

## **The Perfect Fifth: The Science and Alchemy of Sound**

**John Beaulieu, N.D., Ph.D.**

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### **Abstract**

This paper is based on a hypothesis that explores the ancient archetype of the Perfect Fifth, a sonic interval, and its potential importance in the applications of sound healing in modern stress science. An interval in sound is a precise space between two tones. The Perfect Fifth is a precise tonal relationship defined by a 2/3 ratio that was believed in ancient cultures to have profound healing qualities. The Perfect Fifth is also an archetype that repeats itself over and over to create a vibrational field that gives rise to everything we know. Its healing qualities, well known in the ancient times, will be presented in case histories and in a review of research in modern biochemistry and neuroscience that makes the case for the healing power of sound, strongly suggesting the need for more research.

The purpose of this paper is to learn from and be inspired by the great teachers of the past and to better understand their way of conceptualizing the universe and healing in the light of modern science. The paper is divided into three parts. The first part presents an understanding of interval of a Perfect Fifth and ancient sound healing principles. The second part presents “the Alchemy of The Perfect Fifth.” Part three presents “The Perfect Fifth and Sound Healing” and introduces case histories and scientific insights on the mechanisms by which these ancient sound healing practices work. The intention is to show similarities between the teachings of the past and the present-day practices based on modern research.

## **La Quinte Parfaite: Science et Alchimie du Son**

**John Beaulieu N.D., Ph.D.**

### **Résumé**

Cet article est basé sur une hypothèse qui explore l'archétype antique de l'intervalle sonore de la Quinte parfaite et son importance vis à vis de la guérison par les sons dans la branche de la science moderne liée à l'état de stress. Un intervalle sonore est un espace précis entre deux tonalités ; la Quinte parfaite, quant à elle, est la relation tonale exacte définie par un rapport de deux à trois. Chez les cultures anciennes, elle était censée posséder des pouvoirs de guérison importants. La Quinte parfaite est également un archétype qui se répète continuellement afin de créer un champ vibratoire qui donne naissance à tout ce que nous connaissons. Ses propriétés curatives, bien connues dans l'antiquité, seront ici présentées dans des antécédents médicaux et

dans un aperçu de recherche en biochimie moderne et en neuroscience qui plaide en faveur du pouvoir de guérison par les sons, tout en suggérant fortement la nécessité de poursuivre les recherches dans cette direction.

Le but de cet article est d'apprendre et d'être inspiré par les grands Maîtres du passé, de mieux comprendre leur mode de conceptualisation de l'univers et de guérison, à la lumière de la science moderne. Le document est divisé en trois parties : la première partie présente une explication de l'intervalle de Quinte parfaite et des anciens principes de guérison par les sons. La deuxième partie se réfère à « l'Alchimie de la Quinte parfaite ». La troisième partie, quant à elle, est dédiée à « la Quinte parfaite et la guérison par les sons », explorant par le biais de dossiers médicaux et de connaissances scientifiques, les mécanismes par lesquels certaines anciennes pratiques de guérison par les sons fonctionnent véritablement. Notre intention est mettre en exergue les similitudes entre les enseignements du passé et les pratiques de nos jours fondées sur la recherche moderne.

## **La Quinta Perfecta: La Ciencia y Alquimia del Sonido**

**John Beaulieu, N.D., Ph.D.**

### **Resumen**

Este documento se basa en la Hipótesis que investiga el antiguo arquetipo de la Quinta Perfecta, un intervalo del sonido; y su importancia en la aplicación de la curación por medio del sonido en la ciencia moderna del stress. Un intervalo en el sonido es un espacio preciso entre dos tonos. La Quinta Perfecta es una perfecta relación de tonal definida por la proporción 2/3 la cual se consideraba en las culturas antiguas tener profundas cualidades curativas. La Quinta Perfecta es también un arquetipo que se repite asimismo una y otra vez para crear un campo vibratorio que anima a todo lo que se conoce. Sus cualidades curativas, muy bien conocidas en los tiempos antiguos, serán presentadas en historias de casos y en una revisión de investigaciones hechas en la bioquímica moderna y neurociencia, las cuales son razón esencial para el poder curativo del sonido. Lo que sugiere fuertemente la necesidad de una mayor investigación.

El propósito de este documento es el de aprender e inspirarnos por medio de los grandes maestros del pasado y también para una mejor comprensión de la forma en que ellos concebían el universo y la curación bajo la luz de la ciencia moderna. El documento está dividido en tres partes. La primera parte presenta una comprensión del intervalo de la Quinta Perfecta y los principios curativos del sonido antiguo. La segunda parte presenta "La Alquimia de la Quinta Perfecta." La tercera parte presenta "La Quinta Perfecta y Curación por Sonido" e introduce historias de casos y visiones científicas sobre los mecanismos por los cuales estas técnicas de sonido antiguo trabajan. La intención es mostrar similitudes entre las enseñanzas del pasado y las practicas actuales basadas en la investigación moderna.

## **A Quinta Perfeita: A Ciência e Alquimia do Som**

**John Beaulieu, N.D., Ph.D.**

### **Resumo**

Este artigo é baseado na hipótese que explora o arquétipo antigo da Quinta Perfeita, um intervalo sônico, e sua importância nas aplicações de cura por som na ciência moderna de estresse. Um intervalo no som é um espaço preciso entre dois tons. A Quinta Perfeita é uma relação tonal precisa definida por uma proporção de 2/3 a qual se considerava, nas culturas antigas, de possuir qualidades curativas profundas. A Quinta Perfeita também é um arquétipo que se repete continuamente para criar um campo vibracional que dá origem a tudo o que conhecemos. Suas qualidades curativas, muito bem conhecidas nos tempos antigos, serão apresentadas em histórias de casos e também em uma revisão de investigações feitas em bioquímica moderna e neurociência, os quais explicam o poder curativo do som. Isto fortemente sugere a necessidade de mais pesquisas.

O objetivo deste documento é para aprender e ser inspirado pelos grandes mestres do passado, e para melhor compreender as maneiras em que eles concebiam o universo e a cura, à luz da ciência moderna. O documento está dividido em três partes. A primeira parte apresenta uma compreensão do intervalo de uma Quinta Perfeita e os antigos princípios curativos do som. A segunda parte apresenta “A Alquimia da Quinta Perfeita.” A terceira parte apresenta “A Quinta Perfeita e Som Curativo” e introduz histórias de casos e visões científicas sobre os mecanismos pelos quais essas práticas antigas de cura por som funcionam. A intenção é de mostrar semelhanças entre os ensinamentos do passado e as práticas atuais baseadas na pesquisa moderna.

## **Die reine Quinte: Die Wissenschaft und Alchymie des Klangs**

**Dr. John Beaulieu, Naturheilkundler**

### **Zusammenfassung**

Diese Veröffentlichung basiert auf einer Hypothese, die den alten Archetypus der reinen Quinte untersucht, ein Schallintervall, sowie dessen Bedeutung für die Anwendung der Klangheilung in der modernen Stress-Forschung. Ein Klangintervall ist ein ganz bestimmter Abstand zwischen zwei Tönen. Die reine Quinte ist eine genaue, durch ein Verhältnis von 2 zu 3 definierte, klangliche Beziehung, der in alten Kulturen tiefe Heilungsqualitäten zugeschrieben wurden. Die reine Quinte ist auch ein Archetyp, der sich selbst immer wieder wiederholt, um ein Schwingungsfeld zu erschaffen, das alles verursacht, was wir kennen. Seine heilenden Eigenschaften, die in alten Zeiten wohl bekannt waren, werden in Fallgeschichten vorgestellt, sowie in einer Übersichtsarbeit über moderne biochemische und neurowissenschaftliche

Untersuchungen, die für die Heilkraft des Klanges sprechen, was nachdrücklich auf die Erfordernis weiterer Forschungen verweist.

Die Zielsetzung dieser wissenschaftlichen Arbeit ist, von den großen Lehrern der Vergangenheit zu lernen und inspiriert zu werden und deren Weg, das Universum und Heilung begrifflich zu erfassen, im Licht der modernen Wissenschaft besser zu verstehen. Diese Veröffentlichung ist in drei Teile untergliedert. Der erste Teil legt ein Verständnis dar für das Intervall einer reinen Quinte und alter Grundsätze der Klangheilung. Der zweite Teil stellt "Die Alchymie der reinen Quinte" vor. Der dritte Teil präsentiert "Die reine Quinte und Klangheilung" und liefert Fallgeschichten, sowie wissenschaftliche Einblicke in die Mechanismen, wie diese alten Praktiken der Klangheilung funktionieren. Ziel ist, mit auf moderner Forschung gestützten Methoden, Ähnlichkeiten zwischen den Lehren der Vergangenheit und den Praktiken der Gegenwart aufzuzeigen.

## **Introduction**

One must keep in mind that the great teachings and practices of the past are often expressed in metaphors and stories that have been passed down over hundreds and even thousands of years and that are very different from our modern scientific language. Often one cannot be sure who the authors are, their exact time of publication, or even if their stories have been changed during the course of history. This paper does not pretend to know "the truth" of the past. Instead, it examines literature from the past and asks how it might be understood in the light of modern evidence-based healing practices.

For example, Manly P. Hall relates a Pythagorean story in his book, *The Therapeutic Value of Music*.<sup>1</sup>

### Ancient Story

*"A demented youth forced his way into the dwelling of a prominent judge who had recently sentenced the boy's father to death for a criminal offense. The frenzied lad, bearing a naked sword, approached the jurist, who was dining with friends, and threatened his life. Among the guests was a Pythagorean student. Reaching over quietly, he plucked a fifth upon a lyre which had been laid aside by a musician who had been entertaining the gathering. At the sound of the fifth, the crazed young man stopped in his tracks and could not move. He was led away as though in a trance."*<sup>2</sup>

This same story could have been told again in a new modern context. In the Manly P. Hall story the person uses a lyre tuned to Pythagorean intervals. In my own story I use tuning forks tuned to Pythagorean intervals.

### A Modern Story: Down Regulating Stress in A Stressful Environment

One week after 9/11, I flew to Switzerland from Newark Airport to teach a sound healing class in Zurich. The airport was empty because people were afraid to fly. When I went through security, the officers stopped me because I had a C and G tuning fork in my backpack. I was brought into an office where an armed customs officer had placed my tuning forks on a desk. The situation was very tense.

He looked at me with hard eyes and asked, “What are these?”

I said, “They are tuning forks. I use them with my patients and I have a brochure in my bag explaining them.”

He said, “What do they do?”

I asked, “Can I play them for you?”

He nodded and I picked up my tuning forks, tapped them on my knees, reached across the desk and held them to his ears.

The moment he heard them his eyes softened and then closed. He made a “humming” sound in resonance with the tuning forks. The experience took no more than a minute. He opened his eyes. He was clearly more relaxed. His eyes were brighter and exuded softness.

He said in a much more open resonant voice, “I understand.”

Then he said, “Bob, get in here!”

Another officer named Bob walked into his office and I tapped the forks for him. Bob had a similar experience.

Then the officer said, “Thanks, doc, and have a good flight.”

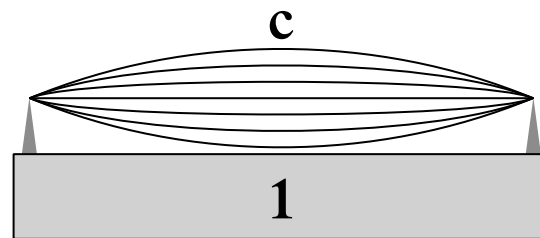
I said, “You are welcome.” As I left, I looked him in the eye and placed the tuning forks on his desk, put my hands on them for a moment as if to say they are my gift to you. I knew he was not supposed to take them, so it had to be as though I forgot to take them with me. He nodded and I went on my way.

This story suggests that sound based on Pythagorean tuning can be used as part of a healing process. In order to better understand sound healing in the context of modern science and evidence based clinical practice, additional research is needed. It is also necessary to honor the traditions and practices of those healers who came before us.

### **The Perfect Fifth**

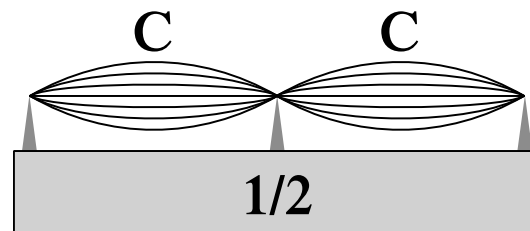
The mathematical discovery of the Perfect Fifth as an archetype based on mathematics is credited to Pythagoras, the ancient Greek philosopher and mathematician.<sup>3</sup> Pythagoras used an

instrument called a monochord to demonstrate the relationship between sound and numbers. A monochord is a musical instrument consisting of a resonant chamber in the shape of a rectangular box and a string stretched across the box.<sup>4</sup>



The unsounded string of the monochord represents the potential of creation. The plucking of the string represents the beginning of vibrational creation. Pythagoras assigned the first plucking of the string the number 1. In acoustics, the first sound is called “the fundamental tone.” The plucking of the whole string resonates with the archetype of the primordial sound of the birth of the universe, often referred to as “the Word” or “the Logos.” From a modern physics perspective the simple act of plucking the string is a metaphor for the “Big Bang” that began our vibrational universe.

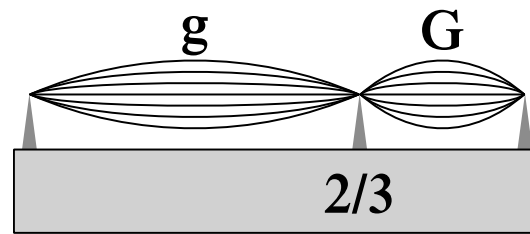
When the monochord string is divided into two equal parts by pressing at exactly the halfway point, it creates a sound that is double the vibration of the fundamental or a ratio of 1/2. The ancient Greeks called this sound *diapason*, which meant “through all.” In modern music, the diapason is called an octave, which means through eight tones. For example, an octave begins with C 256cps, goes through D, E, F, G, A, B, and ends with C 512cps an octave higher.<sup>5</sup>



The two tones are the same but double in frequency. They sound the Alpha and Omega archetype, which is expressed in the Hermetic Axiom, “As above, so below.” Continuing to divide the monochord string into halves represented the universe dividing itself over and over to create the space for vibrational universes within vibrational universes, all of which resonate with the primordial Logos. In modern systems theory, all systems begin with a Supra System that contains systems within systems that are all congruent with the Supra System.<sup>6</sup>

When Pythagoras divided the monochord string into three equal parts he created a 2/3 ratio and discovered a sound that divided and balanced the octave. He called this sound diapente, which meant through five tones.<sup>7 8</sup> Today, we call the same sound a Perfect Fifth because it is the space

between five musical tones. For example C256 / and G384 create a Perfect Fifth ratio of 2/3 which spans the five tones of C, D, E, F, and G.<sup>9</sup>



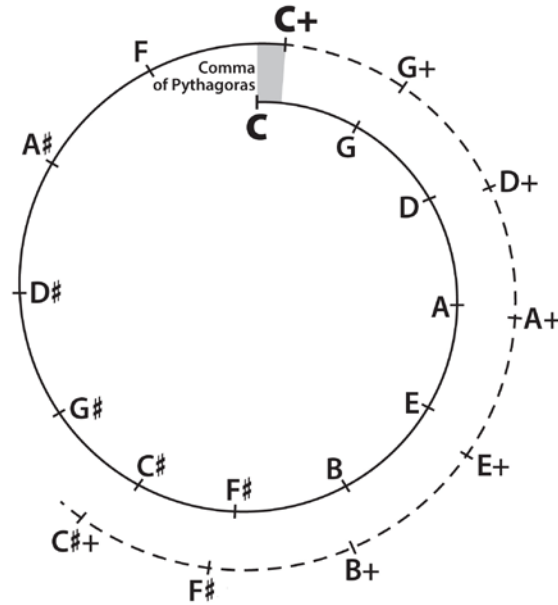
In yoga, the Perfect Fifth is the divine dance between Shiva and Shakti.<sup>10</sup> In Greek astrology, the Perfect Fifth is the light of the Sun that illuminates the whole cosmos. The Chinese philosopher, Lao Tzu referred to the Perfect Fifth as the sound of universal harmony between the forces of yin and yang represented by the image of the Tao.<sup>11</sup>

*Lao Tzu, Tao Te Ching<sup>12</sup>*



The Tao gives birth to One.  
One gives birth to Two.  
Two gives birth to Three.  
Three (the Perfect Fifth) gives birth to all things.

To better understand the hypothesis that the Perfect Fifth gives birth to all things, one can imagine continuing to divide the monochord string by 3. Doing this will create an ascending spiral of Perfect Fifths.



Starting with the Perfect Fifth C – G, the next Perfect Fifth would be G – D, and the next would be D – A, and the next A – E, and so on until one arrives at another C that is seven octaves and twelve tones above the starting C. If the twelve tones that appear within the seven-octave span were reduced in octaves into one octave, they would create a twelve-tone chromatic scale:

C, Db, D, E, Eb, F, Gb, G, Ab, A, Bb, B, C

However, the second C+ in the diagram, indicated in boldface, will be slightly out of tune with the starting C. In the diagram the difference between the two C's creates a microtonal interval called the comma of Pythagoras. The comma of Pythagoras can be visualized as a vortex around which Perfect Fifths infinitely spiral. It can also be imagined as a vibrant still point of soundless sound that creates a vortex or neutral center through which all tones of the spiral can be accessed.

“At the still point, there the dance is ... neither arrest nor movement ...”<sup>13</sup>

T.S. Elliot

It is important to think of the Pythagorean spiral as creating a unified field of sound organized around a vortex. To create the unified field, all tones are simultaneously sounding, and the continuous tonal spiral is constantly creating microtonal shifts leading to an oceanic field of waves within waves. In this sense the Pythagorean tonal spiral is similar to the quantum field.

The division of the Pythagorean tonal spiral by seven octaves and twelve tones represents a complete cycle of ascension. The new C, seven octaves higher than the beginning C, is a slightly different tone that represents a completely new tuned cycle of ascension. Although the Pythagorean comma difference of 1.013643 cps may seem small and insignificant, it is very



significant. If one turns a radio dial just a little bit, he/she can tune into a completely different station.

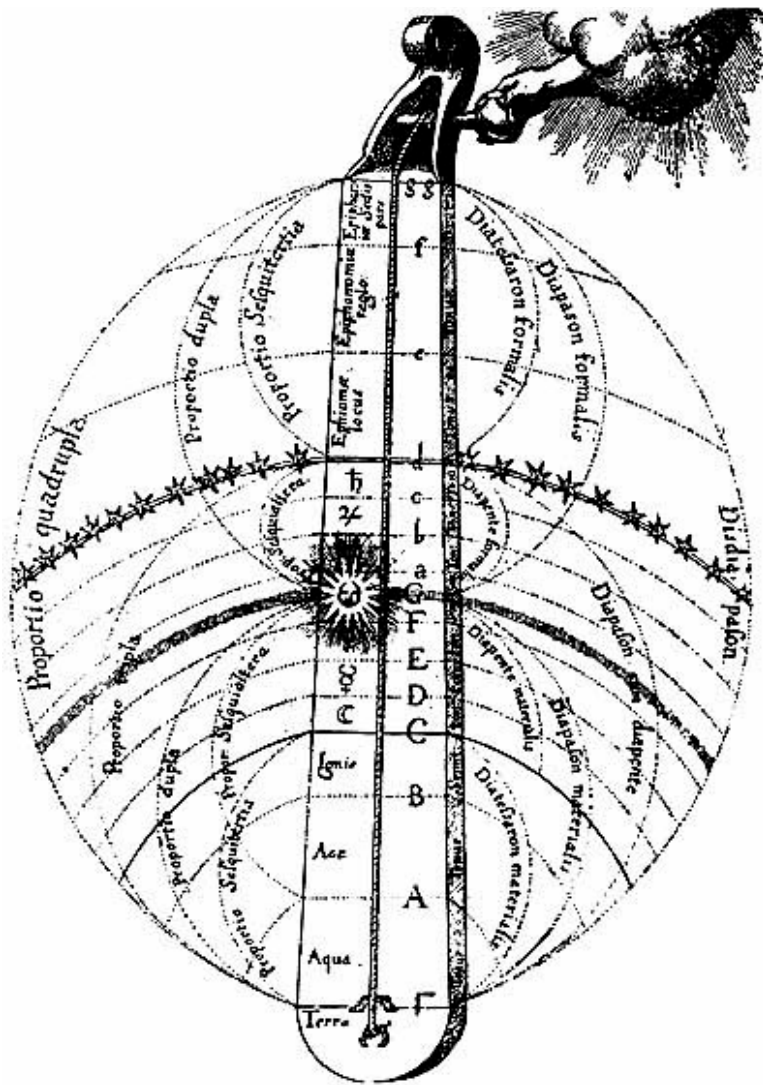
The continuing Pythagorean spiral of Perfect Fifths can also be visualized as a stairway to heaven. In his famous painting *Stairway to Heaven*, William Blake shows a spiral staircase leading to heaven.



*William Blake's Jacob's Ladder (1800) is a continual spiral ascending from Earth into higher and higher realms. From Jacob's Dream 1805, British Museum, London*

### **The Alchemy of the Perfect Fifth**

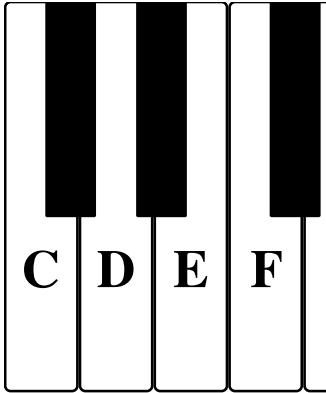
The Mundane Monochord by Robert Fludd, often referred to as the World Monochord, is a graphic summary of Pythagorean Universal Sound principles based on a Perfect Fifth, principles that are important to this day. The World Monochord illustrates Pythagorean harmonic principles mapped to elements, planets, angelic kingdoms, and the hand of God.<sup>14</sup>



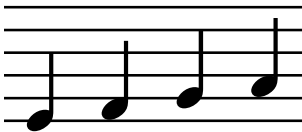
Robert Fludd, *The Mundane Monochord with Its Proportions and Intervals* from *De Musica Mundana* 1618

Pythagoras believed in the Hermetic Axiom: As above, so below.<sup>15</sup> Looking at the World Monochord, one notices the monochord string stretching between heaven and Earth. The string is anchored to the Earth below and tuned by the hand of God above. When it is tuned correctly, the monochord string sounds the primordial Logos from which a vibrational universe manifests in octaves and Perfect Fifths.<sup>16</sup> The World Monochord drawing covers a two-octave span; however, it represents an infinite spiral of ascending octaves and Perfect Fifths.

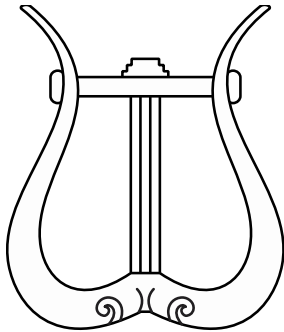
At the bottom of the monochord string are the four primordial elements. Fludd presents them in ascending order – Earth (Terra), Water (Aqua), Air (Acr), and Fire (Ignis). The four elements are bound together into a four-note tetra chord. A tetra chord is an interval of a perfect fourth that contains within it four notes that consist of two whole tones and a half tone.



*Each note is 1/2 step i.e. C to C# is 1/2 step. C to D is a whole step or whole tone. In the diagram, the four notes are C, D, E, & F. In order of steps they are whole step (C-D), whole step (D-E), and half step (E-F)*



*Tetra chord*



*It is said that the first lyre of Hermes had only four strings and when played correctly the four elements came into balance allowing the listener realms of heaven<sup>17</sup>*

The last element in Fludd's primordial tetra chord is fire. When the four elements are balanced, the primordial fire burns the earth and creates alchemic heat. This is called the Fire of alchemical transmutation through which one is able to ascend beyond the planets into the Empyrean realms. This is often represented in alchemical drawings as the phoenix rising from the ashes.



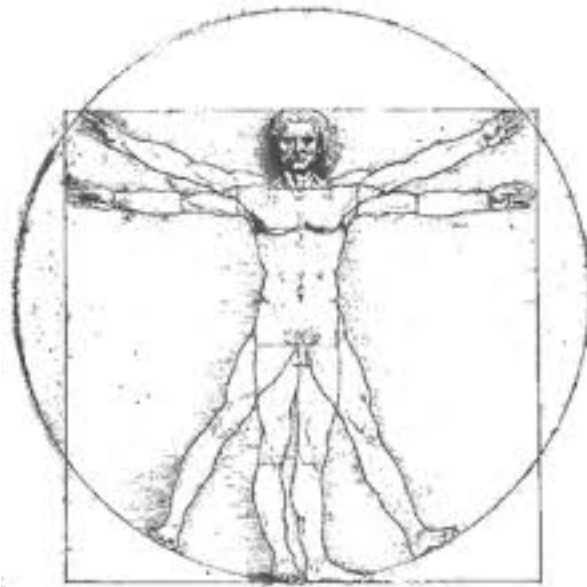
*Melchizedek and the Mystery of Fire, 1996  
the Philosophical Research Society, Inc. Los Angeles, California<sup>18</sup>*

In the Pythagorean tonal cosmos, the octave consists of eight tones that are divided into lower and upper tetra chords.<sup>19</sup>

The two tetra chords can be visualized as a sonic archetype that represents a higher-/lower-self relationship within oneself. The lower tetra chord contains the four elements of the lower self and the upper tetra chord contains the same four elements transformed into the elements of the

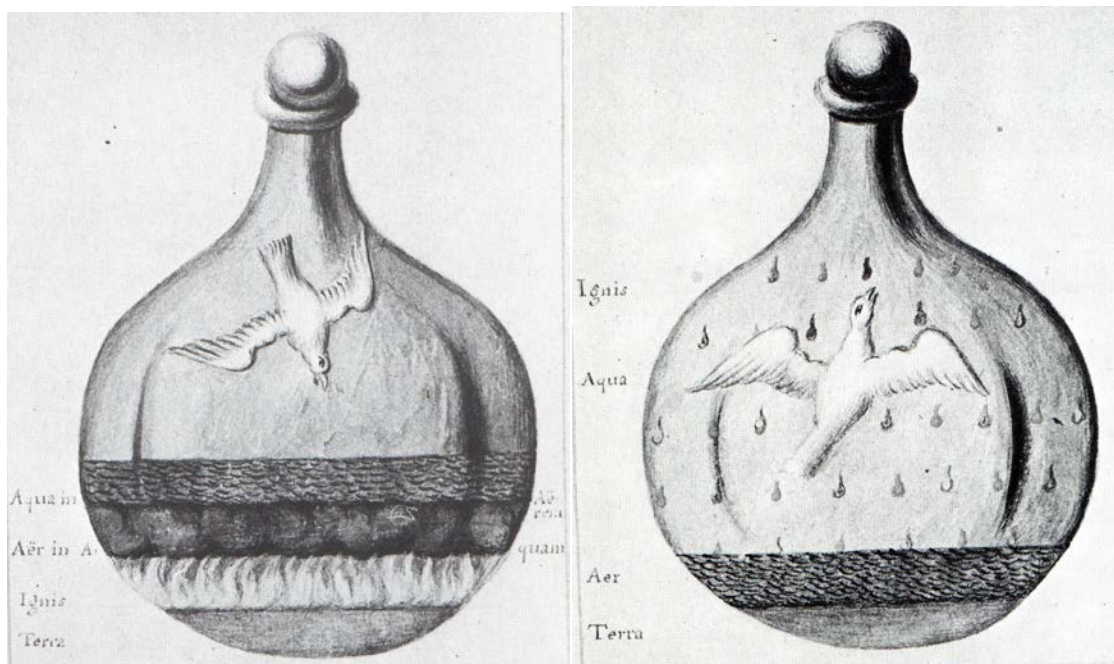
higher self. The elements of the lower self are associated with the challenges and struggles of life. In modern science they are associated with distress patterns. The elements of the higher self are associated with higher states of consciousness, light beings, and wisdom. In modern science they are associated with eustress and peak experiences. When the elements of the lower self are balanced, one naturally reaches the interval of a Perfect Fifth, which is the perfect balance between heaven and Earth.

Leonardo da Vinci's drawing, "Squaring the Circle", illustrates the principle of the Perfect Fifth balancing the higher and lower self. The square represents the four lower self elements; the circle represents heaven and the four higher self elements. The Perfect Fifth is graphically represented by the Vitruvian Man simultaneously touching the square and circle.<sup>20</sup>



Leonardo DaVinci "Squaring The Circle"

The sonic relationship between the tetra chords and element archetypes has been used for thousands of years in different knowledge systems to demonstrate a transformation of lower self elements to higher self elements. In Western alchemy the higher-/lower-self relationship between the archetypal elements was represented as bottles within which the elements mixed in different patterns. The flasks were called the quintessence, which means the essence of five that sounds a perfect balance of the four elements.<sup>21</sup>



*The Manly P. Hall collection of alchemical manuscripts<sup>22</sup>*

The two quintessence flasks should be imagined as one flask that contains different element patterns that represent a higher-lower self process of transformation that takes place within. The alchemists often referred to this process as the transmutation of lead (the lower self) to gold (the higher self).

For purposes of illustration, the flasks look the same; however, in life the space within the flasks is constantly changing based on the amount of space necessary for the four elements to properly mix. In daily life, one is always needing more or less space. If the space is too small, one feels confined, trapped, stuck, or compressed. If the space is too large, one feels scattered, spaced out and lost. If the space is “just right,” one gains energy and has the space to pull together his/her resources to resolve life challenges. When one has just the right amount of space, it is called a “tuned space.”

The element patterns within the flask can be sonically imagined as tones that are playing louder and softer in different orders. Within the first flask, the elements entangle in a lower self-distress pattern. The dove represents one’s consciousness being drawn into the pattern in order to resolve the distress. The Alchemists referred to the element pattern in the first flask as Prima Materia. Today we call Prima Materia distress. The goal of an alchemical operation is to transform Prima Materia, the lower self, into the light, or higher self. Today, one seeks to transform distress into eustress.

One’s consciousness is continually descending into distress, resolving distress, and ascending into eustress. All element patterns are good patterns, and when one learns how to navigate an element pattern, he/she becomes a master of the positive energy that the pattern offers. Imagine a

hang glider soaring like a dove in the winds. If the winds change, the hang glider simultaneously adapts to the changing pattern. If the hang glider fails to adapt, he/she will experience increasing levels of distress leading to a crisis. If one senses the wind change, he/she will creatively adapt to the new wind pattern. The more wind patterns the hang glider learns how to navigate, the greater his/her mastery and euphoria. The ancient sages of India referred to constantly changing element patterns as Shabda, which means the currents of Sacred Sound. These currents flow within a universe of constant energetic change. The consciousness of enlightenment requires continuing adaptation and change in response to these currents.

The ascension of the dove shown in the higher self quintessence flask was called “the web of Athena” by the Greeks.



*Persephone and Hades,  
The British Museum*

The web of Athena represents increasing euphoric states of consciousness that are made up of higher self elements that also must be balanced. Just as one can get lost in one’s lower self distress experiences, one can also get lost in the euphoria of the higher self experiences. This is what is called being caught in the web of Athena. When one is able to navigate the euphoric elements of the higher self tetra chord, one gains mastery of the C – C octave and enters a new octave via a Perfect Fifth. The elements of the higher self are the tetra chord G, A, B, C. When these elements are balanced via a Perfect Fifth, one comes to the beginning of a new octave represented by the note or tone D (G-D is higher self balancing Perfect Fifth). Each new octave is a new space filled with new elemental challenges.

This sort of vibrational field understanding of reality is challenging to comprehend within a reductionist worldview. The ancient astrological texts used to talk about Venus becoming Mars. This makes no sense if one believes that Venus is a planet and Mars is a planet. It is impossible for one planet to transform into the other planet. However, if the planets are vibrational symbols like notes, then it is possible. In the night sky Venus and Mars are seen in different places; however, in the inner self, Venus can, like tones of a lyre, harmoniously merge with Mars and eventually transform into Mars. Paracelsus, the Swiss alchemist and great grandfather of modern medicine, understood this process in a different way before the discovery of quantum mechanics.

*“The physician should know how to bring about a conjunction between the astral Mars (quantum nonlocal Mars) and the earth Mars (psychological individual Mars.). In this sense the remedy should be prepared in the star (quantum field) and should become a star (within the individual), for the stars above can make us ill and die, or they can make us healthy. As a remedy cannot act without the heavens (quantum field), it must be directed by them.”<sup>23</sup>*

In the Pythagorean harmonic cosmos, poetically called the Music of the Spheres, the ascension process is one of moving through different octaves of creation that are given planet names. Each octave has its own unique planet qualities and harmonies that the Greeks called modes. The Pythagorean harmonic stairway to heaven ascends through Seven Octaves and 12 tones. What are called sharps and flats in the modern chromatic scale are the five tones that the Greeks called Chroma – which means “to give color to.” By altering different tones within the seven octaves, they created different tonal colors or moods that correspond to the qualities of each octave. Modes in classical Indian music are called Raga, or “that which colors the mind.”



*Apollo, God of music and healing, playing modes on his seven stringed lyre*

*Apollo is from a painted interior of a white ceramic kylix found at Delphi and dated at circa 470 B.C.*

Modes are the basis of healing music played on the seven-stringed lyre of Apollo. Through tuning to and sounding modes in different melodic patterns, the musician healer can guide a



person through the web of elements and planets into the stars. Traditionally modes have been used to create melodies that have healing powers and that are called Medicine Melodies.<sup>24 25</sup> Beyond their use in music, modes can be used in sound healing to create sonic fields with tuning forks. Within these fields, the listener will hear spontaneous melodies appear and disappear. However, what is most important is immersion into a modal field of sound through Mindful Listening. Mindful Listening is similar to Mindfulness Meditation, and the two techniques are complementary and easily combined. Each practice aims to go beyond the “rational-objective mind” to expand consciousness and to increase one’s awareness. During Mindful Listening, practitioners listen to a sound and become one with it.

The following chart gives the formulas for creating modal sonic fields from BioSonic tuning forks and the healing qualities ascribed by the Greeks to each field. They have been recorded and are available for listening at <https://soundcloud.com/john-beaulieu/sets/modal-spectrum-meditations>. The relationship between the modes and planet archetypes have been discussed and debated by many different authors over thousands of years and are given as generic historical references which are not intended to be factual descriptions.<sup>26</sup> The modal recordings are presented as listening experiences based on the creation of the modes from the Perfect Fifth. The individual tones are sounded as a part of a whole field. For example, the only difference between the Ionian Mode and Lydian Mode is that F becomes F#. However, a change in frequency, no matter how small, has the ability to affect the entire field and the consciousness of the person entrained within that field. In this case the change from F to F# creates a whole new field with different qualities.

#### Modal Tuning Fork Tones Used in Modal Harmonics Recordings

Locrian (Moon)      C256 Db Eb F Gb Ab Bb

To calm down after a stressful day and to promote good sleep and dreaming

Ionian (Mercury)      C256 D E F G A B

To inspire clear communication and putting together thoughts to reflect inner vision

Aeolian (Venus)      C256 D Eb F G Ab Bb

To stimulate artistic creativity through quite dreamy / reflective moods

Dorian (Sun)      C256 D Eb F G A Bb

To awaken and clear the mind – good in the morning. It was the most used mode in Gregorian chant.

Phrygian (Mars)      C256 Db Eb F G Ab Bb

To awaken motivation and drive to reach a goal

Lydian (Jupiter)      C256 D E F# G A B

To promote good feelings, happiness, and a sense of celebration of life

Mixolydian (Saturn) C256 D E F G A Bb

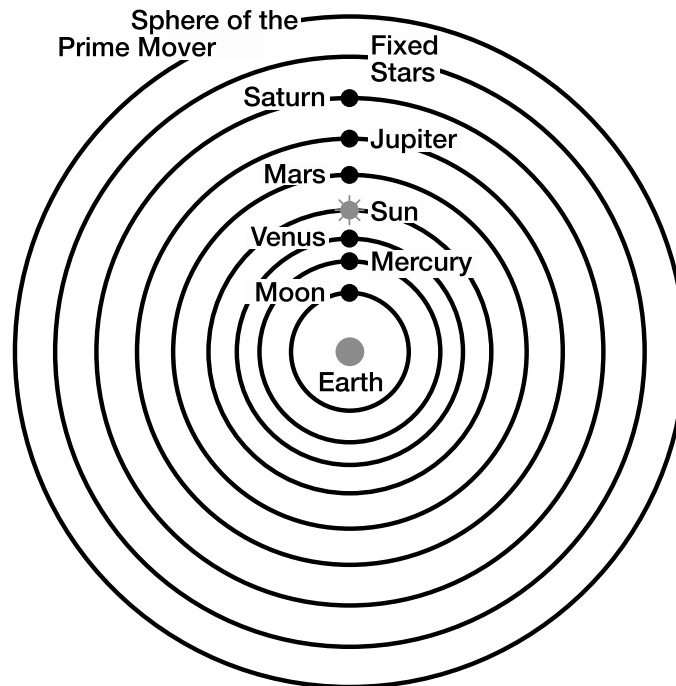
To support increased focus and clarity

The modal tones are presented as pure sound based on a precise 8cps fundamental tone and interval ratios in order to encourage phenomenological listening. This gives listeners the option of sharing their experience of a mode with others based on an established baseline. It up to the listener to mindfully enter into the mode and share his or her experience in much the same way as people might have done in ancient times.

The following are questions that can help each listener systematically explore and journal his or her experiences of modal listening.

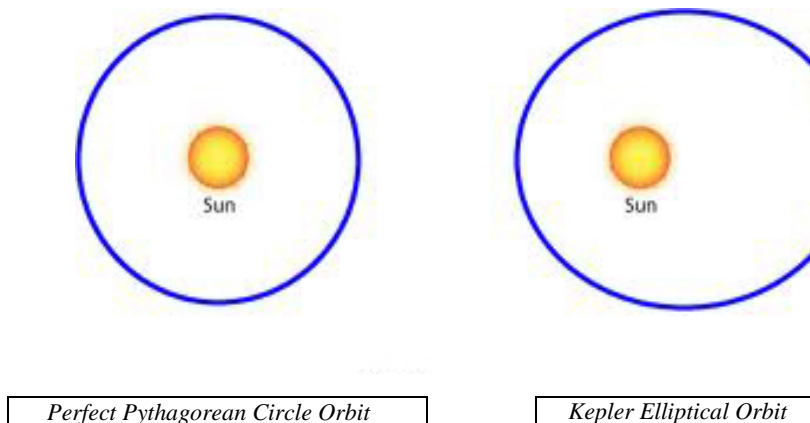
1. General observations/impressions
2. Specific observations
  - a. Do you experience a color or colors as you listen to a mode?
  - b. Do you experience a temperature change as you listen to a mode, i.e., cool, hot, warm, or cold?
  - c. Do you receive thoughts when listening to a mode, i.e., messages, insights, stories, visions, or instructions?
  - d. Do you experience specific emotions when listening to a mode?
  - e. Do you experience a shift or change in your body posture when listening to a mode?
3. Additional observations

The planet archetype of Perfect Fifth is shown in Fludd's World Monochord as the Sun. The Pythagorean universe was geocentric. Looking out from Earth the first tetra chord is Earth, Moon, Mercury, and Venus. The next tetra chord is Sun, Mars, Jupiter, and Saturn.



The Perfect Fifth also manifests itself in the Music of the Spheres, the foundation of which is grounded in planetary orbital mechanics. The sound of planets can be made audible through converting the orbital cycles of the planets into frequencies and then raising those frequencies 29 to 38 octaves into the range of human hearing. The mathematics of orbital cycles and their frequencies is based on Johannes Kepler’s first law of planetary motion. Johannes Kepler (1571–1630) was a Renaissance mathematician, astronomer, and philosopher who discovered the laws of elliptical planetary motion. Kepler was a Pythagorean and believed that the movement of the planets in perfect circular orbits created sounds. Like Pythagoras, he theorized that the sounds of the planets were always in harmony based on perfect ratios between orbits.

Kepler, to his surprise, discovered something very different in his first law of planetary motion which states that planets move in ellipses and that the Sun is not at the exact center of their orbits. Although taken for granted today, in Kepler’s time this finding was revolutionary.

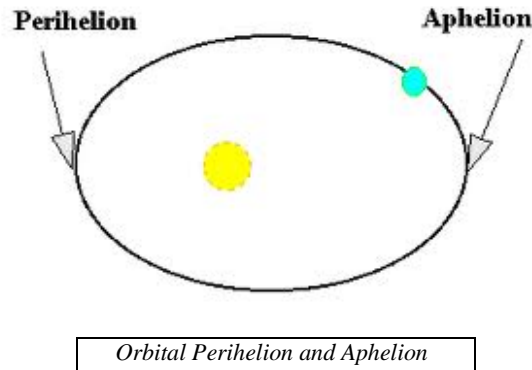


When Kepler discovered elliptical planetary orbits, he still believed the planets made sounds; however, he came to a different conclusion about their harmonies. In his work, *The Harmonies of the World*, Kepler states:

*“The heavenly motions are nothing but a continuous song for several voices to be perceived by the intellect, not by the ear—a music which, through discordant tensions, syncopations, and cadenzas as it were, progresses towards certain predesigned six-voiced cadences, and thereby set landmarks in the immeasurable flow of time.”<sup>27</sup>*

Although Kepler was disappointed that the sound of the planets might not resonate with the ratios of Pythagorean harmony, he nevertheless opened his ears to a new cosmic harmony. He describes the new harmony as “discordant tensions” because he is comparing the sounds of elliptical orbits with the Pythagorean ideal of harmony. Although Kepler may not have been aware of it in his time, he was entering into a modern understanding of microtones. What he perceived as “discordant tension” would be microtonal beauty in modern music.

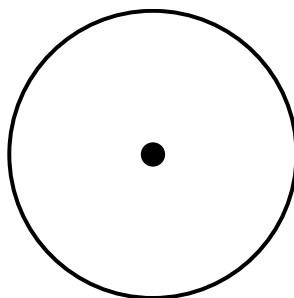
Kepler did not totally dismiss the idea of perfect Pythagorean harmony. In his Second Law of planetary motion he states that the planets move faster at the perihelion than at the aphelion. Through his first and second laws of planetary motion, Kepler discovered a constantly shifting tonal environment that at moments would sound Pythagorean harmonies and the rest of the time sound continually shifting microtones.



Using this law, Kepler measured the angular velocities of the planets at the perihelion and aphelion extremes as viewed from the Sun. He discovered that during a 24-hour period as the planets passed through the perihelion and aphelion that they sounded in perfect Pythagorean harmonies. For example Saturn moves at a rate of 106 seconds per day at the aphelion and 135 seconds at the perihelion. The ratio of 106/135 canceled down is only two seconds from a perfect 4/5 ratio, or major 3<sup>rd</sup>, in music. When he compared the ratios of the planets as they orbited through perihelion and aphelion extremes, he discovered the intervals of a complete Pythagorean scale. For example, the ratio Jupiter's perihelion and Mars' aphelion orbital speeds corresponds to a minor third; the interval between Earth and Venus corresponds to a minor sixth.<sup>28</sup>

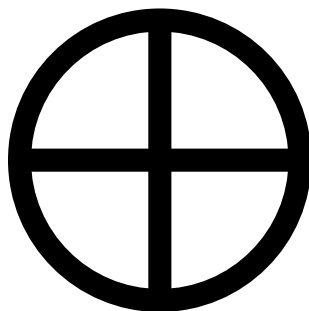
The sounds of the modes are the planets coming into Perfect Pythagorean harmonies, or what is oftentimes referred to as the Music of the Spheres. The reader is also invited to listen to the microtonal sounds of planets at <https://soundcloud.com/john-beaulieu/sets/modal-spectrum-meditations>.

From a psychological standpoint, everything revolves around our inner sun. The outer Sun in our solar system resonates with one's inner psychological sun, which illuminates the whole universe and all its interconnections. The astrological symbol for the Sun is a circle with a dot in the middle. In Eastern mysticism, the same symbol is called Bindu, a point through which the mind transcends into the light of the Absolute. In the East this is called enlightenment or cosmic consciousness.

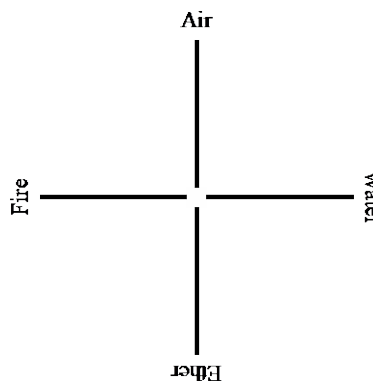


Sun Symbol or Bindu

The astrological symbol for the Earth is a quartered circle in which each quarter represents an element much like Fludd's primordial tetra chord in which each note represents an element. By balancing the four elements, we are able to ascend into the inner light of the primordial Sun. We become the archetype of the phoenix rising from the ashes.



Earth Symbol



Element Cross

### The Perfect Fifth and Sound Healing

Sound Healing is the practice of using sound in a therapeutic manner to enhance the body's natural ability to heal itself and to promote personal growth and development. The basic premise of Sound Healing is that *All existence is vibratory in nature, and therefore it is the underlying vibratory field that sustains and imbues everything that exists with structure and form.* The driving force of all healing processes is consciousness, an unexplained fundamental manifestation of the universe that influences the nature and structure of existence by its effect on the behavior of sub-atomic particles. Sound is a perfect tool for healing practices as well as personal development because it *mimics the nature of existence* and affects individuals at all levels: anatomically, physiologically, emotionally, psychologically and spiritually.<sup>29</sup>

There are many sound healing instruments which include tuning forks, crystal and Himalayan singing bowls, gongs, whistles, didgeridoos, vocal sounds, flutes, and rain sticks. However, anything that makes sound is potentially a sound healing instrument. This paper focuses on tuning forks that are tuned to a Perfect Fifth.<sup>30</sup>

The primary tuning fork system used in the world today by sound healers are the BioSonic tuning forks.<sup>31</sup> BioSonic tuning forks were developed by the author and include both psychoacoustic and vibroacoustic forks. The most widely used BioSonic tuning forks by practitioners today are the C and G (Bodytuners™), which are tuned to a Pythagorean Perfect Fifth ratio of 2/3. The Perfect Fifth is part of the Fibonacci series, a mathematical sequence that is part of a broad level of design patterns found in nature, for example, in the human body (extending to the structures of DNA, brain microtubules, and even the pattern of teeth). The pattern also extends to galactic shapes, the shape of hurricane clouds, breeding patterns of rabbits and bees, the structure of certain chemical compounds, and the spacing of leaves in plants.<sup>32</sup> This pattern is also emulated in architecture and is even reflected in stock market patterns.<sup>33</sup>



*BioSonic C and G Tuning Forks are easy to use sound healing instruments that create a Perfect Fifth tone of C & G*

BioSonic tuning forks are versatile sound healing instruments because they are always in tune, are lightweight, can be easily carried in one's pocket, and are easy to learn and use. They lend themselves to research and to consistent results with clients because of their tuning accuracy. Tuning forks are neutral instruments because they are not associated with any specific culture or style of music. The Perfect Fifth tuning forks can be sounded by tapping them together and/or tapping them on the patella bone. Each tap creates a different effect. Tapping them together produces a louder sound and rings many overtones. Tapping them on the patella bone sounds softer and is a method for direct ear use.



The following case history illustrates the use of the Perfect Fifth and the science behind what happens to the listener.

### Case History<sup>34</sup>

Mary (not her real name) was a patient at the Bircher-Benner Medical Clinic in Zurich, Switzerland. At age 54, she had been diagnosed with advanced metastatic breast cancer. Her prognosis was not good and her oncologist suggested to her that she get her personal affairs in order. The nursing staff requested that I speak with her because after her talk with her oncologist, she had been emotionally acting out and could not sleep.

During our first visit, Mary immediately said in an angry voice, “I don’t know what you are going to do for me.”

In order to better convey Mary’s case and demonstrate the establishment of a therapeutic alliance within a sound healing process, I will tell the story in the first person.

I said, “Mary, I have read your chart and I want to do something for you. And I know you do not know what it is.”

She replied in an angry voice, “I do not think anyone can do anything for me. I certainly do not see how talking can help.”

I then said to Mary, in a moderately loud and direct staccato voice, similar to her voice, but without the angry tone, “Mary, I know you think that no one can do anything for you. I do not want to talk with you. I want to play some sounds for you. There is nothing you have to do except lie there and listen. It will only take a few minutes and then I will be gone.”

An important part of sound healing is to form a therapeutic alliance with the patient. This requires going to the patient’s reality construct in order to lead them to new options. In order to

play the tuning forks for Mary, I reflected her words back to her in a moderately loud staccato voice. This is a form of voice sound healing called Voice Energetics, which is fundamental to a successful therapeutic alliance.<sup>35</sup>

Mary immediately responded to the sound of my voice, and her demeanor and vocal tone changed.

She said in a quiet, more flowing voice, with less of an angry tone, “Okay, as long as there is no talking.”

At this point in the sound healing process, the therapeutic alliance was formed. Mary was now ready to receive the sound. I took the C and G tuning forks (Perfect Fifth), showed them to her and gave her instructions to close her eyes, be with the sound, and let the sound take her to exactly where she needed to be. She closed her eyes; the tuning forks were tapped with healing intention and brought to her ears. When they stopped ringing, I left her room as promised without saying another word.



*Dr. John Beaulieu listening to C & G tuning forks that were sounded using the knee tap method*

That evening the ward nurse came over and asked me, “What did you do to Mary? After you left, she went to sleep and when she woke up she was a different person. She did not complain, and she stopped asking for pain medication. She even talks with me without being angry. She is also asking to see you again.”

The next morning I visited Mary. She was very happy to see me. Her voice quality was softer and less staccato, and she was not angry. Our therapeutic alliance was established and she felt safe. She took my hand and said, “Would you give me those sounds again?” I sounded the tuning forks for her again and left the room.



The next time I came to see her she asked, “Can we talk?”

The therapeutic alliance, once established, forms a container for the patient to safely express himself or herself on many levels. Originally, Mary did not want to talk, but now it was important for her to talk. She shared that she was an artist, and that she had been suppressing her creative talents for many years. She wanted to paint again.

I asked, “When I come to see you will you draw our sessions?” She said, “Yes.”

When something important is withheld or suppressed it will naturally seek expression as part of the healing process. Our therapeutic alliance established the ground for safe expression and in Mary’s case, the sound healing opened the space for her to express herself. Mary was asked to draw her sessions in order to be congruent with her expression and to reinforce the value creative expression represented to her.

Below are two of Mary’s drawings. The first is how she experienced me coming to her bedside. The trombone represents sound and the tuning forks. It is interesting that Mary intuited the stars that represent the sounds. The five star geometric pattern is mathematically created by the C and G tuning forks.<sup>36</sup> She pictured me as a lion because I spoke to her in a loud and staccato voice when we first met.



The next drawing represents Mary’s feeling of being in the sound. The sound uplifts her. The darkness underneath represents her cancer. She spreads her wings and is ready to fly. The overtones created by tuning forks were in ancient times called the stairway to heaven. Mary is flying into the Sun on her internal uplifting feeling.



In a hospital, patients and staff talk, and it was not long before patients and staff were asking for “the sounds.” Whenever I walked into a patient’s room to talk with them, they would ask for “the sounds.”

As for Mary, her prognosis was not good, and she was scheduled to be sent home to die. To our surprise, before we could tell her, she decided to leave the hospital, move to Italy and paint. During my last visit with her she said, “If I am going to die, I am going to live as an artist.” Seven years later, Mary passed away peacefully in Italy surrounded by her paintings.

This case illustrates perfectly how a practitioner can learn to listen beyond the emotion and content of what a patient is saying to the sound dynamics of his or her voice. By doing so, the practitioner can establish congruency with the patient on a sensory level and tune into the feeling tone underlying a patient’s expression. The patient will experience a sense of being heard and a feeling of bonding with the practitioner. Once the practitioner/patient bonding happens, it forms the basis of a therapeutic alliance. Successful doctors and therapists do this intuitively, and it is sometimes known as “good bedside manner.” It can also be learned and refined through Voice Energetics as a form of sound healing.

It is hypothesized that the sound of the tuning forks bypassed Mary’s protective mechanisms and transported Mary her to a place inside herself that she had suppressed for many years. Her drawing of upliftment might be explained by the release of anandamide molecules leading to a feeling of euphoria, which then lead to a release of nitric oxide (NO). NO is a signaling molecule known to have anti-viral, anti-bacterial, and anti-tumor properties.<sup>37</sup> Within this sense of relaxed euphoria, Mary was able to get in touch with a deep desire to paint and express herself within the safety of the therapeutic alliance. By taking responsibility and acting on her desire, she continued

to express a new anti-cancer physiology, which supported a continuing rhythmic release of nitric oxide (cNO), which in turn gave rise to a state of remission.

Scientific Discussion

Research suggests that when individuals listen to music and/or sounds that are safe and enjoyable, they will experience peripheral vasodilation, warming of the skin, a decrease in heart rate and an overwhelming sense of well-being.<sup>38</sup> In 2003 John Beaulieu and colleagues published a peer-reviewed paper in *Medical Science Monitor* suggesting the physiological pathways through which sound and music work.<sup>39</sup> Specifically, it discussed how sound and music had the ability to bypass the limbic system and amygdala and go directly to the core brain resulting in the release of anandamide, an endogenous endocannabinoid, which causes the release of cNO in immune cells, neural tissues, and human vascular endothelial cells.

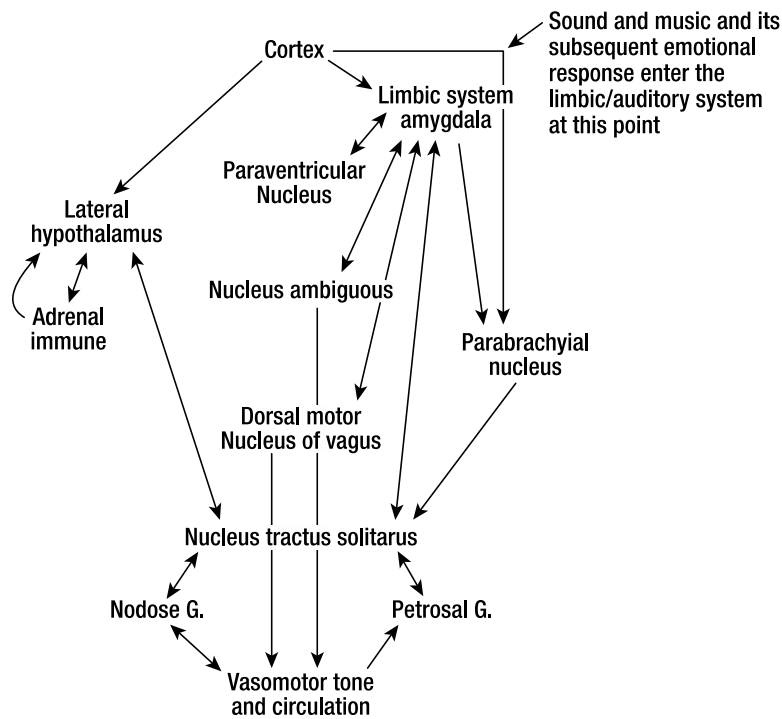


Illustration of sound and music direct path to the core brain.<sup>40</sup> The illustration is not all-inclusive.

Representative connections among the limbic-hypothalamic pituitary adrenal axis, demonstrate that these centers are linked to vascular tone regulation. This pathway suggests how nitric oxide spiking may exert a level of top-down control of vasomotor activity and circulatory tone. The positive reaction to a nitric oxide wave is reduced blood pressure, lower heart rate, greater pain tolerance, overall lowering of metabolism, and a greater sense of well-being and ability to adapt to stressors. Sound also plays a role in the management of stress and anxiety also through its ability to increase or decrease both cortisol and norepinephrine<sup>41</sup> and by its related ability to

decrease arousal due to stress.<sup>42</sup> It affects the immune system by stimulating the production of IgA and NK cells.<sup>43</sup>

When this happens, patients will report an experience of inner warmth and a deep sense of well-being. Psychologically, they will be more positive and better able to cope with their environments, resulting in the continued neutralization of the stressors that were inhibiting natural cNO production in immune, nerve, and endothelial cells. The patients will experience less distracting physical and emotional pain due to the release of endocannabinoids and will be more able to focus and talk about what is most important to them.

In technical terms, Nitric Oxide is a “gaseous diffusible modulator” that moves through the entire body and central nervous system in waves of gas. The release of Nitric Oxide counteracts the negative effects of the stress hormone norepinephrine. The presence of norepinephrine results in a racing heart, high blood pressure, anger, anxiety, and greater vulnerability to pain. The positive reaction to the nitric oxide wave is increased neural plasticity, reduced blood pressure, lower heart rate, greater pain tolerance, and overall lowering of metabolism. Psychologically, this leads to less anger, a strong sense of purpose, and a greater sense of well-being, leading to an increased ability to adapt to stressors.

In general, when the tuning forks are tapped with healing intention, their effect is quick and can be integrated with and will enhance every therapy. It is also suggested that the effect of tapping the tuning forks with healing intention will have a similar effect upon the person sounding the tuning forks. Hospitals are stressful and doctors, nurses, therapists, and support staff have a lot to do. Tapping the tuning forks, just for a moment, will stimulate the above physiological and psychological processes. It is a way of shifting gears with a patient and then moving on to the next patient, knowing that the sound will serve to enhance whatever therapies the patient is receiving.

## **Conclusion**

The physicians of the past worked from a vibrational model of the universe similar to our modern understanding of a vibrational quantum field. They understood that everything was interconnected. Their professional language was one of archetypes and the application of those archetypes to the challenges of everyday life. Comparing their archetypal language to today’s modern stress science reveals the depth of their understanding of stress and their ability to work with stress-related diseases. Hans Selye said in his book *The Stress of Life* that his general adaptation syndrome could have been discovered in the Middle Ages or earlier through an unbiased state of mind.<sup>44</sup> Although these doctors did not have modern biochemistry or scientific procedures, they were nevertheless doctors who closely observed their patients and learned from their behaviors.

We have much to learn from the physicians and healers who have come before us. They left us with a puzzle that needs to be pieced together by our modern scientific understandings. We may never know exactly how those systems were practiced, however, we can learn from our experiences inspired by their work, and apply them to evidence based science.

Ultimately, the clinical outcome, whether it be through phenomenological experience, reductionist science, or systems integration, will suggest new directions for research, just as the Pythagorean spiral of the Perfect Fifths tempts curious minds to deeper explorations.

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<sup>1</sup> Manly P. Hall, *The Therapeutic Value of Music* (Los Angeles: Philosophical Research Society, 1982).

<sup>2</sup> *Ibid.*, 1-3.

<sup>3</sup> *Ibid.*

<sup>4</sup> Michael S. Schneider, *A Beginner's Guide to Constructing the Universe* (New York: Harper, 1994), 237-240.

<sup>5</sup> John Beaulieu, *Music and Sound in the Healing Arts* (Barrytown: Station Hill Press, 1987), 45.

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<sup>6</sup> *Ibid.*, 46.

<sup>7</sup> Manly P. Hall, "The Pythagorean Theory of Music and Color," in *The Secret Teachings of All Ages* (Los Angeles: Philosophical Research Society, 1988), LXXXI-LXXXV.

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<sup>10</sup> Swami Rama, "Darshan Notes" (lecture presented at the Himalayan Institute, Honesdale, Pennsylvania, 1991).

<sup>11</sup> Lao Tzu, *Tao Te Ching* (Santa Cruz: Sacred Books of the East Vol. 39, 1891), 42.

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<sup>13</sup> T. S. Elliot, *The Four Quartets*, "Burnt Norton" (Orlando: Harcourt, 1973), 27-29.

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<sup>16</sup> Michael S. Schneider, *A Beginners Guide to Constructing the Universe* (New York: Harper Collins, 1994), 233-264.

<sup>17</sup> Warren D. Anderson, *Music and Musicians in Ancient Greece* (Ithaca: Cornell University Press, 1997), 30-34.

<sup>18</sup> Manly P. Hall, *Melchizedek and the Mystery of Fire* (Los Angeles: the Philosophical Research Society, 1996), 13-27.

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<sup>20</sup> John Beaulieu, *Human Tuning* (Stone Ridge: BioSonic Enterprises, 2010), 47.

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