SECTION 1
HISTORY of MUSIC and SOUND THERAPY/HEALING

Section 1

HISTORY of MUSIC and SOUND THERAPY

(See Figure 1 at the end of this section)

Objective of this section:

To understand the use of sound and music as a healing and therapeutic medium from the beginning of recorded history to the present.

Music to use while studying: Inner Sun

(Words in italics are found in the glossary at the end of this section.)

Introduction

Music and sound have been used since the dawn of time to alter mental and emotional states as well as for physical healing. A classic example of this is the Greek mathematician Pythagorus who used music to soothe and heal people in emotional crisis. The National anthems we use today help to generate feelings of patriotism. Chants and mantras from ancient cultures aid in meditation and inner reflection. Lullabies through the ages have helped the young to sleep. Modern technology has brought us specific sounds and frequencies that, for example, aid in the treatment of drug addiction by re-activating the production of certain chemicals in the brain. Whether its use has been conscious or not, whether it is ancient or modern, music and sound has had and continues to have great influence over our emotional and physical well being as it can touch the emotions directly and deeply by activating the resonant properties within the human organism.

One of the first written references in the Western world to the use of music for therapy is from an ancient Hebrew text. In the Talmud we find mention of an apparatus that caused drops of water to drip continuously on a vessel of metal thereby creating a monotonous buzzing sound that enabled a sick person to sleep and recover. Before this music had had an important healing or spiritual focus in early civilizations, but as part of incantations to specific healing deities or to be at one with the cosmos.

Man's perception of sound is no coincidence or mere cultural context. We perceive sound based on the laws of physics, our unique physiology and ***resonant potential***. This perception even appeared in primitive man. He was able to perceive ***intervals***. The evidence for this is a bone fragment in China that has been found with drilled holes that would have functioned as a primitive flute. It is speculated that these holes could be used to play a scale that is common to all cultures throughout history. This scale is known as the ***pentatonic*** or 5-tone ***scale***.

Starting with the Chinese we will begin our journey through time to take a closer look at how each culture or period used music and sound, what scales they used and their instruments.

China

The Chinese used sound and music to maintain and create harmony in their civilization. For the individual the creation of health and well being as well as the regulation of emotions was possible through music. They believed that sound and music came from the cosmos and that it was important to mirror celestial harmony on earth. The flute with its pure, sweet tones was a favorite of the Chinese. The lute and other stringed instruments were used to create perfect or ***pure intervals*** that represented the pure harmonies of the heavens.

On a cultural level the maintenance of harmony between heaven and earth gave the possibility to create heaven on earth. Making music was a serious business and under the watchful eye of the emperor. Celebrations such as the solstice could bring together as many as three thousand musicians. This number of musicians would have had no advantage as far as the complexity of the music but would have added great volume to the observance of any important event. Ancient Chinese music did not include the personal expression by composers that is so prevalent in the west. It was focused at maintaining certain standards of harmony and balance.

The Chinese are a particularly important example of the use and integration of music, both in the sense of medicine and preventative medicine, because they believed that illness came from a disharmony or imbalance. In the most literal sense of the word harmony they both intended to create and maintain harmony through the music that was played as well as correcting imbalances or disharmony.

They felt that the state of the country was reflected in its music. According to Confucius: 'If one should desire to know whether a kingdom is well governed, if its morals are good or bad, the quality of its music will furnish the answer'. To this end the emperor would travel throughout the kingdom making sure that all the orchestras were in tune. The focus of the music was on attunement and alignment, giving clear sounds and intervals that would not become lost amidst the complexity of the harmony that can be heard, for example, in western classical music.

The Chinese philosophy stated that innovations in the tonal arts would be at the expense of geometrical alignment with the heavens. The tuning they used for their music which was based on pure intervals was very important. They believed that if they changed from the pure intervals they used in order to increase the melodic possibilities of music, that with this change would also be mirrored a change in the society. The more they moved away from pure intervals, then the more drastic the change would be in the society and this move would have been expected to create a greater development of technology and material progress. This progress in one area would have been at the expense of spiritual attunement and the mystical frame of mind. Finally, if the wrong music were to enter into the kingdom, then the dynasty would fall. As we will read later, this is exactly what happened in the west.

The basic intervals in the Chinese 5 note or pentatonic scale reflect the ***octave*** and the perfect 5th. All the notes were tuned as pure intervals. One of the scales used by them that has survived until today is marked by the use of fifths. Our information about this scale comes from a written text which describes the lengths of 6 bamboo tubes- 81 units, 72 units, 64 units, 54 units, 48 units and 40.5 units. This series of tubes is based on the ***ratio of 3/2*** or the perfect 5th. The ***harmonic structure*** of Chinese music was based on separate tones creating open melodies using the pentatonic scale, rather than being based on harmonies that use ***chords***. Their instruments were forerunners of our present-day bells, pipes, flute, harp and strings.

India

The Indians focused on the primordial or first sound. The practice of Yoga evolved from the concept that ultimate reality emanates from this sound. This was the sound behind all sounds that gave rise to the universe. For the Indians the physical realm is the material form of different frequencies of this root vibration. The laws of sound also governed the physical body that was part of the physical realm. The drum was often used to represent the beat of this primal sound. The focus of Indian music was to elevate the body to the level of ***OM***, the cosmic tone. The voice, especially chanting ***mantras***, stringed instruments such as the sitar and tamboura, as well as other ***drone instruments***, were used to achieve this.

They divided the ***octave*** into 22 separate tones so that they could maintain pure harmonic ratios. These are not merely smaller divisions of our western 12-tone octave, but are specific notes to allow the matching of the ***harmonics*** or overtones. Indian music has maintained its classical form until today. For this reason it is one of our main historical sources of how the ancients used music and sound, and as well it is still used today as a healing medium.

Egypt

We know from their writings that the Egyptians, much like the Indians, focused on the primordial sound. Ancient Egyptian music was also used as a therapeutic tool. For them sound was one of the 2 elements of all creation, the other being visualization. Sound was one of the main links to their Gods, and through their Gods the health of the nation and the health of the individual was maintained. According to Plato the purpose of Egyptian melodies was to govern human emotions and to purify the souls of the people.

The Egyptians had quite a profound influence on western music. Claudius Ptolemy, living around 139 AD, was a mathematician, musical theorist and astronomer. He was the first to record the scale that was to become the major scale during the Middle Ages in Europe, ***just intonation***. It is believed that this scale came directly from the Egyptians. From tomb paintings and artifacts we know that they used harps, lutes, long flutes, double oboes as well as singers in their music.

Greece

The Greeks ushered in the age of reason. Philosophy, mathematics, geometry, and medicine were all either founded or introduced into western culture by them. Logic and reason began to coexist with mythology and religion. Mathematics and music were seen as tools given by the Gods to perceive divine harmony. Magic and incantation began to give way to modern philosophy and the beginnings of modern science. Music was used for healing more in the sense that we would understand it today, instead of as a way of invoking Gods or bringing heaven to earth. Music started to be described in number ratios, for example, 3/2 or 2/1. The pure harmonies that had been heard by the ear since primitive man were now written as perfect numerical relationships. The Greeks also voiced a similar sentiment to the Chinese. Plato writes in The Republic (572 BC), ' as is the music as is the state.'

One of the most famous Greeks in this field was Pythagorus. He was the founder of a philosophy that encompassed musical healing, science, mathematics, medicine, nutrition and philosophy. The scale which is attributed to him and bears his name, the ***Pythagorean scale***, was to mark music for the next 2,000 years (500 BC to 1500 AD).

The Greeks also created modes, each of which related to a specific emotional state. These modes came from Pythagorus as well as tribes of people who wandered all through the Greek Empire. The modes as they are known today are as follows: Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, Locria. The primary instruments used to play them were the lyre and flute.

The effect of each mode was very clear, so much so that Plato is said to have banned the Lydian mode because it was too feminine. According to legend, Pythagorus was walking with some of his disciples through the village in which they lived on the island of Samos. Nearby a young man, who was drunk and suffering from unrequited love was starting a

fire underneath his girlfriend's house. Pythagorus noticed that a street musician was playing in the fiery Phrygian mode. He went to the musician and asked him to change to a calmer mode. The musician 'changed his tune,' and the disturbed young arsonist put out the fire and left peaceably.

The Pythagorean concept of using music for healing could be called allopathic in that it was focused at creating beneficial states and harmonizing the patient. Another philosopher of the time, Aristotle, focused more on catharsis. This approach would be more aligned with the concept of homeopathic in that it would stimulate the symptoms of the patient with the idea that they would arrive to the state of catharsis or cleansing.

Early Christian through the Middle Ages

With the collapse of Rome came the end of the ancient world. New philosophies emerged in science and religion. The temple priests and physicians of Rome used music therapy up until the point when the Empire was completely Christianized. Music then became disassociated from healing practices. It became the property of the church and fell into disuse as a direct healing medium in the west only to survive in this capacity in areas of the world such as China, India, Persia and Tibet.

From the AD 400's to the 1500's, music became more and more structured and complicated. The oldest known Christian music was plain song, used in church services. This vocal music developed gradually from early Jewish religious music. Much plain song was set to the words of psalms or lyrical poems from the Old Testament. A soloist or choir sang the melody without accompaniment. The most important type of plain song was the Gregorian chant, developed during the reign of Pope Gregory I, who died in 604.

Music remained ***monophonic*** (one part) until about 800. Composers in Western Europe then began to create ***polyphonic*** music by putting two or more melodies together. Adding a new part to an existing piece of plain song created the earliest form of this music. At about the same time, a means of writing down notes of different lengths was developed. The modes that were originally developed by the Greeks were used extensively in this music.

Beginning about 900, more secular (non-religious) songs began to appear. During the 1100's and 1200's nobles composed many secular songs and poems. These poet-composers became known as troubadours in France and minnesingers in Germany. By the 1500's music had entered into a new realm, that of entertainment and a new scale began to appear.

The ***Meantone scale***, which is a step in the direction of the scale we use today, dominated

western music for the next 300 years while the Pythagorean scale fell into disuse. The Meantone scale maintained some of the pure intervals that are so prominent in Pythagorean tuning.

Up until the medieval period music as medicine was consciously employed. Melodies and harmonies were pure and simple. Each mode had its own character. As long as melody was primary, with simple, consonant harmonies based upon melodic functions, music was a healing force, for each mode had its own character and healing power. Soon after vertical harmony was introduced to musical composition (after the fifteenth century), music became based upon an aesthetic rather than a functional model, and its use as medicine virtually ceased.

Baroque and Classical Music

During this period music as a healing medium in the west fell into disuse. However, how music was used during this part of the musical history has a direct influence on present day musical therapy when it re-emerged after 1950. In 17th century Europe the focus of music was for entertainment. By the middle of the 18th century it was often an expression of a composer's own emotions or feelings. The industrial revolution was also well underway by this time. In order to give the possibility for more entertaining complexity, the musical scales were tuned away from natural pure intervals. This tuning is known as ***equal temperament***. It is interesting to note that much of the music from this period is what has been used primarily in modern music therapy. It does have therapeutic effects, but this was not the intended use by the different composers.

The first reawakening in the west of healing music came from a physician, amateur musician Louis Roger of Montpellier, France when he published in 1748 a treatise on the effects of music on the human body. Roger wrote that the music of composers from earlier periods had 2 purposes, to please the ear and to 'affect habits'. He stated that with his contemporaries, their music was composed only with the view to please the ear by surprising it with pleasant harmonies.

During this time the piano was developed as well as most modern orchestral instruments- Wind instruments: flute, clarinet, oboe, bassoon; Brass: Trumpet, trombone, French horn, tuba; Strings: violin, viola, violin cello, double bass; Percussion: tympani. (The complex contruction of the piano, which did not allow it to be easily tuned for pieces written in different meantone or just intonation scales, also influenced the widespread use of equal temperment.)

Indigenous Cultures
While in western culture the use of music as a healing or therapeutic medium died out, its use continued in native, indigenous cultures around the world. From the San Blas Islands in Panama, to India, Africa, Peru, Mexico, the Caribbean and the North American Indians, their varied healing practices have continued through the centuries up to the present times. They use songs and rituals handed down from generations, or received during a vision to drive out evil spirits for physical healing or invoke a god for his/her help to heal a patient. Recordings of these rituals preserve this heritage and provide the opportunity to study the actual music used. Much of it includes the octave and the interval of the fifth using drums, gongs, cymbals, pan flutes, voice and other noise making devises.

Present day
While there have been individual attempts during the 18th and 19th centuries to re-establish the use of music as a healing medium in the west, there was no overall consensus or movement in this regard until the 1970's. For example, Pius X who was elected Pope in 1903 encouraged the use of Gregorian chant in the liturgy. Modern musical therapy primarily adopted western classical music as the music of choice. It was found that much of this music, although it was not created for therapeutic purposes, helped to create better hemispheric balance, calmed the nervous system, promoted emotional stability, facilitated learning, and enhanced spatial capacity. Romantic music also was used in therapies with creative visualization to connect with past memories because of its ability to evoke emotions in the listener.

From about 1970 with the popularity of eastern meditation techniques such as Transcendental Meditation (TM), interest in ancient healing music and practices began to grow. In the 1990's interest in pure sound healing practices also increased. It is now possible to find recordings, participate in courses and attend concerts using Tibetan singing bowls, crystal bowls, ancient healing instruments such as the Australian Aboriginal instrument, the digiridu, overtone chanting as well as tuning forks. Music and sound's capacity to heal has been rediscovered.

A new science, ***psychoacoustics***, has emerged in relationship to the healing capacity of sound and music. This is the study of the affect of sound and music on the nervous system. Under its umbrella all kinds of music and sounds are being studied for their effect. New technologies in the recording of music have been and are continuing to be developed to further this field of study. A pioneer in psychoacoutics is Dr. Alfred Tomatis, a French physician. Since the 1940's he has developed a system of sound therapy using a combination of recordings of Gregorian Chant and Mozart in combination with an apparatus he has named the 'electronic ear' which filters the sounds in such a way as to charge the brain with higher frequencies. His system is effective in the treatment of learning disabilities such as dyslexia and Attention Deficit Syndrome as well as alleviating depression, autism and problems with the balance center in the ear.

History of INNER SOUND

INNER SOUND AND SOUND TOUCH

INNER SOUND has been developed by Arden and Jack Wilken since 1978. The principal element of **INNER SOUND** is 50 musical motifs, short melodic phrases in specific rhythmic patterns, which have been identified and isolated by Arden during her creation of more than 10,000 personal music compositions. Using the appropriate combination of motifs with specific instruments Arden has created over 25 music titles, Tools for Self-Discovery. Each one is focused at specific healing themes: relaxation, inner harmony, restful sleep and insightful dreams, mental focus and clarity, intuition and creativity, fluid communication, stress reduction, self-confidence, physical vitality, etc. All of these albums are the result of collaboration and study with psychologists, therapists, medical and naturopathic doctors and educators to create music that would support an individual's therapeutic, healing or personal transformation process. They were designed for use either at the individual's personal discretion or as part of a professionally guided health plan.

The recording of **INNER SOUND** has been the responsibility of Jack. His main work has been to make the silence that is recorded with the music. Since the music is focused at helping people make change, the silence becomes as important as the music that flows from it. In 1992 he began to develop a series of psychoacoustic effects, which are called ***Spectrum Sound Resonance System*** (***SSRS***). These were developed with the specific aim of helping the music be absorbed more easily and quickly into the body and nervous system, accelerating the healing/transformational process. ***SSRS*** is unique because it gives a broad-spectrum stimulation to the brain and nervous system rather than imposing a particular brainwave state. This encourages more integration and more long-term effects because it helps create balance at all levels of brainwave activity and the central nervous system.

Another aspect of **INNER SOUND** is **SOUND TOUCH**, a method of teaching and using the motifs and a system of touches in different contexts. Arden collaborated with Nestor Eidler, professional violinist and founder of the Academia de les Arts de Barcelona (Methodo Aberastury) on ways to incorporate **SOUND TOUCH** in chamber groups and orchestras to improve musicianship. She also teaches **SOUND TOUCH** to professional musicians, singers, musical therapists and other professionals as well as to those who have never studied music. For the student, amateur and professional musician the touches and motifs help to promote improvisation, overcome stage fright and make the learning and playing of any kind of music easier and more enjoyable. For the absolute beginner it provides a way in which to explore sound and play music without having to devote extensive amounts of time to learning technique and theory as well as forming a part of a personal process of transformation and development.

Spanish psychologist Marc Costa has collaborated in some of the developments of **INNER SOUND** since 1987. He has used the music extensively in his private practice as well as in his psychotherapeutic training and has provided a clinical testing site for the music in general, the motifs as well as the touches. This collaboration has resulted in a series of special music titles focused at deep therapeutic work; for example, music to facilitate the connection with the inter-uterine experience, childhood memories from 3-5 and 5-7 years, and melting the psychological armor. The theoretical basis for the music for stress, depression, fatigue and pain comes through this collaboration.

Another work with Marc has been the development of ***Spectrum Light System***, ***SLS***, which is a further tool used not only in the psychotherapeutic process, but also with other types of group or individual personal development situations. ***SLS*** is a bi-sensorial experience (auditory and visual) that reinforces the complete range of brainwave states. It facilitates the contact with the sensorial perceptive barrier (commonly referred to as "consciousness") and the instinctive emotional level of the psychotherapeutic process. His opinion is, "The lights and psychoacoustic effects help to get the music past the person's defenses, but it is the music (**INNER SOUND**) which does the real work of transformation."

There are 2 versions of ***SLS***. One consists of a pulse decoder that operates off of a standard compact disk player when especially encoded compact disks are being played. The light display is 4 colored lights representing each of the 4 brainwave states- beta = blue, alpha = green, theta = yellow, and delta = red. The software consists of light and music programs on CD recorded with ***SSRS*** where the light information is either synchronized or adapted to the music. The sound and light information is recorded digitally and played back by a standard CD player via the pulse decoder. ***SLS*** has been presented at several international congresses. The 2nd version of ***SLS***, developed in 1994 uses computer generated images whose color palette change color depending of what notes are played. It offers a more subtle kind of bi-sensorial stimulation. Arden uses this version of ***SLS*** in her healing concerts.

The development of **INNER SOUND** and **SOUND TOUCH** began on an empirical basis, but over the years other studies have been done. These include testing for body parameter changes such as brainwave states, temperature change in the extremities, galvanicskin resistance, pulse rate and blood pressure. One study was done by Marcel Vogel (USA), inventor of the liquid crystal display, in testing for the change in the PH and radionics frequencies in water which had been exposed to a variety of vibrational healing techniques. The effects measured using the pure motifs were numerically superior to any of the other techniques tried in the experiments. There were also studies done using Kirlian photography in which radical changes were noted in the direction of energizing and balancing, even from short-term listening.

Glossary:

Resonant potential – The frequency that will cause a given object to vibrate with the lowest level of power input

Interval – The difference in pitch between 2 tones in a given scale. In western music the most common scales are made up of 7 notes. The most common intervals are the 2nd, 3rd, 4th, 5th 6th and 7th and octave.

Pentatonic – Any of various 5-tone musical scales

Scale – A descending or ascending series of tones proceeding by a specified scheme of intervals and varying in pitch arrangement and interval size. The following are the basic scales that were used in the history of western music: Pythagorean (from 600 BC until 1500 ad), Meantone(1500-1800) Equal temperment (1800-present).

Pure intervals – 2 or more notes having a specific distance of separation whose harmonics (overtones) will match exactly when sounded together

Harmonic – concordant; normally referring to the linear harmonic series of overtones. The 1st harmonic is the fundamental note that is struck, plucked, sung or bowed. The second harmonic or first overtone is twice that frequency, an octave. The 3rd harmonic is 3 times the frequency of the first and forms the interval of the perfect 5th with the 2nd harmonic.

Western classical music – This term refers to music composed primarily for the royal courts and the wealthy in both eastern and western Europe from approximately 1600 to 1913. It is actually made up of several distinct periods: Baroque 1600 – 1750, Classical 1750-1827 (the death of Beethoven), Romantic1827-1913 just before the outbreak of World War 1.

Octave – This is the interval between 2 tones where one has twice as many vibrations per second as the other. In music this is the most important interval. As a number ratio it is written as 2/1. It occurs naturally when men and women sing together in 'unison'. They are actually singing an octave apart even though their perception is that they are singing the same note. There is a sense of sameness about 2 notes separated by this interval. (To hear this interval listen to Track 1 from the **SOUND TOUCH** CD. This music is made up of descending octaves.)

Ratio of 3/2 – This is the number ratio representing the 2nd most important interval in music, the pure or perfect 5th. The frequency is always in the ratio of 3 to 2, the upper note of the interval being represented by the 3 and the 2 the lower one. For example, if the lower note has a frequency of 200 hz (cycles per seconds), the upper note will have the frequency of 600 hz. Untrained singers will often find themselves singing a fifth apart

without being aware of it. There is also a perception of sameness about 2 notes separated by this interval- not as much as with the octave, rather it is a feeling of blending. This gave rise to one of the earliest forms of harmony in Western music when, in medieval monasteries, the monks often sang their chants with the lowest voices, the basses, and the higher voices, the tenors, a constant 5th apart. (To hear this interval listen to the beginning of For FATIGUE, Track 1 of the CD Voyage to Freedom. The very first interval heard is the perfect 5th. As it is used in this piece it is also an example of a drone tone.)

Harmonic structure – The kind of intervals and scale used in a given piece of music as well as the order in which they are used.

Chords – A combination of 3 or more usually concordant tones sounded simultaneously

Concordant/Discordant tones –harmonious/disagreeable in sound, dissonant

OM – Purest representation of the cosmic sound, the primordial vibration in Hinduism

Mantras – Sacred formulas used in the Hindu religion believed to embody the divinity invoked and to possess magical power. They are used in prayers and incantation.

Drone instruments – These are instruments that produce a long, uninterrupted tone or chord. This sound or drone becomes the bed on which other musical elements rest such as melody. Other examples of drone instruments are the Australian aboriginal instrument, the didgeridoo, bagpipes, accordion, dulcimer, banjo, pipe organ, computer-generated sounds and synthesizers. The drone is an important element of healing music in that each tone that is sounded for a long period of time will touch the physical body in a specific area. Drone tones are used extensively in **INNER SOUND**. (To hear an example, listen to the first 2 notes of For FATIGUE, Track 1 of Voyage to Freedom and follow their sounds throughout the piece.)

Equal tuning/temperment – The notes of the 12 note scale, called diatonic, used in western music is divided into equal parts, each note being the same distance from all the others. This scale was brought into being in order to facilitate the development of the pianos at the beginning of the 1700's. Equal tuning was completely adopted by the beginning of the 1800's. (Nearly all music today used this tuning. Listen to Track 1 of New Heart for approximately 3 minutes and then listen to the music shown under 'just intonation' to feel the difference.)

Just Intonation – A system of tuning where all the intervals are pure, unlike in Meantone and equal temperment. Singers and strings can use this system if they sing or play by themselves. It is impossible to tune fretted instruments such as the guitar and modern pianos to this system and allow them to play the harmonically complex music of the late Classical and Romantic period and much of the music of the 20th century. (To hear and

feel this tuning, listen to Track 7 from Inner Harmony.)

Pythagorean scale – A system of tuning the intervals in a scale so that the 4ths and 5ths were pure and the thirds were higher or sharper in relation to their pure harmonic ratios.

Monophonic – Having a single melodic line

Polyphonic – Having 2 or more melodic parts, especially when in close harmonic relationship

Meantone scale – Keyboard tuning adopted between 1500's to 1800's where the intervals of the third are slightly higher or sharper and the fifths are slightly lower or flatter. As well each key had a unique character like the Greek modes.

Psychoacoustics – The study of the effect of sound and music on the nervous system.

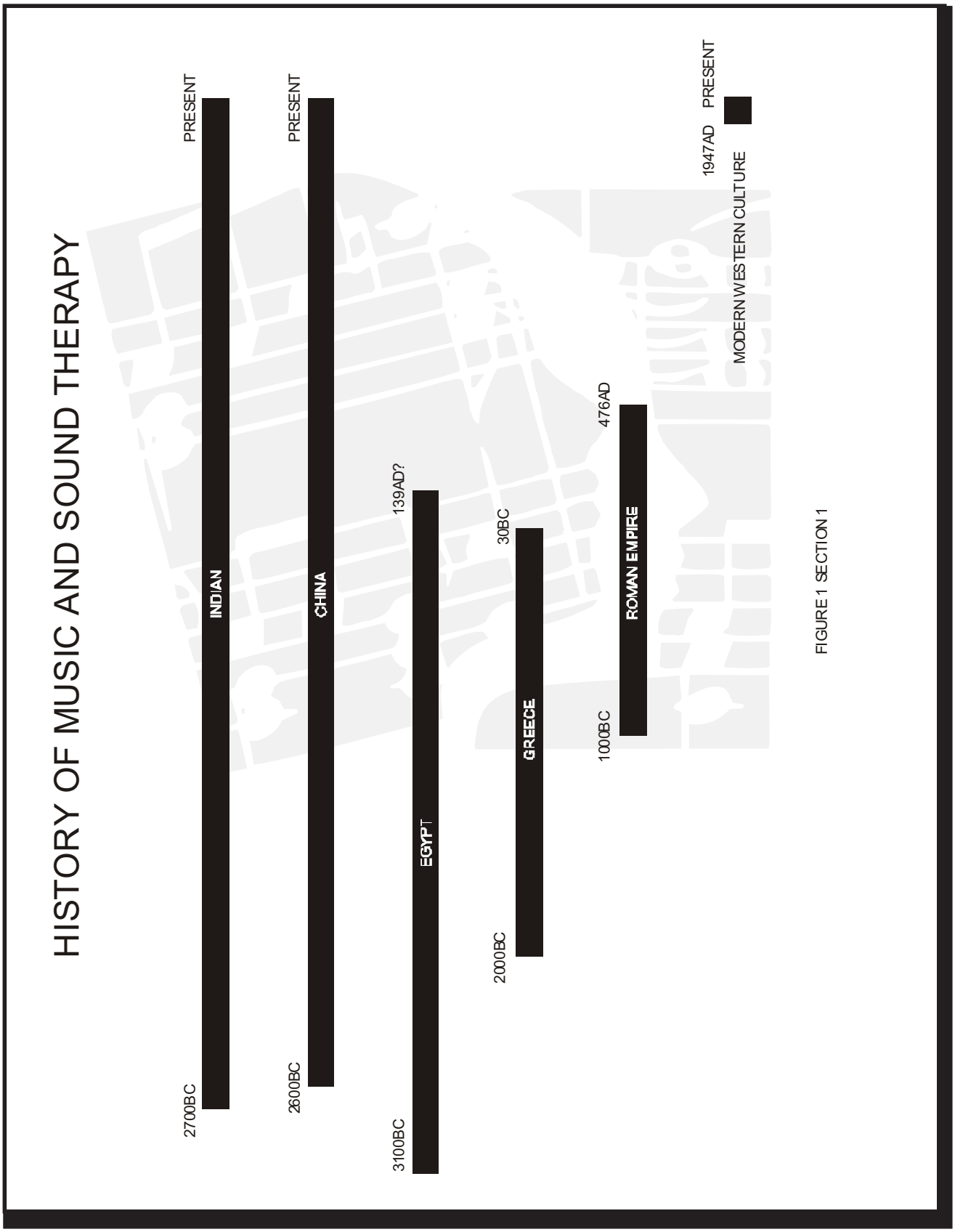

FIGURE 1 SECTION 1