CYMATICS IN MUSIC



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CYMATICS?

- Term coined by Hans Jenny (1904-1972), a Swiss follower of the philosophical school known as anthroposophy.
- Cymatics is from Greek word for "wave" where it creates a modal vibrational phenomena.
- ✓ In 1680, Robert Hooke saw the nodal patterns associated with the modes of vibration of glass plates.
- In the 1780's, the German musician and physicist Ernst Chladni noticed that the modes of vibration of a membrane or a plate can be observed by sprinkling the vibrating surface with a fine dust.

ERNST CHLADNI

- Chladni introduced what we now call "cymatics" in 1787 in his book Discoveries on the Theory of Sound
- He contributed to the understanding of acoustic phenomena and functioning of musical instruments.



CHLADNI PLATES



MORE CHLADNI PLATES



CHLADNI FIGURES AND MUSICAL PITCHES



MORE SPECIFICS

- Powder, salt, or sand moves due to the vibration and accumulates progressively in points of the surface corresponding to the sound vibration (nodes and antinodes).
- The points form a pattern of lines, known as "nodal lines of the vibration mode." (*Wikipedia*)
- Different patterns emerge in the excitatory medium depending on the geometry of the plate and the driving frequency. (*Wikipedia*)

HANS JENNY

- A physician and natural scientist who coined the term cymatics to describe acoustic effects of sound wave phenomena.
- Jenny put sand, dust and fluids on a metal plate connected to an oscillator to produce a broad spectrum of frequencies.
- Vibrational energy created the geometric shapes through the frequency of the vibration emitted by the oscillator.



MARGARET WATTS-HUGHES

- A Welsh woman who invented (1885) a device she named the "Eidophone."
- The Eidophone was made of an open-ended wooden resonating chamber where a rubber membrane was stretched over the top.
- By singing into a tube that interfaced with the resonating chamber, she was able to create "voice figures."

 The "Eidophone" as pictured from her book
Eidophone and Voice Figures published in 1904



GO TO <u>WWW.CYMASCOPE.COM</u> TO PURCHASE WATT'S BOOK (CLICK THE "SHOP" BUTTON)



"OLD HUNDREDTH" VOICE FIGURES





BENJAMIN SILLIMAN

- August 8, 1779 November 24, 1864
- He was an early American chemist and science educator.
- He was one of the first American professors of science, at Yale
 College, the first person to distill
 petroleum in America
- He was the founder of the American Journal of Science, the oldest continuously published scientific journal in the United States.



IS THERE A "NOTE" TO NATURE?

Professor Siliman says

"The aggregate sound of Nature, as heard in the roar of a distant city, or the waving foliage of a large forest, is said to be a single definite tone of appreciable pitch. This tone is held to be the middle F of the piano-forte, which may therefore, be considered the keynote of nature. The Chinese recognised it some thousands of years ago, by teaching that 'the waters of the Hoang-ho, rushing by, intoned the kung' called 'the great tone' in Chinese music, and one which corresponds exactly with our F, now considered by modern physicists to be the actual tonic of Nature."

www.cymascope.com

JOHN STUART REID AND THE CYMASCOPE

- John Stuart Reid is an acoustics engineer, currently working in England
- "Reid began experimenting with instrumentation that would enable an accurate visual equivalent of sound to be created from any audible sound, resulting in the invention of the CymaScope CymaGlyph [sound] images, created on the CymaScope, are considered to be analogs of sound and music since the geometries they contain correlates with the musical pitches that cause patterns to form on the instrument's membrane."



<u>www.cymascope.com</u>

CYMASCOPE IMAGES



CYMASCOPE

John Stuart Reid invented the Cymascope

What is A CymaScope?

An innovative 21st century sonic instrument that creates visual patterns of sound.

Shown: CymaScope SE

Learn more >



CAN MUSIC INFLUENCE THE LONGEVITY OF HUMAN BLOOD CELLS?

- An experiment by Emily Abbey, John Stuart Reid, and Sayer Ji
- What is the significance of this project? If specific genres of music could be shown to extend the life of blood cells, versus the possible negative effects of noise on blood cell mortality, it may radically alter the listening habits of individuals and the environments in which they immerse themselves. The results may also provide a better understanding of noise exposure in the workplace. In addition, this initial experiment will provide a foundation for future experiments planned to help identify the medical mechanisms that underpin sound therapy, a drug-free modality that is showing potential in the support of many forms of illness.
- <u>https://experiment.com/projects/can-music-influence-the-longevity-of-human-blood-cells?s=discover</u>

CYMASCOPE APP!

To download the app, go to the play store from your device or visit <u>www.cymascope.com</u>



WHERE ELSE DO WE SEE CYMATIC FIGURES?

- Crop circles
- Stone structures in South Africa
- In nature
- The ceiling of the Rosslyn Chapel in Scotland







Is Sound Creating Crop Circles...?

CROP CIRCLES



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adams calendar Events

LARGEST CLUSTER OF STONE RUINS ON EARTH

CYMATICS IN NATURE







THE ROSSLYN CHAPEL



- Rosslyn Chapel is in Scotland near Edinburgh
- There are 213 "cubes" with cymatic patterns





ROSSLYN CUBES



STAVE ANGEL

- The "stave angel" is on the Apprentice Pillar
- The angel appears to be pointing at the 3 main notes (B, C, A)
- Transferred into cymatic patterns, these notes are in the A=435 concert pitch



ROSSLYN MOTET <u>WWW.THEROSSLYNMOTET.COM</u>



CURIOSITIES

- If cymatic shapes are built into cubes in the Rosslyn Chapel, what other historic buildings could they also be in?
- It's obvious people understood cymatics were related to music pitches, otherwise the cubes in the Rosslyn chapel wouldn't have been created.
- John Stuart Reid indicates cymatic figures are also in Egypt.



RESOURCES

- John Stuart Reid: <u>www.cymascope.com</u>
- Stuart Mitchell: <u>https://stuart-mitchell.com/</u>
- Rosslyn Motet information: <u>https://www.therosslynmotet.com/</u>
- Nigel Stanford (musician) YouTube video with cymatics at work! <u>https://www.youtube.com/watch?v=Q3oItpVa9fs</u>
- Interview with John Stuart Reid on Cymatics by Joe Dolezal (www.joedolezal.com) Available on his YouTube channel
- Robert Boerman: <u>www.watersoundimages.com</u>
- Natalie Gray (<u>www.thegrayescape.com</u>) interviews John Stuart Reid. Episode 35 titled "The Startling Secrets of Sound" is available on her YouTube channel