

Exploration

Roles of Cymatics & Sound Therapy in Spirituality & Consciousness

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Abstract

Sound is one of the types of waves that can be felt by the sense of hearing. In physics, the definition of sound is something that is produced from objects that vibrate. Objects that produce sound are called sound sources. The sound source will vibrate the molecules into the air around it. Sound is mechanical compression or longitudinal waves that propagate through the medium. This medium or intermediate agent can be liquid, solid, gas. So, sound waves can propagate for example in water, coal, or air. Most sounds are a combination of various vibratory signals composed of harmonic waves, but pure sound can theoretically be explained by oscillating vibrational speed or frequency measured in Hertz (Hz) vibration units and amplitude or loudness of sound with measurements in decibels (dB). The effect sounds can have on us humans is simply astounding. While everyday life becomes stressful, overcrowded and increasingly hectic, we seek ways for inner peace and balance. The power of music, felt through overtone-rich sound therapy and sound massage, can be a solution. No matter how much scientific explanation is behind it, healing through music remains fascinating, even magical. This paper introduces a new field called *cymatics* and sound healing with their plausible impact to spirituality and consciousness research.

Keywords: Cymatics, sound therapy, spirituality, consciousness.

Introduction

Humans hear sounds when sound waves, i.e. vibrations in the air or other medium, reach the human eardrum. The range of sound frequencies that can be heard by the human ear ranges from 20 Hz to 20 kHz at various amplitudes in the response curve. Sounds above 20 kHz are called ultrasonic and below 20 Hz are called infrasound.

Conditions occur and the sound is:

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There is a vibrating object (sound source);
There is a medium that propagates sound, as well;
There is a receiver within the range of the sound source; and
We know that there are physical studies about sound waves or resonance.

Sound as a wave has properties similar to those of a wave: Sound can be reflected when sound is applied to hard surfaces, such as rock, cement, iron, glass and zinc surfaces.

Example: Our voices are heard louder in the cave as a result of the sound of the cave walls; and our voices are in a building or music studio that uses no sound.

In addition to experiencing rejection, the sound is reflective. The sound reflection process is similar to the light reflection process. If the reflector wall is far enough away, then a bouncing sound will be heard after the original sound is transmitted (emitted). Bouncing sounds that are heard after the original are called echoes. The echo sounds as clear as the original sound. Echoes can occur on rugged slopes, cliffs and other places.

A mechanical wave is a wave that transmits energy and travels through a medium (air). Sound or sound is one example of a mechanical wave that travels through the air (closely spaced molecules - air molecules).

Waves in physics are known as slow-moving energy, or energy propagation will produce waves. The slowing / moving / traveling of the wave does not change the medium through which it passes, but only moves its energy. This means that according to the laws of physics, all objects have a natural frequency, which is the frequency with which an object can vibrate. When a fork is pressed into a glass of wine, the audible sound produced is the frequency.

Mechanical waves generated by sound or sound will cause *resonance*, so do we know what resonance is? Resonance is an event in which one object vibrates because another object vibrates. For easier understanding then let's take the resonance example of a fork.

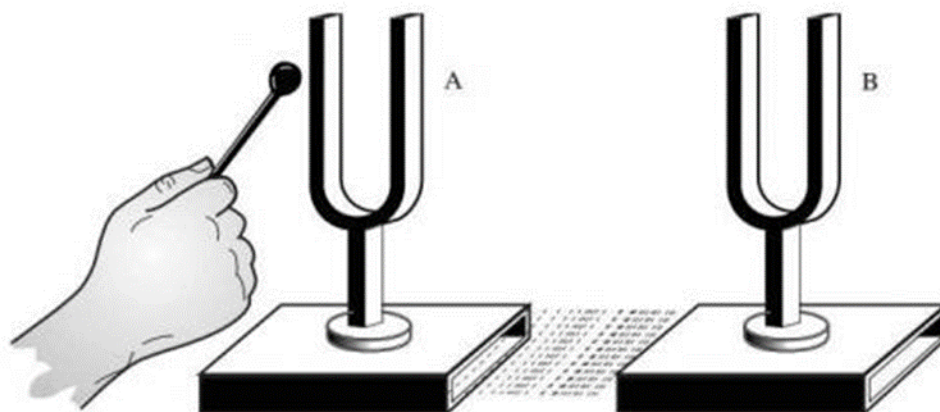


Figure 1. Tuning forks and resonance phenomenon

When we hit the tuning fork A, the tuning fork B will vibrate even when we hold or hold the tuning fork A so that it stops vibrating turns out that the tuning fork B is still vibrating. This is due to the resonance of object B. A simple example in everyday life when we play songs with a loud volume, the glass of our house will vibrate. That is caused by the resonance in the glass of the house because of the sound or sound that can cause other objects to vibrate. Many resonance events occur in everyday life. However, keep in mind that resonance can occur if the frequency of an object is equal to the frequency of the sound source or the sound that causes the object to vibrate.

The myth that develops that if there are voices of crickets, crickets, grasshoppers and other animals that exist in agricultural locations, it will speed up the harvest with good and quality harvests. It turns out that the growing myth has been proven true through research conducted by Dan Carlson. It turns out that after being examined by experts the frequency caused by garengpung is 3247 Hz which is known that this frequency is between 3000 - 5000 Hz. Where is Dan Carlson's sonic bloom² which states that sounds with frequencies between 3000 - 5000 Hz can increase plant growth and productivity. This is another example of the resonance method in daily life.

The influence of the singer's voice on the glass was proven in 2005. At that time rock singer Jaime Vendera was recruited by Discovery Channel in the Mythbusters program to test his strong voice.³ "It took several tries, he was finally able to destroy the wine glass with his voice," wrote Live Science. Well, the human voice is also capable of producing similar natural frequencies that can vibrate glass. This phenomenon, known as resonance, occurs because the sound of a singer moves airborne particles nearby to hit the glass like invisible waves.

Another resonance event - Simple swing. Two pendulum given a rope with the same length of rope, will come to vibrate (swing) if one is swung. The condition for resonance in a simple swing is that the length of the rope must be the same. Swing in the image below, if pendulum A is swung, then pendulum C will participate even though it was not distorted before. Whereas pendulum B and D remain silent not to swing.

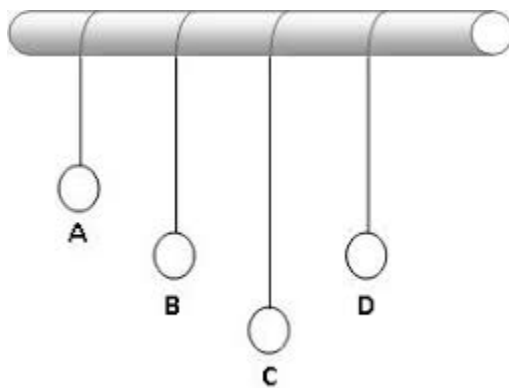


Figure 2. Pendulum and resonance

² <http://dancarlsonsonicbloom.com/>

³ <http://www.vocalist.org.uk/ultimate-vocal-workout.html>

What is cymatics?

Cymatics, the study of wave phenomena and vibration, is a scientific methodology that demonstrates the vibratory nature of matter and the transformational nature of sound. It is sound science, and amazingly cool!

- See sound structure matter - as audible frequencies animate inert powders, pastes and liquids into life-like flowing forms and figures found in the sacred art and architecture of the world's Wisdom Traditions.
- Hear the mellifluous strains of MusiCure music specifically composed and clinically proven in therapeutic environments in Scandinavia, and now available in the USA.
- Feel revitalized as we bathe in the sonic atmosphere that we'll all compose.
- Understand the power we each have to create, sustain and destroy elements in our personal worlds.
- Implement practical approaches to creating greater harmony in life by becoming more aware of those unconscious vibrations that we constantly enliven throughout our day.

Cymatics shows how vibrations interact to create the world we experience '*out there*' and it brings to light hidden principles which underlie all natural processes. Understanding these principles can help us to 'cleanse the lens' through which we perceive our world, thereby clarifying our outlook on life. Once you've objectively observed the rhythmic interplay of chaos and re-integration in simple powder, you may view your own tumultuous circumstances a bit more objectively (and with far less apprehension) as a purposefully evolving process leading toward greater personal coherency and equanimity [1].

Therefore, in essence: Cymatics is the science of sound made visible.

It is based on the principle that when sound encounters a membrane such as your skin or the surface of water, it imprints an invisible pattern of energy. In other words, the periodic vibrations in the sound sample are converted and become periodic water ripples, creating beautiful geometric patterns that reveal the once hidden realm of sound. If we could see the sounds around us with our eyes we would see myriads of holographic bubbles, each with a kaleidoscopic-like pattern its surface. The CymaScope, in a sense, allows us to image a circular section through a holographic sound bubble. Developed by John Stuart Reid in the UK, the CymaScope reveals the once hidden realm of sound. Recently, an eminent physicist, Professor Brian Josephson, visited CymaScope lab.

Professor Brian Josephson, Nobel Laureate in physics, said of the CymaScope instrument to John Stuart Reid, "Having watched one of your lectures I think your (re) discovery is going to be of great importance to the future of physics".

Subsequently, in his lecture at the Royal Society of Medicine, in July 2018, Professor Josephson presented a CymaScope video that may show water's ability to remember a sonic input frequency.

He said, “Water exhibits remarkable structural and dynamic properties, including the ‘biological signal’ revealed by the investigations of Benevise and Montagnier and the complex acoustically-induced structures in water revealed by the CymaScope. Organised dynamical behaviour is more the province of biology than of physics and will require different tools of investigation than are standard in physics. The CymaScope may be one such tool. It is not just a new scientific instrument but new science as well and I suspect a new field of maths.”

In 2019, Brian Josephson visited the CymaScope lab where John Stuart Reid showed several videos, including that of submerged air bubbles in water, excited by low frequency sound, which exhibit life-like behaviour in that they appear to chase each other around the CymaScope’s cuvette while a cymatic pattern forms on their spheroidal surfaces. The experiment was designed to begin to shed light on the origin of life, around hydrothermal vents in the primordial oceans. The research video captured Josephson’s interest and he commented, “This may help to clarify the way intelligence emerges in nature”. It was shown at the *Water Conference* in October 2019, at Bad Solen, Germany, where Reid presented on the subject of abiogenesis (the origins of life), among other topics [3].

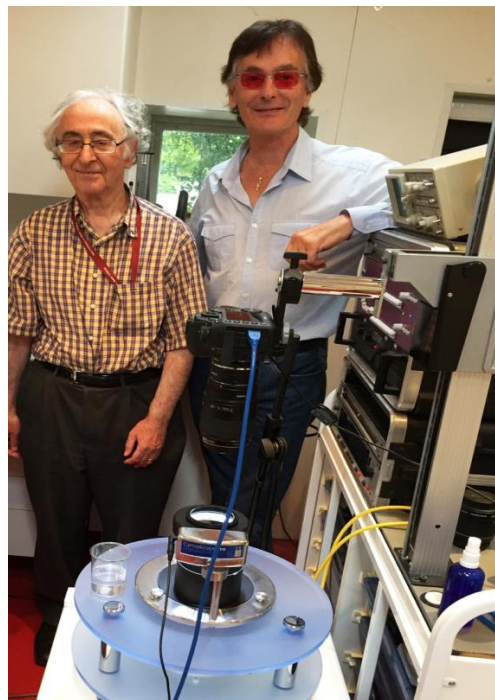


Figure 3. Prof. Brian Josephson with John Stuart Reid in CymaScope Lab (source: [3])

A musical piece created by Professor Josephson entitled, “*Sweet and Sour Harmony*” is to be made visible in water, by CymaScope instrument, as a future project that marries art and science.[4]

Sound Healing & Prayer

Even in this modern era, sound is apparently still being used in positive efforts for human life. Many clinics and therapists have begun to use sound and music as a method of healing, even by exposing sounds to their patients. Not only in the field of health, education practitioners also began to realize that sound can affect brain activity, accelerate the learning process, even overcome disturbances in the learning process. Utilization of sound for human good is the modern term "sound healing". The basic principle of sound healing is vibration, said Jonathan Goldman, author of *Healing sounds*.⁴ "Every object on earth shakes, thereby making a sound," Goldman said.

These objects include parts of our body, such as muscles, bones, internal organs and so on. "When parts of our body vibrate / vibrate with the right frequency, we call this state healthy. But if there are parts of our body that vibrate at frequencies that don't match our bodies, we call that condition sick," Goldman said. Good sound produced by human vocal cords or special musical instruments is used to maintain / restore the vibrations of the body parts in order to return to harmony, vibrate with the frequency of the body in a healthy condition.

The same thing was expressed by Kate Marks in her writing entitled "*Sound can Heal or Destroy*"⁵, she said, "vibrations affect all cells and molecules in our body." She even added that vibrations in our bodies keep changing all the time. "We emit vibrations that affect the people around us, so do we receive vibrations from the environment around us. This ongoing exchange of vibrations affects electromagnetic energy in and around us, "That's why according to Marks, just like a musical instrument, our body also needs to be "tuned" regularly (tuning) so that all parts of our body emit harmonious vibrations and make a beautiful symphony.

Alfred Tomatis, a French doctor, made a fifty-year experiment on the human senses and came up with the result that the sense of hearing is the most important sense! He discovered that the ear controls the whole body, regulates its vital operations and the balance and coordination of its movements. He also found that the ear controls the nervous system. During his experiments, he discovered that the auditory nerve is connected to all the muscles of the body and this is the reason why the balance and flexibility of the body and the sense of sight are affected by sound. The inner ear is connected to all parts of the body such as the heart, lungs, liver, stomach and intestines; this explains why sound frequencies affect the whole body.

In 1960, Swiss scientist Hans Jenny discovered that sound affected various materials and renewed their particular parts, and that every cell of the body had its own voice and would be affected by the renewal of sound and the material within it. In 1974, researchers Fabien Maman and Sternheimer announced a very surprising discovery; They found that every part of the body has its own vibration system, according to the laws of physics. A few years later, Fabien and Grimal, other researchers, found that sounds affect cells, especially cancer cells, and that certain sounds have a strong influence; the miraculous thing found by the two researchers is that the voice that has the most powerful effect on the body's cells is the human voice itself!! Sound moves from the ear to the brain and affects brain cells; scientists have recently discovered that sound has miraculous healing powers and the amazing effects of brain cells that restore

⁴ <https://www.healingsounds.com/>

⁵ <http://spiritweb.dk/artikler/sound-can-heal-or-destroy-it-must-be-used-wisely/>

balance to the whole body! Reading the Bible has an extraordinary effect on brain cells and is able to restore its balance; the brain is the organ that controls the body and from here commands are sent to all organs of the body especially the immune system.

Fabien, a scientist and musician, places cells from a healthy body and applies them to various sounds; He found that each musical scale note affected the electromagnetic fields of the cell; when photographing this cell with a Kirlian camera, he found that the shape and value of the electromagnetic fields of the cell changed according to the sound frequency and type of the reader's voice. Then he conducted another experiment by taking a drop of blood from one patient; and then monitored the blood drop with a Kirlian camera and asked the patient to release various tones. He discovered, after processing the drawing, that certain tones in the blood droplets changed their electromagnetic fields and fully vibrated in response to their owners. He then concluded that there are certain tones that affect the body's cells and make them more vital and active, even renewing them. He came up with the important result that the human voice has a powerful and unique influence on the body's cells; this influence was not found in other instruments. This researcher says literally:

The human voice has a special ring that makes it the most powerful treatment tool. Fabien found that some sounds easily destroy cancer cells, and at the same time activate healthy cells. Sound affects human blood cells which transfer this sound frequency throughout the body through blood circulation.

From the results of all this research there is a correlation with the Bible where as we know that praying is by saying the words. Means making sounds or sounds, and according to the research it will release energy. The energy can affect the surrounding objects as in the analysis of tuning forks and in simple research. Likewise in research on living things, energy is very influential, for more details in the following paragraph about water and blood will be explained.

In everyday life we sometimes do it, sometimes there are distant friends who talk about us so we don't feel it, instead we sometimes contact them and they just say we feel. This shows that the words we issue affect other people, especially if we pray with faith, are sure and persevere in praying it will surely be successful or if we help others as written in the Bible we pray not to be bored, meaning the energy of prayer it is done continuously but it all depends on the will of God to allow our time is not God's time, but certainly as in the study the *sound waves from our prayers will definitely affect*. There is research about water and blood molecules which may also be related to our prayers toward others and ourselves.

The results of Masuro Emoto's research, "*The True Power of Water*", is an amazing experience because it proves that water turns out to be "alive" and can respond to what humans say.⁶ Emoto succeeded in proving that water is capable of carrying messages or information from what is given to him. Even water that is given a positive response, including prayer, will produce beautiful hexagonal crystal shapes.

⁶ https://www.goodreads.com/book/show/38391.The_True_Power_of_Water

Emoto did research for 2 months with his best friend Kazuya Ishibashi (a scientist who is skilled in using microscopes). Masaru, who completed his education at Yokohama Municipal University Department of Humanities and Science, majoring in International Relations, managed to get a photograph of water crystals by freezing water at -25 degrees Celsius and using a high-speed photo tool. Then the water is examined using the response of words, images, and sounds. The results are amazing, as many people have read. Water, he said, can receive messages. Even in another book, "*The Hidden Message in Water*", Masaru said, water is like a magnetic tape or compact disk.⁷

Water recognizes the word not only as a simple design, but water can understand the meaning of the word. When water realizes that the word shown carries good information, water will form crystals. If a positive word is given, the crystals that are formed will blossom as extraordinary as a flower that is in full bloom, as if to describe the movements of a hand of water that is expressing its pleasure.

Conversely, if negative words are given, it will produce crystal fragments with an unbalanced size. It is also possible that water can feel the feelings of the person who wrote the word. So you can imagine what if the water was given a collection of words that are prayers? The human body is made up of 70% water, so it's not strange that our bodies react the fastest with our words that come out of our own mouths. If water molecules can record and react with good words, let alone our more complex organs, such as the heart and brain. So it is not wrong if we are encouraged to always say good and avoid vain words let alone bad words. Even good words can have a positive impact on our body.

Emoto was born July 22, 1943 and died on October 17, 2014, he was a researcher from the Hado Institute in Tokyo, Japan in 2003 who through his research revealed an oddity in the nature of water. Through his observation of more than two thousand examples of water crystal photographs collected from various parts of the world, Emoto found that water molecule particles can actually change depending on human feelings around them, which indirectly hints at the influence of feelings on the clustering of water molecules formed by the presence of bonds hydrogen.

Emoto also found that water crystal particles look "beautiful" and "amazing" when they get positive reactions around them, for example with excitement and happiness. But water crystal particles appear to be "bad" and "unsightly" if they have negative effects around them, such as sadness and disaster. More than two thousand photographs of water crystals are found in the book *Hidden Message from Water*, which he composed as proof of his conclusions so that this has the opportunity to become a breakthrough in believing in natural wonders. *Emoto concluded that water particles can be influenced by the sound of music, prayers and words written and dipped in the water.*

Until now Emoto and his work are still considered controversial. Ernst Braun of Burgistein in Thun, Switzerland, has tried in his laboratory the method of making crystal photographs as

⁷ <https://www.amazon.com/Hidden-Messages-Water-Masaru-Emoto/dp/0743289803>

revealed by Emoto, unfortunately these results cannot be reproduced again, even under the same experimental conditions.

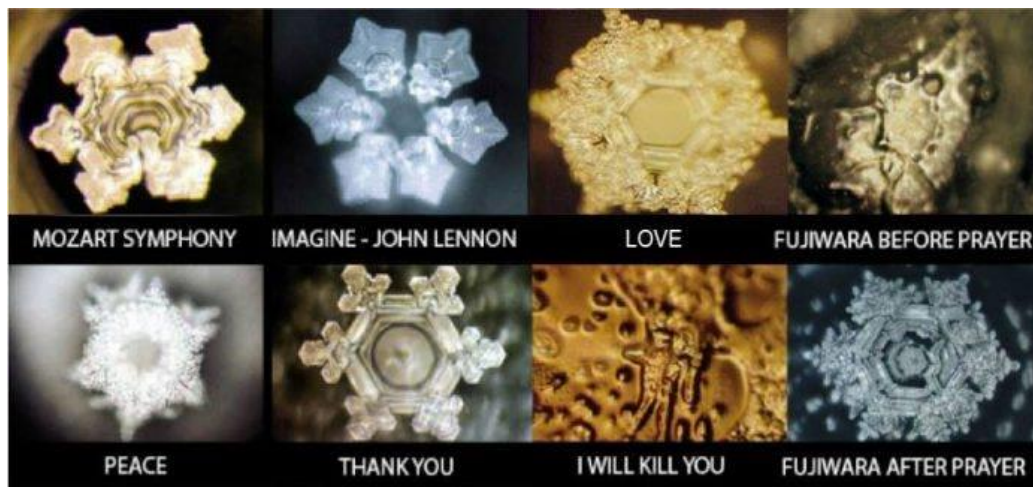


Figure 4. Emoto's results⁸

Blood Molecules

The blood composition consists of several types of korpuskula that form 45% of the blood, this figure is expressed in the value of Hermatocrit or the compacted red blood cell volume ranging from 40 to 47. Part 55% of the other is yellowish fluid that forms the medium of blood fluid called blood plasma. The corpuscus of blood consists of: Red blood cells or erythrocytes (about 99%).

This research was conducted by Rebecca Marina with Dr. Ferici who observed Rebecca's own blood cell behavior in each of the different emotional conditions that she felt (such as: feelings of love, fear, love / beauty, when praying), and strengthened by the potential of EFT (Emotional Freedom Technique) that is being studied for its effectiveness; blood samples are taken using the "Darkfield Microscope" which is connected to a Computer Monitor.

The following is a picture of Rebecca's blood in various emotional conditions that are felt:

1. Condition of blood cells when sick: Red blood cells clot and patches can occur on each blood cell that intersect.
2. Blood cells when healthy: Red blood cells become normal.

⁸ https://www.goodreads.com/book/show/38391.The_True_Power_of_Water

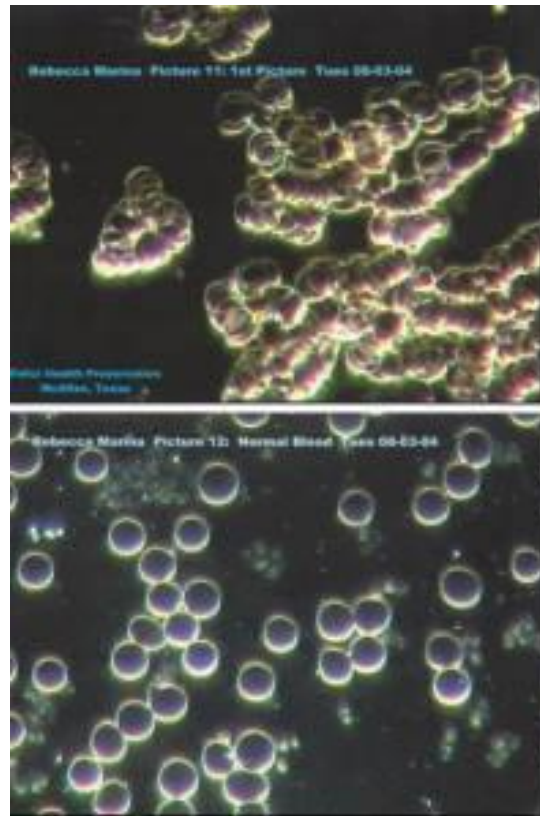


Figure 5. Blood molecules. (above: blood molecule of sick person, below: healthy person)

3. The condition of red blood cells when sad Red blood cells move quickly and form tears.

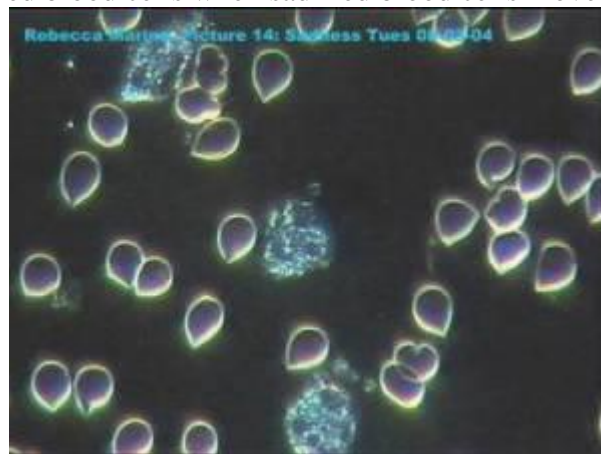


Figure 6. Blood molecules

4. The condition of red blood cells when emotions are full of love. The shape and formation of blood cells become normal, move beautifully and in an orderly fashion, sparkling substances arise in the blood fluid.

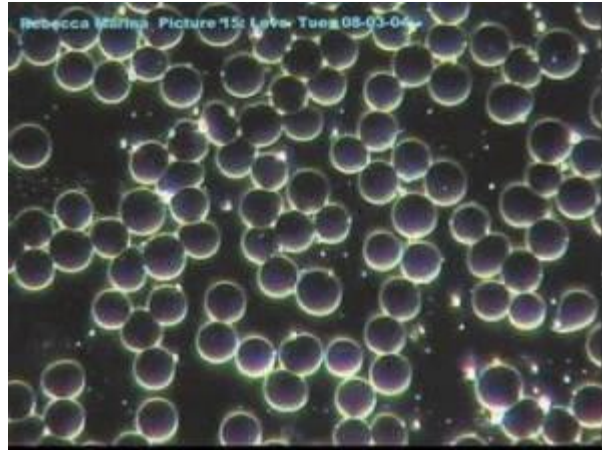


Figure 7. Blood molecules

5. The condition of red blood cells when feeling anxiety, and fear. Blood cells move irregularly very quickly.

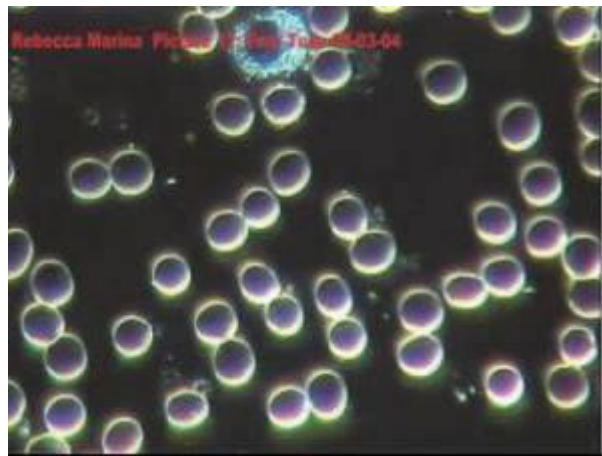


Figure 8. Blood molecules

6. The Condition of Red Blood Cells when a prayer is Prompted. What happened ...?, All those present in the laboratory were immediately speechless and stunned, because seeing the condition of the blood which was completely different from the others: Blood fluid is very bright.

♣ Regular red blood cell movements are very calm, as if moving peacefully.

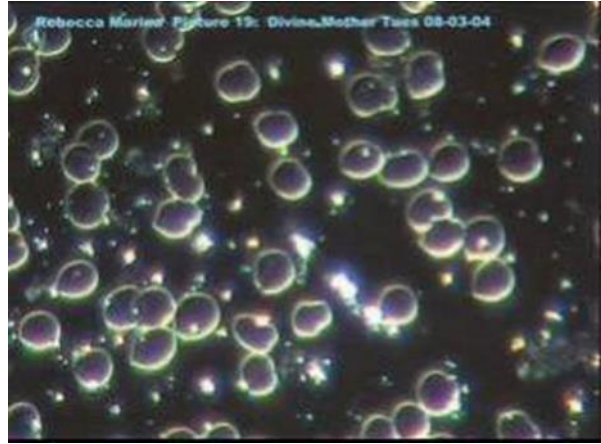


Figure 9. Blood molecules

♣ In the blood fluid appears sparkling substance.

Figure: blood molecule condition while a person is praying: In red blood cells there is a substance that glows and pulses like a heartbeat. After completing the research and when leaving the laboratory it was observed that there was a "miracle" that occurred namely: other blood samples had "stopped moving", except for blood samples that were given a prayer.

A folk-tale story: There are folklore about words - There is one habit that we can find in people who live around the Solomon Islands, which are located in the South Pacific, which is shouting at trees. This is what they can do if there are trees with very strong roots that are difficult to cut with an ax. They berate the tree with the aim that the tree died. The trick is, some residents who are stronger and braver will climb up to the top of the tree. Then, when they reach the top of the tree together with the people who are under the tree, they will shout at the top of their lungs to the tree. They shouted for hours, for about forty days. And, what happened was truly amazing. The tree that was shouted at by the negative words slowly began to dry out. After that the branches will also begin to fall out and slowly the tree will die and thus, it is easy to uproot.

If we look at what this primitive population did it was really strange. But we can learn one thing from them. They have proven that negative screams made against certain living things such as trees will cause the tree to lose its spirit. As a result, in a not too long time, a living creature or tree will die. Now, we have a very valuable lesson from the habits of the primitive population of the Solomon Islands. So remember well that *every time we shout with negative words at certain living creatures, it means we are killing the spirit.*

Remember, every time we scream at someone for being annoyed, angry, upset or other negative emotions, it will make others hurt and hurt and without us knowing it can kill the spirits of our loved ones. We also kill the spirit that links our relationship. The shouts, which we make out because our emotions slowly, will eventually kill the spirit (deadly feelings) that have embedded our relationship.

It would be nice if we talk carefully or discuss about what our expectations. Shouts or negative words that we say with uncontrolled emotions actually damage the atmosphere, making other

people's hearts farther away from our hearts. Instead of being negative to others, positive words that we say with full sincerity will make the hearts of others closer to our hearts.

That's why angry and emotional people talk loudly or shouting when their distance is only a few dozen centimeters and it should be easy to explain. But even though they are physically close, their hearts are actually so far away that they have to shout to each other. So from now on every unpleasant thing happens, we quickly control our thoughts and emotions by shifting our main focus to the pleasant thing, shifting the discomfort to the feeling of comfort.

We must be able to control our thoughts and emotions in a balanced way, so that what we say is something positive (both for us and others). So that other people know our intentions and goals, there is no need to emotionally scream - screaming that ultimately makes us increasingly away from others. This does not mean we always have to yield and we cannot be firm. But we have to adjust, even though we are in the right position and we have the authority to reprimand or give allegations to others but not necessarily emotionally.

Conclusions

Based on physical science research and also on water and blood molecules it may have something to do with what we do in prayer especially the *intercessory prayer* for others and ourselves. Where we pray we say words whose words are the sounds that will produce a wave of energy that will affect ourselves and others. From all this to the point of undermining our faith, the author wants to show that prayer has power when it comes to sounding like a theory in physics and also affecting humanity, because the *essence of prayer is hope, request, praise to God*. While praying means to say (lift up) a prayer to God. It means prayer is an application directed to God in which there is hope, request and praise.

It is also important to remember that the Bible has been around since the early time of mankind history, but knowledge has developed after the time of AD. This shows that the Bible is a source of knowledge that is impossible but real. Then we as Christians must believe whatever is written in the Bible eventhough it is impossible. We humans are given the ability to think because of the grace of God by giving our brains to respond to the problem by acquiring the wisdom of God in uncovering the biblical mystery that is the word of God given to us and that nothing cannot be done if we really listen, reflect and also do everything as it is mentioned in the Bible.

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