

Metaphysics of wire music

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1

If one stands quietly and listens on a still night before dawn in an open place far from the city, there can be heard a humming which throbs. I think it is a vibration caused by movements in the atmosphere, but I cannot be sure there is not a more primal explanation yet to be elucidated.

I have been told by the Austrian sculptor and theoretical meteorologist, Udo Wid, that the atmosphere, in addition to moving according to the infinite patterns of wind with which we are all so familiar, also oscillates at surprisingly high frequencies, some in the auditory range, and others which, though below the level of sound, can be felt. I imagine the vibrations could be generated by resonant frequencies, the planet beating with the air, for Earth has its own resonant frequencies well known to geophysics.

But also I speculate about a less obvious possibility. Udo Wid told me that the frequencies of atmospheric oscillation belong to a rather beautiful mathematical series. The audible frequencies which make the hum are harmonics of deeper fundamentals perceptible to the intellect but not directly to the senses.

The most remarkable thing is this. There is a band of frequencies in the series which is identical to the resonant frequencies of the electrical pulse generated by the brain during states of coherence, the delta (2Hz), theta (4Hz), alpha (7Hz), as well as other higher frequencies more difficult to detect. These frequencies are generated by the deeper and more ancient levels of the brain transmitting to the cortex, suggesting a common origin of atmospheric and neural oscillations from the beginning of evolution, at least since the origin of nervous systems. The connotations of this go deep assuming the brain is an ever evolving thing. The mind of the human being is more complex than any other known thing, with the possible exception of the cosmos itself.

On talking to local meteorologists, I have not been able to verify the assertions of Udo Wid, and it is possible they are simply fantasy. But even if that were so, should they be regarded as simply nonsense? He is after all an artist who comes from the sphere of science. His proposal could perhaps presage a new artistic creation, an internally valid proposal inviting speculation, the forerunner of all objective truth. This is the way new knowledge comes into being, from inner to outer. Much in science at first seems obscure, even mystical, until, with the passage of time it becomes common knowledge. I for example may simply not have encountered the scientific reports dealing with the matter. Udo Wid had been conversing with advanced theorists in the USA just

before I met him. Perhaps he knew things still unknown to outlying practitioners of meteorological science.

My own intuition had already alerted me to the possibility of high frequency atmospheric oscillation since first observing that telegraph wires may sing like choirs in the absence of wind, and sometimes not sing at all despite apparently favourable winds, as if there were a resonance with something else.

2

It should be easy to demonstrate atmospheric oscillations simply by filming the movements of soap bubbles or dust motes floating in the air using stroboscopic illumination. I have not done this. To have an explanation too soon can adversely affect the artistic evolution of an idea. To prove that the hum were due to atmospheric oscillation might be to risk closing off a path of curiosity to a yet more beautiful and mysterious dream. Knowledge grows like a tree; wisdom is all trees. I wonder if atmospheric oscillation is sufficient explanation. I speculate on other more primal rhythms from which arise all structure. I think of the many who speak of the concepts encompassed by the symbol *om*. They speak of vibration, with which I resonate(s).

3

I make this confession as one who has been a research scientist for half a lifetime, but it is not inconsistent with the desire to discover; it is simply that some things are best discovered by imagination and not by dissection as is the practice of the common scientist. The shadow of the objective statement carved from possibility by the sword of reason is the destruction of dreams, once potential, now impossible.

Art *cannot* make objective statements, thus within its mighty realm all dreams retain validity. Art is creation not understanding. I therefore prefer to imagine the many possible origins of the hum, rather than dissect one single cause. The delicacy of intuition is all too easily entombed by the intellect, and intuition tells me that the meaning of the hum must be nurtured with utmost care. It is like a cathedral of glass, which one hammer blow might shatter, but in longer time it flows like melting ice.

4

To nurture is to be like the river guiding the waters by simple gravity to the sea. Where sea meets sun, light tongues whip molecules by the billion to boil and make mists and conjure dreams, a vision in the backdrop of night's sky, daggered darkness of my

folded blanket, the patterns of my brain.

5

The hum is low pitched, centering on the frequency 55Hz (A₁). There is also varying audible power in the harmonic components A (110Hz) and another frequency varying between 230 to 250 Hz. The interval A var C means the hum is a chord. The chord A - C is a yearning chord¹. Thus it is that the intervals formed by the oscillations of the atmosphere (or whatever) impart a strange affect upon the hum; it is both disturbing and reassuring. One may listen hour upon hour as it weaves its ever changing hymn.

At first I thought my own ears or brain were making the sound, just as when, as a young child I heard the faint ringing of the brain in my head before dawn and imagined incoherent entities threatening to well out of my ears from within and devour me. As I grew up, I came to understand that such sounds were a manifestation of one's own inner being, at least so I have been led to believe. The hum has connotations similar to the ring. But in adulthood, one seeks the opposite of the fearful realm of the child's imagination. One ponders the origin. What is its decipherment? If the ringing were able to destroy a child, what might the hum create? Has one the courage to listen?

I am drawn into thought patterns which I myself do not believe I alone could imagine. Since there appears to be a bootstrap between the mind and the hum I listen very carefully indeed. Some physicists say that the entire universe is bootstrapped, each part dependent upon all others for existence². This sets the foundation for a kind of solipsism, symbolised in the myth of Atlas and rejected by many philosophers unable to perceive that solipsism can extend beyond the terrifying aloneness which claims the cosmos is merely a manifestation of one's own mind. Even the most hardened atheists have found difficulty facing such an extreme position. First, to suggest the cosmos is entirely of one's own making compels the necessity of an unbearable responsibility, for not only good, but all evil must come from within one's self; and second, the simple fact that one simply cannot die is surely the most exhausting thought ever conceived. Solipsism cannot be refuted, and so the irrational is brought to bear: solipsism is rejected because it is 'repulsive'³.

But perhaps it is better to gaze with more courage into the darkness and see past the narrow confines, for solipsism, if travelled far enough like a tunnel, opens into a majestic vision where reality is creation by an infinity of viewpoints, each singular and calling itself "I", from the atom to the human being. The vision is the one of all dreams, all possible. Yet there is only one cosmos; the shape of consensus; a fractal, in which all is possible. If I agree with you, the shape emerges. This is the cosmos of *collective* solipsism. Its beauty arises from its malleability. Since consensus can be altered simply by a change of mind, an act of prayer or the play of a child, anything becomes possible.

6

I discovered that the hum does not come from my brain or ears, though I thought that would be the case because I had heard of cochlear frequencies, sounds

made by the auditory membranes vibrating like tiny speakers driven by neural impulses generated from within the brain. It follows that the sounds could have been a reflection of the inner state of the brain, the physical manifestation of the ringing heard by the mind which so frightens and excites the child.

7

Break for a fart. Who knows? could be the beginning. Weather men say the butterfly may cause a hurricane. It was after a piss in the bush that I pulled the Faraway wires onto my ears and heard for the first time the great choir.

8

I proved the hum came from outside me because I could not hear it when I sat in my car with the windows up against the cold.

9

On my trips away into the countryside to record wire music, my car was my sound recording studio. Most times I went to Faraway Farm which belonged to Elizabeth and Hill Venn, my sister and her husband. Faraway is in a remote part of Western Australia bordering on the heath wilderness of the Great Southern near Fitzgerald, 500 kilometers east of Perth. The landscape is high and sparse and undulates like a quiet ocean swell. It is close enough to the ocean to smell Antarctica. There was a half mile of abandoned telegraph wires running beside the farm, and I turned them into a gigantic musical instrument which could be played like an organ.

10

The wires sing, and I listen. Nature and all its rhythms play upon the wires, and I, with the patience of the fisherman depending on the catch for the welfare of his kindred, play also to the rhythms of the wind and time, the sun arising, and the moon above the rainbow as it sets in spring before the coming cycle of the summer flower. I hear the trees and join in hymns of ceremony, each listening to the other's song and responding. This is how the wires are played, the essence of the wind organ. Magpies come and warble, and many other little creatures have their say, like the spider tapping mandibles in chatter with its mates in hidden places among the glass insulators flashing in the sun, turning violet with the passing seasons.

I called it the Faraway Wind Organ. The name implies the connotation of voice or vocal cords, a singing organ for the wind.

Intuition demands a connection between the patterns of the winds which make wires sing, and the hum, and so when I began making music on the wind organ I knew already that wire music was to be like the hum amplified and lifted into the range of a choir.

One morning, early, when the stars are at their brightest, I could hear the hum oscillating as usual among its infinite harmonies. No wind. The light of dawn appeared first as a hue in the east and the wires began to sing. They sang in harmony with the hum. The wind, which had lifted to the heavens to be with Aeolus during deepest night, descended with the rising blaze of sun. The wires, hammered by the

low-torch photons, slackened and released the singing into all possibilities of freedom's realm. Hour after hour, day after day, they sang their infinite song.

Perhaps it is the wind blowing over the star-cooled air which clings to Earth which makes the hum, perhaps not. There must also be cosmic winds, of substance like cosmic rays and gravity, perhaps of spirit too. Consider for example: I was there to hear when the wires sang; was that an accident?

Is wire music discovery or invention? If invented, then it is not the I as one normally understands which invents, but perhaps more correctly, that unimaginable thing heard in the ringing ear. But also there must be discovery, the thing directs the gaze, and the child delights in the new-found toy⁴.

11

The power of aeolian music has been known since antiquity, and it has inspired the greatest prayer. There were aeolian harps at the temple Apollo. To the aborigines, aeolian sound was the spirits singing. Percy Grainger, inspired by telegraph wires, devoted an enormous part of his life to his quest for free music (which he saw as a path to perfect music).

To me, wire music is the purest music, for it obeys the absolute laws of physics, including those of chaos which allow an infinitude of diversity within ordered systems. Wire music engenders imagery in the mind. The image in the mind and the vibration of the wire are each expressions of the same harmonic laws of nature derived from the deepest fundamentals, and are thus indivisibly linked. Naturally there are discontinuities. These are the boundaries of differentiation, I and thee, them and us, he and she, life and immortality. It is easy with the rational mind to place wire music outside oneself, but it is disconcerting to find regardless, it penetrates within. The child reacting in fear, may shut it off and roll his head from side to side to keep the incoherents at bay. Others may listen and hear the many voices, the voices of the spirits as the old boong always said. It is easy for one's being to grasp that being alone is terrible, it is difficult to be told you are all together, one, and only one.

The old boong nodded at the white man. Where his gaze met the eagle's went the white man's bullet. A sadness comes over the land, and the wires sing of it.

12

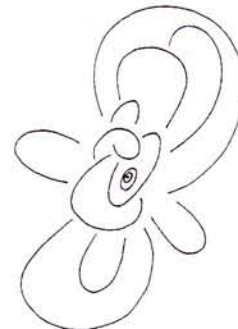
One day, it was stormy, gusty squalls from the Southern Ocean, bursts of rain. The music was filled with shrieks of wind. The sun was setting. A rainbow appeared, an arc complete from end to end. I left my recorder recording and ran across the open plain into the rainbow. As the sun set, it reached over my head and vanished in the shadow of the curve of Earth. When I returned in the deepening twilight to my little recorder, so out of place in this elemental landscape, I found the wind had blown the wires into new configurations and broken contact with the sensors. So I never heard what song was sung, but in my mind I have a memory of a rhythm. From that night the wires sang a hymn which continued unbroken for 3 days. The evening of the rainbow was April 25th 1983, Anzac Day, and the composition made from the three days of recordings was called **Last Anzac**.

13

Recording wire music is like fishing: always waiting for the 'big one'. When I first began recording I had in mind the memory of my first encounter with wire music as music, not simply as a strange sound. I was travelling in Mull off Scotland, and had pulled off the road after dark, a grassy space between the road and sea. During the night there was a sound from outside the van. At first I thought of extra-terrestrials, then came the music, ethereal as I had never heard before. I knew of telegraph wires from my childhood, from a nanny who spoke of them as the sounds of all the world. But these sounds seemed too perfect to be just the sounds of wind on wires. I lay awake all night listening to the symphonies. In the morning, there was indeed a telegraph pole beside the van. It had sung a music I would never hear again, like the silver flash of the ancient fish, never captured though legend has it that the best have tried. Wire music, like life itself, is never repeated. That is the law of the strange attractor.

14

The strange attractor is the heart of chaos theory, that theory which allows all possible dreams to be realised. An attractor is a point about which oscillates some field. An example from atomic physics is found in hydrogen, the most simple of atoms, in the path of probability of the position of the electron about the proton:



Example 1. Artists sketch of a few arbitrarily chosen orbits of an electron around the hydrogen nucleus.

In a simple attractor, the number of possible paths is finite, but in a strange attractor, not only is the number infinite but each path is unique. Strange attractors though infinite in detail are confined within a boundary which has a form. An example is the living cell, another is the dance of the honey bee which shows the way to find the distant flower, so too is the electron's path. Some strange attractors are unbounded, the cosmos is one as far as is known. Some unbounded strange attractors can be described quite simply. A good example is the Greenhalgh equation⁵ (example 2).

A cross section at $(t=5/2)$ displays the remarkable beauty and complexity of the attractor described the equation. This section we call the Ram (Aries, example 3).

Other sections of the Greenhalgh equation show an infinite variety of forms. What is surprising is not simply that the range is infinite in number, but infinite in shape. The attractor contains maple leaves (a fea-

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from some lonely flute, the casual whistling of a happy man. And I wait for the big one.

18

Once, as I arrived at the Faraway wires, they were singing with unusual intensity, it was the symphony. In a frenzy I threw on the sensors, but by then the wind had changed, the sun had passed the zenith, and the wires had fallen into silence. How much beauty have they sung unheard for want of the absent listener? Or do they simply play for I am there to hear, and is not this memory enough? I have on tape a thousand hours. The wires have sung a thousand seasons, each a separate path. Perhaps for every song recorded there have been a thousand symphonies.

19

What more can be said about the metaphysics of wire music? There is more to come? Consider for example: if all beings were to sing together, what hymn might emerge? If one single wire, just a line in space, can engender such a universe, what hymn might a communion of souls create, what other being? Arthur Young⁷ has shown there is yet another dominion for the monad, the realm of the Seventh Kingdom. According to his vision, it is the final one, and humanity is its means, the final one before the next great leap. A simple way to reach it?: the Forest song⁸, a prototype of the collective hymn in which all people through modern communication sing together and make a unitary structure of music from which the child is born.

Notes:

1. Percy Grainger specifically singled out the A - C interval from among the 'yearning closer intervals' in *The Goal of Musical Progress*. Unpublished lecture notes, delivered 10 January 1935, p. 6. (Percy Grainger Museum, University of Melbourne).
2. J.D. Barrow and F.J. Tippler. **The Anthropic Cosmological Principle**, Oxford University Press 1986.
3. See for example, Bertrand Russell's letter to Maurice Amos, 16 June 1930 in Bertrand Russell, **Autobiography**, Unwin Paperbacks, London, 1978, pp433-434. See also pp 393-395 for a particularly pessimistic view of solipsism.
4. The concept of the gazing thing is treated with great beauty and depth by the Australian sculptor Joan Brassil in an interview for the **Listening Room**, Australian Broadcasting Corporation, September 1990.
5. Percy Grainger made several references to the singing of telegraph wires. The earliest I know appears in a section marked "cont. of 9" in an unpublished notebook of 1901 when he was 19, entitled *Methods of Teaching and Other Things*. (Percy Grainger Museum, University of Melbourne).
6. From an unpublished manuscript by Richard S. Greenhalgh, Neuromuscular Research Institute, University of Western Australia, 1987.
7. Arthur M. Young, **The Reflexive Universe: Evolution of Consciousness**, Robert Briggs (publisher), Mill Valley, California, 1976.
8. One is reminded of the famous 'laugh of the immortals' described by Hermann Hesse in **Steppenwolf** Penguin Books, London, 1965, pp 181-183.
9. Alan Lamb *How to make a self-organising musical organism: An experiment in ontogeny and evolution for the imagination*, **Kuntsforum No. 103, Sept/Oct 1989**. (Ars Electronica, Brucknerhaus, Linz, Austria).