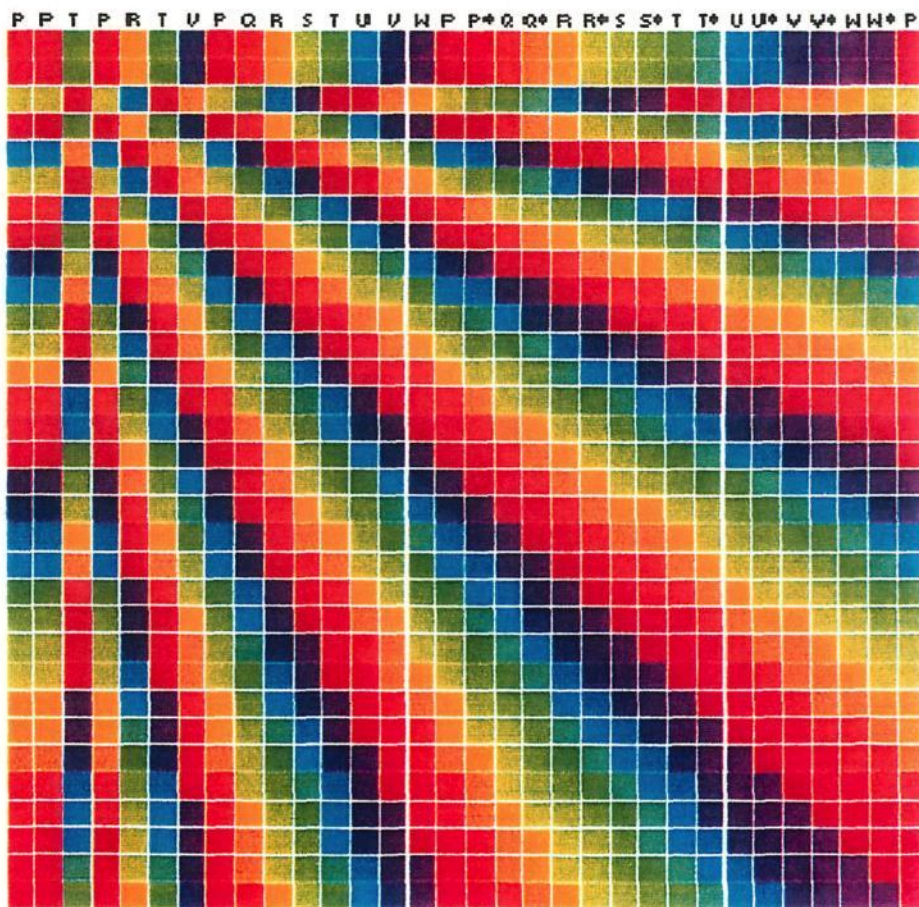


THE LAMBDOMA, RESONANT, HARMONIC SCALE (P, Q, R, S, T, U, V, and W)



Barbara Hero

THE LAMBDOMA, RESONANT, HARMONIC SCALE
(P, Q, R, S, T, U, V and W)

Other books by Barbara Hero:

Eyes + Ears = Ideas

Lambda Unveiled (*The Theory of Relationships*)

Music Graphs

The Glass Bead and Knot Theory of Relationships

The Sub-Conscious Speaks; with Lambdomas

**THE LAMBDOMA,
RESONANT, HARMONIC SCALE
(P, Q, R, S, T, U, V and W)**

BARBARA HERO

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DEDICATION

*To Lucille, Alfred, III, BAH, Michelle, David
and to all neo-pythagoreans.*



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CONTENTS

Acknowledgements	vii
Contents	ix
Introduction	1
Foreword	2
The Method of Discovering the Lambdoma	3
How I Discovered the Lambdoma	11
Channeled Advice on the Sounds of the Lambdoma	14
Ideas on the Lambdoma from Hans Kayser's "Akroasis"	23
The Lambdoma, Resonant, Harmonic Scale (P, Q, R, S, T, U, V and W)	28
Frequency Buckets for the Overtone Series	
Frequency Buckets for the Undertone Series	
A Comparison of the $^{12}\sqrt{2}$ Scale with Lambdoma	
Lambdoma Scale, 1 Octave	34
A New Frequency Scale P Q R S T U V W	36
Bucket Boundaries	39
Visible Harmony	43
Meditation and Manifesting	45
Manifesting Understanding of Harmonic Vibrations	47
Manifestations	49
Acquiring Land for a Light Center	
The Lambdoma Harmonic Keyboard	
Shapes of Intervals	
Lambdoma weavings	
Lambdoma Chakra Meditation Necklaces	
Drawings and Music Based on the Lambdoma	
Creating Musical Intervals Based on the Lambdoma	

Channeling, May, 1981	53
The Energy of Sound and the Matrix	
Ratios of Heart Beats and Auras	
On Color and Sound	
On Light, Ratios and Echoes	
The Energy of Sound, numbers and magnetism	
Key Number of Entity and Healing Tonality in Register	
Tonality Ranges	
Holography and Color into Sound	
Increasing the Quality of Our Lives	58
Five Life Needs	
Conditions for Quality	
Life Needs	
Conditions for Quality	
Inspiring Chakra Harmony (12)	64
Harmonics	
Color-Coding a Musical Scale	
Color-Coding the Lambdoma Harmonic Matrix	
Translating the Lambdoma into Audible Sound	
The Relationship Between Chakras, Colors and Musical	
Notes	
The Descending Sub-Harmonic Undertones	
Receiving and Transmitting Colors, Notes and Chakras	
Harmonic Sounds Energize Our Bodies	
Relationship of the Lambdoma to the Chakras	
Effects of the Lambdoma Chakra Meditation Tape	
Applications of Other Lambdoma Cassettes	
The Lambdoma Harmonic Keyboard and its Effects to	
Date	
Interdisciplinary Research	
How I Came to Devise the Lambdoma Harmonic Keyboard	69
Chronological History of Lambdoma Project	
Description of Lambdoma Harmonic Keyboard	76
What is the Lambdoma Harmonic Keyboard?	

What the Lambdoma Harmonic Keyboard Does	
How the Lambdoma Harmonic Keyboard Outputs Tone-Intervals to a Sound System.	
The Effects of the Lambdoma Keyboard	78
Introduction	
Comments by Those Who have Used the Keyboard	
Comments and Questions from the Audience	
Effects of the Cassette "Sounds from the Lambdoma Keyboard"	82
Therapeutic Uses of Lambdoma Applications Past and Present	84
Attunement with Self and with Others	88
Some Emotional Qualities of the Greek Musical Modes and	90
Their Translation into Room Lengths	
Ratios Inherent in the Greek Modes	
Frequency Dimension Chart	92
The Theory Within the Lambdoma Wall Tile	94
Forming Matter	96
<i>The Nature of Electricity as Transmitted to Alice Bailey</i>	
A New Physics	101
Channeling	103
Sound and the Future	
Buildings and Healing	
Gravity and Healing	
Intervals and Healing	
Matter, Color and Vibration	
The Number Four and DNA	109
Interval Chords Used in the Recording "Music of Our Organs"	111
Orbits and Spins of Planets	112
Key Ideas to be Further Developed	114
The Science of Vibration	
Whole-Number Ratios	
Table of Ratios Defines the Pattern of Resonance Between	
Sound and Matter	
Musical Scales that Heal	
The Law of Harmonics	

Sounding the Resonant Frequency of an Organ	
Correspondence Between Sound and Color	
Qualities of Intervals	
Restructuring with Sound with the Lambdoma Keyboard	
Other Uses of the Lambdoma Keyboard	
A Unified Field Theory Would Become Manifest Through the Proper Use and Understanding of Harmonics and Sub- Harmonics	
Published Comments on the Sound Structures Based on the Lambdoma	118
Geometry of Sound	
The "Science" of the Inspiration of Wellness	124
The Science of the Inspiration of Wellness	
How Individuals Become Ill	
How Individuals Become Well	
Quimby's Method (Program) for Inspiring Wellness	
How to be a Successful Wellness Inspirer for Individuals Sentenced to Illness	
What to Do During Your Inspiration of Wellness Training	
Eight Wellness Steps	
Wellness Songs, Jingles and Poems	
How You can Bring Wellness to Additional Thousands of Individuals	
References	
A Brief History of the Lambdoma	133
The Lambdoma Harmonic Matrix Keyboard	
The Pythagorean Lambdoma Matrix (<i>A New Look at the Cantor Array</i>)	147

INTRODUCTION

P, Q, R, S, T, U, V & W LAMBDOMA

P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P
P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P
T	T	P	T	V	P	R	T	U	V	W	P	Q	R	S	T
P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P
V	V	R	V	P	R	T	V	W	P	Q	R	S	T	U	V
T	T	P	T	V	P	R	T	U	V	W	P	Q	R	S	T
R	R	V	R	T	V	P	R	S	T	U	V	W	P	Q	R
P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P
W	W	S	W	Q	S	U	W	P	Q	R	S	T	U	V	W
V	V	R	V	P	R	T	V	W	P	Q	R	S	T	U	V
U	U	Q	U	W	Q	S	U	V	W	P	Q	R	S	T	U
T	T	P	T	V	P	R	T	U	V	W	P	Q	R	S	T
S	S	W	S	U	W	Q	S	T	U	V	W	P	Q	R	S
R	R	V	R	T	V	P	R	S	T	U	V	W	P	Q	R
Q	Q	U	Q	S	U	P	Q	R	S	T	U	V	W	P	Q
P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P

This book describes why the differences between the tempered scales and the resonant Lambdoma harmonic scales P, Q, R, S, T, U, V & W lead to new/old ways of realizing the powerful impact of the Lambdoma scale to unlock positive emotions. The sections include: The Resonant Harmonic Scale; Visible Harmony; Forming Matter; Manifesting; Increase in the Quality of Our Lives by: Survival, Love and Belonging, Power, Freedom, and Fun. The conditions for quality in our lives become: Building trust and revealing ourselves and our values; Speaking and listening; Reading; Writing; Numbers; Life skills and Sharing self evaluation and how this can happen through following the laws of the Lambdoma.

FOREWORD

*This channeling advice was given to me on Sept. 5, 1982.
I believe it will help all of you who read this book.*

"Use the information which is given to you wisely. You will be given other information in bits and pieces from different sources. You must use the soul level of contemplation and you will see the pieces fitting together. Follow your intuition first and foremost. The intellect you can use afterwards to verify what you have intuited.

When you read, take notes on the pages, then go back and reconstruct all the notes, sort them and put them in order, and your paper or book is finished. Do this with all your tasks. You will find that all will fit together better than if you planned it.

Remember you say to your audiences 'Throw away your minds, and pretend that you are in kindergarten in Atlantis.' You are going to have to do that as well."

THE METHOD OF DISCOVERING THE LAMBDOMA

As a child I was always delighted by music. When I was three I would go to bed and my Godfather would be playing classical sonatas, as well as his own compositions on our grand piano. My mother had met him when they attended the same art classes. I studied piano with his mother who was a piano teacher. I remember playing the simple scores and looking at the pictures of each composer on each page of music. I studied piano until the age of 12.

My mother was a fine artist, and she would give me paints and paper while she worked on larger pieces. We did frescos by brushing paint into wet cement. Later, when I was about 9, she let me try gold leaf, as she was working on religious icons, at the time. In my formative years I was fascinated by trying to find a link between music and art, audio and visual.

Then, in college, I was told that I could not study music because I had not played since the age of 12. Art became my major. Years passed, painting, marriage, children and at 35 I decided to restudy music. Piano, composition, music theory, and painting every day became my routine.

One sunday morning I saw an article in the music section of the New York Times. Here was an illustration of a graphic music score by the British composer Cornelius Cardew. This score looked so much like my paintings called "White River Series" that I cut it out and saved it. Seeing this score was the inspiration to make a whole series of paintings called "Music Graphs". This series became

another chain in my urge to find a link between music and art. The "White River Series" was featured in the "Forum" section of the Christian Science Monitor. Later the illustration was used in a textbook on "Geometry" illustrating a chapter called "Transformations".

It happened that I had the opportunity to meet Cornelius in London, several years later. He lived on the outskirts of London. The road past his house ended in an open meadow where you could see green grass and sloping hills. He greeted me at the door, and after we talked some I opened my small portfolio of "Glimpses of the Bridges of Art". He remarked, "Yes, they do resemble my scores. But why have you traveled so far to meet me?" I said nothing, for the purpose of my journey was a way of clearing my head. It was only by accident that I had met someone in the London music world who knew of him and gave me his phone number.

Upon returning to Boston, I again applied myself diligently to find the link between art and music. It was in the early seventies when in one of my daily sorties to the Boston Public Library I reached out my arm and discovered the book "Tone: A Study of Musical Acoustics" by Levaire and E. Levy. Here was the link! It was this book which led me to the Lambdoma. Intuitively I was greatly moved and somehow I remembered this strange looking diagram filled with numbers and musical notes under each number. I had been reading Manley P. Hall's classic reference book, "The Secret Teachings of All Ages", where Pythagoras' color-coding of the seven intervals of our musical scale was described. A "vocal wellness" colleague, Stephen Camp, also found the Lambdoma Matrix in the same book by Levaire and Levy and is basing his vocal wellness, sound resonances upon the Lambdoma.

Because of my training as a visual artist, it was natural for me to color each of the musical entries in the Lambdoma matrix according to Pythagoras' color system. Pythagoras

dealt with the relationships of musical intervals by number or ratios. Because I realized the need to understand the mathematics of these numbers which represented actual notes, I enrolled in a summer course called "Art, Math and Music". This course was given by the Mathematics Education department of Boston University.

Our professor told us, "You are going to be teaching this class." Our class included one high school physics teacher, one music teacher, one who was going to teach in elementary school, a few others and me. My first article entitled "Paintings Based on Relative Pitch in Music" had already been published in "Leonardo", the journal that specializes in the links between art, science and technology. The course was like learning everything from elementary school to college level mathematics. The thing I remember most was the Fibonacci series. Because of that taste of mathematics I applied for a Master's Degree in Math Education, and was accepted by Boston University. Then the real work began. For four years I studied 3 semesters of Calculus, Linear Algebra, Numerical Analysis, and Computer Science. In one classroom of Abstract Algebra, I happened to hear a student ask the professor to explain a certain array in one of our text books. The professor said, "Don't bother with that, the axioms involved have not yet been fully explained." What caught my eye was that this array was exactly the same as the Lambdoma matrix without the corresponding musical intervals included. It was called the Cantor Array.

Georg Cantor ¹ (1845-1918) has been one of the mathematicians whose work on set theory was controversial in his lifetime. But now, his work marks the emergence of a new mathematical theory that has profoundly influenced many mathematicians. He is one of the mathematicians who considered himself a "metaphysical" mathematician. The only other "metaphysical" mathematician with whom I am familiar was Iamblichus (200AD) who was the first to bring the Lambdoma to the surface.

Cantor came from a family of violinists and played the violin. Much of his work was destroyed in Germany. It is hard to believe that with such a musical background he was not aware of the harmonic link to his (Cantor) Array and Iamblichus' Lambdoma Matrix.

It is my belief that when this correspondence of musical interval to ratios representing Cantor's "transfinite set" is known, the face of mathematics will be changed in ways of much benefit to humankind.

Because the Lambdoma matrix involves the concept of the infinitely large, as well as the infinitely small it is able to describe many laws of the creation of our visible universe. Not only is the matrix of significance in philosophical contemplation as it was in Ancient Greece, but it is also an application of mathematical theories in sound.

The Lambdoma Keyboard (Figure 1) is a Cantor Array which functions in a way that you can hear audibly.

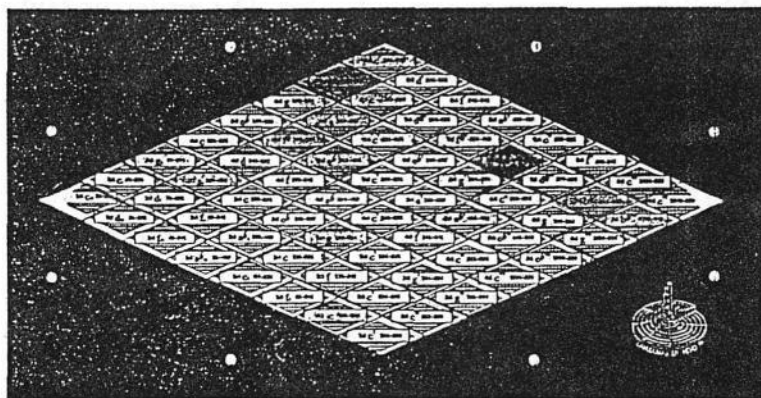


Figure 1.

It is my hope that this keyboard will make you aware of the nature of the relationships of musical intervals on physical, mental, emotional and metaphysical levels. The effect of harmonic sounds is relatively an unexplored territory. This is true because we have not heard true harmonic intervals in our music. From the time that Bach invented the clavichord we have not experienced scales that reflect natural laws of overtones and undertones. In fact the undertone scale is not even listed in most music dictionaries. The undertones, or sub-harmonics are not considered possible in physics. This is because in our physical universe we can shorten a violin string by pressing a finger down closer to the end point, and hear higher tones. In order to hear lower tones we can not double the length of a fixed metal string, which would be the first undertone in our particular universe. However, with an electronic, Lambdoma Keyboard we can have 32 undertones as well as 32 overtones, minus the 8 unison constants. Because we must consider intervals in experiencing the power of sound, a constant tone or drone is sounded along with other frequencies in the matrix. We have discovered that Lissijous patterns formed from sound can only be constructed through two sounds vibrating simultaneously. That is the reason for a constant sound which is the fundamental note of the matrix.

This fundamental note is of extreme importance. This note can be any audible frequency (of any number of cycles per second) in an audible range. The audible range is from about 20 cycles per second to about 20,000 cycles per second. Because of the nature of music any frequency or period or cycle in any phenomenon can be raised or lowered to its equivalent in an audible octave. This is done by the simple method of doubling (octave expansion) or halving (octave reduction) the frequency. This means that you can take any set of dimensions or limits from a phenomenon such as cells, or planets for example and translate these dimensions into an audible sound by octave expansion or reduction. For instance blood cells have an average

dimension of 3 to 20 microns. We then can find what 1 micron is in relationship to a frequency in music. We apply the speed of sound in blood or sea water and apply the formula:

$$\text{Frequency} = \text{Velocity/Wavelength}$$

We enter the average dimension for a given cell as the fundamental frequency, and then play all the harmonics and sub-harmonics. We can do this by noting the shapes on the keys which reflect the harmonic ratios and which will always be in the same relationship no matter which specific frequency is chosen as the fundamental. It is possible that for use in psychotronics for example, dissonance might be better as a therapeutic frequency. Therefore we would chose one of the keys which has a square image of a waveform. Some researchers have found that dissonance sometimes seems to break up a condition if that seems warranted.

If a laser/scanner system is used in conjunction with the keyboard we can see the shapes (Lissijous patterns) of each interval as the keys are played along with the fundamental or constant.

The keyboard has a potential use as a therapeutic musical instrument. The Lambdoma keyboard can be used to re-acquaint us with sounds such as Pythagoras may have used to tame violent behavior. Already sounds such as these have been used in drug rehabilitation centers by myself with calming results. These sounds were not produced by the keyboard but by computer generated frequencies, from my software programs.

The beauty of the shapes is an indication of the harmonious relationship between two sounds. The more perfect the shapes, the more effective is the harmony. The perfect harmony calms our emotions and souls, and pleases our minds.

We feel that sounds which create shapes have more energy to influence matter. When we tone another person, the other person can be effected on a physical sensation level. The person's body acts as a speaker, and resonates to the sounds. Peter Guy Manners in England, produces a Cymatic Recorder which vibrates specific calibrated frequencies in cycles per second into the body at acupressure points. He used my recorded Lambdoma Matrix frequencies on his patients and found good results. Other results which I have witnessed from the cymatic recorder have been relief from a sinus congestion, relief from constipation. In one case a deep massage from the vibrations released tensions that had been held for a long time, even spanning past life times. If a hand held vibrator were to be attached to the Lambdoma Keyboard similar results would be likely to occur. The frequencies chosen would most likely be octave relationships, and intervals of fifths and fourths, in conjunction with their fundamental frequency. The intervals of fifths and fourths, as well as thirds, form the simplest and most beautiful Lissajous patterns.

1. *Georg Cantor His Mathematics and Philosophy of the Infinite* by Joseph Warren Dauben, Princeton University Press, New Jersey, 1990.

HOW I DISCOVERED THE LAMBDOMA

As a visual artist in the 1960's I sought to find a link between the visual and audible arts. So, I decided to restudy music. I had played the piano and composed music between the ages of five and twelve, except for the age 8-9 when I was at a boarding, catholic, convent school.

In 1961-1970 I studied piano, music theory and composition with Vicky Glaser, at the New England Conservatory of Music, Extension Division. One summer in Paris, I came across a book entitled "Semantique Musical" by Alain Danielou who used multiples of integers in graphic forms. His book became a springboard for visual musical ideas which I created in visual art. See "Eyes + Ears = Ideas". Then, in 1970, I began my own research into music theory. I lived only a few blocks from the Boston Public Library, where I discovered the book "Tone, a Study in Musical Acoustics" by Levairic and Levy, which included extensive descriptions of the Lambdoma Matrix. Then later, in the music section of the library I found two volumes on the Lambdoma by Von Thimus, written in German with many graphic representations of the harmonics of the Lambdoma Matrix. At about the same time I was reading Manley P. Hall's chapter on Pythagoras in his "Secret Teachings of All Ages". In this chapter I found that Pythagoras assigned a color to each of the seven notes in the Western musical scale. Because of my background in the visual arts, I proceeded to color-code the musical notes on the Lambdoma Matrix according to Pythagoras' system.

From that time on, I played with these concepts graphically. See my book "Eyes + Ears = Ideas".

I learned about and attended a course given by Robert Ceely at his BEEP Studio in the mid-seventies. I composed short musical compositions based on the drawings I had made using each drawing as a musical score. See my tape recording cassettes "Start Stop and Think" and "The Other Side of Art". A Moog and a Mini-Moog were the synthesizers I used at the BEEP Studio.

Then in the mid-seventies, needing to understand the mathematics of the Lambdoma, I enrolled in a summer course at Boston University entitled "Art, Math and Music". Then I applied for a Masters of Education Degree at Boston University in order to understand mathematics more thoroughly. I took courses in Elementary Mathematics, Calculus 1, 2, and 3, Linear Algebra, Numerical Analysis, and Computer Science, and after four years received my Masters of Education Degree in Mathematics. It was while taking a course in Abstract Algebra that the Cantor Array was brought to my attention. I recognized it as a Lambdoma Matrix without the coding of the musical harmonic notes. It was then that I overheard a conversation of a younger student with the Professor. It was "Don't pay too much attention to that array as it is not well understood, that the axioms we know do not hold." It was then that I knew I did not have to take any more mathematics courses, that I was free to experiment with the array, since even mathematicians did not know what it was.

While taking the Computer Science course with Professor Esch, I had the idea of using frequencies in cycles per second or Hertz instead of color-coding the entries. I asked his help in writing a computer program which would give me a matrix of frequencies based on a single

fundamental. I had been calculating by hand many matrices based upon different frequencies, and then calculating which note they would represent, by octave reduction or expansion.

I was able to print out tables of the frequencies of the Lambdoma Matrix, where a single fundamental was chosen, and the result of the program spewed out a 20 by 20 table of all the harmonics and sub-harmonics of that fundamental frequency. I usually applied a fundamental between 256 and 512 Hertz, which fall within the middle C octave range. This fundamental would then expand to four octaves above and four octaves below the fundamental with harmonically equivalent frequencies in between. The entire program encompassed a range of 400 separate, harmonic, interval pairs of tones representing the ratios of the Lambdoma Matrix.

As part of my independent studies for the Master's Degree, I made a video tape of the Lissajous shapes of some of the intervals from the Lambdoma Matrix. I used a .05 milliwatt laser with a laser/scanner device. See article "Laser Lissajous Figures and the Lambdoma Diagram" in the journal "Leonardo". I recorded intervals from a sine wave generator, and originally monitored the shapes on an oscilloscope before purchasing a laser. Paul Earls at the Advanced Visual Studies Program at the Massachusetts Institute of Technology (M.I.T.) advised me on acquiring the Laser and scanning devices.

Next, in 1981 I was accepted at a summer course at M.I.T. in "Computerized Synthesized Sound". It was there that the first Lambdoma Matrices in sound were generated by computer. Then I purchased a Sinclair computer, next an IBM PC Jr. computer, and finally an Amiga 500 computer. I still use the Amiga 500 for programming all of my most recent recordings. Robert Miller Foulkrod originally wrote

the software for me, and I am now able to modify the software programs in order to create musical compositions using harmonic frequencies based on Lambdoma harmonic ratios.

Finally, in the summer of 1994, after five years of trying to develop a harmonic matrix keyboard, the Lambdoma Harmonic Keyboard became a reality. I give thanks to Erv Wilson for the diamond design, the hardware and software genius of Richard Lord, the encouragement and software programming for the Lambdoma software programming by my colleague Robert Miller Foulkrod, and the making of the keys and housing of the Keyboard by David Bellantone.

CHANNELED ADVICE ON THE SOUNDS OF THE LAMBDOMA

*Received in Preparation Before a Lecture Given in 1981 for
the U. S. Psychotronics Association Annual Conference.*

SINE WAVES

Barbara: The sine waves generated with a sine wave generator are more pure. Why?

Source: They are purer because the sound is purer.

Barbara: My system is simpler than the one at the Massachusetts Institute of Technology (M.I.T.). Are you saying that I don't need the computer at M.I.T.?

Source: When you are an elementary system you will have simpler response.

Barbara: Does this have something to do with the pitch system in the Experimental Music Studio not being true?

Source: Yes.

Barbara: Why did you say to use sine tones earlier?

Source: They are better. You don't have to change everything. Use the simple tones or visualizations you have. You are concerned about a technicality. You have the rest of your life to perfect the technique, but it is not necessary for this lecture.

COLOR

Barbara: About colors, do I have just a few colors within a certain range?

Source: You choose the colors. Keep the lecture simple. You are not dealing with M.I.T. minds. Don't change anything. Simplify. Make it direct and powerful. You are there to heal not impress with technical knowledge. This is a very different world than M.I.T.

KEYNOTE AND COLOR

Barbara: Does each individual have a key note?

Source: Yes.

Barbara: How can you tell if you find the keynote that you won't damage the person?

Source: You won't damage the person because all perceptible sound can grate the mind and body balance, so the body is used to having unpleasant balances.

Barbara: Is the keynote in the scale different for each person?

Source: It is usually in the higher octaves.

Barbara: Organizing the sounds is different from what I have already done?

Source: Yes, the sounds have to fit the color.

Barbara: Is my color correspondence correct?

Source: Almost, as you go higher you get cooler, lower

get warmer. Start from black to white. Graduate each color, deep purple to red, etc. It is very simple.

MATRICES OR SINE TONES

Barbara: Should I use sine tones or matrices?

Source: Use sine tones.

Barbara: Should I play matrices?

Source: The matrices are dealing with polarities. The sine tones are dealing with the individual's physical balance with the Source. The polarities are beyond the individual's entity. The matrix is valid as a totality. But not necessarily meant for healing. The reality of the matrix is very important. But the human body is limited within its range to the signposts. Signposts are representative of our human condition. When you play the matrix you are only able to hear a small part. It is not important for the lecture to play it. What is important is sine tones and color. They are enough. The spectrum of life is like the spectrum of sound. Put them in ascending order. Blue is the highest color.

ON PSYCHOTRONICS

Barbara: What is psychotronics all about?

Source: It concerns measurement of spiritual depth and sonar energy (*invisible and cannot be measured*). Any group dealing with cosmic consciousness is good. You will know from your own psychic awareness when a group is good or bad.

ON A NEW FORM OF TELEVISION

Barbara: What are some of the ways Lambdoma theory may be used?

Source: Ideas from the study of the Lambdoma are instrumental in developing a new form of television. Television as we know it will be extinct. Solar rays affecting the earth's surface can be channeled to disperse television signals. Television signals can go right through the earth onto the other side of the planet. The formula is reduce the speed of light down to sound.

(Note: the average speed of light is approximately 186000 miles per second. This reduces to 308 cycles per second, a D[#]/E^b musical note. An undertone matrix of this frequency as a fundamental would bring the speed of light down to sound theoretically.)

Barbara: What is the range of frequencies in the solar rays?

Source: The wavelengths are 1/1000 of an inch.

ABOUT DEATH

Barbara: Will you answer some questions about death?

Source: Death is going through an initiation. Then according to the soul's development they are assigned different tasks.

Barbara: Do they go to the planets?

Source: No.

ABOUT MELCHIZEDIC

Barbara: Who was Melchizedic?

Source: He was a Zen Master. He represents a foundation of energy consciousness way beyond Christ or any of the great masters. He deals with evolutionary problems. We are going to evolve so that we don't have to deal with emotional problems. But emotions control the mind. Christ was put on earth to deal with human emotions.

ON HOLOGRAPHY

Barbara: What can you tell me about holography and the Lambdoma?

Source: Holography is the key to 3-D TV. TV will be 3-D and the signals will go right through the planet by use of solar rays. Solar rays are color. Sound rays are of earth. There is no sound outside of the atmosphere. The sound is what is transmuted by solar rays.

Barbara: Is it beyond the present light spectrum?

Source: No.

Barbara: Light doesn't go through matter, how can it go through earth?

Source: Energy from the solar rays carries sound, just as the energy that you see and hear does go through the earth. Thought energy waves are not part of the solar light spectrum. They are another dimension. The dimension that you are working with is physical. What you experience seeing and hearing is bio-kinetic thought patterns originating in reality. They are all around you, but the present evolution of the human body can't pick them up, except for a few people unfolding their energy sensitive membrane.

(Note: This is located at the medula at the base of the brain. It's frequency is 416 cycles per second in the middle C octave, its color aqua, and it's musical note is A^b. We call it the "Psychic Center" and it represents an eighth chakra.)

Eventually an evolution of the body will be brought about as E.S.M. unfolds in the human race as a whole. The body will go way beyond the five senses and pick up thought waves, and the body will change radically. The necessities it now has to have will not be. Food, warmth all the things you need now will change. As the body becomes more spiritual, and unfolds the membrane less and less vulnerability will be there. The whole point of materialization will become extinct. There will be no life and death cycle. We will become spirits. The spirits will become one. There will be no need for earthbound lives. Evolution never stops until spirits are one with the source. The source is something we do not know but feel. It is God, but we have a long way to go before we know what it is. In terms of time it will be millions of light years before spirits and creatures beyond spirit will be God.

ABOUT CHANNELED INFORMATION

Barbara: What can you tell me about channeled information?

Source: All information comes from the "us" (the "other side"). There is no information in the five-sense world. Everything is interpreted from "us", but most people don't know that. The brain is fed directly from the fourth dimension. The books are written by us through mediums whether conscious or unconscious. Everything that a person writes is dictated from us.

ABOUT HARMONICS

Barbara: Why do so many people become so stimulated around 2 AM?

Source: It is the acceleration of energies that your bodies have to compensate.

Barbara: Why is the energy accelerating and what does it mean exactly?

Source: You are going to a higher vibration level because your planet is going faster around the galaxy as it gets closer to the center. There are many different frequencies or bands that are constantly bombarding your planet. Everything on the planet must adjust and keep up with this energy or vibration in order to hold a physical form.

Barbara: And why at 2 AM?

Source: You are only more aware of the effects of this flux when most are asleep. Then you have a clearer channel in order to communicate as you are doing by this question and answer pattern.

Barbara: Who or what gives me the answers?

Source: It is what you call "Inner Self", "Higher Self" and "Source".

Barbara: Can you tell me how sound in water can change matter?

Source: The properties of water have not been tapped. Water is composed of trapped gases and is a viscous material. The trapped gases form a vacuum so that sound creates a sparkling of light in that medium.

Barbara: What particular frequencies are best for changing matter?

Source: The frequencies between F and G which have a screeching quality of sound, a "wolf tone", a feedback tone, a "tri-tone".

Barbara: What range are these frequencies in?

Source: Very high.

Barbara: What is the difference between the high and the low frequencies?

Source: 20 cycles per second - 20,000 cycles per second. The 20,000 cycles per second is able to change matter from loosely packed to densely packed.

Barbara: 30 cycles per second and 30 feet can eliminate the illusion of time/space, isn't that so?

Source: 30 cycles per second, 60 cycles per second, 120 cycles per second, 240 cycles per second, 480 cycles per second all can be the 15th harmonic. These are the harmonics the ancients used to translate or ascend.

Barbara: What does the 13th harmonic do?

Source: The 13th harmonic relates to psychic ability, as you know. It can put you in an altered state. Also, it is a frequency which helps bone growth if it is in the correct pitch. The pitch can vary from the wavelength of sound in the smallest to the largest bone structure in our bodies.

Barbara: What is the 11th harmonic related to?

Source: The 11th harmonic is the destroyer of matter, and is the harmonic which can change a person's attitude from violence to calmness, for example.

Barbara: What is the 9th harmonic related to?

Source: The 9th harmonic is a symbol of growth and renewal. It relates to the future as well as the past in its sub-harmonic. It symbolizes a new beginning, as well as a desire to return home.

Barbara: What is the 7th harmonic related to?

Source: The 7th harmonic is a preparation for a closing, a cadence in music that wants to go back to the octave or home. Its inverse is the sub-harmonic which has the attributes of the 9th harmonic a surging to a new beginning.

Barbara: The 5th harmonic has what attributes?

Source: The 5th harmonic represents all the muscles and soft tissues and organs in our bodies including our brain. it is a toning function. It stimulates appetite and elimination both. Its reciprocal has the attributes of the 13th and 15th harmonics the psychic and the spiritual. It is a representation of the Fibonacci series, the Golden Section, and Sacred Geometry.

Barbara: What is the 3th harmonic?

Source: The 3th harmonic is related to communication of the species. It is also related in its reciprocal to compassion or unconditional love.

Barbara: What of the 1st, 2nd, 4th, 8th and 16th harmonics?

Source: They all represent the Godhead, the Source, the Beginning Word. They form the octave frameworks in any scale, and are integral to all harmonics.

IDEAS ON THE LAMBDOMA FROM HANS KAYSER'S "AKROASIS."

Hans Kayser wrote "Akroasis" in 1964. It was translated from the original German by Robert Lilienfeld.

The following excerpts were derived from a re-reading in order to present the all encompassing aspects of the Laws of Harmonics, as seen from the Lambdoma diagram.

The theory of harmonics points to harmonious thinking and living. Harmonics means the harmony of the spheres, a combination of the Spiritual and the scientific.

PYTHAGORAS

The "Lambdoma" is Pythagoras' basic esoteric diagram, which gives an understanding of minerals and plants, their proportions and the rhythms of their growth.

The "Lambdoma" gives one the experience of sounding number, matter, soul, and spirit.

The Pythagorean approach is:

- 1) The derivation of quality (tonal) sensation from quantity (number).
- 2) The evolution of quantities (numbers, and everything material) through qualities (psychic sensation of numbers as tones).

- 3) Tone and number are of equal value.
- 4) Tone (quality) is understood concretely as the capacity for psychic experience.
- 5) Number is first understood concretely then as a symbol for the rational, measurable, and materially graspable side of the world.
- 6) This leads to a building of a new spiritual world.

EUCLID AND OTHERS

Geometrical operations including angles, number and tone relations, circular systems and spherical systems are established. Then phonetics, and Kepler's "Harmonice Mundi" followed. With Von Thimus the Pythagorean table was reconstructed from Nicomachus' bare outline, of the Lambda shape with an interplay of reciprocal sides. Even theology assimilated the shapes of mathematical figures which revealed Pythagorean esoteric secrets.

IDEA OF HARMONICS

An historian of Harmonics need acquaintance with:

- 1) Latin, Greek and Oriental languages.
- 2) Familiarity with religion, mythology and symbolisms with ancient peoples.
- 3) Music theory.
- 4) History of Science (mathematics and astronomy).
- 5) History of Architecture (Vitruvius).

- 6) Grammar (rhythmics, art of poetry).

APPLICATIONS OF HARMONICS REQUIRE

- 1) Music Theory (monochord).
- 2) Arithmetic and Geometry.
- 3) Inner receptivity to spiritual and psychic results of Harmonic experimentation.
- 4) To interpret the meaning of tone laws with the help of our modern scientific techniques.

HANS KAYSER'S THEORIES

- 1) Relationships between optical and acoustical principles in the tone-spectra.
- 2) Harmonic aspects of geology, crystallography and plants.
- 3) Relationship between the form of the violin and the "Laws of Music."
- 4) All harmonic forms can be experienced inwardly and they can be checked for their accuracy by the psyche. "Since all harmonic number relations are proportions, and since each proportion can be represented visually, the possibility exists of a direct transposition of the auditory into the visual. This 'audition visuelle' is then the true realm of harmonic symbolism, in which the harmonic forms become spiritual."
- 5) Spiritual forms can be joy (consonance) or sorrow (dissonance).
- 6) Intervals are psychic forms.

7) The Golden Section in musical phenomena is made up of thirds and sixths (E's and A's). (* Muscles and bones, Barbara F. Hero)

ORGANIC AND SOUL FORMS OF HARMONICALLY AUDIBLE IMAGES REQUIRES:

- 1) A design of a new symbolic language of its own, freed from tone signatures and creating its own symbols and formulae.
- 2) The laws and principles of the acoustical factor regulates the forms of nature as well as of the soul.
- 3) The acoustical is the medium of expression of our soul and of our reason.

QUESTIONS TO ASK OURSELVES

- 1) How much time do you have for yourself, for your soul not for your ego?
- 2) How much time do you have to reflect on why you are in this world, and what sense your work makes (except for earning a living)?
- 3) Know that you can thrive only in a meditative state.
- 4) In the Lambdoma, the identity rays help the individual to know the path that is chosen (through color, shape, sound and chakra).
- 5) Knowing that we mirror the structure and development of the atom and the crystal. This is you!

HARMONICS IS A THEORY OF CORRESPONDENCES, RELATIONSHIPS ON ALL LEVELS. IT HAS A SCIENTIFIC PSYCHOPHYSICAL FOUNDATION BASED ON THE NATURAL LAW OF THE OVERTONE SERIES (OCTAVES, THIRDS AND FIFTHS).

There has been a common sensitivity in all epochs and peoples to these intervals, which must thus correspond to spiritual forms common to all epochs and peoples.

THE STRUCTURE OF HARMONICS IS BUILT ON THE FOLLOWING FOUNDATIONS OF THE THIRD, THE OCTAVE AND THE FIFTH OR THE LAWS OF HARMONICAL QUANTA:

- 1) The vibrating string with its divisions of half, thirds, fifths, overtones of ever narrowing intervals.
- 2) The bouncing ball, where the distance decreases.
- 3) Law of falling bodies where the distance increases.
- 4) Life impulses and cycles.
- 5) Biological initial virulence and subsequent weakening.
- 6) Historically decline of cultures.
- 7) Psychical of the world of correspondences analogies.

HARMONICS IS A THEORY OF CONSONANCES AND DISSONANCES

- 1) Wavelength is space, string length or organ pipes.
- 2) Frequencies are time, back and forth movement of a string or pendulum.
- 3) Wavelength and frequencies are reciprocal $2/3$ multiplied by $3/2$ equals one or unity.

THE LAMBDOMA, RESONANT, HARMONIC SCALE

NOTE:	P	Q	R	S	T	U	V	W
RATIO:	8:8	9:8	10:8	11:8	12:8	13:8	14:8	15:8
HARMONIC:	8 th	9 th	10 th	11 th	12 th	13 th	14 th	15 th

The musical intervals defined by the LAMBDOMA Matrix have been the focus of my research and art since 1970. I have tried to describe the dynamics of this matrix using fine art, musical compositions, computer graphics, necklaces, candles, weavings, stained glass, space frame sculpture, laser light shows, geometric configurations, and three dimensional models.

The benefits of understanding and using the Lambdoma harmonic scale are that with it we can return to the original way that music formerly had the power to heal and to reduce violence. Individual's keynotes could be sounded with the overtone harmonic intervals and the entire physical body brought into harmony with itself.

My awakened consciousness channeled that I should use a new notation for the notes of the resonant harmonic scale. This new notation of P . . . W clearly defines these new notes which are always specific interval frequencies. These frequencies are always harmonic but are seldom the same as any of the frequencies of the tempered scale developed by Bach.

I encourage the use of the letters P, Q, R, S, T, U, V & W as the musical notations of the Lambdoma scale, hoping that musicians will understand and use this different system.

For each P and Q there are limits of a range of frequencies in cycles per second (Hertz), and every sound has a specific frequency, but is a quite different frequency from the tempered scale. In fact they seem to fall in between the notes we are used to. Starting from its fundamental of 32 Hertz the order of the P, Q, R, S, T, U, V & W scale first follows an order I shall call quantum leaps until it reaches the eighth harmonic as Kay Gardner has shown in her works. It is as if one can imagine what happens in an invisible order of a rainbow, and can only see the visible rainbow beginning at the eighth harmonic of light. Specifically the order starting at P becomes P, P, T, P, R, T, V & P and then becomes P, Q, R, S, T, U, V, W & P. This is a true harmonic scale. The entire set is contained in the matrix below:

								P	Q	R	S	T	U	V	W	P
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
							A	B	C	D	E	F	G	A ^b	A	
				5		7			10				14			
P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P	
P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P	
T	T	P	T	V	P	R	T	U	V	W	P	Q	R	S	T	
P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P	
V	V	R	V	P	R	T	V	W	P	Q	R	S	T	U	V	
T	T	P	T	V	P	R	T	U	V	W	P	Q	R	S	T	
R	R	V	R	T	V	P	R	S	T	U	V	W	P	Q	R	
P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P	
W	W	S	W	Q	S	U	W	P	Q	R	S	T	U	V	W	
V	V	R	V	P	R	T	V	W	P	Q	R	S	T	U	V	
U	U	Q	U	W	Q	S	U	V	W	P	Q	R	S	T	U	
T	T	P	T	V	P	R	T	U	V	W	P	Q	R	S	T	
S	S	W	S	U	W	Q	S	T	U	V	W	P	Q	R	S	
R	R	V	R	T	V	P	R	S	T	U	V	W	P	Q	R	
Q	Q	U	Q	S	U	P	Q	R	S	T	U	V	W	P	Q	
P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P	

(In the above case sharps and flats are not noted, as it is a rough anagram of the matrix).

The above chart would be the configuration of the P, Q, R, S, T, U, V & W Lambdoma matrix if the fundamental began at P. Based upon a fundamental frequency at 256 Hertz we have the following frequency line comparison of the tempered scale to the harmonic scale.

We chose to define a sharpened or flatted tone between each of the eight major tones of the Lambdoma scale. For example we define a P# between P and Q and a Q# between Q and R etc. This gives us a sixteen tone scale from our eight major tones per octave whereas the tempered scale gave us a 12 tone scale from its seven major tones and half tones per octave. The new harmonic scale would be:

P P# Q Q# R R# S S# T T# U U# V V# W W#

In each case a fundamental can be any frequency in any scale of octaves. For, example if one were to use a Lambdoma scale in microns, one micron would be at a frequency of 355 Hertz. The matrix would have a dimension of 20 by 20 which would include all frequencies involved with blood cells for instance, since the dimensions run from roughly three microns to 20 microns. 355 Hertz would be a U in our P, Q, R, S, T, U, V & W scale, and would be our fundamental frequency for the matrix.

If we start with R as the fundamental of the Lambdoma Matrix, we have a different pattern such as the following:

								R	S	T	U	V	W	P	Q	R
								C	D	E	F	G	A ^b	A	B	C
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1/1	R	R	V	R	T	V	P	R	S	T	U	V	W	P	Q	R
1/2	R	R	V	R	T	V	P	R	S	T	U	V	W	P	Q	R
1/3	V	V	R	V	P	R	P	V	W	P	Q	R	S	T	U	V
1/4	R	R	V	R	T	V	P	R	S	T	U	V	W	P	Q	R
1/5	P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P

1/6	V	V	R	V	P	R	T	V	W	P	Q	R	S	T	U	V
1/7	T	T	P	T	V	P	R	T	U	V	W	P	Q	R	S	T
1/8	R	R	V	R	T	V	P	R	S	T	U	V	W	P	Q	R
1/9	Q	Q	U	Q	S	U	P	Q	R	S	T	U	V	W	P	Q
1/10	P	P	T	P	R	T	V	P	Q	R	S	T	U	V	W	P
1/11	W	W	S	W	Q	S	U	W	P	Q	R	S	T	U	V	W
1/12	V	V	R	V	P	R	T	V	W	P	Q	R	S	T	U	V
1/13	U	U	Q	U	P	Q	S	U	V	W	P	Q	R	S	T	U
1/14	T	T	P	T	V	P	R	T	U	V	W	P	Q	R	S	T
1/15	S	S	W	S	U	W	Q	S	T	U	V	W	P	Q	R	S
1/16	R	R	V	R	T	V	P	R	S	T	U	V	W	P	Q	R

Now we can assign frequencies in Hertz for each P, Q, R, S, T, U, V & W.

I suggest R at 256 Hertz, S at 288, T at 320, U at 352, V at 384, W at 416, P at 448, and Q at 480, as the overtone rows, brought down to the middle octave.

For the undertone column (which are divisions of the fundamental) I suggest S as the 15th sub-harmonic 273 Hz, T as the 14th at 293, U as the 13th at 315, V as the 12th at 341, W as the 11th at 372, P as the 10th at 205, and Q as the 9th at 455.

In order to find the average for every note it is important to calculate each matrix and find the upper and lower limits of each of the note-letters. The main thing to remember is that it is the frequencies of the harmonic intervals in cycles per second or Hertz which are the significant pieces if they are to be utilized.

FREQUENCY BUCKETS FOR THE OVERTONE SERIES (ADD 15, SUBTRACT 15).

P	Q	R	S	T
433-448-463	465-480-495	241-256-271	273-288-303	305-320-335

U	V	W
337-352-367	369-384-399	401-416-431

**FREQUENCY BUCKETS FOR THE UNDERTONE
SERIES (ADD 11,SUBTRACT 11).**

P	Q	R	S	T
399-410-421	444-455-466	501-512-523	262-273-284	282-293-304

U	V	W
304-315-326	330-341-352	361-372-383

Another way of dealing with the undertone buckets could be taking the average between the frequencies:

20, 22, 26, 31, 38, 43
10, 11, 13, 15, 19, 21

and subtracting and adding to find the most fitting bucket:

P	Q	R	S	T
309-410-420	444-455-466	499-512-525	258-273-288	274-293-312

U	V	W
294-315-336	-341-	-372-

Since these frequencies are so different in every matrix, we can only admire Bach for using the letters he did in order to modulate from key to key on one keyboard instrument. If the computer generated frequencies were available in his time, he would have not needed to formulate his beautiful scales. However, if we want our music to be the most effective for changing emotions from anger to calmness or to effect wellness, it would be more powerful to use the frequencies based on a principle of physics in a matrix suited to the emotions, or even the spiritual or physical which would incorporate exact interval relationships.

These resonant, harmonic matrices would be powerful

tools for the benefit of human kind, when used with the right intent to help and not to harm.

A COMPARISON OF THE TWELFTH ROOT OF TWO SCALE WITH THE LAMBDOMA SCALES

LAMBDOMA OVERTONE (2, 3, ... 16)

P	Q	R	S	T	U	V	W
256	288	320	352	384	416	448	480

$^{12}\sqrt{2}$ (440)

C	C#	D	Eb	E	F	F#	G	Ab	A	Bb	B
262	277	294	311	330	349	370	392	415	440	466	494

LAMBDOMA UNDERTONE (1/2, 1/3, ... 1/16)

P	Q	R	S	T	U	V	W
256	273	293	315	341	372	410	455

LAMBDOMA SCALE, 1 OCTAVE

P, Q, R, S, T, U, V & W is an 8 tone scale based on the Overtones (multiples) and the Undertones (divisions) of the fundamental tone of "P" of 256 cycles per second (cps).

O = Overtone Series

U = Undertone Series

8	9			10		11		12		13	14		15	16	
P	P [#]	Q	Q [#]	R ^b	R	S ^b	S	T ^b	T	T [#]	U	V	V [#]	W	P
256	273	288	292	315	320	341	352	372	384	409	416	448	455	480	512
O	U	O	U	U	O	U	O	U	O	U	O	O	U	O	O
	1/15		1/14	1/13		1/12		1/11		1/10			1/9		

Note the similarities of the notes of the Undertone Lambdoma Scale, highlighted in bold above, with the notes of the following 12th Root of Two Scale also highlighted in bold.

Twelfth Root of 2 Scale based on "A" @ 220 cps.

C	C	D	D [#]	E	F	F [#]	G	G [#]	A	A [#]	B	C
261	277	293	311	330	349	369	391	415	440	466	494	522
C	D ^b	D	E ^b	E	F	G ^b	G	A ^b	A	B ^b	B	C

Therefore, C[#] And P[#] differ by 4 cps; D and Q[#] differ by 1 cps; D[#] and R^b differ by 4 cps; F and S^b differ by 8 cps; F[#] and U differ by 3 cps; G[#] and T^b differ by 1 cps; A and V differ by 8 cps; A[#] and V[#] differ by 10 cps.

The five notes, out of the eight notes of the "C, D, E, F, G, A, B & C" Scale which are closely related to the P, Q, R, S, T, U, V, W & P Scale are enharmonic, either sharpened ([#]) or flatted (^b).

The six notes, out of the eight notes of the "P, Q, R, S, T, U, V & W" Scale, are of the Undertone Series. Does that mean that the **Undertone Series** is the one that our Western music is based upon, and if so, why?

A NEW FREQUENCY SCALE

P Q R S T U V W

Overtone Scale		Ratio	Harmonic	Ratio	Undertone Scale	
P	32 cps		Fundamental		P	4096 cps
P	256	8:8	8th	8:8	P	512
Q	288	9:8	9th	8:9	VW	456
R	320	10:8	10th	8:10	TU	410
S	352	11:8	11th	8:11	ST	372
T	384	12:8	12th	8:12	RS	342
U	416	13:8	13th	8:13	RQ	316
V	448	14:8	14th	8:14	QR	292
W	480	15:8	15th	8:15	PQ	274
P	512	16:8	16th	8:8	P	256

Overtone Scale		Ratio	Harmonic	Ratio	Undertone Scale	
Q	36 cps		Fundamental		Q	4608 cps
Q	288	8:8	8th	16:8	Q	576
R	324	9:8	9th	8:9	P	512
ST	360	10:8	10th	8:10	VW	461
TU	396	11:8	11th	8:11	U	419
UV	432	12:8	12th	8:12	T	384
VW	468	13:8	13th	8:13	S	355
WP	504	14:8	14th	8:14	RS	329
PQ	540	15:8	15th	8:15	QR	307
Q	576	16:8	16th	8:16	Q	288

Overtone Scale	Ratio	Harmonic	Ratio	Undertone Scale
R 40 cps		Fundamental		R 5120 cps
R 320	8:8	8th	8:8	R 640
ST 360	9:8	9th	8:9	Q 568
TU 400	10:8	10th	8:10	P 512
UV 440	11:8	11th	8:11	VW 465
W 480	12:8	12th	8:12	UV 427
PQ 520	13:8	13th	8:13	TU 394
Q 560	14:8	14th	8:14	ST 366
QR 600	15:8	15th	8:15	RS 341
R 640	16:8	16th	8:8	R 320

Overtone Scale	Ratio	Harmonic	Ratio	Undertone Scale
S 22 cps		Fundamental		S 5632 cps
S 176	8:8	8th	8:8	S 704
TU 198	9:8	9th	8:9	QR 626
UV 220	10:8	10th	8:10	Q 563
W 242	11:8	11th	8:11	P 512
PQ 264	12:8	12th	8:12	VW 469
Q 286	13:8	13th	8:13	UV 433
QR 308	14:8	14th	8:14	TU 402
RS 330	15:8	15th	8:15	ST 376
S 352	16:8	16th	8:8	S 352

Overtone Scale	Ratio	Harmonic	Ratio	Undertone Scale
T 24 cps		Fundamental		T 3072 cps
T 192	8:8	8th	8:8	T 384
UV 216	9:8	9th	8:9	RS 341
W 240	10:8	10th	8:10	QR 307
PQ 264	11:8	11th	8:11	PQ 279
Q 288	12:8	12th	8:12	P 256
QR 312	13:8	13th	8:13	VW 236
RS 336	14:8	14th	8:14	UV 219
ST 360	15:8	15th	8:15	TU 205
T 384	16:8	16th	8:8	S 192

Overtone Scale	Ratio	Harmonic	Ratio	Undertone Scale
U 26 cps		Fundamental		U 3328 cps
U 208	8:8	8th	8:8	U 416
VW 234	9:8	9th	8:9	ST 370
PQ 260	10:8	10th	8:10	RS 333
Q 286	11:8	11th	8:11	QR 303
QR 312	12:8	12th	8:12	PQ 277
RS 338	13:8	13th	8:13	P 256
ST 364	14:8	14th	8:14	VW 238
TU 390	15:8	15th	8:15	UV 222
U 416	16:8	16th	8:8	U 208

Overtone Scale	Ratio	Harmonic	Ratio	Undertone Scale
V 28 cps		Fundamental		V 3584 cps
V 224	8:8	8th	8:8	V 448
P 252	9:8	9th	8:9	TU 398
PQ 280	10:8	10th	8:10	ST 358
QR 308	11:8	11th	8:11	RS 326
RS 336	12:8	12th	8:12	QR 299
ST 364	13:8	13th	8:13	PQ 276
TU 392	14:8	14th	8:14	P 256
UV 420	15:8	15th	8:15	WP 239
V 448	16:8	16th	8:8	V 224

Overtone Scale	Ratio	Harmonic	Ratio	Undertone Scale
W 30cps		Fundamental		W 3840cps
W 240	8:8	8th	8:8	W 480
PQ 270	9:8	9th	8:9	UV 427
QR 300	10:8	10th	8:10	T 384
RS 330	11:8	11th	8:11	RS 349
ST 360	12:8	12th	8:12	R 320
TU 390	13:8	13th	8:13	QR 295
UV 420	14:8	14th	8:14	PQ 274
VW 450	15:8	15th	8:15	P 256
W 480	16:8	16th	8:8	W 240

BUCKET BOUNDARIES (7 January, 1995)

**P, Q, R, S, T, U, V & W
REFERENCE OCTAVE**

P = 256 Hertz

W#	
-----	252
P	
-----	264
P#	
-----	280
Q	
-----	296
Q#	
-----	312
R	
-----	328
R#	
-----	344
S	
-----	360
S#	
-----	376
T	
-----	392
T#	
-----	408
U	
-----	424
U#	
-----	440
V	
-----	456
V#	
-----	472
W	
-----	488
W#	
-----	504
P	
-----	528
P#	

**A, B, C, D, E, F & G
REFERENCE OCTAVE**

C = 256 Hertz

B
----- 248.71

C
----- 263.5

C
----- 279.17

D
----- 295.77

D[#]
----- 313.36

E
----- 331.99

F
----- 351.73

F[#]
----- 372.65

G
----- 394.81

G[#]
----- 418.28

A
----- 444.15

A[#]
----- 469.51

B
----- 497.42

C
----- 527.0

C[#]

**A, B, C, D, E, F & G
REFERENCE OCTAVE**

A = 440 Hertz

B
----- 254.18

C
----- 269.29

C#
----- 285.3

D
----- 302.27

D#
----- 320.24

E
----- 339.29

F
----- 359.46

F#
----- 380.84

G
----- 403.48

G#
----- 427.47

A
----- 452.89

A#
----- 479.82

B
----- 508.36

C
----- 538.58

C#

CHAKRA REFERENCE OCTAVE

CROWN	
-----	248
ROOT	
-----	272
POLARITY	
-----	304
SOLAR PLEXUS	
-----	336
HEART	
-----	368
THROAT	
-----	400
PSYCHIC CENTER	
-----	432
THIRD EYE	
-----	464
CROWN	
-----	496
ROOT	
-----	544
POLARITY	

VISIBLE HARMONY

THE SHAPES OF SOUND INTERVALS

An interval in music is defined as a fundamental keynote which is sounded with another note in the same harmonic scale.

When two notes which are in the same harmonic matrix are sounded together a harmonious chord is formed as well as a particular characteristic shape.

The shape of each interval has its own pattern. If one took two mirrors and attached them to two speakers, and played two notes which were in a correct relationship to one another and had the mirrors at a given angle then a characteristic identifiable pattern would be seen. However, if the two notes were not in the correct relationship with each other the shapes would be somewhat deformed from the standard and one would not see a clear and distinct pattern.

This is very like two individuals whose voices sound a harmonious chord together, and communication becomes fluid and harmonious between them. What we call musical fifths and thirds are known to be harmonious. They have ratios of 3:2 and 5:4. The shapes formed by these ratios are a fish shape and a folded hands shape. A heart shape is formed by the ratio 2:3.

Suppose we wish to form perfect shapes with our voices. We either have to have a certain fundamental generated by an instrument preferably a drone, or another person may sound a note and when the two are in perfect harmonic resonance with the same note a perfect circle will be formed. A man and a woman are usually an octave apart. When the interval of an octave is sounded it is called the second harmonic and the shape of the sound is a figure eight.

In Gregorian chants the interval was usually a fifth which means that the shape of a fish was always present. The fish represents the Piscean age and was also the symbol for the Christ figure.

Today we are in the Aquarian Age. The pitcher is the symbol of this age. One of the shapes of the 11th harmonic when paired with another harmonic in the Lambdoma keyboard has the form of a pitcher. Water is also a symbol of this age. Water is the shape of a tetrahedron. A tetrahedron is a four sided transmitting vehicle. Some channels have called two 3-D tetrahedrons fitted together a Merkabah vehicle, which also represent male and female energy depending upon the way they are directed. The shape of a tetrahedron can also be a torus or doughnut shape by using ratios based upon the known angles of the tetrahedron, and translating these angles roughly into the Lambdoma table of Angles.

The shapes of sound intervals can demonstrate on a benign scale how sound may reconstruct matter. By both hearing and seeing the harmony of near perfect intervals we can experience a feeling of well being, and attunement.

Today we are able to construct these perfect intervals by generating them electronically. As soon as our hearing is attuned to this different scale, we can intuitively create the intervals which will enable us to increase the quality of our lives.

MEDITATION AND MANIFESTING

Many "new age" individuals talk of the coming earth changes, and how to prepare for them. There is a certain element of fear and/or excitement on this subject. Some seem to think this is the time for them to "go home", while others plan to stay through the changes on the earth plane. Then there is the idea of "ascending" or translating as the "Ascended Masters" are believed to have done. All of this is about the "future", when the present moment to moment event is the actuality we must recognize and deal with. It is in the sacredness of the present moment, where everything is in its appointed place, that apparent disorder is not an issue, for whatever catches the attention is what is to be done next.

Meditation is, at best, a capturing of the present moment, a focusing of one's thoughts, a sense of the sacredness of the moment. Our perceptions come slower than a rate of $1/30^{\text{th}}$ of a second, that is the reason we can watch television and have the illusion that time is moving forward. In meditation time seems to stand still or be in slow motion, just as when observing or being in an accident, it too seems to be in slow motion.

Meditation even while engaged in any given task allows one to enjoy the beauty and harmony of one's daily life. Meditation while doing our chosen work puts us in the state where guidance is given to us from higher, more conscious realms. Meditation, even while engaged in conversation with others, has the effect of watching oneself as though one were watching a play and stepping aside and letting unconditional love for another take place in thoughts of supporting, encouraging and helping the other. This is what is called "active meditation". Active meditation allows one to honor the other, even if the person exhibits a negative frame of mind. Active meditation implies centering and

being aware of the self as a whole being, and having the ability to communicate in helpful ways to the other. Active meditation is seeing everyone as a beautiful soul, as they are in the moment. There is no past to judge them. There is only the present moment.

This is the moment when our thoughts become manifest. Thoughts during a meditative state are more likely to be manifested sooner. All thoughts become manifested at some point in time. That is why it is so important to think positive thoughts such as compassion, courage and joy for example. We all create our own realities through our thoughts, whether they are scientific inventions, artistic endeavors, musical compositions, governing bodies or law making.

MANIFESTING AN UNDERSTANDING OF HARMONIC VIBRATIONS

We can manifest our positive realities through the understanding of resonant, harmonic intervals and their particular uses! What do we mean by resonant? All matter is vibrating at different frequencies. In living beings all matter is vibrating synchronously with its own organism. This is the definition of well being. When the vibrations within us are discordant then the dissonance leads to unease. Harmony is the opposite of dissonance. Harmony of everything singing together, whether it is audible or inaudible, keeps everything functioning according to the laws of harmonic intervals. Intervals are combined frequencies which either attract or repel. In music some of the intervals which attract (harmonious) are the dominant fifth or the subdominant fourth. *(One of the "so called" repelling (dissonant) intervals is that of the augmented fourth. This is actually the 11th harmonic in a 32 cycles per second scale which is slightly below middle C (256 cycles per second rather than 261 to 264 cycles per second). In the Lambdoma keyboard this interval is not dissonant, nor are the intervals of the 2nd, 9th harmonic (288 D) or the 7th, 14th harmonic (480)).* These intervals all have fixed laws which govern their vibrations. They vibrate at fixed cycles per second in the case of audible sound, or seconds per cycle in the case of orbiting planets. Intervals also have fixed wavelengths or distances between them as in our solar system. It is from the understanding of these mathematical laws that we can consciously attune ourselves to our own bodies, physically, mentally, emotionally and spiritually.

We can attune ourselves to others and to our planet and to all of the levels of consciousness which surround us.

The chapters on channeling include clear illustrations of both the manifestation of an understanding of harmonic vibrations and how these channelings have led to the manifestation of many insights, applications and objects in our physical reality.

Some of the many uses of the knowledge of harmonic intervals are the following:

- 1) Construction of new musical instruments.
- 2) Finding the resonances of rooms by measuring their dimensions and finding their musical notes and intervals, based on the wavelengths.
- 3) Constructing harmonious objects with the correct proportions for toys, jewelry, clothing, crafts, arts, and architecture.
- 4) Composing new musical compositions using the harmonic scales.
- 5) Finding new ways of using harmonics in agriculture.
- 6) Working out nutritive substances for our bodies based upon their atomic number and translating these into frequencies in cycles per second as musical intervals.

MANIFESTATIONS

ACQUIRING LAND FOR A LIGHT CENTER

One day, I was told that a group of friends were going to try to manifest one thing each to prove our innate ability to create our own reality. They asked "Would I like to do the same?" I said "Yes, I would like to try to manifest land for a light center." Exactly nine months after that day, we found ourselves moving into a farm house which included not only all that I had envisioned but all that 20 or so others of our friends had envisioned. During the nine months we had group meetings every other week, where our friends and others came to discuss what would be their vision of a physical plant of a light center, and what would be their specific role in it. Exactly nine months later four of us moved into our vision. Quite a few of the others, from that original group, have since moved and set up their own spiritual centers.

THE LAMBDOMA HARMONIC KEYBOARD

For more than five years I had envisioned a diamond-shaped, Lambdoma, musical instrument. With it one would be able to play any sound pitch in a mathematically exact array, where every interval note would be related to every other note in the matrix as well as to a specifically chosen frequency as a drone, which I call the fundamental. I envisioned this as a therapeutic instrument for sound vibrations as well as a instrument for musicians. I had always wished to hear music which would be based on a "Music of the Spheres". The present Lambdoma Harmonic Keyboard comes as close as any I know of to that desire. The Lambdoma Harmonic keyboard prototype was finally completed in June of 1994, with the help of Richard Lord, Robert Miller Foulkrod, Richard Norley and David

Bellantone. So far it encompasses one fourth of a full Lambdoma Matrix. It has a diamond-shaped 9 by 8 matrix of 64 keys all harmonically related to whatever fundamental audible frequency is desired. It has transparent overlays which illustrate the ratio, frequency (based on 265 cycles per second), colors, lissajous shapes, ray spirals and angles all relative to each key interval. In the near future we hope to develop a four-quadrant, Lambdoma matrix keyboard, which would enable one to play a full spectrum of sounds up to or through the 16th harmonic. This full keyboard would include 256 or 289 keys and would reduce the related interval pairs of notes.

SHAPES OF INTERVALS

Since the middle seventies I have made the Lissajous shapes, of the musical intervals, available by a laser/scanner system. The shapes are generated by the intervals from cassettes recordings carefully composed of harmonically related sounds and most recently by playing the keyboard itself. Seeing the shapes of mathematically perfect intervals adds to the quality of those experiencing playing the keyboard.

LAMBDOMA WEAVINGS

Another application of the Lambdoma was to devise a pattern in woven cloth which illustrated the color sequences according to the Lambdoma matrix. The colors chosen were pastels of oranges, pinks, blues, green-blues, lavenders, yellows and greens. The warp was set up to reflect either the overtone or undertone series, and the weft as an overshoot reflected the patterns of the rays. The threads were all of cotton. Two sets were made of slightly different colors. They were exhibited at the Schlesinger Library as part of an exhibition of paintings, and Lambdoma drawings, cassettes, books, necklaces, 3-D tiles, small 3-D stained glass Platonic solids, and a stained glass model of a rhombic dodecahedron.

LAMBDOMA CHAKRA MEDITATION NECKLACES

Another idea for a further application of the Lambdoma Theory was inspired by the book *Magister Ludi, the Glass Bead Game*, by Hermann Hess. Hess described a game which was related to music and to a specific ordering of beads, that in future times, would lead to a sublime harmonic experience.

I decided to depict the ordering of the Lambdoma overtones and undertones with gem stones whose colors would reflect the musical frequencies of the eight Lambdoma scales, which in turn reflected my interpretation of the chakra system.

DRAWINGS AND MUSIC BASED ON THE LAMBDOMA

In the early 70's, after I rediscovered the Lambdoma, all my energies turned to depicting its theories both visually and musically. Visually, one could take lines and divide them according to the ratios of musical harmonies on the Lambdoma table, and color them appropriately according to the color-coding systems of Pythagoras, and Isaac Newton. Then one could make radii of such ratios, to draw circles illustrating the wavelengths of the different notes. Since octave relationships were always doublings or halvings, this was quite easy to do. With the ratios of 2:3, 3:4, 4:5 etc. it was also relatively easy to just divide the line into 3, 4 or 5 parts. Even division into 15 parts was possible. Since the Lambdoma matrix is only a 16 by 16 matrix, almost everything visually descriptive could be included in such a relatively small framework. This ratio method formed a link to both music and art through simple mathematics.

CREATING MUSICAL INTERVALS BASED ON THE LAMBDOMA

The way to create music from the matrix was to find a way to sound the ratios. Since sound is vibration in cycles per second, one had only to determine how many cycles per

second one would have to have in order to hear a sound. Since 20 cycles is roughly about the lowest one can hear, it turns out that the middle C range of the piano is about from 256 cps to 512 cps, so this becomes the reference octave. By creating one's own software computer programs one can then create the "music of the spheres", and record them to cassettes.

CHANNELED MAY FIRST, 1981

Dr. West through Stephen and Tasha Halpert

THE ENERGY OF SOUND AND THE MATRIX

"It is important for the correct matrix to be formed in order that the energies be properly amalgamated, formed and directed. In the process, the reciprocal flow between flesh and spirit is generated and thereby enhanced. 'You are relearning an ancient technique cast into technology, for in the past there was no way save via magic that certain energies could be called into being. Now electronic instruments may take the place of the magicians wands. Now the energy can be released, channeled into more important things. Learn well therefore the uses of that which you have and have access to as all will ultimately become a part of your techniques for the restructure of energies, the realignment of energies, and the redirection finally of energies for a more harmonious use and purpose'."

RATIOS OF HEART BEATS AND AURAS

"Key numbers are determined by using the ratio of the heart beat to the vibration of the aura. Given the time anyone can learn to feel their heart beat. In meditation the aura can be felt. It is like music. The left hand is the rhythm, the right is the melody. So the aura is the right hand to the heart beat left hand. Most people, if carefully taught to relax, can begin to attune themselves to their physical rhythms. 'Begin by sitting quietly, breathing regularly in and out. Use the pulse rate for your count. As you grow still within yourself, you will sense another beat. It

originates at the spine. It permeates the aura, and is felt as a subtle flutter at first. Later it will become familiar to you'."

ON COLOR AND SOUND

"Let the healing tapes be used by two or three recognized healers and practitioners of related therapy. See how they visualize or sense the transmission of color vibrations with the tape as an aid for effective visual modulation by focusing onto light allowing the appropriate color to be sent forth to match the appropriate sound. The healer is now able to inundate the patient with a spectrum modulated to cause effective vibratory distinction. Thus the aura is baked by sound while light illuminates feeling. The patient need only be concerned with breath and if appropriate may share realized feelings as they emerge into consciousness. What we want to see is effective use of light and the boost to it given by sound, for then the aura is heated by the fusion of the two forces, and will thus activate the cleansing process. If being used with massage the giver focuses on light, allowing the sounds to lead his or her hands. High tones are high centers, low tones are lower centers."

ON LIGHT, RATIOS AND ECHOES

"Light is a factor in the transparency of substance. If the ratio of light, the vibratory wavelength is equal to the vibratory wavelength of the substance, the substance is essentially invisible. If it is slightly higher it begins to function as a clarifying tool. Therefore, to speed up the ratio of light, simply remove the obstacles to its speed. Eliminating obstacles means first, perceiving them, then dissolving them by removing the impetus that creates them in the first place."

"An echo exists because it bounces off a substance. See

echoes as analogous to the waves bouncing off a vision (light waves bouncing off substance). See the substance as a memory, the initial experience, which may be dissolved by recognizing its existence and allowing it to diminish because it is no longer needed."

THE ENERGY OF SOUND, NUMBERS AND MAGNETISM

"The key to magnetism rests in numbers. In your study of numbers you will discover clues beyond basic harmonics. And you can use numbers to evoke tonal sequences which will result in healing sounds. A variety of sequences though not orchestral in tone will evoke specific rhythmic notations that will evoke healing when proper use is made of them. Not all sequences are applicable to all people. And the sympathetic vibration between the key 'number' of the entity and the healing 'tonality' must be in register. Use your ability to create a healing sound for two or three friends using their key numbers as the organic root of each matrix. You will find that sound can be used in this way for a number of related principles, for instance, as an elixir, a calming agent for sleep, or as a restful sequence for meditation. Now, just as we in light are affected by energy, so would you in flesh be affected too by the energy of sound. For light is too, an aspect of sound, and sound is an aspect of light. Again by using the root number you can evolve a particular color shade to a particular entity. This shade when joined by tone will become an even more important healing tool."

KEY NUMBER OF ENTITY AND HEALING TONALITY IN REGISTER

"The key number is ratio. Please key the tonality to the full ratio of the entity harmonizing it in the ratio of the Lambdoma.

I feel that harmonics require precise instruments and having correct tools is vital. Let this work evolve as it may. Light heals too. Sending light heals as it may in a gentle glow of goodness, giving the entity time to assimilate it."

TONALITY RANGES

"The middle C range is only appropriate for certain types of healing. Others need higher or lower frequencies. Middle C range is appropriate for glaucoma, allergies, cancers, female problems such as ovarian, fallopian inflammation.

Diseases of the heart require low frequencies to restructure valves for clearing up circulation problems. Diseases of the kidney require high frequencies to cleanse and provide healing. Combinations of high and low registers are required for diseases of the endocrine system."

HOLOGRAPHY AND COLOR INTO SOUND

"Take three and six and place them in a TRONAL, and what do you have? A TRONAL is an abbreviation of a larger thought transmutation through the healing infusion of color into sound. Using such advanced technology as synthesizer and holographic shell, you can infuse an audience with color healing, thus realigning all distorted energy."

Question: "Is this done with crystal?"

Answer: "That is the centrifugal principle, magnified out by pitch."

Question: "What sort of crystal?"

Answer: "The crystal is less significant than the opening pitch. For, certainly, the centers are vibrated, thus stimulating an opening. The opening pitch must be of warm chords, reduced to one centimetric. Have a crystal, of approximate size, for the desired volume/base size, or a ratio of a wavelength of magnitude to correspond to the magnification generated by size plus facets (faces) to cube (n to the 3rd) and cube again until the proportion of the space is in ratio with the crystal. Do not worry, now, about details. Simply consider as guidelines the principles involved in transmission. Generating energy is important but must first be set aside until knowledge of appropriate methodology is learned. To reach each center, a certain pitch is desirable. The red, yellow, orange tones vibrate to their lowest centers (C, D, E). Most people are only open to those vibrations and must first be reached through working at that level. Then introduce green, blue, purples, stimulating upper centers (F, G, A, B). Be aware that the geometric shapes related to the centers contain the proportions of the chords."

INCREASE IN THE QUALITY OF OUR LIVES

A resonant harmonic scale helps us to increase the quality of our lives because each interval of the scale has its own laws which govern our emotional bodies. First, there is the quality of oneness when two people sound the same note creating unison. The shape of unison or oneness is a perfect circle. The eighth harmonic is the beginning interval in the Lambdoma harmonic scale. As we sound the ninth harmonic we are in a creative mode, the shape of a loosely woven basket. The tenth harmonic, the "folded arms", is one of the receptive-mental, (balanced by the emotional) controlling the emotional body through harmony. The organs of the body and the muscles are controlled by this harmonic. The eleventh harmonic is the one to be used for non-conventional energy technology, it is already used in many machines which sound very disturbing to our ears. It is also a framework similar to the fundamental for it becomes almost the same note in its overtone and undertone, four octaves apart. The twelfth harmonic is one of balance and harmony, the fish shape. The thirteenth harmonic represents the golden section 1.618 or 0.618. because of its numerical ratio of 13:8 or 8:13. The fourteenth harmonic is a movement towards the source, and the fifteenth harmonic is a transcendent state of unknown dimension. The sixteenth harmonic leads back to the beginning from a passageway through all the other harmonics of the overtone scale. By then one's life purpose becomes clear; understanding of self and others is greater; the self has evaluated its progress and the freedom to start a higher path is presented to it. The degrees of importance of the Lambdoma frequencies go from attunement to at-one-ment.

FIVE LIFE NEEDS

1. SURVIVAL
2. LOVE AND BELONGING: Being Cared for
3. POWER
4. FREEDOM
5. FUN

CONDITIONS FOR QUALITY

1. BUILD TRUST AND REVEALING OURSELVES AND OUR VALUES
2. USEFULNESS OF LAMBDOMA IN WORKING WITH LIFE SKILLS:
 - a. Speaking and Listening
 - b. Reading
 - c. Writing
 - d. Universal Harmony and Numbers
3. SHARE SELF EVALUATION
 - a. Finding out where you are and what can be improved

LIFE NEEDS

SURVIVAL

In order to survive we all must have a meaning to our lives. A meaning which goes back to the reasons why we chose to incarnate here on this particular planet at this particular time. When we have glimpsed our own special path then we are able to take one step at a time towards our life goal.

PHYSICAL SURVIVAL

Survival is on several levels. First the physical level which includes food, water and shelter must be met.

Imagine grains and vegetables grown with particular frequencies of sounds which nourish our bodies. Imagine water being purified with other frequencies which are cleansing and healing. Imagine shelters designed for our unique needs based upon wavelengths which are in perfect harmony with the frequencies which each individual requires.

LOVE AND BELONGING (EMOTIONAL SURVIVAL)

Imagine controlling our emotions so that we live in perfect harmony with others through sounding our own and others unique voice signatures. Caring for others and being cared for by others. Appreciating others and being appreciated by others. Unconditionally loving others and others unconditionally loving us. Loving our work and our paths, while respecting others work and paths.

POWER (MENTAL SURVIVAL)

When one is in perfect attunement with oneself and others, and has an understanding of the workings of universal harmony, power is the result. Power is the ability to mold one's own destiny. Power is the ability to accomplish goals. Power is the ability to manifest one's reality and help other to manifest their's harmlessly.

FREEDOM (SPIRITUAL OR SOUL SURVIVAL)

With power comes freedom, freedom to live in harmony with all beings. Our soul's purpose is becoming realized. Our work is taking on a life of its own towards evolution of the human spirit. Freedom comes with a letting go of the small I or ego, the realization that we are all one with every atom in our universe.

FUN (THE OVERSOUL)

We are now free to enjoy life, to live life to its fullest.

To love our relationships with others and our particular talents which we are able to perfect with the innate knowledge that we are on the right path. We see the humor in everything. We are having fun.

CONDITIONS FOR QUALITY

BUILD TRUST AND REVEALING OURSELVES AND OUR VALUES

By eliminating all fear and building trust in ourselves and our decisions we increase the quality of our lives. By listing our values and re-evaluating them we reveal our plans to not only ourselves but to others if we wish. We do not encourage others in their fears but in their hopes.

USEFULNESS OF LAMBDOMA IN WORKING WITH LIFE SKILLS

SPEAKING AND LISTENING

Sharing our values with others allows them to understand our position. Listening to others values allows us to understand their position. It takes courage to share values truthfully with others, and it takes others courage to share their values with us. By eliminating fear of what others may think clears the air for revealing ourselves even if we disagree.

READING

One of the most important life skills is in reading as a way of understanding others view of our shared universe. Ideas which are shared by reading can be verified as to their validity to us by using our inner computer which says "yes" to a certain thought which is read. Training each one to become aware of this innate knowledge is one of my goals. Every written piece has a grain of truth somewhere hidden

in it. And we can learn to find this grain of truth as we read.

WRITING

Every one of us has the ability to write or to channel from the source. When one learns to read with the inner eye, then one is able to write with the same inner eye. This inner eye is very much like being in a mediative state and simply writing what comes forth. What comes forth is devoid of ego, and reveals an impersonal truth which can apply to all of us.

NUMBERS

Numbers have fascinated humankind as much as reading and writing. Numbers can be quantitative and qualitative. Numbers are abstract yet they can present a greater truth at times than almost any other skill. Number can relate to music, to art, to architecture, to all the sciences of astronomy, physics, biology, chemistry, physiology.

And number can be the link which ties all together.

The study of number covers all mathematics, geometry, algebra which helps us deal with the mechanics of our physical world. It can also help us to understand the metaphysical realities that are beyond our physical world. And this brings us to our topic which follows.

THE USEFULNESS OF THE LAMBDOMA IN WORKING WITH LIFE SKILLS

Sharing our small part of the puzzle especially if we do not know it all, allows others to carry it even further.

SHARE SELF EVALUATION

Finding out where you are and what can be improved.

First the research which has been evolving on the Lambdoma has traveled on many highways and lonely roads. The geometries of a vibrating string have been explored. Color coding and shape coding and angle coding and frequency coding into actual audible sounds has been done. Room resonances designed for architects has been explored, with colors which are linked to the lengths widths and heights of rooms. Polygonal shapes have been designed, as meditation devices by others. The uses of the sounds of the Lambdoma has been applied in drug rehabilitation centers and a prison. Concerts have been held in which the sounds of the Lambdoma are seen with the aid of a laser scanner system. An 8 by 8 matrix, Lambdoma, harmonic keyboard has been designed, and produced, where the sounds of certain intervals are illustrated by the characteristic shapes of Lissajous figures. Many lectures and workshops have been given to various groups across the country revealing some of the mysteries of this system, while hoping others will take the information and apply it to their needs. Necklaces and music have been designed to represent the overtone and undertone systems of musical intervals linking the Lambdoma and the Chakra system. Healing with sound has been a focus of the work. Healing being defined as therapeutic to the emotional and as a supplement to medical practices. It has been noted that after listening to some of the sounds a remembrance of past lives has occurred.

INSPIRING CHAKRA HARMONY

HARMONICS

When first introduced to the concept of harmonics, I was a student at the New England Conservatory of Music. A flutist was brought into the classroom to demonstrate the harmonic overtones inherent in her instrument. It was a demonstration of the "*physics of music*", which has stayed within my consciousness ever since.

COLOR-CODING A MUSICAL SCALE

About the same time, I was intrigued by the notion that the Pythagoreans color-coded their musical scale as if it were a rainbow of sound. I had for several years attempted to find a link between art and music. And then I discovered the Lambdome.

COLOR-CODING THE LAMBDOMA HARMONIC MATRIX

When I first discovered the Lambdome matrix in a book called "Tone: A Study of Musical Acoustics", a square, 16 by 16 grid – filled with fractions and musical notes – leapt out of the page. I realized somehow, perhaps on a cellular level, that the grid seemed as if it were an ancient familiar paradigm. This recognition, of the Lambdome, led me down a path of color-coding each of the 256 squares according to Pythagoras' method of assigning color to each of the notes. With colored pens, a compass and straight edge, I was tapping into a whole system of musical ideas brought forth in my consciousness by focusing only on the Lambdome matrix.

TRANSLATING THE LAMBDOMA INTO AUDIBLE SOUND

My desire to understand this matrix led me to study mathematics in order to learn its mathematical properties. I was inspired to substitute frequencies (in cycles per second) instead of color into each entry in the matrix. Next, with the help of computer technology I was able to generate sounds from an algorithm which sounded all of the harmonic intervals within the grid expanded to a 20 by 20 matrix, or a 400 entry, harmonic matrix.

THE RELATIONSHIP BETWEEN CHAKRAS, COLORS AND MUSICAL NOTES

The chakra system represents harmonic energy centers in our bodies. If these energy centers are not harmonized, we are not in balance. There is a close relationship between the energies of colors, the energies of sounds, and the energies of our chakra centers. For example, "red" is an energizing color, the note "C" is an energizing sound, and the "Root" chakra is the energizing base of the life force known as the Kundalini. By analogy, the complement of "red" is "green". "Green" is a tranquil color. The complement of the note "C" is the musical fifth "G". The note "G" is a calming sound. The complement of the "Root" chakra is the "Throat" chakra. The "Throat" chakra is our communication center. The principles of analogy and reciprocity is very important in balancing energies of colors, sounds or chakras. This same principle can be carried through to each of the colors, sounds, and chakra energy centers for balancing our physical, emotional, mental and spiritual bodies. One more example of this principle is the color "yellow" and its complement "violet", the note "E" and its reciprocal "B", the "Solar Plexus" chakra and its complement the "Crown" chakra. "Yellow" and "violet", the notes "E" and "B" could all represent the "Emotional" chakra balanced by the "Soul" chakra. These all represent the ascending harmonic overtones which lead to enlightenment.

THE DESCENDING SUB-HARMONIC UNDERTONES

In order to include all of the harmonic notes, such as "D" and "A", let us take the descending undertone series as an example. Starting with the note "A" and going down a fifth step we arrive at the note "D".

The color of the note "A" is "indigo", and its compliment note "D" is "orange". The chakras are the "3rd Eye" balanced by "Polarity". The "3rd Eye" chakra symbolizes clairvoyance, a higher non-physical awareness, while the "Polarity" chakra symbolizes sexual attraction or creativity depending on the intent of the individual.

RECEIVING AND TRANSMITTING COLORS, NOTES AND CHAKRAS

We believe that the chakras either receive or transmit energy, similar to painted colors or stained glass windows, and sounds listened to or produced.

HARMONIC SOUNDS ENERGIZE OUR BODIES

Sound, unlike light, can penetrate the human bodies, just as it can penetrate walls. However, in a vacuum, sound can not travel. Sound needs a material through which to travel. Light is blocked by opaque materials. This is one of the reasons why sound *harmonically structured* can help harmonize the human body.

Since the human body is made up of a large percentage of water, sound travels four times faster in our body than it does in the air.

RELATIONSHIP OF THE LAMBDOMA TO THE CHAKRAS

When a psychiatrist friend asked, "Can you identify each chakra energy center as a musical note or frequency?" I said, "Yes, if you can tell me the color of each chakra."

After that, we made a Lambdoma Chakra Meditation tape. Written testimonials from his patients started arriving.

EFFECTS OF THE LAMBDOMA CHAKRA MEDITATION TAPE

Some of the reactions to the tape have been a feeling of "bodily excitement and awareness, mental excitement and overall happiness, and a zinging feeling in the 'psychic center'" [We named the "psychic center" after we discovered it in a mathematical gap of 64 cycles per second between the "Throat" chakra and the "3rd Eye" chakra]. Another wrote, "I found the tape very useful in unwinding and grounding me; creating more peacefulness in my life". Another wrote, "The chakra meditation cleans my auric grid, as well as chakras. When there is a blockage, several tones will penetrate the same point in the auric sweep . . . during the spiral form I sensed an integration and application potential for the chakras and energies."

APPLICATIONS OF OTHER LAMBDOMA CASSETTES

The Acoustic Brain Research group used many of the tapes in hospitals, where therapists and chiropractors found them helpful to their patients.

THE LAMBDOMA HARMONIC KEYBOARD AND ITS EFFECTS TO DATE

Five years ago the idea for a Lambdoma Harmonic Keyboard began to form. It became a reality in 1994. From an abstract matrix in a small book on *Tone*, to a small computer driven keyboard which "shook hands" with a larger Amiga computer this Lambdoma instrument has already brought about a change in circuitry of the human body, a change in pulse rate for certain keys pressed, a calming effect for some and an altered state of euphoria for others.

From one physician who has used the keyboard; "Using the information and methods of Dr. Nogier, I assessed each person before we worked with sound, and found out what their disruptions were. And then had Barbara play a note, and began to monitor such as the acetylcholine and noradrenalin so that we are monitoring sympathetic and parasympathetic response, and found that they were changed by listening to specific sounds. Indeed, in addition, one person had injured their toe and it was responding to scar point, scar tissue. And when we played another sound, that changed. And I am seeing this modality as producing a circuitry change in the body. And it is very specific, and depending upon the note or the interval that you are using. It is fascinating, and I can hardly wait to do some more and checking . . . Thank you."

One person was even given a prescription, by a physician, to listen for three weeks to ten minutes of assigned recorded interval sounds, from the Lambdoma Harmonic Keyboard.

INTERDISCIPLINARY RESEARCH

The Planetary Association for Clean Energy featured our work in its Newsletter, Volume 8, Number 1, (1994). Within the next paragraph are some quotations from that newsletter:

The research on the Lambdoma in some of its interdisciplinary phases has been conducted. It has been called the "Geometry of Sound", because of the "... inter-relationship of music, resonance, math and color. The achievements to date describing the musical intervals include: wavelengths, ratios, frequencies, synthesized sounds, for each note (with undertones and overtones), Lissajous figures for each tone, spiral figures representing the notes, color/note relationships, and even a planetary grid system analysis." The Lambdoma matrix describes the "specific relationship of a mathematics of musical intervals. A morphological rationale for the therapeutic effects of notes and combinations has also been developed."

HOW I CAME TO DEVISE THE LAMBDOMA HARMONIC KEYBOARD

Since the 1970's I have been writing about and using multiple applications of the Lambdoma Matrix of whole-number ratios. Five years ago, after meeting Erv Wilson in California, I started working out a way to produce a Lambdoma Keyboard of alternate tunings so that a musician or therapeutic practitioner would be able to play only harmonic overtones and undertones. Finally in June of 1994 the first, prototype, Lambdoma Harmonic Keyboard was produced. Two-tone intervals of 64, harmonically-related overtones and undertones are currently available on the prototype keyboard. More importantly any audible frequency can be assigned as the fundamental note. Therefore the tuning is "absolute".

The Keyboard was demonstrated several times during the summer of 1994, to small, specialized, organizational audiences. Some of the effects of the keyboard on those playing or hearing it have been noted.

From 1981 on, I have composed and recorded several cassettes, using computer generated audible sounds illustrating the musical interval tonalities of the Lambdoma matrix. In the 1980's I added a laser/scanner device, after consulting with Paul Earls at the Advanced Visual Studies Group at the Massachusetts Institute of Technology, as an output to my recording system which illustrates the shapes of the mathematically perfect intervals in the Lambdoma Matrix.

I recently sent Erv Wilson a recording of the harmonic intervals created with the Lambdoma Keyboard, along with written materials about it. He encouraged me to "go public with it" and furthermore to get in touch with one of his

colleagues, Geary Thompson in San Diego, who has designed his own keyboard and also knows about the Lambdome Matrix. Mr. Wilson gave me the name and address of, Henry Rosenthal, the President of "Just Intonation Network". Erv thinks this keyboard will take the music world by storm, and thinks there is a small worldwide market for it.

He added that its most unusual features are that the keyboard works with absolute tunings based on a matrix of ratios; it can be programmed to play any frequency as the fundamental; and it is musically and psychically a "breakthrough".

This prototype keyboard was produced with the help of hardware and software expertise of Richard Lord, my colleague Robert Miller Foulkrod, David Bellantone and other friends.

CHRONOLOGICAL HISTORY OF THE LAMBDOMA PROJECT

1961 New England Conservatory of Music. Studied piano, theory and composition while trying to find a link between art and music.

1967 Reproduction of painting illustrating translation and reflection of forms, from the White River Series, was used to illustrate the "Transformations" chapter in the geometry textbook "Modern School Mathematics Geometry" by Dolciani, Donnelly and Jurgensen.

1970 Read "The Secret Teachings of All Ages", by Manley P. Hall where it was written that Pythagoras assigned specific colors to specific musical notes.

1970 Read the book "Tone: A Study in Musical Acoustics" by Levairie and Levy, Kent State University Press, 1968, where I first discovered the Lambdome matrix.

1970 Color-coded the Lambdome matrix according to Pythagoras' ideas.

1972 Made drawings which described the Lambdoma and related the matrix to many other disciplines.

1973 Submitted an article called "Paintings Based on Relative Pitch in Music" to the journal *Leonardo*, in Paris, which was published in 1975 .

1975 Completion of the manuscript of 163 drawings and texts based upon the Lambdoma called "Eyes + Ears = Ideas".

1975 Microfilmed "Eyes + Ears = Ideas", reproduced images and text on rag paper and bound two copies.

1975 Obtained Library of Congress copyright for "Eyes + Ears = Ideas".

1975 Drawings from two sections of the book "Eyes + Ears = Ideas", called "Start Stop and Think" and "The Other Side of Art" were translated into music, played on Moog and Minimoog synthesizers and recorded at the BEEP Studio in Boston.

1975 Cassette tape recordings based on these two sections of "Eyes + Ears = Ideas" were issued copyrights by the Library of Congress.

1975 Exhibition of section "Start Stop and Think" held in Washington, D. C. at the Max Protetch Gallery.

1975 Decided to substitute frequencies in Hertz for color, and purchased a sine-wave generator and an oscilloscope to see how the sounds based on the Lambdoma matrix might appear visually.

1975-93 Created nine audio tape recordings based on the Lambdoma matrix. See catalog for their titles.

1976 Enrolled in the summer course at Boston University called Art, Math and Music, to better understand the mathematics of the Lambdoma.

1976 Enrolled in Masters of Mathematics Education program at Boston University.

1976 "Eyes + Ears = Ideas" was exhibited in a Books by Artists show and purchased by the Wichita University Library.

1976 A local newspaper wrote an article about the rehabilitation program describing the residents' art and their reactions to the music.

1976 Visited Paul Earls, at the Massachusetts Institute of Technology, who worked with music and with a laser. Paul gave me names of companies for obtaining my own laser and scanners.

1978 Published "Drawings Based on Laser Lissajous Figures and the Lambdome Diagram" in *Leonardo*, Vol 11, pp 301-303, Pergamon Press, 1978.

1980 For independent study with regard to the masters degree created a video called "Seeing Sound" where frequencies in Hertz based upon the mathematics of the Lambdome Matrix were generated by a sine-wave generator and a laser system.

1980 Completed Masters of Mathematics Education course at Boston University, after ending with a Computer Science Course.

1980 Professor Esch, former head of the Mathematics Department at Boston University, helped decode the Lambdome matrix into frequencies in Hertz.

1980 Advertisement for Metrologic lasers, about the Lambdome, appeared in the magazine *Physics Teacher*, for which I was awarded a laser.

1981 Accepted in a special summer course in Computerized Synthesized Music at the Massachusetts Institute of Technology, where an algorithm for an audible Lambdome matrix was accomplished.

1981 Met retired mechanical engineer Robert Miller Foulkrod, who helped do lambdoma music and lambdoma graphics, on various computers, with software which he designed.

1981-95 Gave ten presentations on the Lambdoma to the United States Psychotronics Association. (U.S.P.A.) All were video and audio recorded and are available.

1984 Became Art Therapist at a drug rehabilitation center in Boston, where I played Lambdoma music and had the residents draw what the sounds might look like.

1984 "The Iamblichus Array as a Transformation of Mapping from Ratios onto Musical Intervals, Origin of the Lambdoma".

1985 Began weaving Lambdoma patterns in color with cotton threads.

1985 Presentation entitled Sound/Light Transformation was performed in cooperation with Robert Foulkrod at the Swedenborg Library in Boston.

1986 The presentation "International Harmony Based upon A Music of Planetary Grid Systems" was published in their Transactions by the U.S.P.A.

1987 That same presentation is published as Chapter 7 in the book "Anti-Gravity and the World Grid", edited by David Hatcher Childress.

1987 Started making Lambdoma, chakra necklaces of gem stones and beads inspired by reading "Magister Ludi, The Glass Bead Game". This is a way of combining the chakra system with colored gem stones to illustrate Lambdoma overtones and undertones.

1990 An attendee, Geoffry Kaslof, at a workshop of Henry MacLean's Timeless Architecture group in Boston, wanted a design for a 3-D, Lambdoma step-pyramid tile that would help inspire wellness by its mathematical beauty. With Robert Foulkrod's help, a design was provided to

Geoffry who has fabricated six-inch square, pyramidal, Lambdoma, plaster tiles.

1990 Created drawings to illustrate the book "The Sub-Conscious Speaks With Lambdoma" which includes the text from my father's book "The Sub-Conscious Speaks" which was first published in 1935.

1992 Conceived, wrote and published the paper "The Glass Bead and Knot Theory of Relationships" for attendance at a mathematics conference of the American Mathematical Association, in Albany, New York.

1992 Published the book "Lambdoma Unveiled (The Theory of Relationships) Presentations, Papers and Letters". Its contents included:

1988 "Music of the Grand Gallery", U.S.P.A.

1984 "Awakening Consciousness Through Generating Patterns of Harmonic Sounds" with Robert Foulkrod.

1981 "Relationships Between Consciousness, Sound, Music and Art." Dan Baer's psychology class "Topics of Consciousness" at Boston College.

1980 "Teaching Mathematics by a Correlation of the Structures of Art and Sound", paper presented at the Curriculum Theorizing conference.

1984 "Abinatio" Presentation given as part of a three day workshop in Davenport, Iowa.

1987 "Discovering Your Own Keynote and Attuning the Chakras with Sound" with technical support by Robert Foulkrod, U.S.P.A.

1986 "Drug Free Art", U.S.P.A.

1993 Colored and scented 3-D, Lambdoma, step-pyramidal candles have been made using the pattern developed for the plaster tiles.

1994 "Healing with Sound." This article was published in the February 1994 issue of the British magazine *Caduceus*.

1994 Drawings were created, with the design help of Robert Foulkrod, for the fabrication of a pattern for a circular 3-D, Lambdoma matrix pyramid to allow the production of circular pyramids in waxes and other materials.

1994 The book, "Eyes + Ears = Ideas" was revised with more text, was computer typeset and republished.

1994 The book, "MUSIC GRAPHS" was published.

1994 The paper, "Lambdoma Keyboards, Blood Cells and Nutritive Elements" was published in the United States Psychotronics Association's 1994 Conference Proceedings.

1994 The paper, "A Brief History of the Lambdoma with the Musical Properties of the Computer Program for the Lambdoma Harmonic Keyboard" was submitted to the "XENHARMONIC Alliance" at the editor's request.

1995 The paper, "Demonstrated Applications of the Lambdoma Harmonic Keyboard" was accepted for presentation at the 1995 conference of the United States Psychotronics Association .

1995 Preliminary drawings, for Marcia Epstein's Lambdoma Acoustical Musical instrument, were produced in cooperation with Marcia and Richard Norley.

DESCRIPTION OF LAMBDOMA HARMONIC KEYBOARD

WHAT IS THE LAMBDOMA HARMONIC KEYBOARD?

The Lambdoma Harmonic Keyboard is an instrument which is based on 64 ratio controlled musical intervals which are all related to a fundamental frequency. Pressing any of its keys produces a harmonic musical interval of two tones. The optimal fundamental frequency can be set at any frequency, preferably between 128 and 480 cycles per second (Hertz). This limits the range of overtones and undertones to be in the audible range while playing in quadrant 1. The 64 entries are all based on ratios relating to this fundamental frequency. Quadrants 1 (1:1 through 8:8), 2 (9:1 through 16:8), 3 (1:9 through 8:16) and 4 (8:8 through 16:16) are programmed so that whatever frequency is desired can be entered as the fundamental for that quadrant.

WHAT THE LAMBDOMA HARMONIC KEYBOARD DOES.

The Lambdoma Harmonic Keyboard is an interactive connection between the musician and the numerical ratios which produce tone-intervals of both harmonic overtones (quadrant 1) or scales (quadrant 4) and sub-harmonic undertones (quadrant 1) or scales (quadrant 4) based upon the specific fundamental frequency chosen. When a person plays the keyboard, using their own keynote as the chosen fundamental, for example, or another frequency of interest to them, a bio-feedback effect can be noted by those sensitive to kinesiology. A shift of energies has been observed in a person playing the notes when different tone-intervals, created by the matrix, are sounded with the keyboard.

HOW THE LAMBDOMA HARMONIC KEYBOARD OUTPUTS TONE-INTERVALS TO A SOUND SYSTEM

The keyboard contains its own computer which enables it to signal when its key switches go down or up. Another computer contains a software program designed to enable the musician to play either quadrant 1, 2, 3 or 4. First, a fundamental frequency is chosen. A computer has been programmed to create the harmonic interval sounds for the keyboard. When the musician presses the keys, the computer remembers the order in which the keys were pressed, and plays the corresponding interval tones. As presently programmed the output is stereo sine-waves and sounds similar to a flute. Future programming will allow it to output other sounds in stereo such as the sound of a harp, piano, pipe organ, etc.

THE EFFECTS OF THE LAMBDOMA KEYBOARD

*Introduction, Comments and Questions from the
presentation entitled: LAMBDOMA KEYBOARDS,
BLOOD CELLS AND NUTRITIVE ELEMENTS
Given at the 1994 convention of the United States
Psychotronics Association*

INTRODUCTION

By Dr. Andrew Michrowski of "The Planetary Association
for Clean Energy", Ontario, Canada.

"Pythagoras, the curator of the mysteries of endless time, stated in 600 BC that "There is geometry in the humming of the strings, there is music in the spacing of the spheres".

The pursuit of clarification and the development into the context of our times, of this mystery of sound, is the driving force behind Barbara Hero's achievements. Her milestone work on the Lambdoma is in fact inspired by prior research by Iamblichus, a wise man of 200 AD, who elaborated a visual tool for the understanding of the geometry of music. And again, by some more recent work by the German researcher Hans Kayser which was entitled "Akroasis". Barbara Hero, with support of modern computer sciences, has expanded the practical aspects of the Lambdoma tool. She generates keynotes, multiple sounds, undertones and three-dimensional overtones harmonized in a sort of musical ecology. These sounds engender the restructuring of energies, which by their ratios resonate with our own bodily energy systems and then to our organs, which all vibrate at certain frequencies. So, the appropriate sound patterns may

restore harmony to the listener. So let us tune in to Barbara Hero from Maine."

COMMENTS BY THOSE WHO HAVE USED THE KEYBOARD

DR. FRANCES EHRLICH, MD.:

"Using the information and methods of Dr. Nogier, I assessed each person before we worked with sound, and found out what their disruptions were. And then had Barbara play a note, and began to monitor such as the acetylcholine and noradrenalin so that we are monitoring sympathetic and parasympathetic response, and found that that was changed by listening to specific sounds. Indeed, in addition, one person had injured their toe and it was responding to scar point, scar tissue. And when we played another sound, that changed. And I am seeing this modality as producing a circuitry change in the body. And it is very specific, and depending upon the note or the interval that you are using. It is fascinating, and I can hardly wait to do some more and checking . . . Thank you."

ATTENDEE:

"I experienced Barbara's instrument and really enjoyed it. I just want to make a comment. When we are exploring in these areas. We are truly pioneers. We open up a door and we are into a room which is full of things we have never seen before. And we have hardly any way of explaining, in the words we have used in other places it is very difficult to describe this area. So what happens is that you basically fall back on your experience. Or you fall back on to words which people can attach to. That is why it is so difficult to give a talk about something like this. Because the part that is important is not the notes or the differentiations but the, "Ah ha" and that part. My feeling is that there is a connection between the sound and the visual image that creates something inside of you. There is a connectedness or maybe even a dimensional quality that happens that makes it possible to move through or into the other dimensions more easily. Or maybe it is a sort of an exercise of moving into

other dimensions. But there is something that happens with both the sound and the visual image of the laser light, the response, and then when we allow our fingers to play, doing it in an intuitive state then we are actually in communication with our selves. We are actually talking, like we are struggling right now to talk, we are actually speaking to ourselves. I very much support the development of this, and in the pure way that you can do it Barbara. I am very excited."

COMMENTS AND QUESTIONS FROM THE AUDIENCE

CAROLINE CONNER:

"Hi, I am Caroline Conner. If you would put back on the colored slide with the cubicles. Just want to bring to your attention, those who have meditation, you all have your own signature cubicles. Those who want to see your light body, which you are now integrating into your body, keep your eye on the center, the colors will be different. On either side of your head, it will get very bright, stay with the center and you are watching your own light body being integrated into a body. It will be so bright it will completely turn white all over. Open up your eyes. You are looking at your own light body. Your colors will be different because your frequency is different. I see this all the time. If you are drifting in meditation, if you see this stay with it. This is the doorway, right there in the center. Stay with the center, right in the middle. Your colors, your frequency rate is different. Your light body frequency is different. Keep in mind the colors, and later draw your own sheet like this, but *your* colors. It is quite brilliant. It will hurt your eyes. You might even have to put your hands over your closed eyes. And it is almost like a mother of pearl color to it. And you can stay in it as long as you want. If you can stand the sight, because it is so beautiful. Let me say we are integrating our light body. We are stopping rashes itching, nausea and vomiting. You are pulling the frequency into the body now."

ATTENDEE:

"Your representations of figures for the various fundamentals and tones are very interesting from a electromagnetic perspective, and the circle would be like direct current, for example, and the scalars would be like a mobius form, and you could have it sometimes collapse to this form. And I see caduceus coils and so on. And this possibly can serve as a tool to remind experimenters to try to resonate such forms for various purposes. When you showed these spirals I was stricken that Nicola Tesla used one of those spirals as his own symbol for what he was able to see. As he was capable of seeing ether. When you have an open ended wire and look at it, and of course that is a longitudinal wave, it is a very complex spiral, a very condensed one, looking straight on at it. I really find all that you have done is an extremely useful tool, to remind people like Glen Rein and so on. We are all struggling with different kinds of coils to see what we can do further."

ATTENDEE:

"You mentioned using the reciprocal of a particular frequency. Could that be creating a scalar wave? Because if you are broadcasting out information, or there is information out there on one particular frequency and you are broadcasting the opposite of it, when they hit you are creating a scalar wave and that is how information is transferred to your body?"

ATTENDEE:

"Barbara, for people who are in kindergarden as far as your work goes we need a quantum leap backwards here. Is the matrix formed by ratios, first of all? You start off with a line of ratios and the rest of the matrix is formed by that? Is the overtone opposite to the undertone?"

EFFECTS OF THE CASSETTE "SOUNDS FROM THE LAMBDOMA KEYBOARD"

*Telephone conversation with Dr. Frances Ehrlich, MD.
There were present in October, 1994, an acupuncturist, a
person sensitive to auras, three nurses, and a sacral-cranial
therapist.*

EFFECTS OF SIDE 1

"When the sounds were descending, it seemed as though the chakras were descending. There was an auric field of flashing light colors. The sounds activated the chakras. Heat was felt as well as some nausea."

EFFECTS OF SIDE 2

"Seeing auras occurred. An injury in one person's head was activated. Light was seen coming from her head. The group discussed what they had experienced. Then they did some 'auming', in order to clear."

FEEDBACK

"It would be helpful not to have so many notes, not so many random ones. A protocol is needed in order to assess effect of the sounds. This is powerful. We must devise a way of knowing, and understand better about the effects. We must process a pattern of how to know the effects of each key."

Dr. Ehrlich mentioned Tim Farley who has a piano store and would like to tune pianos in ancient ways.

HELEN HALL AND JAMES D'ANGELO

On October 12th and 13th we experimented with the Lambdoma Harmonic Keyboard in conjunction with the Laser Scanner System. We chose a keynote based upon James D'Angelo's intuition of his own keynote, in the audible range of either the middle C octave, or the octave below. I find that with men it is better to choose the octave below middle C for their keynote. James was able to get the keyboard to sustain a note by pushing each key several times in sequence. Somehow, he seemed able to create more than the two sounds of the programmed interval, in his playing. Ordinarily the fundamental always sounds when another key is pushed. But in James' case there seemed to be a multitude of tones. I speculate that his accomplished musical hands worked the keyboard faster than $1/30^{\text{th}}$ of a second so that the illusion of more notes being played occurred.

HELEN HALL

Helen Hall had come to Strawberry Hill Farm to photograph some of the laser Lissajous figures in conjunction with a movie she is producing on the subject of electro-magnetic pollution. She filmed the laser Lissajous figures of James D'Angelo's performance with the keyboard.

Later I set the fundamental frequency to 30 cps., then to 15 cps., and finally to 10 cps. The series was not only inaudible in the undertone range but also the Lissajous figures were all circles in that sub-harmonic section. They only became revolving shapes in parts of the harmonic section. With 5 cps the lower octave sequence becomes 2.5cps, 1.25cps, to 0.625 cps. The upper octave sequence becomes 10 cps, 20 cps, and 40 cps.

The effects were pleasant in both cases with James D'Angelo who remarked that he had never heard intervals of this kind before, and Helen Hall who reacted favorably to the moving shapes of the Lambdoma harmonic intervals.

THERAPEUTIC USES OF LAMBDOMA APPLICATIONS PAST AND PRESENT

MUSICAL INTERVAL RECORDINGS, KEYBOARDS AND CANDLES

PETER GUY MANNERS

One of the Massachusetts Institute of Technology recordings was sent to Dr. Peter Guy Manners by a colleague. Peter massaged the vibrations of the Lambdome Matrix into the bodies of his patients with his "Cymatic Recorder". As a consequence, in 1983, Dr. Manners invited Barbara to England where she spent three weeks studying in his clinic. She received a Diploma "For Scientific and Naturopathic Research in Cymatics and Bio-Sonic Therapeutics" from the Bretforton Trust. She was then enrolled as a Practitioner of Cymatics and Bio-Sonic Therapeutics on the 5th of August, 1983. She brought back to the United States a Cymatic Recorder which she used with good effects. A few years later, Barbara bartered the Cymatic Recorder to Jonathan Goldman.

ACOUSTICAL BRAIN RESEARCH

In the 1980's, the "Acoustical Brain Research" facility in North Carolina ordered at least 200 recordings of the Lambdome Matrix intervals. These microtonal interval recordings were used to good effect in hospitals, by therapists and chiropractors. One recording had been generated at the Massachusetts Institute of Technology by Barbara when she took the course "Techniques Computer Sound Synthesis". Barbara used the frequencies of certain organs of the body (from a metaphysical source) to generate

a 20 by 20 matrix of the resonant microtonal intervals of the relative frequencies of each of the organs.

TESTAMONIAL LETTERS

In 1985, patients of Dr. Stephen Proskauer, MD. wrote testimonial letters on the therapeutic value of the tapes. See enclosed testimonial sheet. He used the tape "Lambdoma Chakra Meditations" created and performed by Barbara Hero, Stephen Proskauer and Robert Miller Foulkrod.

DRUG REHABILITATION CENTERS

In the 1970's, interval sounds based upon the Lambdoma Matrix were applied for 7 years at "The Third Nail". "The Third Nail" was a drug rehabilitation community in Roxbury, Massachusetts. The sound recordings were made by Barbara Hero using a sine wave generator creating musical intervals dialed to specific mathematical ratios. The therapeutic nature of these Lambdoma interval sounds was the subject of a feature article called "Drug Free Art" in a community newspaper.

The musical intervals released creativity in most of the residents through both visual art and poetry. A detailed description of the therapeutic process is found in the chapter entitled "Drug Free Art" in Barbara Hero's book "Lambdoma Unveiled". Two regional exhibitions of the art work were held. One at the Boston City Hall and the other in Cambridge, Massachusetts.

BRIDGEWATER CORRECTIONAL FACILITY IN MASSACHUSETTS

In 1980, as one of the artists in "The Prison Art Project", Barbara was able to bring her Lambdoma recorded sounds to the prisoners, so that they could draw what they felt the sounds might look like visually. The results were not only beautiful abstract patterns but some even mirrored the actual Lambdoma Matrix. Barbara attributed this to the

Lambdoma resonant interval sounds creating a positive altered state.

THE LAMBDOMA KEYBOARD

On June 10th, 1994 the Lambdoma Harmonic Intervals Keyboard became a reality. Richard Lord, Richard Norley, Robert Miller Foulkrod, David Bellantone and Barbara Hero all had input into its conception and birth.

It was presented to the United States Psychotronics Association in July after Barbara was awarded the "Certificate of Achievement" the "J. G. Gallimore Award For Technical Research and Development in the Psychotronics Field". One of the attendees to the conference, Dr. Frances Ehrlich, a Physician, tested two people as they used the keyboard and found that the person's energy levels shifted as they played the microtonal intervals of the different ratios.

HEALING WITH SOUND

The article "Healing with Sound" by Barbara came out in the magazine "CADUCEUS", Issue #23, "Healing into Wholeness", in February, 1994. James D'Angelo, who contacted Barbara, was the guest Editor for that issue on Sound Healing. In his article "Resonances of the Cosmos" he wrote: "This vast latticework of overtones or hamonics, spawned by the original Word and imparting to every aspect of Creation its own particular vibratory rates, has found an intelligible, visible form in the Lambdoma diagram, attributed to Pythagoras. In the twentieth century it has been taken up by the metaphysician Hans Kayser (see Godwin's book "Cosmic Music") and Barbara Hero (see her article in this issue, and her book "Lambdoma Unveiled") as a means of understanding the structure and interrelatedness of all Creation in terms of harmonic ratios."

LAMBDOMA CANDLES

The phenomena of the Lambdoma Candles began in the late 80's, when Barbara and Robert Miller Foulkrod gave a seminar sponsored by "Timeless Architecture" on "Room Resonances". One of the attendees, Geoffrey Kaslof, wished to create an architectural ornament which would heal by its very shape. Later he contacted Barbara and Robert for specifications for a three-dimensional Lambdoma model measured in wavelengths. Geoffrey made models in plaster from the specifications. Barbara then decided to make candles in wax from the plaster pattern. The Lambdoma candle, based on wavelengths instead of musical frequency intervals, gave a deeper understanding of overtones, undertones and a fundamental constant in three dimensions of Lambdoma matrices.

ATTUNEMENT WITH SELF AND WITH OTHERS

We are able to attune ourselves with others first by recognizing our own keynotes and the keynotes of others. We find our key notes by sounding the note most comfortable to our voice. We ask ourselves what is our favorite color? Pythagoras assigned a color to each note of the musical scale, which we can use. Red as the first harmonic, orange as the second, yellow as the third, green as the fourth, blue as the fifth, indigo as the sixth and lavender as the seventh. The eighth Lambdoma note might be purple. As each color has its variation in hue and intensity, each note has a range of frequencies. Also each color has its complementary color, just as each note or frequency has its complimentary sound. Intervals of musical fifths can be likened to complementary colors. *

Complementary colors are red/green, orange/blue-green, yellow/blue-violet, green/purple, blue/magenta, indigo/orange and violet/gold. Corresponding complementary notes are C/F, D/A, E/B, F/C, G/D, A/E and B/F. Note the slight shifts of colors paired with notes. It would help for one to know colors and how they can be mixed together in subtle ways.

We can attune our colors and our sounds to each other by finding the harmonic which is most pleasant to each. After we have discovered our keynotes or colors for that day or hour or season, then we can find what Chakra energy center we are predominately playing with. We can do this by assigning the root chakra to the color red, the polarity to the color orange the solar plexus to the color yellow, the heart to the color green, the throat to the color blue, the

* Barbara Hero - "Paintings Based on Relative Pitch in Music" - *Leonardo*, Vol. 8, pp 13 - 19, Pergamon Press, Great Britain, 1975

psychic center to the color blue-green, the third eye to the color indigo and the crown to the color lavender. Then we can make the translation to musical notes on the Lambdoma matrix. This becomes: P, Q, R, S, T, U, V & W or approximately: C, D, E^b, F[#], G, A^b, B^b, B & C.

SOME EMOTIONAL QUALITIES OF THE GREEK MUSICAL MODES AND THEIR TRANSLATION INTO ROOM LENGTHS

Ernest McClain's book "The Pythagorean Plato: Prelude to the Song Itself" cites Socrates' discussion with Glaucon in the "Republic" concerning the Greek musical modes. In answer to the question "What are the wailing modes?" The reply was "The mixed Lydian, and the 'tight' Lydian and some similar ones." Now the Lydian mode is the note F. In the Lambdoma the frequency of this note is 352 cps in the overtone series, and has a wavelength module of 3.21 feet. In the Lambdoma undertone series it becomes a 170.6 cps in frequency and has a wavelength module of 6.6 feet.

By doubling each of these wavelengths n times we might conclude that a room 13.2 feet x 26.5 feet might not be emotionally pleasant, nor would a room 12.8 feet x 25.7 feet. The eleventh harmonic of the frequency 32 cps is 352 cps, an augmented fourth interval. This particular interval in music is an unpleasant "wolf tone," or the "ton diable."

Then the next question is "What modes are soft and suitable for symposia?" The reply is that there are some Ionian, and some Lydian.

The note attributed to the Ionian mode is C at 256 cps. The wavelength of 256 cps is 4.4 feet. Doubled twice this becomes a room dimension of 17.7 feet. The King's Chamber in the Great Pyramid at Giza is close to this dimension in its width and its length is a little less than double this at 35.3 feet.

In speaking of the Dorian and Phrygian I assume from the conversation that courage, patience, firmness, peaceful, prayerful, fortunate, and moderate are some attributes of these modes. The Dorian is the note D of the scale and the Phrygian is the note E of the scale. D has a frequency of 288 cps, a 3.9 feet module which doubled twice equals 15.7 feet. E is the note 320 cps which has as a module 3.5 feet which doubled twice equals 14.1 feet. Could we assume that a room 14 feet x 28 feet might be very beneficial for those who wish the attributes cited, as well as a room 15.7 feet x 31.4 feet might also be beneficial?

RATIOS INHERENT IN THE GREEK MODES

If we assume that the Ionian is the ratio of 1:1 as the note C and the frequency 256 cps, then the Dorian note D is a ratio of 9:8, the Phrygian note E is a ratio of 5:4, and the Lydian note, an augmented F, is in a ratio of 11:8 on the overtone series. However, the notes in the undertone series using the reciprocals of the ratios they become 8:9 a B, and 4:5 an Ab, and 8:11 a diminished G.

FREQUENCY / DIMENSION CHART

*Based upon the note P being equal to 256 Hertz
and upon 3 January, 1995 note boundaries.*

Lambdoma						
Basic	Wave	Reference	Resonant	Diatonic-Notes		Chakra
Frequency	Length	Frequency	Note	C=256	A=440	
(Hertz)	(Feet)	(Hertz)	(Nearest)	(Nearest)	(Nearest)	(Nearest)
1	1130	256	P	C	C	Root
2	565.0	256	P	C	C	Root
3	376.7	384	T	G	G	Throat
4	282.5	256	P	C	C	Root
5	226.0	320	R	E	D#	Solar Plexus
6	188.3	384	T	G	G	Throat
7	161.4	448	V	A#	A	Third Eye
8	141.3	256	P	C	C	Root
9	125.6	288	Q	D	D	Polarity
10	113.0	320	R	E	D#	Solar Plexus
11	102.7	352	S	F#	F	Heart
12	94.2	384	T	G	G	Throat
13	86.9	416	U	G#	G#	Psychic Ctr.
14	80.7	448	V	A#	A	Third Eye
15	75.3	480	W	B	B	Crown
16	70.6	256	P	C	C	Root
17	66.5	272	P#	C#	C#	Polarity
18	62.8	288	Q	D	D	Polarity
20	56.5	320	R	E	D#	Solar Plexus
22	51.4	352	S	F#	F	Heart
24	47.1	384	T	G	G	Throat
26	43.5	416	U	G#	G#	Psychic Ctr.
28	40.4	448	V	A#	A	Third Eye
30	37.7	480	W	B	B	Crown
32	35.3	256	P	C	C	Root
34	33.2	272	P#	C#	C#	Polarity
36	31.4	288	Q	D	Q	Polarity
38	29.7	304	Q#	D#	D#	Solar Plexus
40	28.3	320	R	E	D#	Solar Plexus
42	26.9	336	R#	F	E	Heart
44	25.7	352	S	F#	F	Heart
46	24.6	368	S#	F#	F#	Throat
48	23.5	384	T	G	G	Throat

50	22.6	400	T#	G#	G	Psychic Ctr.
52	21.7	416	U	G#	G#	Psychic Ctr.
56	20.2	448	V	A#	A	Third Eye
60	18.8	480	W	B	B	Crown
64	17.7	256	P	C	C	Root
68	16.6	272	P#	C#	C#	Polarity
72	15.7	288	Q	D	D	Polarity
76	14.9	304	Q#	D#	D#	Solar Plexus
80	14.1	320	R	E	D#	Solar Plexus
84	13.5	336	R#	F	E	Heart
88	12.8	352	S	F#	F	Heart
92	12.3	368	S#	F#	F#	Throat
96	11.8	384	T	G	G	Throat
100	11.3	400	T#	G#	G	Psychic Ctr.
104	10.9	416	U	G#	G#	Psychic Ctr.
108	10.5	432	U#	A	A	Third Eye
112	10.1	448	V	A#	A	Third Eye
116	9.7	464	V#	A#	A#	Crown
120	9.4	480	W	B	B	Crown
124	9.1	496	W#	B	B	Root
128	8.8	265	P	C	C	Root
132	8.6	264	P#	C#	C	Root
136	8.3	272	P#	C#	C#	Polarity
140	8.1	280	Q	D	D	Polarity
144	7.8	288	Q	D	D	Polarity
148	7.6	296	Q#	D#	D	Polarity
152	7.4	304	Q#	D#	D#	Solar Plexus
156	7.2	312	R	D#	D#	Solar Plexus
160	7.1	320	R	E	D#	Solar Plexus
164	6.9	328	R#	E	E	Solar Plexus
168	6.7	336	R#	F	E	Heart
172	6.6	344	S	F	F	Heart
176	6.4	352	S	F#	F	Heart
180	6.3	360	F#	F#	F#	Heart
184	6.1	368	S#	F#	F#	Throat
188	6.0	376	T	G	F#	Throat
192	5.9	384	T	G	G	Throat
196	5.8	392	T#	G	G	Throat
200	5.7	400	T#	G#	G	Psychic Ctr.

For frequencies above 200 Hertz:

• divide the frequency by two or four etc. and look up the values given in the chart for that frequency

• examples:

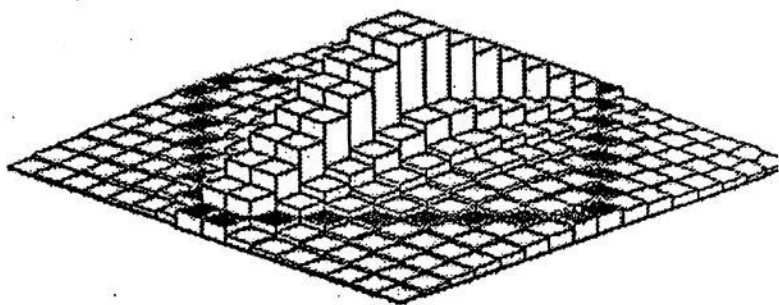
640 Hertz / 4 = 160 Hertz which can be found in the chart

5632 Hertz / 32 = 176 Hertz.

THE THEORY WITHIN THE LAMBDOMA WALL TILE

March 1991

The Lambdoma matrix is an ancient musical system based upon whole number ratios. The Lambdoma tile represents an evolution from a simple mathematical matrix of these ratios, in two dimensions, to an art-form color-coding of the musical harmonics, linked to each of these ratios, then to a musical frequency-coding in cycles per second of the matrix which resulted in an aural experience of the harmonics and sub-harmonics, and finally to this three dimensional interpretation of these same ratios.



The tile is a mathematical model which illustrates harmonics and sub-harmonics in music.

The influence, of these Lambdoma tiles, upon people might well mirror the known beneficial influence of its translation into musical sounds.

The Lambdoma tile is made up of four quadrants of the Lambdoma matrix. These quadrants can be assembled in different ways, either rising in the middle and tapering off at

the ends, or rising at the ends and tapering off in the middle. The quadrants could be used for acoustic tile since they do mirror principles of acoustics, or they can be used as pleasing visual ornamentation based on laws of harmonics.

In a sense the Lambdoma tile is reflecting in its own mathematical laws the same principles which the Greeks used in their sculpture and architecture. Its harmonics includes the "Golden Section" because in the matrix of ratios the Fibonacci series is present. The Lambdoma tile also incorporates the sub-harmonics which pertain to physics. The sequence of the ratios in both the harmonic and sub-harmonic modes reflects "quantum leaps" of octaves, fifths, fourths, thirds, sixths, seconds and sevenths in fixed sequences. The musical scales as we know them do not occur until the eighth harmonic because of these wide jumps. Many philosophical questions may eventually be answered through meditation upon the Lambdoma tile.

My thanks go to Geoffrey Kaslof for his enthusiasm in constructing the model.

FORMING MATTER

How intervals (combined frequencies) can influence matter!

I most recently came across an interesting idea while reading the book "Journey without Distance", The story behind A COURSE IN MIRACLES by Robert Skutch. The subject was about Kirlian photography.

How "It appeared to indicate the force field around matter."

Helen Schucman received a transmission on the subject which revealed that Kirlian photography "Has nothing to do with light." "It's sound."

Reading this struck a chord in me which made me remember seeing photographs of Kirlian photography, with rays radiating around a finger, in different degrees of size. At the same time I remembered lying on a table at Duncan Laurie's experimental studio in Queens, New York. He had amplified the sound of my own voice singing in the Egyptian Pyramid at Giza from a cassette which I had given him. Two huge speakers were under the table. The table was enclosed in an open polygonal structure. I believe it was a hexagon. I experienced lights which seemed to be exploding within my body, but which seemed to be along chakra points. These explosions of light seemed to release energies in my body in a very beneficial way. Yet it was the sound which generated this phenomena.

There must be areas within our bodies which are in fact a vacuum. When sound, which can only travel in a medium, such as even air, hits a vacuum what happens? It becomes

light, for light travels in a vacuum. Air lets through light, and air lets through sound. But sound travels faster in the denser mediums which light cannot penetrate.

When in Egypt I, with others, was led to some caves on the Giza plateau where the guide pointed to the walls which glistened with tiny specks. Later, Sarah Benson and two others experienced singing in a dark cave where there was no light and as the singing and flute playing continued the whole cave became self illuminating.

This brings me to another insight. We know how to use electricity, but we don't know what it is. Is it too, sound? The sound of a frequency at 60 Hertz (cycles per second) is running along wires. Then at the light bulb a vacuum has been formed. The sound must turn to light, and it does.

In the same chapter in the book I mentioned above, by Robert Skutch, is the following:

"The dictation described a device which would, when constructed, measure healing in the body. Her *Notes on Sound* seemed incomplete and not totally clear, but was supplemented by images that Helen had of the device itself, which she was able to describe in her own words. Neither Helen nor Bill understood the technical aspects of the information, however, and so they decided to put the material away until such time as someone with an engineering background might come into their lives."

"In the ensuing years the material has been shown to a number of eminent scientists, but no one has yet been able to supply the information necessary to construct the equipment."

I am going to assume that electricity is equivalent to sound.

I am going to quote several passages from Alice Bailey's material from the book "Ponder on This", Lucas

Publishing Company, NY, 1980 (4th paperback Edition).

THE NATURE OF ELECTRICITY AS TRANSMITTED TO ALICE BAILEY

"ONE OF THE IMMINENT DISCOVERIES WILL BE THE INTEGRATING POWER OF ELECTRICITY, AS IT PRODUCES THE COHESION WITHIN ALL FORMS, AND SUSTAINS ALL FORM LIFE DURING THE CYCLE OF MANIFESTED EXISTENCE. IT PRODUCES ALSO THE COMING TOGETHER OF ATOMS, AND OF THE ORGANISMS WITHIN FORMS, SO CONSTRUCTING THAT WHICH IS NEEDED TO EXPRESS THE LIFE PRINCIPLE."

The seven energy centers of the body are also related to electricity according to Alice Bailey's channel, which are related to seven types of electrical energy.

"All disease is disharmony and lack of alignment and control."

"All disease and ill health, are the result of the activity or inactivity of one or other of the seven types of energy, as they play upon the human body."

"Disease is energy which is not functioning as desired or according to plan."

"All the energies – have a definite effect upon all the lives, in all forms, in all kingdoms of nature. Nothing can escape these radiatory and magnetic influences. The goal of evolution for humanity, is to become consciously and livingly aware of the nature of these energies, and to begin to know them and to use them."

Is radiatory energy part of the Lambdoma overtone upper triangular matrix? See Figure X. Is magnetic energy part of the Lambdoma undertone lower triangular matrix?

OF THE SEVEN RAYS (Quotes from the Alice Bailey material) (Bold emphasis is by B. Hero):

"Every form in nature, and every human being, is found upon one or other of the seven qualifying rays."

"Each ray works through one center primarily, and through the remaining six in a specific order."

"The rays are of differing rates of vibration, and govern a particular center in the body."

"... the seven rays as manifesting energies ..."

It has been my feeling for years that the Lambdoma matrix is one of the tools which can be used for creating a harmonious balance in relationships and in the physical, emotional and mental bodies. It becomes evident with the readings of Alice Bailey, which I pursued in the 1970's, that the above quotes apply to the Lambdoma matrix.

The Lambdoma Keyboard will, I believe, be a technical tool, which will enable the practitioner to harmonize with sound along all of the various energies and rays, in a given scale appropriate to the needed results. For instance, a person's keynote can be identified by playing the keys, in the rows on the Lambdoma keyboard, with any fundamental. The keynote which most appeals to the person is the one to use. Then an entire matrix can be sounded, based upon that particular keynote. A particular color can be visualized as either reflecting or absorbing. The practitioner might visualize a complementary color to the recipient's chosen color. The recipient acts as a magnetic energy, while the practitioner acts as a radiating energy.

An important fact to be noted is that the order of each row of keys, on the Lambdoma keyboard, representing an overtone series of frequencies, is changed with each keynote. The energy then is also correspondingly changed.

We suppose that the keynote fundamental is the most energy, while the 13th and 15th harmonics might be the least

energy. The dominate fifth frequency would be most energetic, the third or fourth might follow.

To take harmony in music as an example, a modulation to another key might take place on the sixth harmonic. That would be a good place from which to go on to another matrix. Perhaps a matrix that was another's dominant keynote. In order to have harmony in relationships one must be in harmony in one's own relationship with all of one's own bodies, physical, mental, etheric, spiritual etc. Then one is able to understand all others because in each matrix there is always another's key note.

This is the most important facet of the Lambdoma. That it in effect can balance harmonically all energies both within self and within others.

Matter is formed by electrical energies. Harmonious order can then create matter. Iamblichus (300 BC), who brought the Lambdoma out from the obscurity into which it has fallen, was said to have created two beings. I am assuming it was done through sounds based upon the philosophy of harmony and order, found in the Lambdoma.

THE NEW PHYSICS

May 26, 1995

*I awakened about 3 am and couldn't sleep and the thought
"New Physics" was in my head.*

There might be a way to have an understanding of matter if we construct a new paradigm. That paradigm might be a harmonic construct that is known as a sub-harmonic series. It is the sub-harmonic series that seems to form matter. It might be the harmonic series that destroys matter. It seems that the higher harmonics are those which cause glass goblets to shatter. The resonant frequency of the glass goblet is well within the reach of the human voice. Tap the goblet to find the resonant harmonic and then sing that sound.

Even cells that are damaged by cancer, for instance, may be destroyed by singing their resonant frequency. One reason disease may not be factor in the future of our race might be that as our own frequencies are becoming higher and higher in pitch, the diseased cells may be the first to be destroyed. Our bodies seem like bubbles which implode into heat and light. This phenomena may be due to our resonating at higher frequencies in consciousness. Thought itself seems a higher frequency than other phenomena.

The Lambdoma Keyboard, even in its present state, may be a tool by which harmonic intervals of sound are so close together that a new level of consciousness occurs. This consciousness in itself may create a higher frequency which ultimately results in our becoming "light bodies". By exposing individuals to this phenomena through the harmonic sounds of the new keyboard, the consciousness

may be awakened as to the possibilities of a process known as transcendence or ascension. For when a perfect harmonic interval is experienced a change in consciousness is bound to occur. Sound may be the key, and new instruments for sound point to a way to raise consciousness. The pied piper of mythology is an example of the persuasive power of music. The falling walls of jericho are examples of the destructive power of sound.

Using water as a medium for the sounds may show the way to levitation, implosion, heat, and light. Sound travels roughly 4 times faster through water than through air, since water is more dense than air. The ratios of densities, melting points and etc., when multiplied by two to the suitable octave range may be the note intervals to play on the new keyboards, which may effect not only matter and new ways of forming it, but may affect our consciousness as well in positive ways.

CHANNELING

SOUND AND THE FUTURE

September 3, 1982, 3:00 am.

"It is time to talk about sound. What we think of as rhythm or drum beats is in actuality frequency. When the drum beats are raised by octaves to a recognizable pitch, they then take on the aspects of a musical sound. The reason sound is so important now is that we are on the verge. Humanity is on the verge of mind control through certain frequencies. The way to avoid mind control is to be at a frequency higher than the controller. Thought can reach frequencies beyond the speed of light. When we center ourselves, we pull everything together harmoniously. We become our own overtone series. When we are in an overtone series mode our auras actually extend. It is as if the high vibrations are like an armor which could extend and encompass 2 feet, 3 feet, 25 feet and whatever. It is easier to control the lower frequencies, therefore in centering the frequencies into ourselves by raising in our minds the octave levels until we hear the sounds of this ringing in our head, we are protected from those emitting the lower vibrations. We do not need electronic equipment to do this, as we ourselves are the perfect equipment. The hierarchy of masters will reach and take us in when we reach that level. They will pick you. You do not choose them. They will recognize when you are on a harmonious level of very high frequencies, and then, they will know that it is time to come, to talk, to suggest, to prepare you. That is what is meant by the biblical terms of the virgins being ready and having the candles lit. We are our own candles. We light our own candles from within through meditation, and as they become

ever brighter we become beacons. We become so bright we are recognizable on all levels and all planes, inner and even outer. When you have reached the point in the meditative states and lit your candle, then the time is right to become part of the plan. To become workers for the Hierarchy who have been waiting for this awakening for centuries. Each of us will awaken, each of us will be helped to awaken by others, and that is our goal, to speak out, to waken the mass of humanity to their true destiny, as brilliant candles, brilliant little suns. Suns that are shining in darkness. The consciousness of the human race is becoming unfolded. The collective unconscious is becoming the collective conscious. There is much work for all of us to do to hasten this particular consciousness into the light. When we feel we do not have enough knowledge, what we do is go into our own vast library of the universal mind. If you wish information, simply put yourself in a meditative state, think about what you wish to know and the answer will come to you, perhaps even in a dream. We have our own little computer banks in the cells of our brains. We just have to punch the right keys to unlock the information that is ours."

BUILDINGS AND HEALING

September 4, 1982.

"For any building, for example, one can find the unit measurement by taking ratios of arbitrary numbers and seeing what ratios match the ratios of the building. In other words, one can measure each length, width and height and factor these numbers into ratios which are integers. Diagonals might present problems of incomensurability, so avoid diagonals. If any of the ratios are 2, 3, 5 we would know that music proportions are involved.

Now to healing with sound. In healing with sound the physical, mental and spiritual bodies must be considered. Ideally one would work with the spiritual first as disease

begins with an imbalance of this center. So, for the healthy, the spiritual meridian of very high frequencies is called for. A Pythagorean matrix of each of the seven ray frequencies can be done, one for each day, for example. For those on the emotional plane, a lower frequency of each of the seven rays would be a balancing modality. For the physical, one must use frequencies based on the speed of sound through the diseased organ. And to create harmony one would take the frequency of the speed of sound and then take the 15/16th harmonic of this, and next, the 8/15 harmonic which is only an octave difference. Three harmonies would be present, the tonic, the second and the octave below the second. Of course, this would depend upon whether one was measuring wavelength or frequency. So to be on the safe side take the inverse as well (16/15 and 15/8). Hopefully, the disharmony (disease) would not have reached the physical, so that only the frequencies appropriate to the emotional and spiritual would be needed.

For the physical, the Lambdoma matrix would work well by finding the closest approximation to the speed of sound (+ or - 320 cycles per second for muscles and organs, or + or - 420 for bone), then choosing the 15/16th entry, and the 16/15th entry."

GRAVITY AND HEALING

September 5, 1982.

"The most important factor in the reduction of weight in a gravitational sense to be used in healing is the octaval (octave) relationship. In the case of gravity a lower octave combined with the ratios of 8/15 and 5/8 apply. In healing the octaval relationship is one of a higher octave. Lower octaves lengthen the wavelength and it is the wavelength which effects matter more than the frequency. Actually mass can be equated with either the overtone or the undertone. Conceptually the overtone is a positive force, a

gravity of an object going back to the Source. While the undertone is a negative force, one which lengthens and repels closer to the Source than further away.

It is imperative that the healing modalities begin with the dimensions in a physical sense of either the person (for gravity lessening) or the diseased organ for healing of the physical body. Again, the point is stressed that there must be a carrier frequency. This frequency has to be determined by the speed of sound through the material. This must be a constant sound, occurring throughout the length of the treatment, by experimenting with the placement of the speakers in an arc, all directed towards a point of levitation, for example. Measuring the distance of the object in terms of octaves or doublings, according to the original dimensions of the object, would create the critical point at which the object is to be levitated.

Other factors to be taken into account would be the spin of the earth at 7.5 cycles per second, the temperature of the air, as well as speed of sound through air if levitation is desired. With healing, of course, levitation through air is not the concern. The concern here is that as the frequencies of the speed of sound through blood, for example, would be the carrier frequency, then the ratios aforementioned would apply and a chord of these would be beamed at the whole person for a period of 60 seconds. The quality of the blood would be tested to see if there would be a difference of composition. This would indicate whether progress in averting a blood disease would be occurring."

INTERVALS AND HEALING

666 777 999

December 20, 1981.

"What you are searching for is already known. You will be led to the places where you will find what you need.

Trust your inner affirmations. The knowledge which you seek is ancient, and has been purposely hidden until it is time to be revealed. Your answers will come to you in dreams and insights, meditation and prayer. Always keep your focus on the healing aspects of your work.

Now there is something important to be told: $2/3$ is 0.667 times 1000 = 667, the fifth (wavelength) interval is key to energy. Its opposite, the fourth $3/2$ is also energy but not as much as the fifth. The augmented fourth (the 11th harmonic) is called the tritone because it is dissonant. You have discovered a series of dissonant intervals (in the Lambdoma matrix). Because they are in a structured framework, they become modules of sound, repetitive, but never the same. These modules are the stem, only the stem of the flower which you will discover. The sounds use ratios which are not normally used in music. That is all right for you are dealing with healing not music as such. And dissonance, the extent and quality of the dissonance is what will be the cure for diseased cells.

Now that you have discovered the stem, next is the flower. The flower is what extends beyond the stem into the field of energy of the kind we are speaking. Therefore, extend the modules in ever widening rings, or rectangles or squares. Try to encompass much of the field, but in a ordered way. The row/column way is not enough. You will find another algorithm which will give you the modules you will need. Each person will have need of certain dissonant patterns. The hardest thing will be to find out just what is needed for each individual. But you will be helped in this."

Metatron

MATTER, COLOR AND VIBRATION

*Channeling by Dr. West,
under the guidance of Stephen and Tasha Halpern,
March, 1981,*

"How do you determine the density of matter?

To determine the density see fusion as the yardstick to the hypotenuse, and see the equilibrium as the base. Fusion is the collective values of force from light to action of being. To determine action of being see force as the presence of will in contrast to the rhythm of universal presence, keeping in mind that value-ratio-numbers fail to _____. Keep in mind that Pythagoras would see density through color virtue, and the earlier method is best for problem solving. The Pythagoreans by analyzing the density of the color connected with the vibratory rate of the matter or energy were able to postulate the point of fusion. This means in order for a table to be solid, molecules have to vibrate at a certain rate. Rate of fusion is rate of density. Density is solidity that makes a table solid. analyze by color and density. Ratio of vibration could be figured out mathematically. Produce sound out of color. Check Descarte's geometry and Copernicus. A pyramid is darkest at the apex and light at the base. Density equals the measurement of a color, dealing with force, weight and matter. These are the Master Keys to other things, principles of ratio, magic squares, magic cubes, proportions and how they relate to different disciplines, angles and how angles effect resonance. How? By virtue of the angularity of the echo. When the angle is narrow it creates a different reverberation than when wide. As it bounces, depending on the angle, it bounces differently. Unexplored fields are, rain drops on sheets of metal to produce vibration, drums to convey messages and buildings built on principles of angular resonances. Sound is unexplored."

THE NUMBER FOUR AND DNA

There is something important about the number four. It would be the third octave leap of what ever was named or considered. In other words, it would reinforce the fundamental concept or construct for the third time. This idea of four may be linked to our memory or reasoning properties. Its double reinforces the thought or idea at 8, and completes the manifestation at 16. There are 16 steps up to enlightenment on the harmonic series and 16 steps down to manifestation on the sub-harmonic series.

Between the second and fourth step, there is the idea of communication in the third ascending step and unconditional love on the third descending step. Between the fourth and eighth step there is the fifth step up of the mental/emotional awareness, and the fifth step down of a psychic awareness. Then comes the repetition of the qualities which reinforce by doubling the third step up and down. Next comes the seventh step up of a recognition of a quality of clairvoyance, and the seventh step down of a creative energy which manifests either an idea or a physical conception or birth of a physical being.

Finally between the eighth and the sixteenth steps are found all steps composing the qualities already mentioned but doubled in intensity. The ninth step up is a creative impulse, while the ninth step down is a recognition of the qualities of the soul. The eleventh steps up as well as down represent feelings and transmissions of unconditional love through communication. The thirteenth step up releases a psychic awareness, while the thirteenth step down releases a mental/emotional related to the solar plexus energy level. The fifteenth step up presents a full consciousness of the soul and its purpose, while the fifteenth step down becomes a manifestation on the earth plane of an idea or a being. The above concepts illustrate one of the ways the harmonic and

sub-harmonic series can be applied to our developing consciousness.

This concept may also be applied to our understanding of the DNA. At its first stage or step one, the DNA forms a circular strand. At its second stage the DNA forms a figure eight. At its third stage a characteristic Lissajous figure similar to the harmonics of a third or fourth harmonic becomes evident. The DNA seems to mirror the harmonic series as witnessed by its physical contortions in its growth patterns. Because the DNA forms a double strand, the sub-harmonic as well as the harmonic seems to be present. Does one ascend and the other descend as our model described above?

The pentagon and the hexagon seem to be the building blocks for the DNA. These are the fifth and sixth harmonics and sub-harmonics. The fifth ascending and the fifth descending reflect the qualities of the emotional/mental and solar plexus energy, and the psychic ability coupled with the communication and unconditional love of the heart chakra.

When we interpret number in human concepts we have a better understanding of the nature of number, and a better understanding of the powerful sequence of events which must be followed exactly. William Blake wrote of "fearful symmetry". The harmonic/sub-harmonic series combined in a matrix with its unique individual imprint of a fundamental frequency can be the fearful symmetry which is the key to what makes us communicate and understand others. For no matter how different the individual DNA or personal fingerprint may be, the pattern of development takes on a similarity of interval steps, shapes and qualities that allows us to not only communicate with unconditional love with our fellow species but to understand that we all come from the same blueprint.

INTERVAL CHORDS USED IN THE RECORDING "MUSIC OF OUR ORGANS"

INTESTINES	COLON	BLOOD	GALL BLADDER
281.6 Q(D)	176 T(G ^b)	321.9 R(E ^b)	164.3 R(E)
187.7 T(G ^b)	264 P(C [#])	482.9 W(B)	246.5 W(B)
422.4 U(A ^b)	117.3 V(B ^b)	214.6 U(A ^b)	109.5 U(A ^b)

ADRENALS	PANCREAS/SPLEEN	KIDNEY	STOMACH
492.8 W(B)	117.3 W(B ^b)	319.9 R(E ^b)	110 U(A)
739.2 T(G ^b)	176 T(G ^b)	479.8 W(B)	165 R(E)
328.5 R(E)	78 R(E ^b)	213.3 U(A ^b)	73 Q(D [#])

BLADDER	BRAIN	INTESTINE	FAT
352 S(F [#])	315.8 R(E ^b)	281.6 Q(D ^b)	295.8 Q(D [#])
528 P(Q [#])	473.7 V(B ^b)	422.4 U(A ^b)	443.7 U(A)
234.6 V(B ^b)	210.5 U(A ^b)	187.7 T(G ^b)	197.2 T(G [#])

LUNGS	MUSCLE	BONE
220 U(A)	323.9 R(E ^b)	418.3 U(A ^b)
330 R(E)	485.9 W(B)	627.5 R(E ^b)
146.6 Q(D [#])	215.9 Q(D ^b)	278.9 Q(D ^b)

ORBITS AND SPINS OF PLANETS

Translated to their Musical Frequencies

PLANET	FREQ (cps)	NOTE	SIGN	DATES	ORBIT	SPIN (cps)
Mars	289.4	Q(D)	Aries	Mar/Apr	687 days	378.5
Venus	442	U(A)	Taurus	Apr/May	224.7 days	409.1
Mercury	282.4	Q(D)	Gemini	May/June	88 days	421.3
Moon	454.7	U(A)	Cancer	June/July	28 days	389.4
Sun	332.8	R(E)	Leo	July/Aug	26000 yrs	355.1
Mercury	282.4	Q(D)	Virgo	Aug/Sept	88 days	421.3
Venus	442	U(A)	Libra	Sept/Oct	224.7 days	409.1
Mars	289.4	Q(D)	Scorpio	Oct/Nov	687 days	378.5
Pluto	288.5	Q(D)	Scorpio	Oct/Nov	248.4 yrs	486.2
Jupiter	367.2	S(F#)	Sagittarius	Nov/Dec	11.06 yrs	473.9
Saturn	295.7	Q(D)	Capricorn	Dec/Jan	29.46 yrs	455.4
Saturn	295.7	Q(D)	Aquarius	Jan/Feb	29.46 yrs	455.4
Uranus	414.7	U(A ^b)	Aquarius	Jan/Feb	84.01 yrs	430.8
Neptune	442.8	U(A)			164.8 yrs	310.7
Earth	272.2	Q(D)			365.25 days	389.4

Earth, Mars, Mercury, Pluto, and Saturn "Q" (D) are in a musical relationship of fifths to Venus, Moon, Uranus, and Neptune "U" (A).

The frequency range is "Q" (D) (280 to 296) and "U" (A) (408 to 424).

Reciprocals, from "U" (A) to "Q" (D) create musical intervals of fourths.

One earth week (seventh harmonic)= 443 cps is equivalent to the period of rotations of Neptune, Venus and the Moon.

52 weeks (thirteenth subharmonic)= 272.6 cps is equivalent to the earth's rotation.

The sun's period of rotation is 26,000 years which translates to a frequency of 332.8.

The ratio of 13:16 of the subharmonic of 332.8 (sun) = 270.4 which is close to the earth orbit of 272.2.

The ratio of 7:8 of the subharmonic of 332.8 (sun) = 291.2 which is close to to orbit of Saturn of 295.7.

The ratio 2:3 of the subharmonic of 332.8 (sun) = 443.7. This means that Venus, Moon, and Neptune are in a 2:3 ratio to the sun.

The ratio 16:15 of 332.8 (sun) = 354.9 which is the musical frequency dimension of a micron which is the dimension used to measure blood cells.

KEY IDEAS TO BE FURTHER DEVELOPED

From article "Healing with Sound" in CADUCEUS #23

THE SCIENCE OF VIBRATION

The proportional differences between the notes on a scale and colors remain unchanged. The same ratio always holds. The concept of "octaves" is a key to the science of vibration. An example of the ratio of an octave is 2:1, 4:2, 8:4 or 256:128 which represent the notes C to C. An octave can be divided into any number of separate parts, seven, eight, or even fifty and beyond. Our Western Scale uses 7, or 12. Indian Ragas use 50 separate sounds. The Lambdoma uses only 8.

WHOLE-NUMBER RATIOS

The Lambdoma is a table of whole-number ratios. A ratio is an odd number coupled with an even number, or two odd numbers, or two even numbers always reduced to their simplest form.

TABLE OF RATIOS DEFINES THE PATTERN OF RESONANCE BETWEEN SOUND AND MATTER

The Lambdoma can be the key to restructuring matter and healing with sound.

The correct use of the Lambdoma could provide a key to the construction of Pyramids, and the nature of mass and energy.

In the Periodic Table of elements the atomic number is

always in an octave relationship with the atomic weight. This means that each element has its own scale beginning with its particular fundamental frequency. Each element has its harmonic-overtone and its subharmonic-undertone. These can be found in the Lambdoma table of ratios when the frequency is the fundamental number of vibrations of the particular element.

MUSICAL SCALES THAT HEAL

How do musical scales heal? They heal by using the laws of physics in a correct order. Take a cell. Find the resonant frequency of that cell. By octave reduction bring that frequency into the audible sound range. Sing the scale. The human voice is the most powerful tool of all.

THE LAWS OF HARMONICS

The body is a manifestation of a harmonic chord.

SOUNDING THE RESONANT FREQUENCY OF AN ORGAN

Blood cells nourish different organs. The dimension of different blood cells becomes a key to translating a wavelength of a cell into a frequency of audible sound.

CORRESPONDENCE BETWEEN SOUND AND COLOR

The frequency of sound can be multiplied by 2 to the 14th power until it reaches the frequency of light. Each particular color has its own particular frequency.

On the other hand, each color has its own particular wavelength. Each wavelength can be divided by 2 to the 14th power until it reaches the wavelength of audible sound.

This is possible by the method of OCTAVE EXPANSION and OCTAVE REDUCTION.

QUALITIES OF INTERVALS

What are the particular qualities of two notes sounded together? What emotions are elicited? What parts of the body are affected? Which sounds are the most pleasing? Which sounds are the most distracting? This is research which can be done.

RESTRUCTURING WITH SOUND WITH THE LAMBDOMA KEYBOARD

The Lambdoma Keyboard can be a key to restructuring matter by finding the resonant frequencies of the matter. One possible way to find the resonant frequency would be by its dimension. That is the usefulness of the charts which translate from different dimensions, inches, feet, miles, centimeters, meters, kilometers, microns, nanometers, half-lives, light years, etc.

The Lambdoma keyboard would enable one to assign the proper frequency as the fundamental. Then the most harmonious ratio keys could be pressed. The overtone and the undertone keys could be pressed to sound their reciprocal frequencies. Then monitor the reactions. Much research needs to be done.

OTHER USES OF THE LAMBDOMA KEYBOARD

We could return to the original way that music used to have the power to heal and to prevent violence. Composers and musicians could play the keyboard with pure harmonic notes. A person's individual keynote could be sounded, and the entire body brought into harmony with itself. The frequencies of the nutritive elements that our body needs could be played so that pharmaceuticals would no longer be needed.

**A UNIFIED FIELD THEORY
WOULD BECOME MANIFEST THROUGH
THE PROPER USE AND UNDERSTANDING OF
HARMONICS AND SUB-HARMONICS.**

Electricity and magnetism would be recognized to be overtone and undertone. Electricity would be found to be only one of the manifestations of sound, in its overtone harmonic series. Magnetism would be found to be another manifestation of sound in its undertone sub-harmonic series. Radio, microwaves, infrared, ultraviolet, visible light are all part of the vibrations of overtones and undertones. Each one has its opposite or complement. Mass as undertone, energy as overtone. Space as undertone, time as overtone.

PUBLISHED COMMENTS ON THE SOUND STRUCTURES BASED ON THE LAMBDOMA

"The third group of composers who have been sensitized to the new vibrations are . . . the sound structures developed by the American Barbara Hero based on the ancient Pythagorean Lambdoma table, . . ."

From Manuscript: "Towards a New Phenomenon of Sound in the Aquarian Age – *the Rise of New Consciousness Music*" by James D'Angelo.

"Sound, both as pure sound and mantras, arouses the unconscious potentials and can restructure consciousness and matter. This knowledge was encoded by Pythagoras in a table known as the Lambdoma Matrix. Barbara Hero, in *Healing with Sound* (page 12) shows that this ancient knowledge could be the basis for a new science of healing."

From "About this Issue" by Sarida Brown Editor of CADUCEUS *Healing into Wholeness* (issue 23).

"This vast latticework of overtones or harmonics, spawned by the original Word and imparting to every aspect of Creation its own particular vibratory rates, has found an intelligible, visible form in the Lambdoma diagram, attributed to Pythagoras. In the twentieth century it has been taken up by the metaphysician Hans Kayser (see Godwin's book *Cosmic Music*) and Barbara Hero (see her article in this issue, and her book *Lambdoma Unveiled*) as a means of

understanding the structure and interrelatedness of all Creation in terms of harmonic ratios."

From "Resonances of the Cosmos" by James D'Angelo in the section titled "*Manifestation as overtones of the first great resounding*" in CADUCEUS (Issue 23).

"I began to read books on the physics of sound to find out about harmonics as a phenomenon of vibration hoping that science would provide some answers, and then I met Barbara Hero. Barbara had been working with a Pythagorean formula - called the Lambdoma - for healing with sound and created the Lambdoma frequencies of this formula with a synthesizer. I realized that the Lambdoma was based upon the harmonic series and could be applied to the voice."

From the book "HEALING SOUNDS The Power of Harmonics" by Jonathan Goldman from the section entitled *The Lambdoma and Cymatics*.

"Barbara Hero has demonstrated a similar effect of harmonics using a laser and scanner system. Barbara places a mirror under a speaker system which vibrated the mirror when two different frequencies were created. She then projected a laser at the mirror and the laser was reflected on to a screen, revealing the images created by the sounds. Barbara found that those intervals which were created by the harmonic series created shapes which were geometrically perfect. These shapes, such as a circle, remained stationary as long as the intervals were sounding. Intervals which were not harmonically related created shapes that were not geometrically perfect and their shapes decayed.

Barbara experimented with the human voice using this laser and scanner system. The results were the same. When two people sang notes that were harmonically related, the

perfectly symmetrical geometric shapes appeared. This was especially true when the people created vocal harmonics. When the voices created sounds that were not harmonically related, the shapes were not symmetrical."

From the book "HEALING SOUNDS The Power of Harmonics" by Jonathan Goldman from the section entitled "*Jenny and Cymatics*".

"Another frequency-based healing modality that utilizes harmonics is Barbara Hero's Lambdoma frequencies. In our chapter on the Science of Harmonics, we briefly discussed the Lambdoma Diagram. The Lambdoma is a mathematical table that is said to have been discovered by the master Pythagoras and saved from destruction by his disciple Iamblichus.

Barbara Hero is a mathematician and artist who has been working with the Lambdoma for over twenty years. She believes that the Lambdoma is actually a formula for healing with sound and she has created a series of tapes designed to balance and resonate the chakras based upon these frequencies.

... When I first listened to and experienced Barbara's Lambdoma sounds, I thought they were quite interesting though I don't know if I was attuned enough to feel any effect from them. I was impressed by their synthesized sounds which were single tones moving up and down the scale. I was also intrigued by how these frequencies might have been calculated. My wife Karen is much more sensitive than I am. During her experience listening to the Lambdoma frequencies, she had actually felt her chakras being affected and balanced by the specific sounds on the tape. Many others who have worked with Barbara Hero's Lambdoma frequencies also report beneficial results.

When I investigated the Lambdoma frequencies, I found

that they were all harmonically related. In fact, the Lambdoma Diagram is nothing more or less than a table of ratios based upon the overtones. The sounds which Barbara had put on her tape were simply harmonically related frequencies. It seems quite possible that the chakras are harmonically related and that they do respond to harmonically related frequencies."

From the book "HEALING SOUNDS The Power of Harmonics" by Jonathan Goldman from the section *"The Lambdoma and Healing"*.

"The mathematician Barbara Hero working at M.I.T., has found that the colors Pythagoras (Greek philosopher, geometrician, and musician, 600 B.C.) is said to have ascribed to the musical tones, when generated by computers, actually produce their complementary colors (opposites). Hero's interpretation, one with which I agree, is that chakras absorb the seven spectrum colors in sequence and emit their complements."

From "Sounding the Inner Landscape - Music as Medicine" by Kay Gardner, Chapter 1 *"Medicine Wheels and 'Unseen Bodies'"*.

"The Law of Octaves is: multiplying any frequency in cycles per second by 2 in order to reach its equivalent frequency in chemicals, heat, or light, or dividing any of these frequencies by 2 in order to reach a frequency tending toward gravity. - Barbara Hero"

From "Sounding the Inner Landscape - Music as Medicine" by Kay Gardner, Chapter 1 *"Medicine Wheels and 'Unseen Bodies'"*, in the section entitled *The Law of Octaves*.

GEOMETRY OF SOUND

"Fundamental, computer-aided research, of interdisciplinary value, on the geometry of sound had been conducted by Barbara Hero and Robert Miller Foulkrod. In a few words: inter-relationships of music, resonance, math and color. The starting point for the research, started over 20 years ago, has been the Pythagorean matrix, the Fibonacci Lambdome, that describes the specific relationship of a mathematics of musical intervals, first mentioned by Iamblichus (200 AD), referring to a diagram recorded by Nicomachus of Gerassa. The achievements to date describing the musical intervals include: wavelengths, ratios, frequencies, synthesized sounds for each note (with undertones and overtones). Lissajous figures for each tone – interesting for those designing special solenoids for non-Hertzian and scalar wave generation, spiral figures representing the notes, colour/note relationships and even a planetary grid system analysis. A morphological rationale for the therapeutic effects of notes and combinations has been also developed."

from "Planetary Association for Clean Energy"
Newsletter, Volume 8, Number 1, 1995.

"Pythagoras defined the musical intervals by means of metaphysics, as well as mathematics. He believed that each interval related to all the others within an orderly system that manifested itself in sound, in numbers, in geometry and spatial relations, in planetary orbits, and in natural laws. The geometric form of the system was a stepped pyramid, with each step corresponding to a numerical ratio that defined a musical interval. The steps at the base of the pyramid were larger, the ones toward the top more closely spaced, so that a sense of acceleration accompanies the ascent and a deceleration the descent. This stepped shape, called a *lambdome*, also echoes the pattern of a vibrating string or a sound wave itself, as well as mapping the musical overtone series which determines the physical form of each note. Its complex and graceful contours invite the observer

into communication with what is at the same time an ancient store of intuitive wisdom and a modern scientific truth."

From article "RESOUNDING, THE BODY MIND, PIONEERS IN SOUND THERAPY 1" by Marcia Jenneth Epstein, Ph.D. in *Ascending Times*, Page 28 / March, 1995.

THE "SCIENCE" OF THE INSPIRATION OF WELLNESS

by Robert Miller Foulkrod

For centuries, many individuals have been trying to inspire others to become well from all manner of illnesses. Some of the successful inspirers know how they inspired wellness in their patients, clients or friends. Some other, successful inspirers, do not know what they were doing that worked. Many other individuals and even organizations have been unsuccessful in their efforts to inspire wellness because they do not know what actually does inspire wellness.

It is the *words* and the *pictures* used by *any* practitioner that *changes the beliefs* of the clients and inspires them to *believe* that they will overcome the germs, viruses or diseases that are attacking them. There is more *positive inspiration* in the words and the pictures of *advertisements* than in any devices, medications or treatments themselves. Quimby said, "*The understanding is the cure.*"

THE "SCIENCE" OF THE INSPIRATION OF WELLNESS

Inspired by "The Science of Health and Happiness" developed about 1850 by Phineas Parkhurst Quimby.¹

In the middle of the last century one man learned the Science of *Inspiring Wellness!* Phineas Parkhurst Quimby then inspired *over ten thousand individuals* to become well from all manner of illnesses. He taught this Science to others and described the Science, and his methods for applying it, in his many, detailed manuscripts.¹

Quimby deduced that each of us has an inner,

"scientific" self which has the power and the wisdom to take care of our "natural" body. When we *know* this scientific (repeatably provable) truth, we can release the error beliefs programmed into us by our cultural conditioning and live in complete wellness.

Quimby trained himself to be sensitive and to be clairvoyant. He could sense the pains of his subject without being given any descriptions or symptoms. He could sense the inner "scientific" self in his subject also. Quimby found that when his subject's inner self felt safe with him it would show Quimby when, how and why the subject first started manifesting any disease and its symptoms. Thus, Quimby knew just what culturally-caused error beliefs were controlling the subject and preventing a natural recovery. Quimby often explained these error beliefs to his subject and always talked with the subject, explaining clearly that the inner self is always able to remedy the illness and all of its symptoms.

Quimby described his method as that of a defense attorney for the subject. He saw patients as innocents sentenced to their illness for a crime they knew not of. He said that the culture and its error beliefs were the prosecuting attorneys. He said that the patient is the "judge" in charge of the sentence. As soon as Quimby was able to convince the "judge" that the "scientific" power to heal ourself is within, the sentence would change and the cure would begin. Quimby could feel the onset of healing because he could feel the pains felt by his patient and was aware when the pain started to diminish.

The Science is based on the Wisdom that our physical bodies are perfectly designed to take care of themselves and to remain well even in an environment full of germs and viruses. At any moment in time, the actual condition of our physical body is affected by foods, poisons, chemicals, radiation, injury and etc. The Science of *Inspiring Wellness*, emphasizes that the actual condition of our physical body is also *strongly under the control of our own beliefs and thoughts*. Therefore, when we *believe* (or *know*) that our perfectly designed body can overcome an illness, we can overcome the illness, if we are not still being attacked by

some strong poison, injury or misguided belief.

Therefore, the need is to *inspire the belief in our own ability to become well* in the face of the prevailing cultural conditioning. Conditioning, that teaches that we need outside intervention to bring about our wellness, or even worse, that no wellness is possible.

Any device, chemical, treatment or explanation, that *convinces* an ill individual to truly *know* the truth that we are able to overcome any illness, will bring about wellness if most of the injuries, poisons, misguided beliefs and thoughts are eliminated.

HOW INDIVIDUALS BECOME ILL:

- Our culture bombards us with the myth that our bodies are subject to the control of germs and viruses just as they truthfully are subject to poisons.
- We internalize these myths into beliefs which do effect our, otherwise perfect, immune system.
- We receive a bump or are poisoned or are otherwise excited and we notice a feeling of discomfort.
- We mention our discomfort to friends who diagnose it as the indication of an illness that they know well.
- Another friend or doctor tells us what symptoms we should have with such an illness.
- With this advice, we are soon able to manifest the named and described symptoms to their fullest.
- Carried to its erroneous but apparently logical conclusion, we may volunteer to die to please our friends.

HOW INDIVIDUALS BECOME WELL:

- Our inner self guides our perfect immune system in the elimination of any physiological causative agents.
- We apply positive thinking, eating, drinking, praying, meditating and resting.
- We only listen to those encouraging friends who know that our inner spirits have power over any illness.

QUIMBY'S METHOD (PROGRAM) FOR INSPIRING WELLNESS.

- Compassion for the individual who was ill.
- Quiet attention to and empathy with the individual.
- Feel the individual's pain and diagnose the condition.
- Sense and communicate with the individuals inner, scientific self.
- Learn the physical and belief causes that created the illness.
- Explain to the individual that we are all created with the inner scientific power to overcome any illness.
- Continue to explain this scientific power and feel the individual's pain diminish.
- Provide additional personal sessions or letters of encouragement until the cure is complete.

HOW TO BE A SUCCESSFUL WELLNESS INSPIRER FOR INDIVIDUALS SENTENCED TO ILLNESS.

- *Know* the truth that every individual has the inner scientific power to overcome any illness.
- Know that an individual who is ill is more in bondage to mistaken beliefs than under control by any virus.
- Learn as much as possible about the cultural beliefs that keep your subject in bondage to illness.
- Do just what you always do and in addition *convince* your subjects that they will recover completely with the application of your methodology combined with their faith, without doubt, in their inner power.

WHAT TO DO DURING YOUR INSPIRATION OF WELLNESS TRAINING.

- Do just what you always do and in addition *convince* your subject that she will recover completely with the application of your methodology combined with her faith, without doubt, in her inner power.
- Obtain the services of another *Wellness Inspirer*.

- Obtain the services of a competent hypnotist who can be a proxy *Wellness Inspirer*.
- Practice the "EIGHT WELLNESS STEPS" that follow.
- Give the individual two albums of "Wellness Songs" to keep and use as mentioned below.

EIGHT WELLNESS STEPS

The Source pictures me being perfectly well!

1. I PICTURE MYSELF BEING PERFECTLY WELL, and feeling completely comfortable in my physical body.

- I have a clear picture of myself doing what I Love to do that definitely requires my wellness.
- I draw or have a friend draw a clear picture of me doing what I love to do that definitely requires my wellness.

2. I CREATE MY OWN WELLNESS WITH MY THOUGHTS, WORDS, ACTIONS AND BELIEFS.

I know that my Spirit has the power to keep me well!

- I think only positive thoughts about my perfect wellness.
- I speak only of wellness for all of us and of our innate power to always be well.
- I enjoy doing those actions that enhance my wellness including positive thinking, speaking, eating, exercising and believing.
- I program my own beliefs with my positive thoughts of my innate power to be well.

3. I MEDITATE ON THE SOURCE'S AFFIRMATIONS. ²

- I am the expression of the perfect mind of the Source!
- The Source's perfection is inherent within me!
- I now call into manifestation perfect harmony and

perfect adjustment in mind and body!

- **My body is but the expression of my mind!**
- **My mind is one with the perfect mind of the Source!**
- **I am in reality perfect!**
- **I have been given the power to decree for myself perfect adjustment, and I now decree for myself harmonious adjustment both in mind and body!**
- **I am now contacting the perfect order and harmony of the Source's mind!**
- **This harmony causes every condition to be a blessing!**
- **I call upon the Source's mind to aid the power within me to hold in mental concentration the perfect image of me that is held at all times in the Source's mind!**

4. I FOCUS ON MY VISION OF MYSELF BEING PERFECTLY WELL.

5. I ALWAYS ACT AS IF I AM PERFECTLY WELL.

6. I SING THE SOURCE'S WELLNESS SONGS AND JINGLES.

7. I RELEASE ALL STRESSES.

8. I KEEP ON DOING THE CREATIVE WORKS OF THE SOURCE.

- **I enjoy doing The Works of The Source!**
- **I am a Co-Creator with The Source!**
- **I create with my every thought, word, action and belief!**
- **I am creating my entire reality now!**

WELLNESS SONGS, JINGLES AND POEMS

I am aware of the programming power of the popular media. Movies, television, radio, magazines and books provide us with pictures and words designed to program our thoughts and beliefs. I still remember the images and even singing the songs and jingles from years ago. Much of what I saw and heard was carefully designed to promote a product or an idea or a belief. Our beliefs are programmed within us by our conscious and unconscious thoughts. Our most powerful thoughts are often caused by word pictures shared with us by those we respect as our teachers or peers. Therefore, it is the words spoken by those we trust that we internalize as our beliefs of how things are and also how things ought to be.

Today, I wish to promote the truth of the *Inspiration of Wellness* for all of my friends, who are willing. My inner spirit informs me that one of the best ways for me to practice *inspiring wellness* is by producing and distributing tape cassette albums of positive, wellness songs, jingles and poems etc. The words provide a pleasant way for us to hear positive affirmations about our inner power to heal ourselves and thus to be *inspired* to be completely well. I have issued a Call for Wellness Compositions in expectation that you may feel inspired to create lyrics and tunes that we can add to future albums of wellness songs, jingles, ditties and poems etc.

Figure 1. is the score for one of our first wellness songs. The lyrics and music for this song entitled "The Picture of Wellness" were composed by Barbara Hero. The song was arranged and performed by Persis Laja Ensor.

Figure 2. is a picture of a first-generation, "wellness white box", a white, cassette, tape player

Figure 3. is a picture of another first-generation, "wellness white box", a white, cassette tape. Second generation "white boxes" will be white, compact disc albums and their players!

This tape and future wellness album tapes will provide you with a convenient way to quickly apply the Science of the *Inspiration of Wellness* to your present methodology.

THE PICTURE OF WELLNESS B. Hero
 August Laja Enson

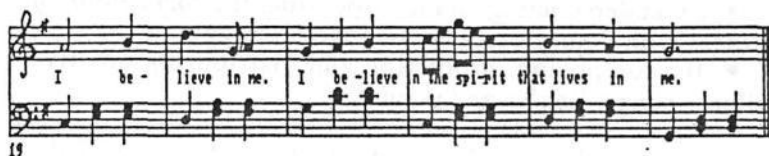
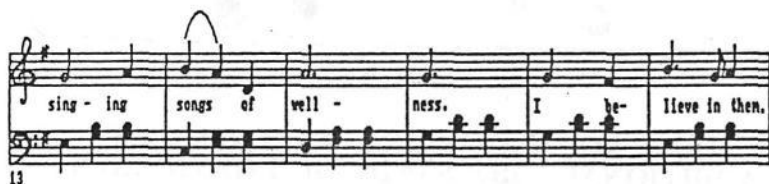
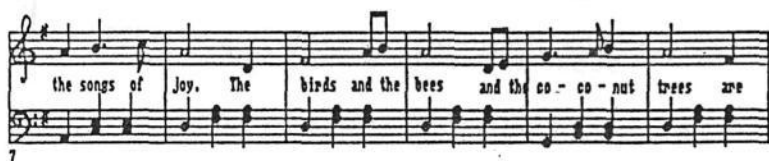
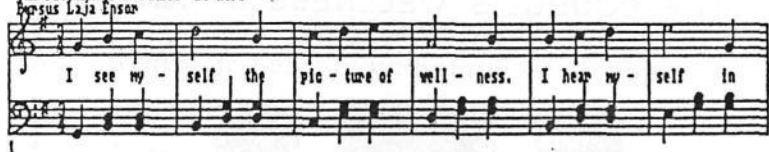


Figure 1.

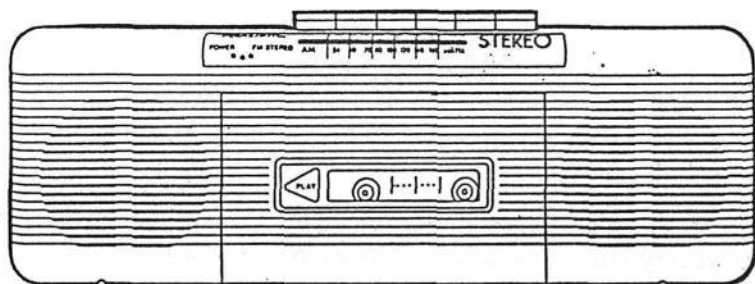


Figure 2.

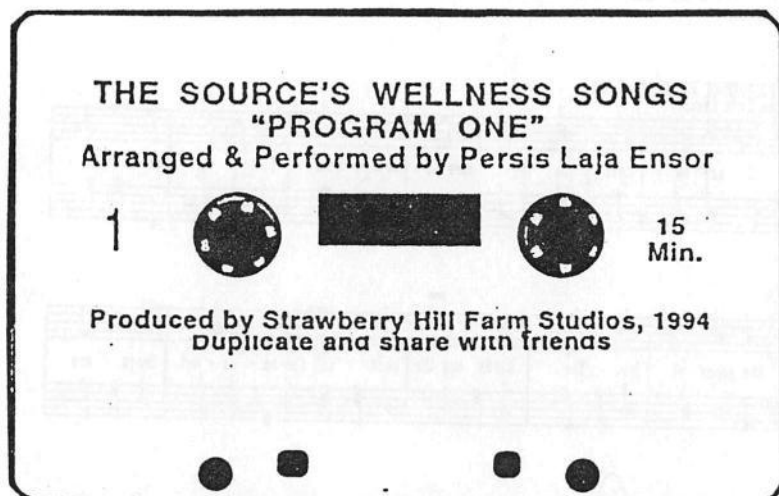


Figure 3.

HOW YOU CAN BRING WELLNESS TO ADDITIONAL THOUSANDS OF INDIVIDUALS

- By understanding and incorporating the *Inspiration of Wellness* with your present healing methodology.
- By composing, producing and distributing positive Wellness songs, jingles and poems.

Armed with an understanding of this Science of the *Inspiration of Wellness*, we can create devices and programs that will even more effectively convince our clients that they will quickly attain complete wellness.

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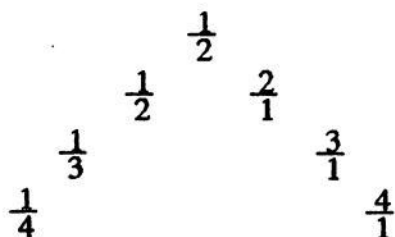
A BRIEF HISTORY OF THE LAMBDOMA

*With the Musical Properties of the Computer Program
for the Lambdoma Harmonic Keyboard*

My own interpretation of the fragmented history of the Lambdoma is that it goes back to pre-history. Under the name of the Pythagorean Table, the Lambdoma was attributed to Pythagoras (500 B.C.). Pythagoras spent 20 years in Egypt, where I believe he came across the matrix as part of his initiation into the mystery schools of that period.

To the ancient Greeks the Lambdoma Matrix was a combination multiplication and division table, an anagram of ratios and musical harmonics. For some unknown reason the multiplication table survived in our times without any reference to the musical harmonic overtones, and the division table disappeared and with it the knowledge of the sub-harmonic musical undertones.

It wasn't until the second century A.D. that Nichomachus of Gerasa and later in the second century that Iamblichus of Syria made mention of the Lambdoma-shaped symbol, a skeleton form of the Lambdoma in the shape of an upside down V (Figure 1.). The overtone series of ratios was on leg, and the undertone series of ratios was on the other leg.



The basic LAMBDOMA Matrix,
named after the Greek letter Lambda "Λ"

Figure 1.

Then, in the 19th century, Albert von Thimus resurrected the Lambdoma from 17 centuries of obscurity. Von Thimus' work was followed by Kathleen Schlesinger, Hans Kayser, Rudolf Haase, Levarie and Levy, and Ernest McClain.

In the 1970's I made charts of numerical frequencies according to the sequence of ratios representing the overtone and undertone series in the Lambdoma Matrix after coming across Levarie and Levy's book *Tone: a Study in Musical Acoustics*. This was my first step in translating the ratios of the Lambdoma matrix into musical frequencies.

The lambdoma matrix had not been generated by a computer software program, to my knowledge, until 1980, when Professor Esch of the mathematics department of Boston University helped me to write a computer program which generated numerical translations of the ratios in a 16 by 16 matrix. The X axis was assigned the 1:1, 2:1, . . . 16:1. The Y axis was assigned the 1:1, 1:2, . . . 1:16. The formula became a simple $F(x) = x/y$, which generated the entire matrix.

It was in 1981, at the Massachusetts Institute of Technology, that I made the ratios of a 20 by 20 Lambdoma matrix audible by a modification of my computer software program, using a fundamental frequency of 352 cycles per second (cps), the 11th harmonic of a fundamental of 32 cps.

The Lambdome matrix has never been made into a computer generated musical keyboard instrument, to my knowledge, until now. It is the advent of personal computers which has facilitated the construction of the Lambdome Keyboard in 1994. This was done with the help of Richard Lord (handshaking the keyboard with a computer), Richard Norley (hardware circuitry), Robert Miller Foulkrod (interval-tone generation software), David Bellantone (design of the physical keyboard), Erv Wilson (inspiration for the diamond configuration) and myself (ideas for more applications for the Lambdome matrix).

The first mention of the Lambdome is found in a footnote in Nicomachus' *Introduction to Arithmetic* in Greek (c.100 A.D.). It was first translated into Latin by the Syrian mathematician and philosopher Iamblichus and later into English by M. L. D'Ooge, p. 191, The St. John's College Press, Annapolis, Maryland, 1960. It was then called the *Lambdoid*.

$\frac{1}{1}$	$\frac{2}{1}$	$\frac{3}{1}$	$\frac{4}{1}$
$\frac{1}{2}$	$\frac{2}{2}$	$\frac{3}{2}$	$\frac{4}{2}$
$\frac{1}{3}$	$\frac{2}{3}$	$\frac{3}{3}$	$\frac{4}{3}$
$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$	$\frac{4}{4}$

The basic LAMBDOMA Matrix
rotated 45 degrees.

Figure 2.

Lambda is the 11th letter of the Greek alphabet and is in the shape of an upside down V. The *Lambdoid* (Figure 1.) was a bare skeleton of the Lambdome as only the two legs

were identified with whole number ratios. One side is arithmetic, $1/1$, $2/1$, $3/1$ and $4/1$ and the other side is harmonic, it's reciprocal, $1/1$, $1/2$, $1/3$ and $1/4$.

The name *Lambdoma* is attributed to Iamblichus (200 A.D.) It was also called *The Pythagorean Table* (Pythagoras lived in 500 B.C.) by A. von Thimus. (See Albert von Thimus: *Die Harmonikale Symbolik des Altertums*, Vol. II, Koln, 1868 - 76)

Hans Kayser (1891 - 1964). Hans Kayser, in his *Akroasis, The Theory of World Harmonics*, translated by Robert Lilienfeld, Plowshare Press, Boston, Massachusetts, 1964, seemed the next to resurrect the harmonics of the Lambdoma from Pythagoras' esoteric diagram. Kayser's diagram appears not as simple as an earlier version, *Lehrbuch der Harmonik* by Geschwister Ziegler, Winterthur, Switzerland, 1950, shown by both Ernest Levy and Siegmund Levarie, *Tone, A Study in Musical Acoustics*, Kent State University Press, 1968.

Professor Rudolf Haase, recently retired Director of the Hans Kayser Institute in Vienna, carried on Hans Kayser's work with the Lambdoma. Professor Haase included many diagrams in his book *Natur-Geist-Seele, Harmonik und Metaphysik des quadratischen und des runden Lambdoma*, Wien, Braumuller, 1985.

Ernest G. McClain's *The Pythagorean Plato, Prelude to the Song Itself*, Nicolas-Hays, Inc., York Beach, Maine, 1978, is another book which illustrates, in Figure 27, the Lambdoma, as "The Pythagorean Table of Von Thimus", p. 148.

Most recently, Erv Wilson sent me Chapter I of Kathleen Schlesinger's book *The Greek Aulos, a study of its mechanism and of its relation to the modal system of ancient Greece Music*, Methuen & Co. Ltd., London, 1939. In her chapter 1, von Thimus' work is mentioned which strengthens the implication that she was very familiar with the Lambdoma Table, and illustrates the ratios of parts of the Lambdoma overtone series with musical scores for each of the modes.

These have been some of my sources from which I developed a music based upon the ratios in the Lambdoma Diagram. See my book *Lambdoma Unveiled (The theory of Relationships)*, Strawberry Hill Farm Studios Press, North Berwick, Maine, 1992, particularly pp. 185 - 197, entitled *The Iamblicus Array as a Transformation of Mapping from Ratios onto Musical Intervals*, 1984.

It was in 1970 that I came across the book *Tone: A Study in Musical Acoustics*. It was the Lambdoma diagram in that book upon which I based all of my musical structure. I created a Lambdoma table (Figures 3A and 3B.) enhanced with diatonic musical notes .

In the 1970's, I created paintings and drawings which were visual scores from the Lambdoma matrix. These visual scores were played by a flutist at my exhibition in Washington, D. C. at Max Protetch's Gallery. Then, I worked with a sine wave generator, an oscilloscope and a tape recorder in order to hear the interval sounds and to see the shapes of the sequences of certain of the harmonic ratios, and I recorded some cassettes of these interval sounds of the ratios in the matrix.

In 1976, I entered a Master of Education program in Mathematics at Boston University. It was there, in an Abstract Algebra class, that I came across the mathematician Georg Cantor's array, which I recognized at once as a Lambdoma matrix with just the ratios, but not the inclusion of the musical harmonic and sub-harmonic series. See page 48, Figure 12, "Cantor's array" in the paperback book *Mathematics and the Imagination*, by Edward Kasner and James R. Newman, Simon and Schuster, 1967.

In 1981, I completed a course at the Massachusetts Institute of Technology in Computerized Sound Synthesis, where a 20 by 20 entry Lambdoma Matrix was generated using the frequency of 352 cps, as F^{\sharp} , the 11th harmonic of C at 32 cps. The first run was very pure. The other recordings were somewhat muddy. I believe the muddiness was caused when the staff added a 12th root of two to the matrix.

RATIOS OF FREQUENCIES: (FOURTH

FUNDA- MENTAL	C = 256 Hertz	1:1	2:1	3:1	4:1	5:1	6:1	7:1
		C	C	G	C	E	G	Bb
OCTAVE		1:2	2:2	3:2	4:2	5:2	6:2	7:2
		C	C	G	C	E	G	Bb
4 TH		1:3	2:3	3:3	4:3	5:3	6:3	7:3
		F	F	C	F	A	C	Eb
OCTAVE		1:4	2:5	3:4	4:4	5:4	6:4	7:4
		C	C	G	C	E	G	Bb
6 TH		1:5	2:5	3:5	4:5	5:5	6:5	7:5
minor		Ab	Ab	Eb	Ab	C	Eb	Gb
4 TH		1:6	2:6	3:6	4:6	5:6	6:6	7:6
		F	F	C	F	A	C	Eb
2 ND		1:7	2:7	3:7	4:7	5:7	6:7	7:7
		D	D	A	D	Gb	A	C
OCTAVE		1:8	2:8	3:8	4:8	5:8	6:8	7:8
		C	C	G	C	E	G	Bb
7 TH		1:9	2:9	3:9	4:9	5:9	6:9	7:9
minor		Bb	Bb	F	Bb	D	F	Ab
6 TH		1:10	2:10	3:10	4:10	5:10	6:10	7:10
minor		Ab	Ab	Eb	Ab	C	Eb	Gb
5 TH		1:11	2:11	3:11	4:11	5:11	6:11	7:11
diminished		Gb	Gb	Db	Gb	Bb	Db	E
4 TH		1:12	2:12	3:12	4:12	5:12	6:12	7:12
		F	F	C	F	A	C	Eb
3 RD		1:13	2:13	3:13	4:13	5:13	6:13	7:13
minor		E	E	B	E	G	B	Db
2 ND		1:14	2:14	3:14	4:14	5:14	6:14	7:14
		D	D	A	D	Gb	A	C
2 ND		1:15	2:15	3:15	4:15	5:15	6:15	7:15
minor		Db	Db	Ab	Db	F	Ab	B
OCTAVE		1:16	2:16	3:16	4:16	5:16	6:16	7:16
		C	C	G	C	E	G	Bb
			O	5 TH	O	3 RD	5 TH	7 TH
			C		C			minor
			T		T			
			A		A			
			V		V			
			E		E			

Figure 3A.

A LAMBDOMA TABLE QUADRANT)

A = 430.5 Hertz								
8:1	9:1	10:1	11:1	12:1	13:1	14:1	15:1	16:1
C	D	E	Gb	G	Ab	Bb	B	C
8:2	9:2	10:2	11:2	12:2	13:2	14:2	15:2	16:2
C	D	E	Gb	G	Ab	Bb	B	C
8:3	9:3	10:3	11:3	12:3	13:3	14:3	15:3	16:3
F	G	A	Bb	C	Db	Eb	E	F
8:4	9:4	10:4	11:4	12:4	13:4	14:4	15:4	16:4
C	D	E	Gb	G	Ab	Bb	B	C
8:5	9:5	10:5	11:5	12:5	13:5	14:5	15:5	16:5
Ab	Bb	C	D	Eb	F	Gb	G	Ab
8:6	9:6	10:6	11:6	12:6	13:6	14:6	15:6	16:6
F	G	A	Bb	C	Db	Eb	E	F
8:7	9:7	10:7	11:7	12:7	13:7	14:7	15:7	16:7
D	E	Gb	Ab	A	B	C	Db	D
8:8	9:8	10:8	11:8	12:8	13:8	14:8	15:8	16:8
C	D	E	Gb	G	Ab	Bb	B	C
8:9	9:9	10:9	11:9	12:9	13:9	14:9	15:9	16:9
Bb	C	D	Eb	F	Gb	Ab	A	Bb
8:10	9:10	10:10	11:10	12:10	13:10	14:10	15:10	16:10
Ab	Bb	C	D	Eb	F	Gb	G	Ab
8:11	9:11	10:11	11:11	12:11	13:11	14:11	15:11	16:11
Gb	A	Bb	C	Db	Eb	E	F	Gb
8:12	9:12	10:12	11:12	12:12	13:12	14:12	15:12	16:12
F	G	A	Bb	C	Db	Eb	E	F
8:13	9:13	10:13	11:13	12:13	13:13	14:13	15:13	16:13
E	Gb	G	A	B	C	Db	D	E
8:14	9:14	10:14	11:14	12:14	13:14	14:14	15:14	16:14
D	E	Gb	Ab	A	B	C	Db	D
8:15	9:15	10:15	11:15	12:15	13:15	14:15	15:15	16:15
Db	Eb	F	G	Ab	Bb	B	C	Db
8:16	9:16	10:16	11:16	12:16	13:16	14:16	15:16	16:16
C	D	E	Gb	G	Ab	Bb	B	C
O C T A V E	2 ND	3 RD	4 TH aug- men- ted	5 TH	6 TH minor	7 TH minor	7 TH major	O C T A V E

Figure 3B,

I acquired computers, first Sinclairs, then an IBM PC Jr, and later Amigas, where I experimented with the matrix, using software created by my colleague Robert Miller Foulkrod. Using a 16 by 16 matrix and having runs of the harmonic interval tones of frequencies based on 256 cps (1:1) as C. The sequence would be the ascending linear line from 1 to 16, then dividing each one by 2, 3, . . . 16. The effect was overtone intervals descending in each of the 16 runs of the matrix. The frequencies of each of the descending ratios were the undertone intervals series. Later, I generated a matrix based upon the mathematician George Cantor's sequence which snaked from the 1:1 entry up to the 2:1, and down to the 1:2, until it reached the 16:1 then down to the 1:16. I called this "Chakra Surfing". It was another way of utilizing each of the 256 entries in the Lambdoma matrix, and seemed to be a balance of interval sounds because of the reciprocity of the ratios.

THE LAMBDOMA HARMONIC MATRIX KEYBOARD

The Lambdoma Harmonic Keyboard is the most recent application of my theories. It is a diamond shape, 8 by 8 matrix with the 1:1 ratios at the center.

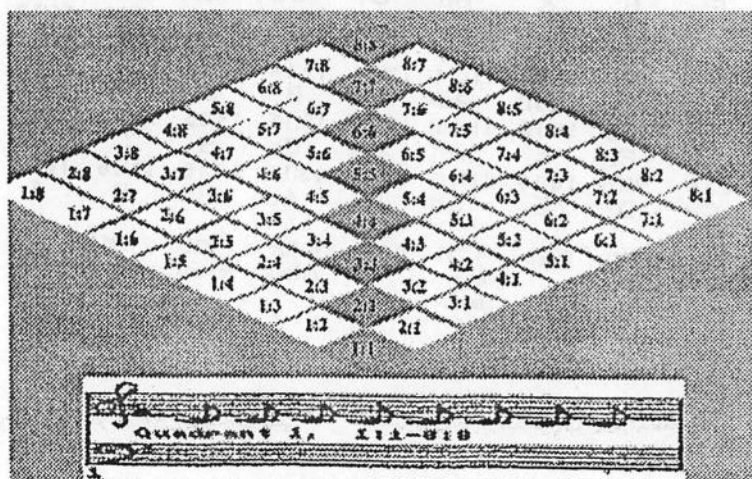


Figure 4.

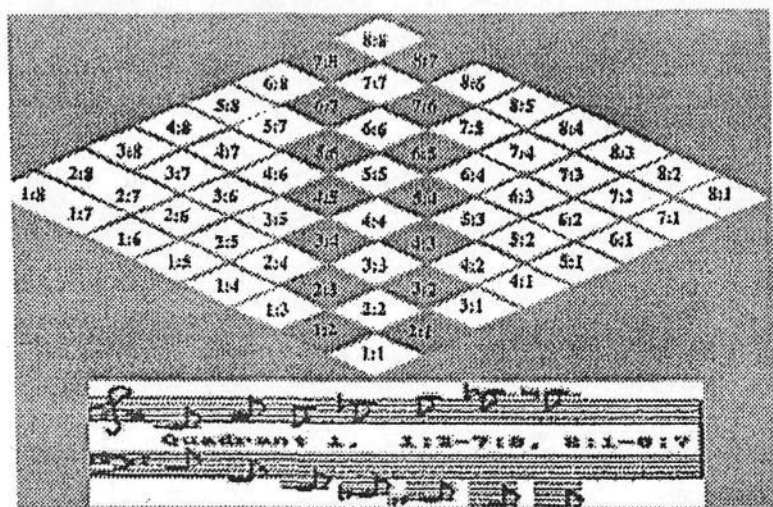


Figure 5.

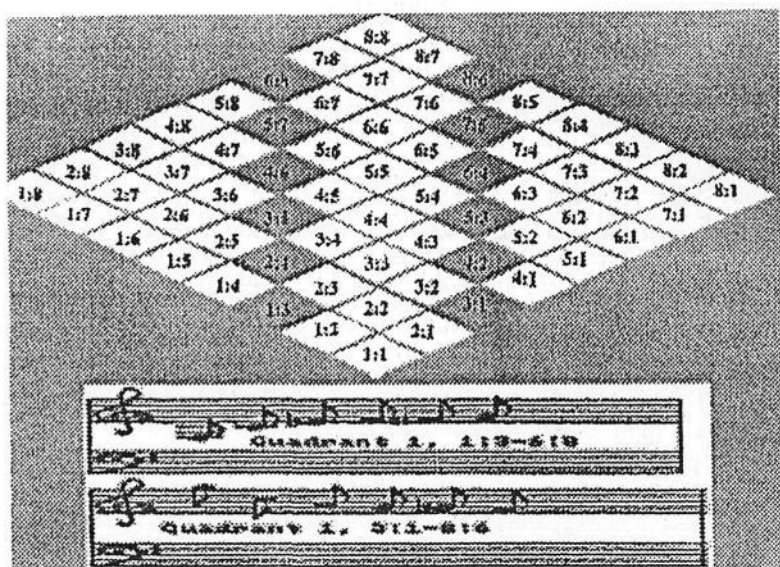


Figure 6.

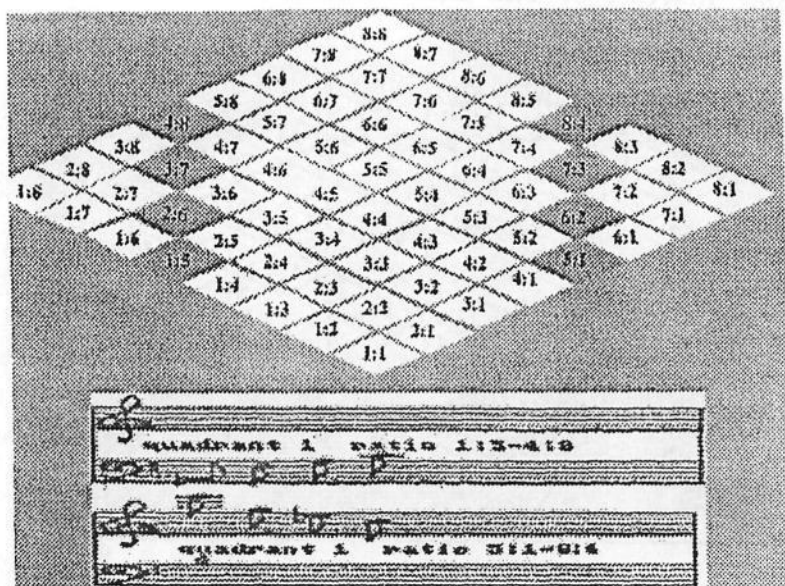


Figure 7.

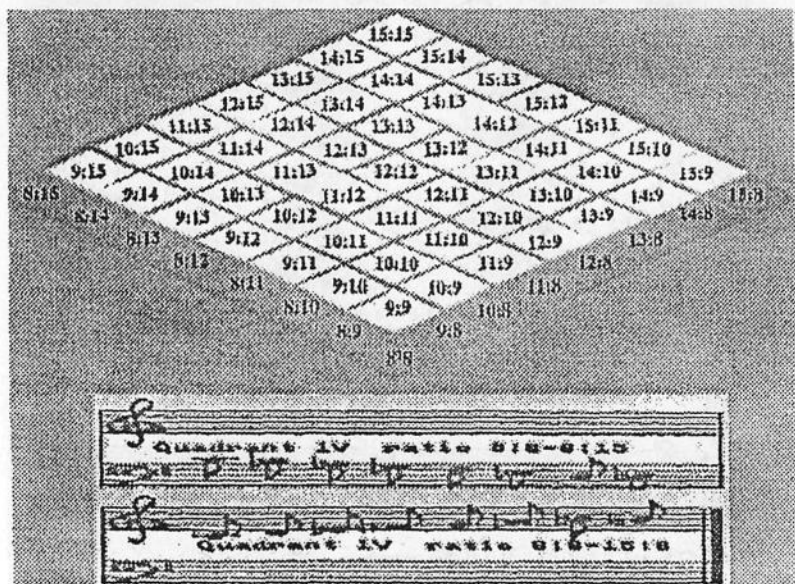


Figure 8.

Both hands would have the thumbs always placed at the center column. (Figure 4.). The 64 keys are diamond shaped of a light wood. The console is black and of a rectangular form. Because of an internal computer, which is programmed to output the key's number and "up" or "down" information when the keys are moved, a person can play the Lambdoma Harmonic Matrix Keyboard. An Amiga computer program first asks which 8 by 8 quadrant (1, 2, 3 or 4) of the total 16 by 16 full Lambdoma Matrix is desired.

Next, the program, asks that a fundamental frequency be entered. Then, whatever frequency is chosen can be played on the keyboard.

Quadrant 1 is somewhat the more interesting. There are 6 octaves available in quadrant 1, three overtone octaves, and three undertone octaves. The matrix of quadrant 1 plays 64 harmonic, interval tones based upon the 64 ratios in the matrix.

The matrix of quadrant 4 also has 64 entries but they are in only two octaves, one octave above and one octave below the fundamental 1:1. Mathematically the matrix would be considered a closed set with a one to one relationship to its entries, which would be all harmonically based. In effect there would not be a disharmony in the entire matrix. One could play it without hitting a false note.

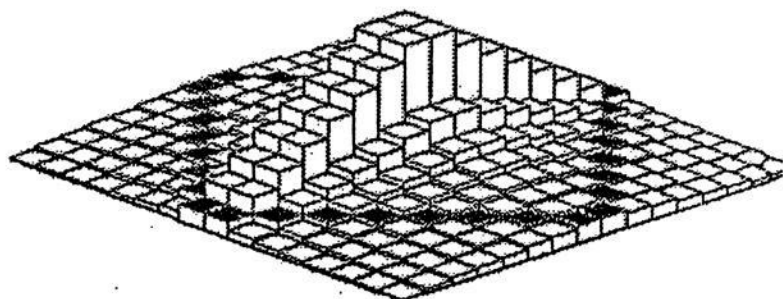
Because of my background as a visual artist I feel an audiovisual mode is an important way to relate sound and symbol together. I attached a laser/scanner system to the keyboard so that the person playing it is able to watch the Lissajous shapes. See my article *Drawings Based on Laser Lissajous Figures and the Lambdoma Diagram*, Leonardo, Vol. II, pp. 301 - 303, Pergamon Press Ltd., Printed in Great Britain, 1978.

Because of the diamond matrix form of the keyboard, one is able to draw geometric figures, or circles, or labyrinths by pressing the keys in different patterns and can thus hear the intervals generated by these patterns.

In order for a musician to play, the scales ascend from the left, and descend from the right.

Because of the diamond shape, when a musician plays parallel to the constant 1:1 on the right side the notes descend. When the left side is played parallel to the 1:1 the notes ascend.

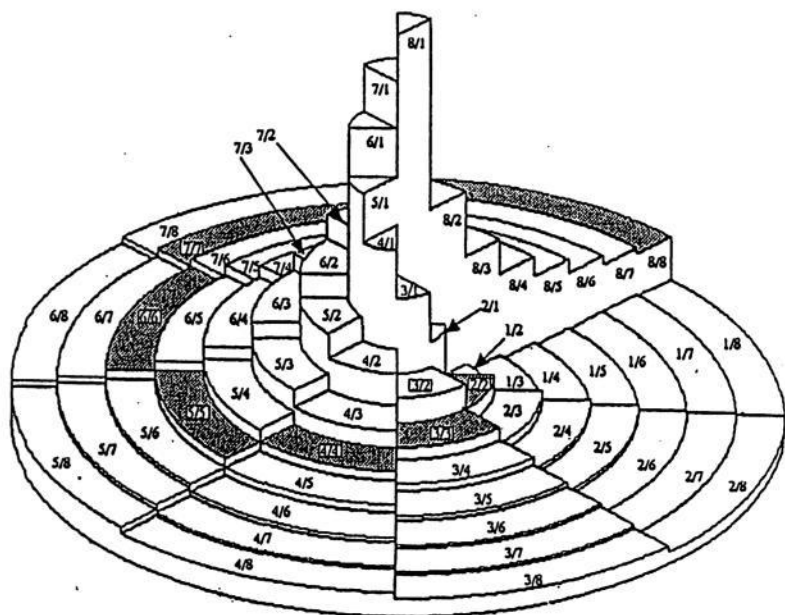
In the 1980's I sketched many 3-D, 16 by 16 matrices to illustrate the wavelength properties of the Lambdoma. Robert Miller Foulkrod created a computer graphic 8 by 8, 3-D matrix and then put four of these quadrants together (Figure 9.). More recently, Robert drew a circular 3-D Lambdoma matrix (Figure 10.) in a 3-D graphics program illustrating how many different ways that the ratios may be visualized.



Four-Quadrant, Three-Dimensional LAMBDOMA
Showing the Unity Ratio Diagonal (8 by 8 Matrix)

Figure 9.

Because the Lambdoma Harmonic Keyboard operates on an "absolute" tuning system the sounds one hears seem very familiar and unfamiliar at the same time. It is my hope that we will be able to explore the effects of these intervals, and perhaps find that we have tapped into an entirely unknown dimension. We will be able to explore the effects of micro tonalities all based on harmonics as well as sub-harmonics.



A Circular 3-D Lambdoma Matrix

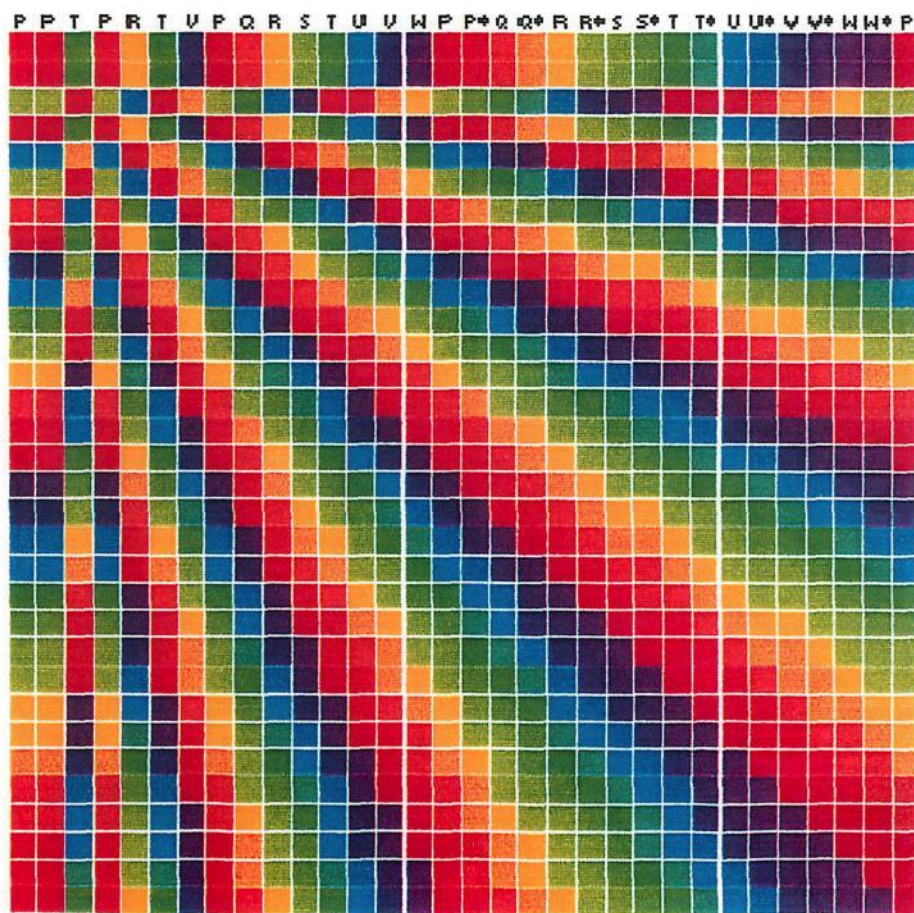
Figure 10.

Already, in just my own listening to the sounds from a recording of the keyboard, the Lambdoma intervals have seemed to resonate in the head area if there is congestion there. The higher sounds seemed to explode in the head area, relieving my headache, for example. Holding the recorder to my chest the deeper sounds seemed to explode away congestion in that area.

For the musician, a whole new approach to playing a keyboard seems to be the case. The fundamental keynote of any given frequency is always present. When the musician presses the keys along the right side (the overtone side) of the fundamental constant line, each harmonic becomes higher as one goes along the keys from the 1:1 fundamental key. On the other side of the constant (the undertone side) the opposite occurs. If a musician presses the keys, in a row in the fourth quadrant, at a 30 degree angle, the intervals ascend, while at 150 degrees the intervals descend.

Geometric patterns based on angles could be played on the Lambdoma Keyboard, leading to completely other musical dimensions. A circle, a square, a triangle, a pentagon, a hexagon, and a rhombus can also be played either clockwise or counter-clockwise on the keyboard, leading to musical and emotional insights into effects of angles or even of the Platonic Solids.

THE LAMBDOMA, RESONANT, HARMONIC SCALE (P, Q, R, S, T, U, V, and W)



Barbara Hero