Music, Math, Megaliths and the Dawn of Humanity

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"Musick hath Charms to sooth a savage Breast, To soften Rocks, or bend a knotted Oak. I've read, that things inanimate have mov'd, and, as with living Souls, have been inform'd, by Magick Numbers and persuasive Sound."
(William Congreve in *The Mourning Bride:* 1697.)

"Give me the beat, boys, and free my soul
I wanna get lost in your rock and roll and drift away."
(Mentor R. Williams in *Drift Away*: 1972.)

These two quotations, the first written by a British playwright, the second from a hit song made popular in the 1970s by artists such as Roy Orbison, Ike and Tina Turner, Waylon Jennings, the Rolling Stones, Ringo Starr, Bruce Springsteen and Tom Rush, are an apt description of a shamanic experience that may very well have shaped our ancient origins. Perhaps they even reveal a long-lost technology used in the construction of many of the mysterious monoliths found on virtually every continent on earth. They remind us that music is vibration, as well as being a very spiritual enterprise.

Great Hall of the Bulls, 15000–13000 BC, Paleolithic rock painting, Lascaux, France ©Ministère de la Culture et de la Communication

Cave Acoustics

Deep within the great caves our ancestors frequented 40,000 years ago in western Europe, archaeologists have found chamber after chamber displaying murals that, for sheer audacity and ingenuity, rival anything attempted during art's classical period. If we factor in degree of difficulty, there is no comparison. Thousands of such caves exist. Pech Merle, Lascaux, Chauvet and Altimra, some of the best known, display ancient paintings which reveal the first examples of what is now called symbolic thought - religious expression. These examples of Paleolithic art date back to between 20,000 and 40,000 years. If recent discoveries from Indonesia continue to hold up to close scrutiny, our Neanderthal cousins, and probably their Denisovan neighbors, were creating similar art as far back as 64,000 years ago!

But not every cave contains such art, and even the painted galleries often stand right next to empty chambers that were obviously passed over for some reason. Why did the artists choose some locations and not others? In a word: music. The chambers that feature the art have been shown to possess wonderful acoustical properties. In other words, they echo. To sing and dance in such a place is to surround yourself with sound that is both deep and rich. A single drummer sounds like an ensemble. A few singers sound like a chorus.

A wall painting dating from circa 775 AD found at the Bonampak ceremonial complex file of musicians: rattle and ocarina; trumpets; and theatrical scene (Public Domain)

Thus, it appears that music and spirituality have been intertwined for as long as there have been visionaries and artists. It is no accident that when people of today worship in styles as far removed from each other as high liturgical masses in great cathedrals to Appalachian snake handlers in small churches way up in the mountain valleys, a common denominator is music.

Resonating Cosmos

Ancient Greek pottery music scene: Banqueter and musician, detail. Tondo from an Attic red-figure cup, circa 490 BC. Found in Vulci. (Public Domain)

The ancient Greeks taught us that the cosmos resonates with the music of the spheres. The stars resound with frequencies that, if people could only learn to listen, would reveal much about the nature of material life.

Particles themselves, the physical manifestations that make up the perception realm around us, can be visualized as frozen pieces of vibrating energy

- music. Someday we might learn how to hear it, enter into the great dance, and express its tune. Until then, such vestigial memories form a tapestry into which is woven the various strands of life itself.

Andrew Collins, in his new book The Cygnus Key, delves deeply into an exploration of acoustics and their relationship to stone structures from Turkey's Göbekli Tepe to the pyramid complex at Giza. Although we may never understand exactly how music factored into equations linking these incredible complexes, the fact that it did seems undeniable. Collins tells the story of a boy, for instance, who listened to the beat of a drum in an acoustically favorable location discovered at West Kennet long barrow, just south of Avebury in Wiltshire, England. The boy reported that on two occasions, caught up in the sound, he felt he was visited by an entity of some kind, although he was alone at all times.

This experience is similar to the kinds of shamanic journeys, induced by rhythmic drumming, described by Michael Harner in his classic book, The Way of the Shaman. Drumming has, for thousands of years, been associated with ecstatic shamanic visions. It is still a common way to practice shamanism and has obviously crept over into popular practice as well, as evidenced by the song quote that began this article: "Give me the beat, boys, and free my soul. I wanna get lost in your rock and roll and drift away."

This piece of femur of a bear found in 1995 in the Cave of Divje Babe (Alps) is pierced with two holes, which has been interpreted by archaeologists as part of a flute made by a Neanderthal man (CC BY-

Is that what was happening in the great painted caves 40,000 years ago? Did ancient shamans enter acoustically engaging chambers where they could enter a trance-like state produced by drumming and music? Fifty thousand-year old flutes made from the bones of swans and other birds have been unearthed and precisely dated. They could very well have been used for more than just entertainment. Did the shaman/artists then record on the walls of those caves an impression of the journey they had undertaken to the spirit world, picturing entities they had encountered there?

Lest we too easily dismiss such musings, it is important to remember that even today music performed during contemporary worship services, is designed to produce a mood conducive to communicating with the deity through prayer. The walls of our churches, synagogues, and mosques, like the painted caves of old, are still anointed with beautiful art and illuminated with light filtered through images on stained glass windows. It's obvious that things haven't changed much in 40,000 years. There is not a great deal of difference between Michelangelo's work in the Sistine Chapel and that of ancient shaman/artists in Lascaux.

Music Moves Rocks

But there is more to music than pretty sounds. Read again the quotation found at the beginning of this article. Besides 'soothing a savage breast', music has a long, oral history of '[softening] rocks, or [bending] a knotted oak.' It even seems to be associated with 'magick numbers' and '[moving] inanimate things'. What strange connections exist between softening rocks, bending oaks and moving inanimate things, let alone the 'magick numbers' of mathematics?

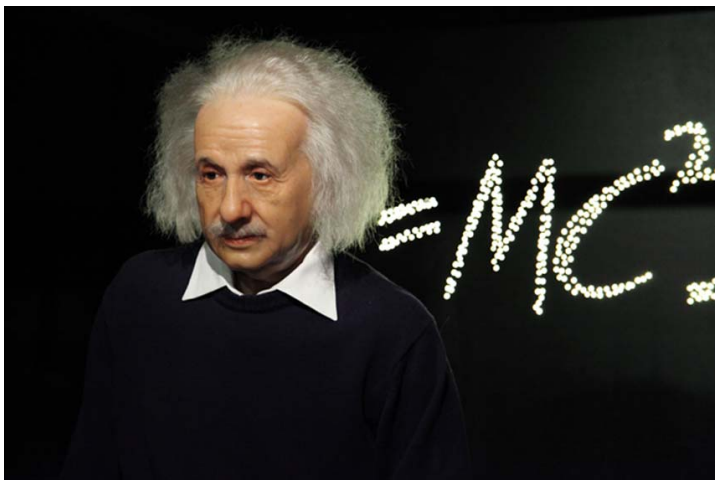
Sacsayhuamán Walls, Cusco, Peru (Diego Delso / CC BY-SA)

Consider, for instance, the enigmatic walls of Sacsayhuaman, in Cusco, Peru, or any of a thousand similar sites around the world. The immense rocks that form these structures fit so closely together that some experts speculate they have been somehow softened up and literally melted into place. In many cases, archaeologists claim that a razor cannot be fitted between them. How is such a thing possible? Even if teams made up of hundreds of workers could somehow wrestle the multi-ton stones into place, there is simply not enough room around them to position enough laborers to jockey them into their final position, even if they could somehow have been shaped to precise tolerances while down on the ground. Obviously, the builders were using some kind of technology that we don't understand. Could that technology have involved the vibration inherent in music?

Mathematical Vibrations

It sounds outlandish to educated people in the 21st century, until we stop to consider that physicists have proved over and over again that matter consists of vibrating energy. Energy equals mass times the speed of light squared (E=mc2). It is the one equation everyone can recite, even if few really understand its implications. If you raise the vibratory energy inherent in metal or wood by heating it, it becomes pliable. You can shape it. It's as simple as that. The same principle applies to stone. We may not understand how they did it, but the evidence that they somehow did it is right before our eyes.

Why are we so quick to believe that our ancestors were more ignorant than we are? Yes, we know things they didn't know. But obviously they knew things we don't know. Could it be that they had mastered a technology of 'music', for lack of a more precise word, that could actually enable them to practice psychokinesis? Is 'mind over matter' more than just a metaphysical expression?



Albert Einstein E=MC^2 (Public Domain)

We know that light at high, laser-like frequencies, can change the very substance of matter. Can sound do the same thing? Does the old picture of a soprano breaking a glass just by the timbre of her voice disguise a real technology that was first recognized and then utilized by the old ones? Can music really soften rocks or levitate inanimate things? Such a phenomenon would go a long way toward understanding how megalithic builders accomplished what they did.

Returning now to the emotional content produced by music, it is important to remember that the first scientist to see a practical connection between music and applied mathematics was none other than the great Pythagoras himself. He is the one who gave us the language of both music and geometry.

Pythagoras recognized that there were qualities inherent in music, especially musical intervals, or the space between individual notes, that could be translated into geometrical forms.

In Collin's new book he carefully points out some of these relationships. Let us concentrate on just two major ones. In the west, music is based on an eight-note musical scale. In the movie The Sound of Music, Julie Andrew's character, Maria, teaching her charges to sing by teaching them the familiar Do-Re-Mi system. But hidden away in our familiar scale are two very important intervals, called the fourth and the fifth. Starting with a base note and moving up through the scale, most of the intervals, or spaces between the notes as measured from the base note, are called major intervals, unless the top note is flattened by one-half step, in which case it's called a minor interval.

Section of a woodcut showing Pythagoras with bells in Pythagorean tuning. From Theorica musicae by Franchino Gaffurio, 1492. (Public Domain)

The intervals that concern us are between notes one and four, and notes one and five. They are called a fourth and a fifth. Pythagoras understood that these intervals are special, so he called them 'perfect' intervals, not major or minor. Fourths and fifths resonate with an openness that other intervals do not. The reason has to do with vibratory frequencies that are interesting, but not relevant to this discussion. Importantly, the ratio of the vibratory frequencies of fourths and fifths can be expressed geometrically. Pythagoras even determined that people's emotional response to music depended on mathematics. 'Good' intervals produced music that made us feel good. 'Dissonant' intervals made us feel bad. What we think of as 'comfortable' music is actually dependent on mathematics as much as musical arrangements. Tempo, intervals and volume are all mathematical concepts carefully designed to produce an emotional feeling. That is why we never hear a polka in a funeral parlor.

To visualize this process, picture a string stretched over a guitar or a violin neck. When the string is plucked, it produces a 'base' note. It vibrates at a certain frequency, depending on how tightly it is stretched. When the string is pressed down in a special place, or shorten its length, the ratio at which it vibrates changes. A ratio of two to three will produce a perfect fifth. A ratio of three to four will produce a perfect fourth. This procedure can be expressed mathematically. If a 2/3 or 3/4 ratio is translated into units a structure can be built that will resonate proportionally to the vibration of the music produced. We do not need to understand all the math. Our ears and bodies will tell us when it is right. If one listens to music in Carnegie Hall and then listens to the same music in the back room of a bar, one will hear the difference even if one never took piano lessons. More importantly, one will feel the difference.

Shamanic Drum Magic (CC0)

This raises an interesting point. As Collins points out, the same 2/3, 3/4 mathematical proportions are found at megalithic structures from Göbekli Tepe to the Giza Plateau. They are also found in great painted caves that naturally offer the same proportions. Why did ancient shamans feel the need to go deep underground in those dangerous, dank caverns? Why did such journeys occur at the same time in history we invented flutes and drums - in other words, music? Why was this the precise time the old ones felt compelled to express themselves in fantastic art murals on cave walls?

It all came together in the expression of what is called symbolic, or religious, art. And it is that art that speaks to us today. "I have become human!" it says. Homo sapiens had reached a huge step in our development. We had begun the journey to modernity.

Top Image: Tribal Shamanic Music (CC0)

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