

The Power of Sound and Music

Speaking to this particular congregation about the healing powers of music is a bit like preaching to the converted. But I am going to talk about some of the less familiar aspects of sound and music in an effort to speculate on why music effects us in such powerful ways. Even with scientific information about how music impacts us, why it does so is still an intriguing mystery.

The Webster's dictionary definition of sound is "Mechanical radiant energy that is transmitted by longitudinal pressure waves in air or other material medium and is the objective cause of hearing." The definition of music is "The science or art of combining intelligible combinations of tones into a composition having structure and continuity". So basically, sound is an energetic force and music is the organization of that force. I'd like to share with you some of what has been discovered about sound and music.

About 800 years ago, a brilliant mathematician named Fibonacci began writing books about mathematics. He enjoyed inventing story problems. One such story problem involved, of all things, speculating on the number of rabbits that one pair could beget in a years time. He arrived at a fascinating sequence of numbers that has broad implications.

The Fibonacci sequence begins 1,1,2,3,5,8,13, etc. This series of numbers and ratios appears in many diverse phenomena throughout nature. It is on the patterns of pinecones and sunflowers, the rings of a carrot, the markings of a leaf, the human body and the solar system. If you look at your hand, the distance between the tip of your finger and the first joint is related to the tip and the second joint and so on. This is all related to the sequence.

The Fibonacci sequence also occurs in the harmonic series in music. When one note is played on an instrument, that fundamental note sounds. In addition, a series of ghost notes or harmonics sound above that fundamental note. The first harmonic is a unison, the second is an octave, the next is a fifth and so on. This mysterious mathematical relationship between sound and many other naturally occurring patterns throughout nature conjurs up some fascinating questions in my mind.

We live in a universe surrounded by sounds. It is almost impossible to get away from sound completely. Our bodies are effected by the sounds around us. For example, when we listen to music, our heartbeat entrains to the rhythm of the music. This is why when you choose music to listen to while exercising, chances are you'd play something upbeat instead of a dirge. And when you want to unwind and meditate, most likely you wouldn't play heavy metal, but you'd choose something softer and less rhythmic. Jonathan Goldman, the founder of the Sound Healers Association explains it like this:

"Entrainment is a phenomenon of sound in which the powerful rhythmic vibrations of one object will cause the less powerful vibrations of another object to lock in step and oscillate at the first object's rate. This has to do with the conservation of energy. Entrainment is found throughout nature. Fireflies blinking on and off entrain with each other. Female roommates often have menstrual

cycles that synchronize together.

Itzhak Bentov illustrates an excellent example of entrainment in his book *Stalking the Wild Pendulum*. If you have a room full of pendulum-type grandfather clocks and start the pendulums in motion at different times, they will all swing differently. However, if you walk out of this room and come back the next day, you will find that all the pendulums are swinging together at the same rate.

Entrainment is actually an aspect of resonance. Resonance may be defined as the frequency at which an object most naturally wants to vibrate. If, for example, you strike a tuning fork and bring it near another tuning fork of that same frequency, the second tuning fork will be set in motion merely by being in the same field as the vibrating tuning fork. We have all seen a singer break a glass with his or her voice. This is an extreme example of resonance.

Within our own bodies, we are constantly locking in our own rhythms. Our heart rate, respiration and brain waves all entrain to each other. Slow down your breath, for example, and you slow down your heartbeat and your brain waves. Conversely, if you are able to slow down your brain waves, you can affect your heart rate and respiration. It has been found that the frequencies of pulse, breathing and blood circulation, as well as their combined activities, all function harmonically."

So the sounds that surround us have an impact on our bodies and energy. Sound also has an impact on inanimate matter. In 1967, the late Hans Jenny, a Swiss doctor, published *Cymatics - The Structure and Dynamics of Waves and Vibrations*. In this book, Jenny showed what happens when one takes various materials and places them on vibrating metal plates and membranes. Using a sine wave generator and a speaker to vibrate powders, pastes and liquids, Jenny succeeded in making visible the subtle power through which sound animates matter.

Jenny invented a tonoscope to set these plates and membranes vibrating. The tonoscope was constructed to make the human voice visible. This yielded the amazing possibility of being able to see the physical image of the vowel, tone or song a human being directly produced. Not only could one hear a melody - one could see it, too!

One astounding result of his experiments is on the cover of your leaflet. The photo on the right is the shape that is created when the word, "Om" is spoken through a tonoscope. Om is the 39th (or last) letter in the Sanskrit alphabet. This mystic syllable is venerated by Hindus and Buddhists alike and is considered to be the primordial sound from which the Universe evolved. The picture on the left is the ancient mandala for the word Om. It is as if science is revealing a deeper mystery. How is it that these ancient peoples arrived at this particular structure for Om?

In his research with the tonoscope, Jenny noticed that when the vowels of the ancient languages of Hebrew and Sanskrit were pronounced, the sand took the shape of the written symbols for these vowels. Experimentation with modern languages generally produced chaos. Is it possible that the ancient Hebrews and

Indians knew this? Could there be something to the concept of "sacred language?" These languages have always proposed that they have the capacity to influence and transform physical reality through the recitation or chanting of sacred syllables and mantras. There are legends of Navajo shaman being able to whisper words that created patterns in the sand. We have all heard the bible verse, "First there was the word, and the word was with God, and the word was God" John 1:1 KJB.

Do you remember the movie, "Contact" with Jody Foster? It began with a view of the earth from outer space. You could hear our radio and television broadcasts emanating from the planet. As the camera slowly panned away from the earth into outer space, the broadcasts got older the further away you got. The camera passed the other planets in our solar system and proceeded into other galaxies. As the signal got fainter and further away, you could hear older broadcasts like Martin Luther Kings, "I have a dream" speech and finally the first broadcasts of Adolph Hitler.

Virtually every sound ever uttered on TV and radio is being broadcast from our planet and continuing on into the universe. Think about it; what a scary thought! That means that in addition to the best of humankind going out into the universe to represent our world, there are things like people arguing on call-in radio talk shows, reality TV, Judge Judy, All-Star Wrestling, Gilligan's Island, and the images of the World Trade Center falling.

I'd like to take this a step further. Could you imagine if every sound you've ever uttered in your life, (every time you cursed at someone in traffic, or lied, or talked about someone behind their back), was still continuing on into the universe riding on the sound current? It makes me shudder and has stopped me more than once from saying what I had in mind to say.

My own career in music has been an odd journey through many unusual circumstances and experiences. In addition to playing for weddings and hotel gigs, I have also played music for people in hospice for the past 11 years. When my father died suddenly, I had never experienced the loss of a close family member. I was drawn to find a way to use music in a healing way with the dying and their loved ones. I can only describe it as a calling; it is certainly not for everyone but it gives me great spiritual nourishment to use music in this way. I was first influenced by the work of a brilliant scholar and harpist named Theresa Shroeder-Schecker. She developed a method of working with music for the dying which she calls Music Thanatology. It is based on an 11th century French monastic tradition of tending to the sick with prescriptive music. Schecker teaches this method in a hospital in Missoula, Montana.

The hospital owns 42 harps. When a patient is dying, a team of two people goes to the room and plays music on the harps. If you can picture this, it looks like angel's wings as the harps are poised on either side of the bed. They play music that matches the breathing of the patient. Her belief is that if familiar music is played, it binds the person to this life at a time when the point is to help them let go.

In an excerpt from her article entitled, "Musical Sacramental Midwifery", she

writes about her first experience tending a death-bed vigil when she was a young, naïve, undergraduate student proceeding only from intuition. In her words, her first patient was

"a sinewy man in his eighties who was the terror of a geriatric home. He was a mean old buzzard, and deteriorated into downright viciousness in the moments most clearly revealing his brokenness. It is true; he was not the favorite of the caregivers.

When I entered the room, he was struggling, thrashing, frightened, unable to breathe. He was dying of emphysema. No more respirators, dilators, tracheotomies, or surgical procedures were available. No more medicine could resolve his disintegrated lungs. Both fear and agony filled the room. There was no-one to call for mediation or assistance. At first I held us both in interior prayer, but without knowing what to do, had leaned down into his left ear and had begun to sing gregorian chant in an almost inaudible pianissimo.

He rested and began to breathe much more regularly, and we, as a team, breathed together. The chants seemed to bring him balance, dissolving fears, and compensating for those issues still full of sting. How could they do anything less? These chants are the language of love. They carry the flaming power of hundreds of years and thousands of chanters who have sung these prayers before. It seemed that the two of us were not alone in that room. When his heart ceased to beat, I stayed still for long moments.

When you are really peacefully present with someone whose time has come, all that matters is that they are allowed to shine through the matrix. People ask: isn't the work depressing? Aren't you filled with fear or sorrow? None of that exists if you are really with the dying person: it is their time, not yours. You hold the person and keep vigil while they quietly, almost invisibly, shimmer an indescribable membrane of light. If a midwife is practicing inner-emptiness, and is capable of profound stillness, this gossamer film can be guarded for a moment or an hour. When the dying person's stillness fills the entire room, you can gently let go and lay them to rest. Then you thank them for affirming what is so bright."

In my practice as a hospice musician, I have experienced the impact that music can have during the delicate moments when a spirit is flickering between the worlds like a candle flame. One vigil that was particularly poignant for me was the death of an elderly woman in a nursing home. Her two daughters had been estranged from each other for years and they couldn't have been further apart. One lived in Scotland and the other in California. It was their mother's wish that her death would somehow bring them together. When they were notified that their mother was gravely ill, they both came to be by her side in her last days. They held vigil for almost a week before she died. I came to play soft music for the three of them several times during those last days. It is an incredible honor to be allowed in to a family's most intimate time with each other. At first, the distance between the sisters was palpable. But as the week wore on, I could sense them softening towards each other. By the last day, the walls between them had melted and they were united in a lovingly supportive way.

When I came into the room that last morning, the two daughters were on either

side of their mother's bed, each holding one of her hands and whispering to her that they loved her and that it was ok for her to go. I played soft classical music and hymns as they held vigil. Occasionally they would sing or hum along. The music opened up the space for them to spend non-verbal time together and it gave them a way that they could gently, lovingly participate in comforting her. Her breathing was sporadic with long moments between breaths that seemed like an eternity. Several times we thought that this breath or that might have been her last. But her body would struggle to take in yet another breath after the long silence. At one point she opened her eyes and looked at her daughters. I began to play the version of the 23rd Psalm that I set to music after my father died several years before. As the song continued her eyes slowly started to close. And as I played the very last note, she peacefully exhaled her last breath on this earth and was gone.

The room was filled with light and the silence was vast. We remained in silence for several minutes. There was an unspeakable sense of peace and awe in the room. I am convinced that it is as much of a miracle for a being to leave this earth as it is for one to be born into it.

In 20 years as a professional musician, I have seen the power of music in both positive and negative ways. Years ago when I used to play in loud bands, I shuddered when I saw audience members plugging their ears to the sound as they suffered from the volume of the music. Knowing how powerful a force music can be, I was keenly aware of the damage it could do.

As strong a force as music can be for healing, it can also be a detrimental one capable of promoting violence and hatred. For example, it came out after the events at Columbine High School, that the shooters had been influenced by the music of Marilyn Manson. Lyrics in some gangsta rap songs promote violence against women and can transmit a harmful message to impressionable youth who listen. If music weren't used as a delivery system, the lyrics alone may not have as strong an impact or reach as wide an audience. The good news is that we can choose whether or not we want to expose ourselves to these negative influences.

I hope that I have given you some food for thought about the power and great mystery's of sound and music. We saw how Fibonacci's work shows us that music is mathematically inter-related to many other phenomena in nature.

Cymatics opened new parallels between what science can prove and what the ancients once knew on a cellular level. Since we are basically vibratory beings in nature, our bodies can entrain to external impulses. Music can also be used as a healing force at the end of life. Words joined with the vibration of sound, music, thoughts and feelings are all powerfully creative things.

It is important to be clear about our intent. What geometry are we making? Are we contributing to or contaminating our environment? How can we take charge and responsibility for the sounds we create?

So let the words of our mouth
And the meditation of our hearts

Be acceptable in Thy sight,
All for Right.