

# **ADVANCED SACRED RATIO PYTHAGOREAN TUNING FORK INFORMATION: HARMONICS**

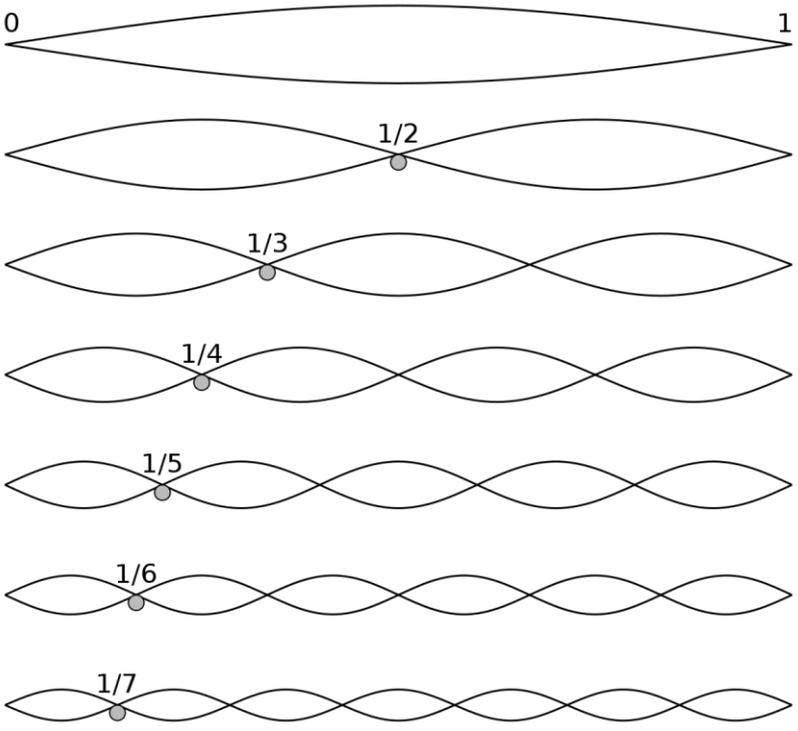
By Jonathan Goldman

The information in this text may be of interest to those desiring more understanding of the physics of sound and the subject of ratios. A major key in understanding sound as subtle energy is the phenomenon of harmonics. Every sound that occurs in nature is actually a composite of multiple frequencies called “harmonics” or “overtones”. Just as white light is composed of all the colors of the spectrum, so the sounds that we hear—including musical sounds such as notes on instruments or the tones of our voice are in reality the multiple sounds of harmonics. Harmonics are the “Rainbow of Sound”. Harmonics are responsible for the “timbre” or tone color of instruments and our voice—different harmonics that are most prominent and audible are responsible for the tones created by different musical instruments as well as the extraordinary variety of sounds that make each of our voices individual and distinct. Our body, our brain and in particular, our ears are extremely sensitive to the subtle effects of different harmonics. Even though you may not be conscious of them, harmonics have been affecting you all your life.

Whenever a sound is created, such as a string being plucked, multitudinous other subtle sounds—harmonics—simultaneously occur along with that first fundamental frequency of the string. These harmonics are multiples of the fundamental frequency, increasing in their frequency by whole numbers. The

second harmonic vibrates twice as fast as the fundamental. The third harmonic vibrates three times as fast; the next vibrates four times as fast, and so on. All these sounds blend together creating the tone color of the note. As they increased in their frequency, vibrating faster and faster (continuing conceptually into infinity) they become more and more subtle in nature. Thus, these harmonics contribute greatly to the subtle structure of sound.

Below is a picture illustrating the first 7 harmonics that are generated from a fundamental of one cycle a second (1 Hz) which illustrates this sonic phenomenon of “The Rainbow of Sound”.



The first string is going up and down one time a second. The second string is goes up and down two times a second—twice as fast. The third string goes up three times a second—three times as fast. These are just the first 7 harmonics which occur. There are also many more harmonics that also occur but are not shown.

The following are the frequencies of the first 7 harmonic using the note C vibrating at 256 Hz as the fundamental frequency.

| Note | Interval        | Harmonic                | Frequency |
|------|-----------------|-------------------------|-----------|
| C    | Fundamental     | 1 <sup>st</sup> partial | 128 Hz    |
| C    | Octave          | 2 <sup>nd</sup> partial | 256 Hz    |
| G    | Fifth           | 3 <sup>rd</sup> partial | 384 Hz    |
| C    | Octave          | 4 <sup>th</sup> partial | 512 Hz    |
| E    | Maj. Third      | 5 <sup>th</sup> partial | 640 Hz    |
| G    | Fifth           | 6 <sup>th</sup> partial | 768 Hz    |
| Bb-  | Flatted Seventh | 7 <sup>th</sup> partial | 896 Hz    |

Please be aware that the different notes that sound along with the fundamental note are happening simultaneous—at the same time! That is why harmonics are often called the “Rainbow of Sound”.

### **FURTHER UNDERSTANDING OF RATIOS**

We have previously discussed ratios. We will now go into further discussion of the subject. Ratios can be perceived of as

being a comparison of the relationship between two notes (or frequencies). If we compare some of the strings on the previous page, we can have a pretty good idea of how ratios are created.

What is the ratio created between the vibrations of the first string and the second string on Pg. 19? The first is vibrating at 1 cycle per second. The second is vibrating at 2 cycles per second. The relationship between the two is 1:2. If we compare the vibrations of the second string which is vibrating at 2 cycles per second and the fifth string (vibrating at 5 cycles per second), we get the ratio of 2:5. If we compare the vibrations of the third string which is vibrating at 3 cycles per second and the fourth string, vibrating at 4 cycles per second, we have a ratio of 3:4.

Thus, if we compare the frequencies of the second string which is vibrating at 2 cycles per second and the third string, which is vibrating at 3 cycles per second, we get the ratio of 2:3. This is how the ratio of the **Sacred Ratio Pythagorean Tuning Forks** are created. Notice at the very left of the first string, it says "1". And for the second string, it says "1/2". For the third string it says "1/3" and so on. These are the points of subdivision with the string and indicate how many times the string is vibrating per second. While the harmonic relationship between the different strings stays the same, normally the frequencies are much faster (such as indicated by the illustration on the opposite page).

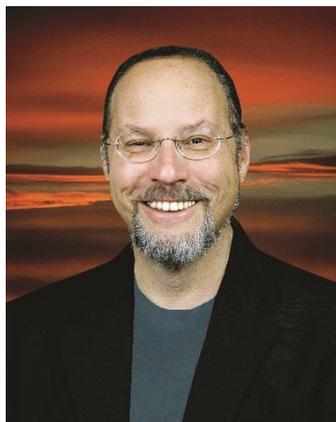
For the **Sacred Ratio Pythagorean Perfect Tuning Forks**, the fundamental frequency is 128 Hz (cycles per second). It is a theoretical, unstruck sound. The two tuning forks that are sounded are 256 Hz, which vibrates to the twice this frequency ( $128 \times 2 = 256$  Hz) and 384 Hz, which vibrates at three times this

frequency ( $128 \times 3 = 384$  Hz). The relationship of 256 to 384 can mathematically be reduced to 2:3. 256: 284 becomes the ratio of 2:3

Pythagoras believed that the sound of those ratios that was smallest in relationship to each other was greatest in creating harmony. You might wonder then why two tuning forks using the ratio of either 1:1 or 1:2 would not create the greatest harmony. The reason this does not occur is that the ratio of 1:1 would be the exact same. This would manifest as tuning forks of the same note. This is also true with the ratio of 1:2. The ratio of 1:2 creates what is called an “octave”. These two notes are essentially the same—one just being higher than the other. The science of psycho-acoustic informs us that our nervous system would not be set in further balance and harmony because these frequencies are too much alike. The result to our nervous system is similar to our hearing two notes to create significant change.

However, once we get to the ratio of 2:3—we have two very different notes that sound differently. Yet they are extremely harmonious. We can hear the difference and our nervous system is affected by this difference—generating and enhancing harmony to our brain waves and nervous system.

Many people believe that much of the extraordinary healing power of sound is due to the harmonics. My first book, *Healing Sounds*, was in fact, subtitled: *The Power of Harmonics* and it dealt in detail with the phenomenon of harmonics. As we open more and more to the world of sound, the power and importance of harmonics becomes another aspect of vibration on which we can focus our awareness and our intention.



**Jonathan Goldman** M.A., is an internationally renowned writer, musician and teacher. He is an authority on Sound Healing and a pioneer in the field of harmonics. He is author of **HEALING SOUNDS, SHIFTING FREQUENCIES**, the best-selling **THE 7 SECRETS OF SOUND HEALING, CHAKRA FREQUENCIES** (co-authored with his wife Andi), and his latest **THE DIVINE NAME**, winner of the 2011 Visionary Award for "Best Alternative Health Book".

A Grammy nominee, he has created numerous best-selling, award winning recordings including "**THE DIVINE NAME**" (with Gregg Braden), "**REIKI CHANTS**", "**FREQUENCIES: Sounds of Healing**", "**THE LOST CHORD**", "**ASCENSION HARMONICS**" and "**CHAKRA CHANTS**", double winner of Visionary Awards for "Best Healing-Meditation Album" and "Album of the Year".

Jonathan Goldman is the founder and director of the Sound Healers Association in Boulder, Colorado and CEO of Spirit Music, Inc. an independently owned and operated music label. Jonathan is a lecturing member of the International Society for Music Medicine and is on the Advisory Board of the Sound and Music Alliance. In Spring 2011, Jonathan Goldman was named as one of Watkins' Reviews "*100 Most Spiritually Influential Living People on the Planet*". He has been inducted into the Massage Therapy's Hall of Fame. He presents HEALING SOUNDS lectures, workshops and seminars worldwide. Jonathan lives with his wife Andi in Boulder, Colorado.

**For More Information, Please Visit: [www.healingsounds.com](http://www.healingsounds.com)**

## **MORE TUNING FORK SETS**

### **From Jonathan Goldman**

#### **GAIA FREQUENCY BRAIN TUNERS KIT**

These tuning forks use the scientific principle of *binaural beat frequencies* as a *psycho-acoustic* phenomenon to create entrainment with the Schumann Resonance—the frequency of the electromagnetic field of the Earth—expanding consciousness and bringing healing. These tuning forks are great for meditation! Kit includes: tuning forks, instructional manual, Healing Sounds Resonator and carrying pouch.

#### **HOLY HARMONY/SOLFEGGIO TUNING FORK SET**

These 9 Tuning Forks are the original first set of tuning forks created that contain the “the Solfeggio” frequencies. These tuning forks produce powerful frequencies for health, balance and meditation experiences. Includes 16 page instruction manual and velvet pouch.

#### **CHAKRA CHANTS TUNING FORKS KIT**

**These tuning forks** are powerful tools to balance and align our chakras. Their frequencies are based upon the tones utilized by Jonathan Goldman for the award winning recording “*CHAKRA CHANTS.*” Kit includes: tuning forks, instructional manual, Healing Sounds Resonator and pouch.

#### **LEMURIAN TUNING FORKS KIT**

These Tuning Forks feature set of frequencies based on the mystical keynote of **432 hertz** with the geometries of the **Pythagorean Triangle** and the **Phi Ratio**. These amazing sacred harmonies form a Sonic Merkaba to create journeys of consciousness. Kit includes: tuning forks, a 20 page manual, a Healing Sound Resonator and carrying pouch

#### **GAIA FREQUENCY BODY TUNERS KIT**

Using the frequencies of the Gaia Brain Tuner, these tuning forks are designed to bring the healing properties of the Schumann Resonance into you as a *vibro-acoustic* tool directly into the body, to be used on acupuncture points, pressure and other points. Great for Body work. Kit includes: tuning forks, instructional manual, Healing Sounds Resonator and carrying pouch.

### **PINEAL ACTIVATOR KIT**

This is a very special tuning fork facilitates the activation of the Pineal Gland—believed to be the “seat of the soul”. The Pineal Activator can enhance psychic abilities and assist spiritual evolution. Kit includes: tuning fork, a 16 page manual, a Healing Sound Resonator and a bag.

### **DNA PHI RATIO TUNING FORKS**

These tuning forks create a new ratio of 8/13. They are said to balance the brain and chakras and open up interdimensional gateways. Encode the Light! Kit includes: tuning forks, instructional manual, Healing Sounds Resonator and pouch.

### **OTTO TUNING FORK 128 Hertz or 64 Hertz**

This tuning fork is designed to project sound directly to The body. Designed for vibro-acoustic healing. Use it to project sound into specific acupuncture points, pressure and other points.

### **MOSES CODE TUNING FORKS**

This special set of tuning forks was created exclusively for James Twyman, author of THE MOSES CODE. This pair of frequencies is intended to express the numerical and sonic energy of "I AM THAT I AM". An extraordinary tool for manifestation.

### **CRYSTAL RESONATOR**

This is a very special precision tuning fork which represents a new development with regard to sound and crystalline structure. Has the power to balance your own energy field as well the energies of any room or space.

### **432 hz/528 hz INTENTION ENHANCER TUNING FORKS**

These tuning forks use two very unique and specific frequencies of 432 Hz and 528 Hz. whose combined vibrational resonance is able to *enhance intention*. In addition, these tuning forks have been found to ground and nourish body, mind and spirit, clear and remove negative energy, feel calm and balanced, generate Oneness and accelerate the evolution of consciousness. Great for meditation and healing!