Chapter 3 – WHAT IS SCIENCE?

"All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration and holds this most minute sola r system of the atom together . . . We must assume behind this force the existence of a conscious and intelligent mind. This mind is the matrix of all matter." *Max Planck*

We are all conditioned to believe that the intelligent people of the world use science to find truth. People in college are particularly programmed with this belief. This sets a subliminal program for each of us that if something is not scientifically proven, then to believe in it must indicate lack of intelligence, ignorance. Everyone seems to have an idea of what science is, but actually articulating it proves to be difficult. The definition of science poses some problems. Doing so, however, is necessary to understand what science really is and what science is not. Understanding science is necessary because of its incredible power and influence in modern society. You will soon learn that science does not make anything any more real or valid, just more acceptable to those who respect its parameters. There is a standard which all things can be based upon, even the principles of creation, but it is not standard science.

The classical definition of science is simply the state of "knowing" - specifically theoretical knowledge as opposed to the practical knowledge. Modern dictionaries offer a number of different ways in which the term science can be defined:

- The observation, identification, description, experimental investigation, and theoretical explanation of phenomena.
- Methodological activity, discipline, or study.
- An activity that appears to require study and method.

For many purposes, these definitions can be adequate, but like so many other dictionary definitions of complex subjects, they are ultimately superficial and misleading. They only provide the barest minimum of information about the nature of science. As a consequence, the above definitions can be used to argue that even astrology, dowsing and tarot cards qualify as "science." Distinguishing modern science from other endeavors requires focusing in particular on its methodology - the means by which it achieves results. Fundamentally, then, science can be characterized as a method of obtaining reliable - though not infallible - knowledge about the universe around us. This knowledge includes both descriptions of what happens and explanations of why it happens. The knowledge is reliable because it is continually tested and retested - much of science is heavily interdependent, which means that any test of any scientific idea entails testing other, related ideas at the same time. The knowledge is not infallible; because at no point do scientists assume that they have arrived at a final, definitive truth. Well, not the ones with experience.

What has been described so far is the true definition of science, but most people with training forget the empirical nature of science and choose to put faith primarily in what can be measured and validated with some form of technological equipment. It is important for you to realize that something does not have to be scientifically validated for it to be truth. Notice I use the word validation, not proof, because there is no definitive proof. As technology advances, more information about the universe is extracted and what was previously believed to be "proof" according to the scientific standards of the day is no longer valid when compared against the most modern sciences. As a matter of fact, some of the previously unaccepted truths are now proven because of advancement in technology. The word validation simply indicates "knowledge attained with the presently available data." So scientific validation simply means someone finally came up with a way to prove their point, generally because technology has progressed to a point that can document the theory (idea). Even the most complicated mathematical equations are no more than theory until they can be validated.

Back when medicine used leaches and called it science, something as advanced as an x-ray machine would have been considered ridiculous and unscientific. Well, it's true, it was unscientifically validated, but it did not make it any less truthful or real in the end now did it? Einstein is my favorite scientist because he would envision a concept and even dream up a theory, it is said, then find a way to prove it was true by inventing the science to validate it. Einstein certainly did not think within the box of "accepted science" or he never would have discovered what became known as the future of science. To be a true person of vision and progress, you must allow your mind to always remain open. If you limit yourself to what you believe is validatable with current science, what is commonly accepted as science, you limit the essence of your potential. I say all of this so that you will be challenged to keep your mind open to what the future of science will be, knowing that some of the most commonly accepted scientists at present refuse to condone the science being described in these pages. Not because it is not truth or even validated, but it does not fit in their previously created mental box of "acceptable ideas."

When scientists review the data from an experiment, many factors, besides their scientific knowledge (such as background, culture, and beliefs) influence their interpretations. These interpretations are usually indicative of the philosophy of the scientists. Thus physics, particularly quantum physics, is the outcome of the most advanced mathematics coupled with philosophy. Many of Einstein's theories contradicted some of the theories of classical physics, but remember that his way was to dream or envision concepts and *then* attempt to explain them with mathematics. That is opposite of most science which is based on a set of regulations which dictate a mindset of what is or is not possible. I have high esteem for Einstein's methods because he seemed to connect to the universe first and

try to explain the science of how and why later. Science became an invention, not a parameter. This seems like much more potential for growth.

Classical Physics vs. Quantum Physics
Many people contributed to the concept of the atom. They came from various countries and contributed their varying expertise to the major problem of the day--how to explain the atomic phenomenon with the theories of classical physics. Classical physics speaks of the laws that were used to explain our world until approximately the 1920's. Every day events such as Sir Isaac Newton's laws of motion, Maxwell's theories of electricity and magnetism and Einstein's theory of relativity are some examples. Developing technologies allowed scientists to look beyond everyday events, and there they saw events that could not be explained in classical physics. From the struggle came a new theory of the atom and a new physics called quantum physics. Quantum is defined as "a discrete quantity of electromagnetic radiation." The science of quantum physics has demonstrated that our world actually occurs in very short, rapid bursts of light. The events we register as movement, like watching your child run down the driveway, is actually tiny pulses of light called quanta. The quanta of our world occur so rapidly that our brains do not discern individual events but see them all stream together like the many frames that make a video clip or movie. Quantum physics is the study of these minute units of nonphysical forces whose combined movement creates our physical world. It should be understood that neither classical nor quantum physics is wrong although they don't agree and often even contradict each other. But classical physics can only take one so far in a universe that is not really governed by space and time.

Drug interactions vs. electromagnetic interactions
"Organic metabolic conversion is the great biochemical sequence of the body. As electron transfer comes in, we add, for the first time, energy transfer thought the system that is of an electronic nature, and which has very little binding. The whole conversion for drug interaction has been binding (at the binding site). When we switch to electronic discharge, the coefficient of binding is 10-15 seconds. So it's not really binding any more. It's a bounce, it's a spark. Your spark plug is not bound to your piston, it just sparks it. Similarly, electroactive medicines do not bind to their receptors (they weren't intended to be bound). Even though they need their receptors, they just spark them. The current is modulated, much like through a transistor. There's a burst of energy. There isn't binding in the sense of structure. There is only binding in the recognition sense." (Garnett, 1998; 2001) Taking this into consideration, the use of radiation, chemotherapy, drugs and surgery is like "killing a snake with a nuclear warhead," according to Dr. Horowitz.

IF THERE IS SCIENCE, IT MUST BE MATH

"All life is biology. All biology is physiology. All physiology is chemistry. All chemistry is physics. All physics is math."
Dr. Stephen Marquardt

Those of you on the search for absolute truth will appreciate the following concepts. There is much theory, speculation and traditional knowledge in every study of life, but the following finally gives mathematical evidence, or equations which can be used to decipher the truth in any area of study. Of primary importance to this book is creationism and biological electromagnetics. The bottom line to the purpose of this book is to demonstrate that all chemical reactions in the body (currently the focus of the best in modern medicine) are nothing more than dictation of what occurs on the electromagnetic spectrum. Thus diagnostics and treatments on the electromagnetic plain are the true, the only, medical science of the future. If math is a strong suite for you, I urge you to go to the websites mentioned in the following pages. I have only used basic principles to shed explanation about more complex theories and findings that are only appreciated if one can relate to the mathematic equations.

Mathematics represents a wholly contained and internally consistent philosophy -- a philosophy which describes physical reality, its cosmogony and every aspect of its science. The Greek Philosopher, Plato, has said: "Geometry is knowledge of the eternally existent. Numbers are the highest degree of knowledge. It is knowledge itself."

This profoundly philosophical interpretation or Mathematical Theory is echoed in many spiritual traditions. Such references are not always direct, however, and in fact may have been intentionally obscure in order to prevent the "uninitiated" from gaining access to the power inherent in such knowledge. The School of Pythagoras, for example, was known to limit the dissemination of the mathematical and philosophical understandings they achieved. The so-called Mystery Schools of ancient Egypt, Sumeria, Greece, and Judaea were also very much into keeping their own counsel and limiting access by the uninitiated. The biblical prohibition from eating of the Tree of Life or Tree of Knowledge of Good and Evil may represent another case of a little knowledge being a dangerous thing -- at least to someone's thinking.

No matter what science you study, you will find math at its base. The secrets of the universe are encoded in mathematics. Horowitz and Puleo found mathematical patterns secretly hidden in the Bible's Book of Numbers. They theorize that the number schemes are so powerful in understanding the secrets of the universe that translations purposefully coded these secrets so the masses would not discover them. These translations with their hidden codes are the Bibles in circulation today. Life itself as we know it is inextricably interwoven with geometric forms, from the angles of atomic bonds in the molecules of the amino acids, to the helical spirals of DNA, to the spherical prototype of the cell, to the first few cells of an organism which assume vesical, tetrahedral, and star (double) tetrahedral forms prior to the diversification of tissues for different physiological functions. Our human bodies on this planet all developed with a common geometric progression from one to two to four to eight primal cells and beyond. These geometric forms and mathematical equations have been given the name sacred because all life and matter itself seems to be built around equations that begin with these geometric shapes. Before we explore the potential of the mind in a book called The Nature of Reality and The Origin of Matter, it seemed imperative to have a bit of connection to the foundation of it all.

Sacred Mathematics is not exclusively about geometry, however. There are, for example, Magic Squares , Fibonacci Numbers, numbers in general (e.g. Nines), Numerology, and a whole host of other strange relationships among the very real aspects of the universe.

Pythagoras and his followers made no distinction between music, mathematics and magic. Magic and music, for example, were found to be based upon mathematical laws (albeit, sometimes very subtle ones). Furthermore, everything in the universe followed these mathematical laws and the universe was created out of the geometrical relationships of the numbers, and thus constituted the true basis of reality. Which says a lot.

Plato, in addition to being a geometry nut (the Platonic Solids are named after him), was also into the numbers. "...that the reality which scientific thought is seeking must be expressible in mathematical terms, mathematics being the most precise and definite kind of thinking of which we are capable."

The fundamentals of Sacred Mathematics are briefly considered in everything from:

- Magic Squares to Sacred Geometry
- Pythagorean Theorem to Fibonacci Numbers
- Golden Mean to The Great Pyramids
- Nines, Cycles, Music, and Harmony of the Spheres to the Geometry of Alphabets and the Wonders of Math

"Philosophy is written in this grand book --

I mean the universe --

Which stands continually open to our gaze.

But it cannot be understood

Unless one first learns to comprehend the language

And interpret the characters in which it is written.

It is written in the language of mathematics,

And its characters are triangles, circles, and other geometric figures,

Without which it is humanly impossible to understand a single word of it."

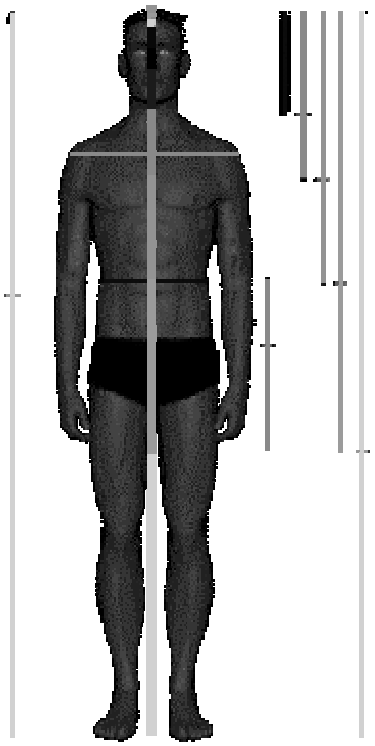
-- Galileo Galilei, Il Saggiatore (1623)

Phi, The Golden Number –a summary from www.goldennumber.com & www.evolutionoftruth.com
What is Phi? Phi (= 1.618033988749895...), is simply an irrational number like pi (p = 3.14159265358979...), but one with many unusual mathematical properties. Phi is the basis for the Golden Section, Ratio or Mean. The ratio, or proportion, determined by Phi (1.618...) was known to the Greeks as "dividing a line in the extreme and mean ratio" and to Renaissance artists as the "Divine Proportion." It is also called the Golden Section, Golden Ratio and the Golden Mean. Phi, like Pi, is a ratio defined by a geometric construction. Just as pi (p) is the ratio of the circumference of a circle to its diameter, phi is simply the ratio of the line segments that result when a line is divided in one very special and unique way.

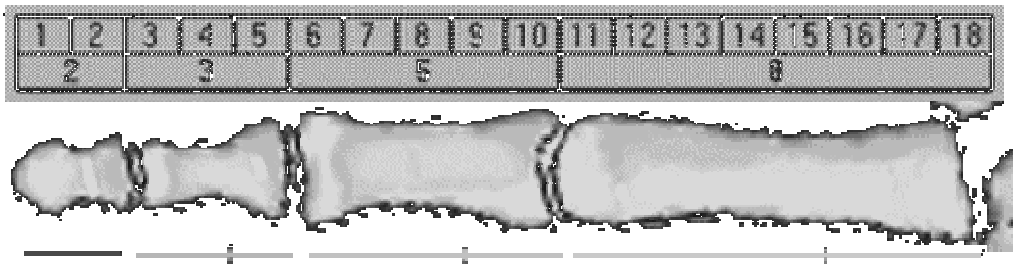
Take a line and divide it so that the proportion of (B) to (A) is the same as the proportion of (C) to (B) This was known to the early Greeks as the "Golden Section:" This happens only at the point where: A is 1.618... times B and B is 1.618... times C. Alternatively, C is 0.618... of B and B is 0.618... of A.

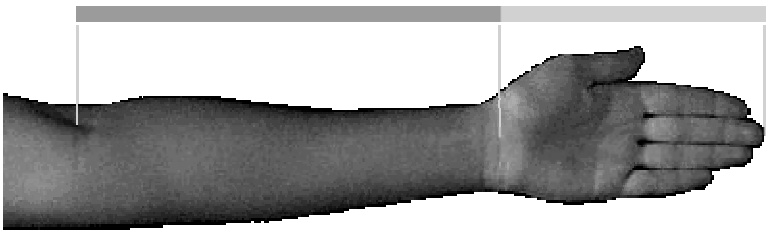
Divide the line again and again in the same way:

What makes phi even more unusual is that it can be derived in many ways and shows up in relationships throughout the universe. You will find that this proportion is used in design throughout creation:



Each line is phi, or 1.61804..., times longer than the one before it.
Conversely, a section drawn at 0.61804 (or 61.8%, 1 / phi) of each line equals the length of the one before it.





Phi can be derived through:

- A numerical series discovered by Leonardo Fibonacci
- Mathematics
- Geometry

Phi appears in:

- The proportions of the human body
- The proportions of many other animals
- Plants
- DNA
- The solar system
- Art and architecture
- Music
- Population growth
- The stock market
- The Bible and in theology

While the proportion known as the Golden Mean has always existed in mathematics and in the physical universe, it is unknown exactly when it was first discovered and applied by mankind. It is reasonable to assume that it has perhaps been discovered and rediscovered throughout history, which explains why it goes under several names.

Uses in architecture date to the ancient Egyptians and Greeks

- It appears that the Egyptians may have used both pi and phi in the design of the Great Pyramids. The Greeks based the design of the Parthenon on this proportion.
- Phidias (500 BC - 432 BC), a Greek sculptor and mathematician, studied phi and applied it to the design of sculptures for the Parthenon.
- Plato (circa 428 BC - 347 BC), in his views on natural science and cosmology presented in his "Timaeus," considered the golden section to be the most binding of all mathematical relationships and the key to the physics of the cosmos.
- Euclid (365 BC - 300 BC), in "Elements," referred to dividing a line at the 0.6180399... point as "dividing a line in the extreme and mean ratio." This later gave rise to the use of the term mean in the golden mean. He also linked this number to the construction of a pentagram.

The Fibonacci Series was discovered around 1200 AD. Leonardo Fibonacci, an Italian born in 1175 AD discovered the unusual properties of the numerical series that now bears his name, but it's not certain that he even realized its connection to phi and the Golden Mean. His most notable contribution to mathematics was a work known as Liber Abaci, which became a pivotal influence in adoption by the Europeans of the Arabic decimal system of counting over Roman numerals.

Da Vinci provided illustrations for a dissertation published by Luca Pacioli in 1509 entitled "De Divina Proportione", perhaps the earliest reference in literature to another of its names, the "Divine Proportion." This book contains drawings made by Leonardo da Vinci of the five Platonic solids. It was probably da Vinci who first called it the "sectio aurea," which is Latin for golden section.

The Renaissance artists used the Golden Mean extensively in their paintings and sculptures to achieve balance and beauty. Leonardo Da Vinci, for instance, used it to define all the fundamental proportions of his painting of "The Last Supper," from the dimensions of the table at which Christ and the disciples sat to the proportions of the walls and windows in the background.

Johannes Kepler (1571-1630), discoverer of the elliptical nature of the orbits of the planets around the sun, also made mention of the "Divine Proportion," saying this about it: "Geometry has two great treasures: one is the theorem of Pythagoras; the other, the division of a line into extreme and mean ratio. The first we may compare to a measure of gold; the second we may name a precious jewel."

It wasn't until the 1900's that American mathematician Mark Barr used the Greek letter phi to designate this proportion. By this time this ubiquitous proportion was known as the golden mean, golden section and golden ratio as well as the Divine proportion. Phi is the first letter of Phidias (1), who used the golden ratio in his sculptures, as well as the Greek equivalent to the letter "F," the first letter of Fibonacci. Phi is also the 21st letter of the Greek alphabet, and 21 is one of numbers in the Fibonacci series. The use of the Greek letter Phi to represent the golden number 1.618... is generally said to acknowledge Phidias, a 5th century B.C. sculptor and mathematician of ancient Greece, who studied phi and created sculptures for the Parthenon and Olympus.

Phi continues to open new doors in our understanding of life and the universe. It appeared in Roger Penrose's discovery in the 1970's of "Penrose Tiles," which first allowed surfaces to be tiled in five-fold symmetry. It appeared again in the 1980's in quasi-crystals, a newly discovered form of matter.

The description of this proportion as Golden and Divine is fitting perhaps because it is seen by many to open the door to a deeper understanding of beauty and spirituality in life. That's an incredible role for a single number to play, but then again this one number has played an incredible role in human history and in the universe at large.

God, Creation and Phi

The teachings of most religions express the thought that part of God is within each of us and that we are created in His image. The pervasive appearance of phi throughout life and the universe is believed by some to be the signature of God, a universal constant of design used to assure the beauty and unity of His creation. Although perhaps not immediately obvious, phi and the golden section also appear in the Bible. Is there meaning hidden in Phi, the symbol for the Golden Number? The message from scripture of all the major monotheistic religions is that God is One, Who created the universe from nothing, splitting nothingness into offsetting forces and elements. Today we understand the universe to consist of positive and negative atomic and subatomic particles and charges, matter and anti-matter, all coming from a singularity. Curiously, the mathematical constant of 1.618... that is found throughout creation is represented by the symbol Phi, which is the symbol 0, for nothing, split in two by the symbol 1 for unity and one. Could this be the true meaning behind the symbol Phi?

Now ADD God to the void, or Unity to Nothing. In other words, add 0 plus 1 to get 1, and then follow this pattern to the Infinite. This is the Fibonacci series. The ratio of each number in the series to the one before it converges on Phi as you move towards infinity, defined by the symbol ∞.

The Golden Section, or Phi, found throughout nature, also applies in understanding the relationship of God to Creation. In the golden section, we see that there is only one way to divide a line so that its parts are in proportion to, or in the image of, the whole: The ratio of the larger section (B) to the whole line (A) is the same as the ratio as the smaller section (C) to the large section (B).

And so it is with our understanding of God, that we are created in His image. Not by dividing the whole, but only by tri-viding the whole does each piece retain its unique relationship to the whole. Only here do we see three that are two that are one. The Book of John begins with these words that capture the essence of this: In the beginning was the Word, and the Word was with God, and the Word was God.

Jesus, in John 14:9, expressed a similar thought: Anyone who has seen me has seen the Father.

The Ark of the Covenant is a Golden Rectangle. In Exodus 25:10, God commands Moses to build the Ark of the Covenant, in which to hold His Covenant with the Israelites, the Ten Commandments, saying, "Have them make a chest of acacia wood-two and a half cubits long, a cubit and a half wide, and a cubit and a half high." (A cubit is the measure of the forearm below the elbow.)

The ratio of 2.5 to 1.5 is 1.666..., which is as close to phi (1.618...) as you can come with such simple numbers “forearm to elbow” math of old, and is certainly not visibly different to the eye. The Ark of the Covenant is thus constructed using the Golden Section, or Divine Proportion. From the illustration of the arm on the previous page, you can see that no matter whose arm was used, the segments of the arm remain in phi proportion.

This ratio is also the same as 5 to 3, numbers from the Fibonacci series. Noah's Ark uses a Golden Rectangle. In Genesis 6:15, God commands Noah to build an ark saying, "And this is the fashion which thou shalt make it of: The length of the ark shall be three hundred cubits, the breadth of it fifty cubits, and the height of it thirty cubits." Thus the end of the ark, at 50 by 30 cubits, is also in the ratio of 5 to 3, or 1.666..., again a close approximation of phi not visibly different to the naked eye. Noah's ark was built in the same proportion as ten arks of the covenant placed side by side. Using Gematria, the number 10 reduces to 1, which is the number of God.

The Number 666 is related to Phi. Revelation 13:18 says the following: “This calls for wisdom. If anyone has insight, let him calculate the number of the beast, for it is a man's number. His number is 666.” This beast, regarded by some as the Anti-Christ described by John, is thus related to the number 666, one of the greatest mysteries of the Bible. Curiously enough, if you take the sine of 666º, you get -0.80901699, which is one-half of negative phi, or perhaps what one might call the "anti-phi." The trigonometric relationship of sine 666º to phi is based on an isosceles triangle with a base of phi and sides of 1. When this triangle is enclosed in a circle with a radius of 1, we see that the lower line, which has an angle of 306º on the first rotation and 666º on the second rotation, has a sine equal to one-half negative phi. In this we see the unity of phi divided into positive and negative, analogous perhaps to light and darkness or good and evil. Could this "sine" be a “sign” as well? In addition, 666 degrees is 54 degrees short of the complete second circle and when dividing the 360 degrees of a circle by 54 degrees you get 6.66... The other side of a 54 degree angle in a right angle is 36 degrees and 36 divided by 54 is .666. (Illustration available at http://goldennumber.net/bible.htm)

In discussion of numbers, particularly the number 666, Plato was said to believe strongly in the importance of the numbers 216 and 12,960,000 -- that is, according to: http://mathworld.wolfram.com/PlatosNumber.html. [4/1/05] There was no indication in Mathworld as to why these two numbers were important, but we can note that both reduce to Nine. (See Numerology for an explanation of reducing numbers.) As one reader was quick to point out, however, 216 is 6 cubed, while 12,960,000 is 60 to the fourth power. This is all very Sumerian, in that 6 and 60 were part of their segesimal mathematics. What is probably not particularly Sumerian, however, is the curious fact that one could plausibly write: 216 = 6x6x6, or dropping the multiplier symbols (a common practice in mathematics and science), one obtains 666. This is, of course, the number of the beast in Revelations -- as well as the

number of gold talents received in a year by King Solomon. Apparently, Revelations was not enamored with either Plato, King Solomon, or the Sumerians. (Alternatively, the "beast" in Revelations is man, and man being an animal... perhaps the most dangerous beast is simply man.)

The colors of the Tabernacle are based on a phi relationship. The PhiBar program (http://goldennumber.net/color.htm) produces the colors that the Bible says God gave to Moses for the construction of the Tabernacle. As it says in Exodus 26:1, "Make the tabernacle with ten curtains of finely twisted linen and blue, purple and scarlet yarn, with cherubim worked into them by a skilled craftsman." Set the primary color of the PhiBar program to blue, the secondary color of the PhiBar to purple and it reveals the Phi color to be scarlet.

This reference to the combination blue, purple and scarlet in the construction of the tabernacle appears 24 times in Exodus 25 through 39, describing the colors to be used in the curtains, waistbands, breastpieces, sashes and garments.

Phi and the human body

"DNA plays a pivotal role in all of this. The molecular structure of the Sacred Spiral [DNA] incorporates the geometric form known as the Golden Section. This mathematically and geometrically special Golden Section is harmonically attuned to the Fibonacci series of numbers, 34 an 21, due to the fact that each full cycle of DNA's double helix spiral measures 34 angstroms long by 21 angstroms wide. This musical, mathematics determines the sacred geometry of DNA. It is a perfect five-sided pentagon for each helical spiral of the molecule. Double this to construct the twin helix, with each full helical spiral rotating 36 degrees, and you end up with a decagon formed from the two pentagons. (It is not likely coincidental that the highest level possible in the hierarchy of the global elite's secret society, Freemasonry, is also 36; wherein 3+6=9 or completion in Pythagorean mystery school math.)" Horowitz, 2004, *DNA: Pirates of the Sacred Spiral*

"This uncommon knowledge about DNA's structure, based on perfect musical math, helps to explain your overall physical structure. For example, your pentagonal body shape, with two arms, two legs, and a head, results from resonance frequencies of energy manifested through pentagonal-shaped genetic antennae; all in Divine proportion to the Golden Mean (0.618). Again, DNA's cross section is based on Phi. The ratio of the diagonal of a pentagon to its side is Phi-to-one. Thus, 'no matter which way you look at it, even in its smallest element, DNA, and life, is constructed using phi and the golden section!' (The Phi Nest, 2004)"

Sound, Vibration and Form

For more than 200 years, researchers have been validating the connections of Sound and Vibrations on physical form. The first known to make that connection was German scientist Ernst Chladni, who, in 1787, detailed his research in his book "Discoveries Concerning the Theory of Music." In that pioneering work, he explained ways to make sound waves generate visible structures. He detailed how a violin bow, drawn at a right angle across a flat plate covered with sand, produces patterns and shapes. The simple act of speaking a word would actually create shifting of the sand into specific patterns. Today, those patterns and shapes are called Chladni figures. These shapes have been recently created by Dr. Hans Jenny by placing various suitable substances on a steel plate with a crystal sound oscillator attached to the bottom. The Oscillator creates a pulse, which vibrates the steel plate. The forms on the plate are examples of sound organizing matter. Jenny also "noticed that when the vowels of ancient languages like Hebrew and Sanskrit were pronounced, the sand took the shape of the written symbols for those vowels. Modern languages, including English, failed to generate those patterns." Creation is the result of the Creator speaking the Word, according to the Bible. Even today words are nothing but vibrations that the throat makes and the ear of the hearer translates into understandable language. Is there so much power in words that they can literally transform matter?

In 1815, Mathematician Nathaniel Bowditch followed up on Chaldi's discoveries. He concluded that the conditions for these designs to arise were because the frequencies, or oscillations per second, were in whole number ratios to each other—such as 1:1, 1:2, 1:3 and so on. The study of wave phenomena, the ability of sound to organize and repattern matter, is called Cymatics. According to John Beaulieu, in *Music and Sound in the Healing Arts*, "Form is the more elusive component of sound. Sound-forms can be seen by subjecting mediums such as sand, water, or clay to a continuous sound vibration." There are examples of cymatic elements everywhere—"vibrations, oscillations, pulses, wave motions, pendulum motions, rhythmic courses of events, serial sequences, and their effects and actions"—and they effected everything including biological evolution. The evidence convincingly demonstrated that all natural phenomena were ultimately dependent on, if not entirely determined by the frequencies of vibration. He argued that physical healing could be aided or hindered by tones. Different frequencies influenced genes, cells, and various structures in the body, he claimed.

Vibration of Music of the Spheres: "Every cell pulsates, reflects and interacts with acoustic oscillations of the medium. Even the earth and sun vibrate in unison based on a main rhythm of 160 minutes. Each musical note is therefore united to non-audible notes of higher octaves, and each symphony to other symphonies that we do not hear, and although they make our cells oscillate and possibly resonate. Even DNA has it's own melody. The musical nature of nuclear matter from atoms to galaxies is now recognized by official science." In *Molecules of Emotion*, by Candice Pert, Ph.D., she writes, "… basically, receptors function as scanners (sensing molecules, on a cellular level). They cluster in cellular membranes, waiting for the right ligand (much smaller molecules than

receptors), to come dancing along (diffusing) through the fluid surrounding each cell, and mount them – binding with them and (tickling) them to turn them on and get them motivated to vibrate a message into the cell. Binding of the ligand to the receptor is likened to two voices, striking the same note and producing a vibration that rings a doorbell to open the doorway to the cell."

In the extended electromagnetic spectrum high-energy, fast-vibrating cosmic rays emerge from the darkness, followed by gamma rays, X-rays, and so on through the spectrum to the slow-vibrating radio waves. Beyond these, the energy loses its electromagnetic qualities and emanates as sound. Eventually, the energy vibrates at the level of molecules and atoms – the realm of matter and form. The emergence from darkness of light, sound, and form can be plotted on the extended spectrum. Their positions are given by the proportions of the "golden mean." Poet Cathie Guzetta summarized this science best when she wrote: "The forms of snowflakes and faces of flowers may take on their shape because they are responding to some sound in nature. Likewise, it is possible that crystals, plants, and human beings may be, in some way, music that has taken on visible form."

Mathematically, any wave shape can be derived from an Infinite Series of simple sine waves. Typically, an approximation is accomplished by using only the larger terms of the series, but even in the case of a "square wave", a finite number of sine waves can provide a close mathematical approximation. It follows by extrapolation, according to Tenan, that an infinitely loud, short, sharp pulse (an "Om", which might be compared to a musical or mathematical singularity) would produce the harmonic spectrum of all tones.

To add a bit of scientific credibility to all of this, we might note also that quantum physics -- the state-of-the-art version -- is now fully supportive of Sacred Mathematics. Lothar Schäfer, for example, in discussing the concept of Causality, has noted that, "Epistemic principles are transcendental because they are neither derived by a process of reasoning, nor my operations performed on physical reality. They are, simply, principles of the human mind. Thus, identity, object permanence, causality, external reality -- all the requisites for a reasonable and enlightened life, albeit uncertain to experience and reason -- are valid because they are transcendental principles provided by the human mind. By producing these principles, it is as though the mind remembered a higher order than can be found in the laws of logic or the visible patterns of physical reality. Thus, it is a valid question whether evidence can be found from physical science of this transcendent part of physical reality, where such a higher order might have its roots."

More specifically, quantum waves are a third type of wave (in addition to matter waves and electromagnetic waves -- sound and light and so forth). These waves are not only non-material -- i.e., needing no material medium in which to propagate -- but they are empty. "Light waves can travel in empty space, but they carry energy. Quantum waves also exist in empty space, but carry no energy or any other mechanical quantity." In other words, quantum waves are simply numbers, numerical relationships. "Because they are empty, evidence of their existence is circumstantial; we must think that the universe is a network of quantum waves because the observable order appears as a manifestation of their interference." Also, "The reality of quantum waves is inferred from the expression of their interference in the observable patterns of reality."

Forms, patterns, geometries, ratios...

Sacred Geometry is the blueprint of Creation and the genesis of all form. It is an ancient science that explores and explains the energy patterns that create and unify all things and reveals the precise way that the energy of Creation organizes itself. On every scale, every natural pattern of growth or movement conforms inevitably to one or more geometric shapes.

As you enter the world of Sacred Geometry you begin to see as never before the wonderfully patterned beauty of Creation. The molecules of our DNA, the cornea of our eye, snow flakes, pine cones, flower petals, diamond crystals, the branching of trees, a nautilus shell, the star we spin around, the galaxy we spiral within, the air we breathe, and all life forms as we know them emerge out of timeless geometric codes. Viewing and contemplating these codes allow us to gaze directly at the lines on the face of deep wisdom and offers up a glimpse into the inner workings of the Creator and the Universe itself.

The ancients believed that the experience of Sacred Geometry was essential to the education of the soul. They knew that these patterns and codes were symbolic of our own inner realm and the subtle structure of awareness. To them the "sacred" had particular significance involving consciousness and the profound mystery of awareness ….. the ultimate sacred wonder. Sacred Geometry takes on another whole level of significance when grounded in the experience of self-awareness.

As far back as Greek Mystery schools 2500 years ago, we as a species were taught that there are five perfect 3-dimensional forms - The tetrahedron, hexahedron, octahedron, dodecahedron, and icosahedron. Collectively these are known as The Platonic Solids -- and are the foundation of everything in the physical world. Modern scholars ridiculed this idea until the 1980's, when Professor Robert Moon at the University of Chicago demonstrated that the entire Periodic Table of Elements -- literally everything in the physical world -- is based on these same five forms! In fact, throughout modern Physics, Chemistry, and Biology, the sacred geometric patterns of creation are being rediscovered, but often without the greater context of spiritual understanding which protects against their misuse.

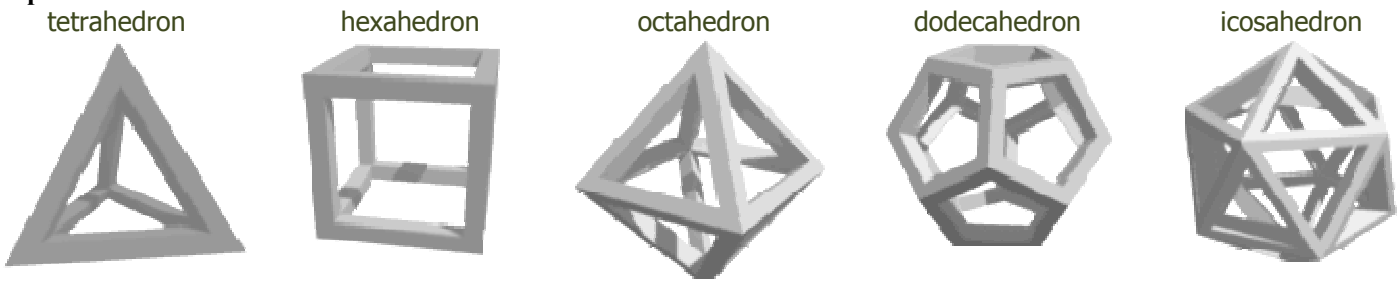
Geometric shapes actually represent the manifest stages of "becoming". To see and work with unity and wholeness in geometry can help abolish our false notion of separateness from nature and from each other. Through Sacred Geometry we can discover the inherent proportion, balance and harmony that exists in any situation, all manifest reality and even the circumstances of our day-to-day life.

It was Marcel Proust who said, " The real voyage of discovery consists not in seeking new lands but seeing with new eyes."

What an electron does is based on probabilities, which are in turn dimensionless numbers. "Probability waves are empty in that they carry no energy or mass. Numerical relations are their exclusive contents." "At the foundation of reality, we find numerical relations -- non-material principles -- on which the order of the universe is based." But it doesn't end there. Quantum "stuff" is basically "mind-stuff" -- see Wave-Particle Duality and/or Quantum Knowing. "The mind-like properties of the background of reality are also suggested by the fact that its order is determined by principles of symmetry [aka geometry], abstract mathematical patterns, to which the constituents of the material world have to conform."

Schäfer also references Werner Heisenberg -- one of the most known world class physicist (for whom the Heisenberg Uncertainty Principle is named). "The elementary particles in Plato's Timaeus are not substance but mathematical forms. 'All things are numbers' is a sentence attributed to Pythagoras. The only mathematical forms available at that time were such geometric forms as the regular solids or the triangles which form their surface. In modern quantum theory there can be no doubt that the elementary particles will finally also be mathematical forms, but of a much more complicated nature."

Shapes of the Platonic Solids



In sum: "In the quantum phenomena, we have discovered that reality is different from what we thought it was. Visible order and permanence are based on chaos and transitory entities. Mental principles -- numerical relations, mathematical forms, principles of symmetry -- are the foundations of order in the universe, whose mind-like properties are further established by the fact that changes in information can act, without any direct physical intervention, as causal agents in observable changes in quantum states."

"Space is not empty. It is full, a plenum as opposed to a vacuum, and is the ground for the existence of everything, including ourselves. The universe is not separate from this cosmic sea of energy." David Bohm