interact with other sounds? Does it blend with a balance between distance and imposition? Does its design seem to accommodate the spontaneous? Does it open the listener up to alternative possibilities of the measuring of time? Does it deny other possibilities than its own? Or does it reveal the inherent flexibility of the measurement of duration at all?

The questions are meant to be asked of music to see if it teaches us to listen more fully outside itself. If you are the music while the music lasts, as Elliot said, then the music must change you when it is over. You need to hear the world in a new sound, know it in a new light. If this light and sound brings you closer to its penchant for rhythm and surprise, then it may succeed in bringing the listener closer to Nature.

This is not a usual way to question music. The connection between music and Nature should not be forced, though if music is the purest of the arts it may be pure convention, suggesting that its meaning or significance will be

quite malleable. Since music communicates without the constraint of the rigid grammar of languages, it may be the art most capable of leaning us towards Nature. There is something universally accessible about music. However, music is not a language, but an essential component of our general humanity.

We should not be seduced into identifying natural music with any particular image of Nature. A record album with a tree on its cover is not by implication a reflection of Nature, even if it seems calm and peaceful, devoid of the racket and disjunction of everyday city life. ⁴ That would be too simple an analogy: Nature has many ways to change, many types of motion, and we cannot reduce it to the placid and still. For even the calm quiet pool is never devoid of life and the potential for violent upheaval. When we perceive real and natural calm, we perceive also the concentrated energy which keeps it in balance. If the music does not evoke this possibility, it is simplifying the natural far too much.

If music is to bring us to the natural, it should also teach us to listen to Nature as music. It will succeed if it leads us to hear the sonic richness of the world in an enhanced way. And this requires a cultivation of our own sense of listening more than anything else. The key here is not to simplify Nature into something we can incorporate into our own limited set of structures which are acceptable as music, but instead to listen to the sounds of the surrounding world as if they were parts of a vast musical composition, surprising us simultaneously with their range and their harmony.

As an example of the significance of natural inspiration in music, consider that for centuries composers have learned from the songs of birds. Vivaldi wrote a flute concerto known as the Goldfinch (Op. 10, no. 3, *il gardellino*), and Tibetan ritual wind music has a piece named after the great mythical bird Kala pingga. The song of the trained Japanese nightingale was considered more beautiful than its wild counterpart because the educated bird could evoke the power of the wilderness in the city, while the wild bird would simply be overwhelmed. Each of these pieces take inspiration from the leaping inventiveness of the birds, but they need to curtail their outbursts within rather strict musical conventions. Music was not able to admit the sounds of birds into its vocabulary- it had to temper the sounds to fit in with its own conventions.

By this century, the conventions of music were fragile enough to be open to all kinds of new influences. The French composer Olivier Messiaen spent many years carefully transcribing the songs of birds, and was able to incorporate their rhythmic inventiveness and wild expressionism more directly into the music he was writing. His scores provide instructions to musicians to be more like the birds they were imitating than ever before. Think like a bird, try to play with as much joy as a bird. This is what he is telling us. It is difficult, and the players have had to struggle long with the scores to be able to free themselves into the wild abandon required to realize the pieces in performance.

When the musician knows enough about a bird to play in the way a bird plays,

she or he is bringing forth music and Nature. And in the thick of this process, we learn to what extent we are a part of Nature and to what extent we are apart from it. With different raw sound materials and perhaps a different purpose in mind, we manipulate these materials the way a bird would. This is the beginning.

After this exercise is within us, we can begin to hear the birds' own exaltations in sound as if they were music. Never mind if they are or not — that involves too many definitions which might cloud the immanence of the experience. The world is there to be listened to, as much as it is there to be understood.

The ecology of seeing involves learning to perceive and identify the relationships between things in the world. We want to see how things connect. Ecological listening is something else. It involves receiving the relationships which constitute the world as we strain to hear it as a vast kaleidoscope of sound. The musician in each of us should listen outward to the sonic structure of our surrounding world. Our listening is ecological only when we try to hear more than just what we want to hear in the world around us, but hear also the encompassing and increasingly complex web of sounds which surround.

Ecological listening is a skill to be achieved, and the musician who wishes to connect his or her work to Nature should consider it to be possibly an inducible state in the listener. A musician is then just to Nature, if the music created leads the listener to hear the world in this new and perceptive way. Music that simplifies, that prettifies or unfairly sweetens the lush range of emotions to be found out in the world is inadequate to the task. Nature is not only simple, pure, or sparse. Infinities of frequencies are contained in the sound of rushing water; the howls of foxes are not just plaintive and mournful, but may contain as much fear and terror as the most human moment of self-doubt.

Though we receive when we listen to the world, it is not a passive process by any means. We must strain to realize what we are able to hear, and investigate how it acts upon ourselves and upon the plethora of other sounds. Music is not just sound organized for the purposes of our pleasure, but it is a way of interpreting a basic aesthetic material, sound, to form out of it meaning. Unlike language, music does not use sound to communicate specific messages, but fleshes basic relationships between the tones and textures themselves out of the vast noisy range of possible vibrations. It is as such from the beginning an investigation into the way we as humans are related to the world through the defining limits of our organs of hearing and our choice of how far we extend ourselves outwards, what limits we strain to perceive in the listen. It requires Nature, and tries to understand Nature.

All music does this much, but why does some music evoke a kind of wildness which words seem to be unable to address? Music can touch us before the articulation of our thoughts into words. It is the origin of the metaphor of resonance, in which we learn what it means to be in tune with the world. We

feel music before we speak it. We beat with it before we know.

Notes

1. See Eduard Hanslick, *On the Musically Beautiful*, tr. Geoffrey Payzant, (Indianapolis: Hackett Publishing Co., 1986).

2. The noted contemporary composer and mycologist John Cage once asserted that if he had to choose between Nature and music, the latter would quickly lose out. His notion of music as the mirror of Nature "in the manner of operation" is expressed in many writings, particularly those collected in the book *Silence* (Wesleyan University Press, 1961).

3. These statistics come from R. Murray Schafer's *The Tuning of the World* (New York: Alfred E. Knopf, 1977), one of the few books to honestly try to deal with the ecology of sound. Highly recommended as a guide to ecological listening, as it posits the world as soundscape, a vast musical work. Since then Schafer, also a composer, has been creating giant ritual pieces which take the audience out into the wilderness for up to a week, enacting musical myths. He is doing important work in terms of getting us to listen in and with Nature.

4. This is not meant as an outright condemnation of record labels such as the Germany's ECM and the California's Windham Hill, but just as a cautionary note against identifying any experience of music with the way it is packaged. The natural must be found in the music itself, if it is to be found at all. We need to recognize how easily we as listeners can be manipulated by those who channel the music to us in particular categories by marketing it to us in targeted ways.

The transformation of music into an object which animates the background of our lives through recording is enough of a movement away from natural participation so as to inspire questioning. The music of Nature will be something we participate in, not something we turn on and off. See Walter Benjamin, "The work of art in the age of mechanical reproduction" and Evan Eisenberg, *The Recording Angel*, (New York: Penguin 1988) for illumination on this problem.

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