

ORPHEUS IS ALIVE

Literary Club

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Music, healing, poetry, and more...Tonight's journey visits Orpheus, King David, the Pied Piper, Bach, Beethoven, Einstein, Oliver Sacks, Bobby McFerrin, Daniel Levitin, integrative medicine, and quantum physics.

In my new capacity at the University of Cincinnati College of Medicine, I am enjoying opportunities as a member of the Center for Integrative Medicine and Wellness. Here I am seeking to *rewire* rather than retire. Now, after practicing neurosurgery for more than 50 years, I am shifting my focus to the therapeutic aspects of the arts. This interest began early in my medical career with an epiphany that broadened my paradigm regarding the prevention of disease. The concept also recognizes the primacy of the human spirit in healing the body and mind. In 2013, I recounted this story called *Epiphany* in a budget with members Robert Smith and Bill Burleigh.

Today, I still consult clinically and mentor young surgeons, but my principal efforts have refocused on integrative medicine, wellness, and prevention of disease. In this holistic approach, I rekindled an interest in music as one possible path for a patient's wellness or healing. Is music medicine to the soul as Plato taught?

In my own quest of a foundation for longevity and a healthy life, music drew me to its therapeutic qualities to inspire, uplift, and heal. The stories that I share tonight are ones that inspired me as I reflected on music's role in medicine and healing throughout history. In this review, I have left out many other stories like ancient traditional music, the classic Indian rajas, and the music of the Native Americans.

Tonight, we acknowledge the enormous strides in the disciplines of public health, inoculations, water and food safety, and environmental practices that have eliminated most of the diseases that caused premature death in past ages. However, we should consider that today's causes of early death and poor health are often chronic diseases.

Diseases such as obesity, diabetes, heart disease, diseases of the immune system, and cancer that affect many parts of the body. Importantly, these chronic diseases can respond to improved personal behaviors advocated by holistic approaches. Outcomes research has confirmed that wellness and longevity are linked to proper nutrition, exercise, and elimination of addictive drugs and tobacco. But, hopefully, there is more to life and longevity than dieting, sweating, and disavowal of pleasures?

What about the role of music? On this journey toward music therapy, modern medicine, quantum physics, and healing, let us begin at the earliest recorded history of music and its creators.

Apollo, the son of Zeus, was a god of music, healing, sunlight, poetry, and medicine. Through the ages, he emanated the various qualities of the other gods. In the oldest Doric temple dedicated to Apollo in the 9th century BC, ancient Greek priests used music to evoke emotions, build character, and restore body and soul. The Greeks believed in music's fundamental power to either uplift or degrade, and thus to enhance or corrupt entire civilizations.

Next came Orpheus, the human son of Apollo and the muse Calliope. Orpheus received the gift of music: a golden lyre from his father and the gift to write and sing in verse from his mother. Venerated as the greatest musician, Orpheus had no rival, even among the gods.

In the deep, still woods of the Thracian mountains, Orpheus with his singing lyre led the trees and the beasts of the wilderness. Whether animate or inanimate, they followed. With music, Orpheus moved trees on hillsides and changed the course of rivers. Neither mortal nor nature could resist his spell: "He drew iron tears from Pluto's cheeks and made Hades grant what love did seek." Jason and the Argonauts enlisted Orpheus in their quest for the Golden Fleece. He used his musical power to help them overcome the call of the Sirens.

The writings, poems, and hymns of Orpheus became the foundation of Orphism, an ascetic sect that sought a mystical union with God. The Orphists used wine as a symbol of blood, a forerunner of the Christian sacrament. This mystical element was embodied into Greek philosophy with Pythagoras and Plato as reformers of Orphism. When Orphic poems were discovered in Greece in 1962, they dated back to 340 BC and constitute Europe's oldest surviving manuscript. These poems represent part of the highest and most cohesive ancient Greek religion.

Such was the power of Orphic music in the Republic (380 BC). Plato wrote, "Music molds character, when modes in music change, the fundamental laws of the state change with them." He added, "Music is medicine to the soul as justice is to the soul and as health is to the body through music. The soul learns harmony and rhythm and even a disposition to justice through music." During this Platonic era, rational medicine gradually replaced the magico-religious nature of healing.

Further evidence of the lasting influence of Orpheus can be heard in Beethoven's Concerto No. 4 for piano and orchestra. The magical *andante con moto* was inspired by the confrontation of Orpheus and the Furies. At the Gates of Hades, Orpheus's musical powers cleared the

demons who would bar his entry to rescue his deceased wife and muse Eurydice from the Netherworld.

More than any other man, Orpheus dared to risk for a love. In the depths of Hades, Orpheus struck his lyre with a sound that charmed all the multitudes to stillness.

In the kingdom of Judea during the time of Orpheus, the first king of Israel, Saul, recognized the young shepherd David's extraordinary skills as a musician. King Saul knew David, not only as the poet of the Psalms, but as one empowered with the gift of exorcism. David's lyre became the most famous harp in Judeo-Christian history. With his voice and lyre, David's music healed King Saul, exorcising his evil torments of paranoia and depression.

David later became an important figure in the Jewish, Christian, and Islamic faiths. In the Koran, David is a prophet, gifted with a captivating voice of incomparable influence over man, beast, and nature. Revered for his musicality in the Bible, David was the eminent spiritual force behind more than half of the 150 Psalms. Throughout the ages, his legacy spread. As a model ruler, he became a symbol of God's ordained monarchy in medieval Western Europe and Eastern Christendom. King David was considered a biblical predecessor to the Christian, Roman, and Byzantine emperors.

David's Psalms were composed of carefully chosen and intricately woven words that could evoke both heavenly and earthly realms. Many were exhortations to sing or chant. 3000 years later, these remain a major foundation of prayers chanted and spoken in Hebrew and many other languages worldwide. For example, the Psalms became a major component of Jewish and Christian worship. David's Psalms were included in the larger works of the Vespers of Claudio Monteverdi, Vivaldi, and Mozart; in the Requiem compositions by Brahms and Rutter; and in several of Bach's choral cantatas. They are popular in the Rastafarian movement, such as Soul-Junk and the Robbie Seay Band. The Psalms' universal impact continues in the inspired healing arts.

Our next example of music in medicine and healing comes from a tale of the Middle Ages, in the village of Hamelin. Legend tells of how this German village in lower Saxony was attacked by an infestation of rats. Of course, the relationship between the rats, the vector *Yersinia Pestis*, and the Black Plague was unknown at that time. When a mysterious Pied Piper arrived, the town leaders commissioned him to rid their town of the rats. Playing his magic flute, the piper lured the rats to their drowning into the Weser River. However, the town leaders reneged on payment to the piper, and the colorful musician led the children away, with his irresistible flute.

Among the varied fanciful endings to this classic tale, all versions told of the children's escape from the plague. The tale was retold, including a poem by Goethe in 1803 and music by Austrian composer Hugo Wolf that would later be incorporated into an opera and drama. The Brothers Grimm included the Pied Piper in their collection *Deutsche Sagen*, describing how the children became the founders of a new region called Transylvania. In 1842, Robert Browning's verse published in *Dramatic Lyrics* was notable for humor, wordplay, and jingling rhymes.

Let's listen to a few lines from Browning:

1 Hamelin Town's in Brunswick,
2 By famous Hanover city;
3 The river Weser, deep and wide,
4 Washes its wall on the southern side;
5 A pleasanter spot you never spied;
6 But, when begins my ditty,
7 Almost five hundred years ago,
8 To see the townsfolk suffer so
9 From vermin, was a pity.

10 Rats!
11 They fought the dogs and killed the cats,
12 And bit the babies in the cradles,
13 And ate the cheeses out of the vats,
14 And licked the soup from the cooks' own ladles,
15 Split open the kegs of salted sprats,
16 Made nests inside men's Sunday hats,
17 And even spoiled the women's chats,
18 By drowning their speaking
19 With shrieking and squeaking
20 In fifty different sharps and flats.

You remember that the city council refused to keep their end of the agreement. The Piper was not happy, so the story goes.....

185 "How?" cried the Mayor, "d'ye think I brook
186 "Being worse treated than a Cook?
187 "Insulted by a lazy ribald
188 "With idle pipe and vesture piebald?
189 "You threaten us, fellow? Do your worst,
190 "Blow your pipe there till you burst!"
191 Once more he stept into the street,
192 And to his lips again
193 Laid his long pipe of smooth straight cane;

194 And ere he blew three notes (such sweet
195 Soft notes as yet musician's cunning
196 Never gave the enraptured air)
197 There was a rustling that seemed like a bustling
198 Of merry crowds justling at pitching and hustling,
199 Small feet were pattering, wooden shoes clattering,
200 Little hands clapping and little tongues chattering,
201 And, like fowls in a farm-yard when barley is scattering,
202 Out came the children running.
203 All the little boys and girls,
204 With rosy cheeks and flaxen curls,
205 And sparkling eyes and teeth like pearls,
206 Tripping and skipping, ran merrily after
207 The wonderful music with shouting and laughter
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300 So, Willy, let me and you be wipers
301 Of scores out with all men -- especially pipers!
302 And, whether they pipe us free from rats or from mice,
303 If we've promised them aught, let us keep our promise!

Sporadic cases of the plague still occur today. In 2015, there were 11 cases and 3 deaths reported in the United States. Is there a modern Pied Piper whose music would eradicate the plague in Yosemite National Park?

Belief in witchcraft magic persisted in Europe throughout the Middle Ages and beyond the Reformation. Superstition and enlightenment co-existed well into the 18th century. The mechanistic view of the universe proposed by Copernicus, Galileo, and Newton was accepted only by the intellectual elite. Boyle and Newton were themselves alchemists and believers in magic.

In the classical education in Latin schools of the 1500s, music and religion had a prominent role. Singing was the main subject in the Lutheran school system. In his famous poem *Frau Musica*, Martin Luther personified music and singing as a "lady who gives God more joys and mirth than all the pleasures of the earth." "More valuable than the precious nightingale, music was created by God to be his true songstress and mistress, one who tirelessly offers him thanks." Thus, it was not

surprising that music and theology together accounted for nearly half of the curriculum and were taught by the same master. There was a little approaching a rationalist or an enlightened education. Here, in this milieu, prophets did not see any art except music. Truth was proclaimed in the psalms and songs. Luther said, "A schoolmaster must be able to sing; otherwise I won't acknowledge him." All staff members of the Latin and Lutheran schools were expected to be proficient in music.

In 1685, young Johann Sebastian Bach was born into a family with a strong pedigree in music. The boy received musical training from a series of school and church cantors. Like Luther, 200 years earlier, Bach became a Carrender, a busking chorister of the street choirs that collected charitable money for performances. When orphaned in his early teens, a series of talented mentors helped him advance his enormous technical skills as an organist.

Bach was quick to acknowledge the specific task of music as defined by Luther. Namely, words and music must forge into one as an invisible force that will appeal to the intellect and the passions. Bach's vocation and craft as musician and composer was vocal delivery of the Scriptures. To ensure that the devil did not have all the fun, Luther, Bach, and their followers appropriated secular melodies. They directed the candid earthiness and bawdiness of folk songs to the service of faith, "for the whole purpose of Harmony is the Glory of God." In the art of the Fugue, Bach went far in depicting and expressing the passions.

Following many great successes, Bach moved from the Weimar Court in 1723 to his appointment as cantor of the St. Thomas choir in Leipzig University. In Leipzig, Bach had great public exposure. However, in this Paris of the east, the city leaders' expectations proved troubling at times. Like all great composers of that era, Bach traced his ancestry to the scripturally sanctioned link to the musicians of King David's temple. As a result, he resented being at the beck and call of city fathers. Bach viewed his music like David's as divinely inspired, and thus, so was his appointed office and all of his compositions.

My favorite Bach story involves the 1741 composition of the Goldberg Variations BWV 988, said to be one of the most important ever. Composed for the harpsichord, BWV 988 consists of 1 aria and 30 variations. It was named for Johan Gottlieb Goldberg who was also its first performer. Goldberg was an employee of a Russian ambassador to Saxony named Count Kaiserling. The ambassador was often ill with depression, melancholy, and insomnia. When Bach learned of Count Kaiserling's affliction, he apparently recalled the success of his ancestor David in healing King Saul. After Bach artfully produced the repeating

harmonic variations, Goldberg played the music while stationed in the antechamber of the Count's bedroom. As the story goes, the Count was healed, and Bach was richly rewarded with 100 Louis d'Or.

Goldberg Variations live today as one of the most beloved gifts from JS Bach. Glenn Gould's 1955 recording of all 30 variations have ensured good sleep and improved my spirits on many occasions. (*Aria from Goldberg Variations played for the audience*).

From antiquity through the Renaissance, music has been based on the laws of nature. According to Pythagoras (500 BC), the mind perceives musical notes as reflections of a cosmic spiritual energy. Pythagoras held that planets vibrate in the same frequency and proportions as audible music. This *Music of the Spheres* included everything in the universe, mind, body, and spirit. All music is composed of energy and vibrating in unison. Man was like a musical instrument that could be in or out of tune. This classic philosophy of music was elegantly framed by Shakespeare in the *Merchant of Venice* (Act V). "Such harmony is in immortal souls; but while this muddy vesture of decay doth grossly close it in, we cannot hear it."

Well into the 18th century, this classical doctrine of the Universe influenced and empowered the dominant theory of humoral medicine. Good health was a result of harmonic balance between the humors whereas disease reflected their imbalance. This doctrine was traced to the most important medical theorist, Galen, who lived during the early Roman Empire.

For Galenic theorists, music was a therapeutic tool, capable of influencing and even restoring the balance between the humors. The axiom was that music directly affected the human mind. Thus, music influences mood, character, and health. As the natural sciences developed, anatomy- and spiritually-inspired medicine evolved little. Simultaneously, renaissance music and medicine receded into the background while medical science would pursue other matters.

During the next 250 years, the surgical schools in Europe evolved. Yet, medicine advanced little because of the ongoing contradictions with Galen's humoral theory. Therapeutics aimed to achieve humoral balance by purging, bleeding, and sweating. Surgery was limited because of the high risk of infection, the patient's poor nutrition, and blood loss.

Florence Nightingale, the angel of the Crimea, recognized the importance of sanitation and compassion in improving survival. Although she noted that musical entertainment was associated with improved morale and creation of a healing environment, few improvements were forthcoming.

In the United States Civil War and World Wars I and II, improving the survival of the troops meant dealing with the mental and physical ravages of war. Music therapy received acknowledgement for its value in helping those with shellshock, depression, and pain, much as it had been in the historic temples and ancient shrines.

The 20th century brought a new wave or new age philosophy and contemporary scientific discoveries. A paradigm was revived that included physics, psychology, and medicine. The most impactful parts of this revival closely relate to quantum physics. Specifically, quantum physics provides a sensational demonstration. It describes the paradoxical relationship between states of physical matter as wave and particle--simultaneously.

In the 20th century, it was no longer unusual or suspect that a scientist would consider life a permanent journey between the different levels of human existence, from matter to spirit. Music could be considered a specific order, a suitable metaphor or analogy of a richer and healthier life.

Music influences body, mind, and spirit. Music reflects universal principles of life and seeks a rebirth of the classic theory of music and medical science. However, the basic assumptions of music as therapy were rarely investigated scientifically or documented carefully before 1960.

Modern music therapy first emerged as a profession over the last 60 years. With its theory and practice, old ideas were reconsidered and given a new framework. The growing interest in the therapeutic and rehabilitative value of music therapy resulted in the first formal education, publications, and basic research. In 1944, Michigan State University established the first program of formal education for musical therapists. In 1950, the American Association of Music Therapy was founded in the United States.

Today's music therapist draws from the ancient healing traditions and from evidence-based research on the behavioral and cognitive effects of music. The physiologic and psychodynamic effects may develop dynamic forces for change and healing as suspected by our ancestors.

Recently, archaeologists at the University of Tubinger in Germany, discovered an ancient flute, which carbon dated to be 35,000 years old. The flute, made of bone, was in good condition when discovered in a cave in central Germany. Could this flute have been the Pied Piper's? Or his ancestors who played with magical powers in the 13th century?

Today, many ‘Pied Pipers’ study, interpret, and create music. One was Oliver Sacks, the octogenarian neurologist who died August 30, 2015. He discovered 40 years ago that the rhythmic calls and quickening beat of music could awaken the frozen bodies and sleeping brains of patients with Parkinson's disease. Four decades later, he discovered hidden memories alive inside the mute brains of dementia patients vegetating in nursing homes. Familiar music restored their gleeful memories and moved their tongues and limbs in rhythmic synchrony.

Einstein dreamed of a unified theory to explain everything. Many physicists continue to speculate about the particle. Brian Greene and most current physicists agree that the string theory can provide a unifying particle, one that is smaller than a Quark. Strings are one-dimensional objects whose properties are determined by their vibrational state. Strings are dancing filaments of vibrating energy. Even Black Holes contain vibrations that can be recorded as sound.

All sound comes from vibrations. These compression waves travel to the eardrum, the hair cells in the inner ear, and finally the brain. There the waves are decoded into memories and provocative stimuli for release of powerful neuropeptides.

Scientists tell us that the same basic sound waves are operative in the universe, whether as a musical passage in a concert hall or in Black holes. Science is now confirming what the ancients knew many eons earlier.

Bobby McFerrin, a modern piper, places music at the core of our lives. Music leads to group cohesion, synchronizes brain waves, and causes immediate release of chemical stimulants in the brain. Longer exposure to music and production of music provokes permanent changes in the frontal, motor, auditory cortices of the brain and the corpus callosum, the bridge between the left and right brain.

Daniel Levitin, a musician and brilliant neuroscientist, studies the brain by functional MRI, seeking improved treatments for neurological conditions such as stroke, autism, dementia, and mental disorders. Levitin advocates for the integration of both listening and performing music in our daily lives because of its immediate effect on mood and performance. His analogy is that music plays the body and the brain is the most important instrument.

We have considerable information about the neuroanatomical basics of music. We know far less about its neurochemical basis. The next great opportunity to investigate music's effects on health outcomes will likely be from understanding what kinds of neurochemical changes occur in

patients. For our notion of music as medicine to be considered seriously, we will need the same kinds of rigorous study designs that we use for drug and medical device testing. These studies will certainly take many years and resources.

Until then, we can do our own self-study about music and healing. We can be more attentive to the interplay of music in body, mind, spirit, and community in fortifying health and wellness in our lives. It is noninvasive, inexpensive, and natural. It has limited risks. Music lends value as a historical primal force for healing.

Oliver Sacks, Bobby McFerrin Daniel Levitin, Florence Nightingale, Beethoven, JS Bach, the Pied piper, and King David all confirm this reality. Orpheus has never departed. Today he lives on, in each of us, and all of nature, waiting to be awakened.

Reading List

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Film

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Alive Inside. Michael Rossato-Bennett. Winner of Audience Award, Sundance Film Festival, 2014.