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Introduction : A SEARCH IN ASIA FOR A NEW THEORY OF MUSIC

José Maceda

A motivaton for this search comes not from the aesthetics of Asian music which seeks permanence with little change. Rather, the impetus originates from the very nature of European music which seeks a constant alteration, an evolution which now needs ideas not necessarily a part of its culture. A turn of events became more visible in the 20th century, in the rise of the avant-garde in the 1950s, when the music of Varese, Cage, Xenakis and computer music clearly departed from the harmonic structures that pervaded even in that avant-garde.

In East Asia, this avant garde movement, introduced in Tokyo in 1961 was followed in Manila in the 1960s with the music of Ton de Leeuw, Pierre Boulez, Iannis Xenakis and Edgard Varese played on the same stage or in the same program with the traditional musics of Asia -- the Chinese nanguan ensemble, the Indian sitar as played by Ravi Shankar, the Thai ranaad as played by Prasidh Silapabanleng and the Philippine kulintang as played by Amahl Lemuntod. Symposium papers were presented by prominent scholars on structure, improvisation, mode, rhythm in the music of the Javanese gamelan, the Indian ragas, the music of Thailand, the Japanese court music and the Peking opera. In a way a confrontation of these two musics four dccades apart presaged the meeting this week, totally unknown then of what would take place now, the result of an evolutionary process of music-making.

More recently in Europe, the International Institute for Asian Studies in the Netherlands published a series of lectures in which prominent writers spoke of a "rapprochement," a bringing together of the cultures and sciences of Europe and Asia. The papers speak for themselves with Frits Staal, on "Concepts of Science in Europe and Asia," Hans Van Merlo on "Europe and Asia Towards a New Partnership," and Denys Lombard on Asian cultural areas, "De la vertu des aires culturelles et de celle es aires cultuelles asiatiques en particulier," (1993-1996) This revolutionary spirit today has a parallel in the Italian renaissance which sought for its models a Greek classicism, but an added classicism or philosophy lies in

antiquity in Asia, in China, India or in Mesopotamia. In our contemporary world this fascination with the ancient past is ever present in archaeological researches on-going among museums and institutions in Europe, America and Asia.

Another antecedent that prepared for this Symposium are conferences in the last few years of the Asia Pacific Society for Ethnmusicology on themes about structure: The Structure of the Court Musics of Asia; The Structure of Musical Ensembles of Asia; and The Structure of Folk Songs of Asia.

Now, in this week's Symposium, three main subjects relate to this search for a new theory of music. One seeks to understand what lies behind the mathematical structure of the court musics of East and Southeast Asia that expresses a philosophy different if not in opposition to that of European music which has a similar use and opposition of numbers.

Another concerns the structure of languages in and South of China as a basis of comprehending how a structure of folk songs of this region extending from the continent to insular Southeast Asia is affected by numbers of syllables or characters per line. .A third relates to culture, mainly in a widespread practice of cooperation and coordination in all sorts of work, enterprises or leisure in rural and urban life reflected also in music. A fourth refers directly to music as in concepts of "orchestration," instruments of various materials, the use of "drone," a notion of time and scales which here are taken up partially, and which belong to another occasion.

The court musics of Asia possess an old and solid foundation which serves as a guide for a musical direction today. It is first, a line that separates them from the classical erudite music of Eruope and secondly, one which differntiates them from non-court and Austronesian musics of Southeast Asia. A European music with its base in classical Greek philosophy has discovered in the 17th century a dynamic harmonic music, ever changing, searching for new parameters To the contrary, the court musics of Asia evoke pensiveness and spirituality, going on for centuries with little change in time. A theory of music in rural and non-court musics of Southeast Asia is neither a part of Chinese nor Greek mathematics. It offers a large variety of musical instruments, scales, folk tunes and ways of classifying sound in another concept of time..

In the court musics of Asia, structure is characterized by bipolar oppositions, a discipline of appointing intervals of the pentatonic scale to fall within ratios of four counts, a simple operation hundreds if not thousands of years old equivalent to a belief, a worship, a spirituality, In terms of spirituality, immediately, a forceful and loud music of the Balinese gamelan comes to mind, but it still is a religious expression in its various rituals, and its musical structure is not one based on changes and a search for the

new. It is a task of music research to identify the sources of this mathematical use of numbers in Asia if not in ancient Chinese writings, in Mesopotamia, also a source of knowledge of ancient Greece.

It is evident that the court music of the Tang dyansty in China, the a-ak of Korea, the gagaku of Japan, the pii-phaad of Thailand. and the gamelan of Java are all based on counts of four and a hierarchy of music intervals dictated by four counts (Maceda 2001). Today, we will hear on how the Burmese hsaing waing, the Kampuchean pin peat and the Vietnamese nha nhac partake of this mathematical organization. In the Javanese gamelan, the structure of classical dances bedaya and srimpi would be the subject of Professor Soedarono's contribution.

A discipline of four counts may have been in practice previous to the Tang court, as early as the 4th century B.C. when an L-shaped three-layered row of bells of the Marquis of Yi excavated in 1978 in Hubei province was in full function. In the tomb, a group of three or four largest bells in the bottom row may have provided the punctuating parts of the music played in counts of four, not in fast strokes allocated to smaller and more numerous bells in the top rows. It seems improbable that these large bells would play beats without a sense of time measured in regular beats, the mainstay of musical ensembles,. This regularity would just fit the four counts of the Tang court ensemble which could not have been so well entrenched without a long antecedent practice.

In a short piece of court music eight counts long, an allocation of usually, the first and fifth music intervals to fall on the fourth and eighth counts and finally, for the first interval to end on the eighth count, is an expression of a hierarchy of numbers. A techniuque of binary opposition between two intervals has the second interval more important than the first. In this short piece the interval falling on the second beat is more important than one falling on the first beat. Next, the interval falling on the fourth beat is more important than one falling on the second beat. Again, the interval falling on the eighth beat is more important than one falling on the fourth beat. Lastly, the interval on the eighth beat is more important than one on the fourth beat. In the Javanese gamelan these divisions of four are expressed in lengths of pieces which double from pieces 8 beats long to 16, 32, 64, 128, and 256 beats, onwwards, theoretically towards endless time.

In architecture, multiples of four counts and a cyclic form of Javanese gamelan music are represented as squares and circles iin the Borobudur stupa in Central Java with a structure built on five diminishing sizes of squares and a top in three circular shapes, symbols of a Buddhist spirituality. The base is exactly 113 meters on each of four sides (Soekmono 1976). In India, the square and the circle is the name of Kapila Vatsyayan's book as this figure refers

to the Indian arts. Stella Kramrisch writes of a "small square of 4 bricks enlarged to a square of 16 bricks in Indian temples" (1946: 22-27). A writer on West Asian antiquity, Roger Cabatini (1957) affirmed that the geometry of the circle existed in ancient Mesopotamia underlining a relationship between the Babylonian solution of this figure against one of Hippocrates' in ancient Greece. In Assyria, there are terms used for the word 'square' and 'square side.' "Squares are the object of metro-mathematical exercise." A brick mold has the sense of a 'square form' and squares are related to other geometrical forms (Reallexikon 1990

It is often mentioned in literature that a mathematical organization of music has its roots in astronomy, the movement of planets, the earth. the moon, the sun.. Ancient Indian writings of the Vedas which date back to around 1,500 years B.C. is a source of a relationship of music and the arts to astronomy about which Professor Subhash Kak wrote a book, The Astronomy of the RgVeda. .In East Asia there is no corresponding literature of hymns to which to refer for a source linking music to the universe. However, citations of the square and the circle in Indian arts and mathematical solutions of this figure in West Asian antiquity mentioned above are leads towards looking for these structures in Zhou bi suang jing, a collection of ancient Chinese texts on astronomy and mathematics which date back to the Han dynasty in th first century B.C. In this book a simple conversation between a follower and a master about a relationship of the square to the circle runs as follows:

"#A1 [13b] Long ago, the Duke of Zhou asked Shang Gao 'I have heard, sir, that you excel in numbers. May I ask how the Bao Xi laid out the successive degrees of the circumference of heaven in ancient times? Heaven cannot be scaled like a staircase, and earth cannot be measured with a foot rule. Where do the numbers come from?

` #A2 [13f] Shang Gao replied "The patterns for these numbers come from the circle and the square. The circle comes from the square, the square comes from the trysquare, and the trysquare comes from [the fact that] nine times are eighty-one.'

#A6 [22p] The square pertains to Earth, and the circle pertains to Heaven. Heaven is a circle, and Earth is a square. The numbers of the square are basic, and the circle is produced from the square. . . . . .

#A7 [23f] Thus one who knows Earth is wise, but one who knows Heaven is a sage. Wisdom comes from the base (of the right-angled triangle] and the base from from the trysquare. Through its relatons, what the trysquare does is siply to settle and reglate everything there is.' (Cullen: 174)

In these passages, a specific association of the square and the circle to Earth and Heaven implies that this concept may also be a

source of an architectural square format of Buddhist and Indian temples, and by extension, the four beat structure of the court musics of Asia. Again, in Professor Joseph Chen's paper, the mention of the "square and the circle" as a geometrical pattern which led to a development of the chromatic scale adds more importance to this figure. Then, questions arise on how a Confucian, a Taoiste or a Buddhist philosophy may be expressed as mathematical figures. The mandala which is a square would be related to this figure and to the cosmos just cited in Zhou bi suang jing. Since other writings on astronomy such as those cited in Professor Chen's book (1996: 150-190) were written around the time of Confucius, a research explaining an assocation of numbers to these philosophies and to the cosmos would become clearer.

Professor Huang Yi Long's contribution to this Symposium, "Watching for the Ethers: A Theory to Unify Music, Calendar and Metrology in Ancient China" is a source of information concerning numbers three and five. It is from the number three in the form of two-thirds of disminishing and increasing lengths of a bamboo pipe that the 12 lengths of bamboo pipes were calculated. and that corresponding tones produced were all fifth musical intervals. The fundamental pitchpipe is also the fundamental tone of the Chinese scale. Even if results of experiments through the ages of calculating exact pipe lengths with changes of the seasons proved to be fake, this very assosciation of numbers three and five not only to the seasons but also to the calendrical system and standards of weight, volume and length repeated through centuries, indeed a very long tradition in China, are a demonstration, a belied of a basic relationship between the fundamental tone, the fifth musical interval and the cosmos.

Apart from the importance of this pipe length in the hou-ch'i phenomenon, Professor Bell Yung writes, "since the earliest times Chinese theorists have placed great emphasis on absolute pitch, as it was related to official standards of measurement of length, capacity and weight. The pitch of the huang-chung. which generates all other notes, was naturally the most important and was always represented by the measurement of a string or pipe. Time and again attempts were made to 'rediscover' the true measurement of huang chung, A survey by Yang shows that there were at least 35 pitch reforms between the late Cho period (c. 3rd century B.C.) and the Ch'ing dynasty (1644-1911), during which time, the pitches used for huang chung varied between c' and a'." (Groves 1980). It is noteworthy that Ching Fang (70-37 B.C), cited by Bell Yung is the same source referred to by Huang Yi-Long.

The mathematical structure of the court musics of Asia which apparently dates back to centuries B.C., its association with mathematical calculations concerning the cosmos, a philosophy related to Confucius, Buddhism or Taoism may be understood as a classicism, distinct from Southeast Asian, Austric or Austronesian music cultures which do not have the same discipline of numbers..

At this point it would be pertinent to talk about flute scales.in Austronesian cultures which also date to thousands of years ago. The use of bamboo in Southeast Asia is as old as the stone age Its function as a tube in which to cook rice has a parallel in flutes with no finger holes. In the Philippines among the Tiboli of Mindanao, a small flute (sloli) has only two stops close to the lower end of the flute. Among the Cuyunin of Palawan, gigantic nose flutes with tubes much larger in diameter than those found in Luzon have two stops bored beside each other in the lower half of the tube, In Mindanao another rare flute is one with two holes on one (ventral) side and another two holes on the other (dorsal) side. (Maceda 1990: 198) In the highlands of Hainan island in China, the Yi people use a nose flute with two blowing holes located on both end nodes in opposite sides of the tube, either one of which may be used to play the instrument. This flute has only one finger stop bored beside one blowing hole. If the flute is blown on the end beside the stop, the right forefinger stops the hole beside the player's nose. If the other end of the flute is blown, the player's forefinger stops the hole on the lower end of the flute (Zhu Zhuo-Jian 1990).

In Southeast Asia this early placement of finger holes in flutes does not have a discipline that appears much later in time.in a divisive system of flute measurements. In this system, 10, 12. 14 or 16 circumferential lengths of a bamboo tube determine the fundamental tone. In a pipe with 16 circumferential lengths, one-half of 16 determines the octave. Thereafter, the succeeding three other stops vary in measurements to produce hemitonic and anhemitonic pentatonic scales. A practice of this measurement of flute stops exists in Mindanao, Luzon, Kalimantan, West Java, Nias, Sulawesi, Laos and probably other places still to be accounted for (Maceda 1990). Dual scales in Java, Vietnam and Japan may be more related to Southeast Asian dual scales than to the Chinese huang-chung base. . An illustration of many types of Vietnamese scales was a paper submitted by Professor Tran Van Khe who regretfully cannot come for this Symposium.

In China other uses of numbers in music have several instances In Shifan luogu, a wind and percussion ensemble popular in Jiangsu province in Southern China, the number seven is used as number of beats to form imaginary shapes of triangles, rectangles and geometrical designs (Yuan Jingfang1983; Zhu Zhuo-jian 1988). The five tones of the pentatonic scale are represented in the zodiac (Feng Wen T'zu, Chinese Music, 1974). .The Shih-Ching Book of Odes in the time of Confucius is built on 4 characters per line (Picken 1977). In folk songs of succeeding dynasties, the use of numbers 4, 5 and 7 as number of characters per line stress their significance in Chinese culture.

Professor Hsu Tsang-Houei (1997) refers to the Nan Guan, a South Chinese ensemble as a music in which the number five prevails.The

group consists of five instruments. Number one is represented by the flute hsiao with one vibrating column.. Number two is the plucked string erh-hsien with two strings; number three is another plucked string, san-hsien, with three strings; number four is still another plucked string pi-pa with four strings and lastly the percusson sticks pai-pan is a cluster of 5 sticks. Further, the music 'Plum Flower' consists of five movements of increasing speeds from very slow to very fast. In Dr. Wang Yingfen's paper, also on Nanguan music, songs are grouped into tune families that exhibut a binary ratio of meters: 4, 2, 1.

A direct application of numbers or a view of structure in musical forms would be heard in the papers of Professors Gretel Schwoerer-Kohl, Kwon Oh-Sung, To-Ngoc Thanh, Sam-Ang Sam, Yuan Jingfang, Chun In-Pyong and Sheen Dai-Cheol. They would provide further data on how a formation of numbers make up designs which may be related to the cosmos, so often cited about the court musics of Asia. The square and circle is one such a figure.

May I now turn to the structure of Austronesian, Austroasiatic and related languages in continental Southeast Asia and the languages of China, markers of ancient civilizations, cultures, especially visible in music.. A theory exists that Chinese and Austronesian languages are related, and linguistic studies speak of a possible origin of Austronesisn languages in the middle Yangzi Valley. (Reid 1996) An elucidation of similarities and differences in the structure, the vocalic systems of these languages, especially those bordering South China would be helpful in understanding the structure of folk songs of tonal and non-tonal languages of the region. This structure would in turn be a guide in finding out an associaton of music intervals of folk songs of these language groups to their texts. Since the Austronesian languages are numerous, amounting to hundreds, and very old, antedating tonal languages, the music intervals that compose the melodies of songs in these languages would also be that old. The songs of these linguistic groups may have an attachment to numbers different from Chinese songs.

We are fortunate in having for this Symposium contibutors on songs from a number of linguistic groups which may be divided as follows:

Sino-Tibetan:
Gretel Schwoerer-Kohl, Wedding songs of the Karen people in Northern Thailand
Ke Lin, The Structure of South China's Ethnic Miao People's Folk Songs

Tai-Kadai
Jaroenchai Chonpairot , The Music of Northeast Thailand: How a Molam Singer Creates a Lam Melody

Austro-Asiatic and Sino-Tibeto-Burman
To-Ngoc Thanh, Songs of the Tay (Austroasiatic) .and the H'Mong

(Sino-Tibeto-Burman) in Vietnam

Austronesian and Austroasiatic
Le Toan, Songs of the Rade (Austronesian) and the H'Re (Austroasiatic). in Vietnam

Austronesian
Nicole Revel & Olivier Tourny, A Poetic and Musical Approach of Sung Narratives. A Comparison between Ifugao hudhud of Northern Luzon and Sama Dilaut kata-kata of Tawi-Tawi (Philippines)
Jonas Baes, Towards a Theory of "Structuration" in Philippine Oral Traditions; 7- SyllableText and the Performance of 5 Vocal Genres in the Philippines

Tibetan
Mao Jizeng, The Structural Features of Tibetan Song-and-Dance Music

Folk Songs in China
Yulin
Liu Xiaolong, The Variety and Characteristics of Folk Songs in Yulin, North of Shanxi Province in China

She
Lan Xuefei, The Structure of Folk Songs of the She Nationality in China

Ching and Ming Dynasty
Feng Guangyu, The Chinese Folk Songs of the Same Origin

Anhui
Wang Yi-bin, Four Areas of Anhui Folk Songs of China

Now, I come to the third subject of our Symposium concerning cooperation in societies in Asia. In a series of lectures organized by the Internatonal Insitute for Asian Studies in the Netherlands, Thommy Svenson spoke of a Cultural Rapprochement between Asia and Europe. He wrote, "The idea of the supremacy of the individual over society is pointing in the right direction, but there is a general consensus that the "West" has gone too far in its empowerment of the individual. .Keywords are social harmony, consensus building, devotion to the community, sanctity of the family, strong government, and economic growth." (1996: 37). The concept of joint endeavors has a prime example in the recent creation of the European Union and the ASEAN, the opposite of separate nations which took shape only a few centuries ago, following the practice of city states in ancient Hellas.

This spirit of cooperation and coordination in societies in both East and Southeast Asia has its roots in for example the cultivation of rice. The planting and harvesting of rice needs the collaboartion of neighborhoods, difficult to accomplish with one or a few individuals.

Examples of family and group enterprises abound and the practice is repeated in musical ensembles in Bali, Lombok, Java and also in earlier societies among the mountain groups in Central Vietnam or the Cordillera in Luzon, Philippines.

A specific application of this social phenemenon for music would be heard in the paper of Professors Sumarsam in Indonesia, Tomoaki Fujii in Japan. and Yi Sho-rah in Korea. One on musical instruments of the Malay world is a presentation of Larry Hilarian Francis.

Several subjects with a more direct relationship to music were announced for this Symposium. These are:

a concept of orchestration with separate functions of instruments;
:aesthetic qualities of gong sounds;
:a great assortment of string and wind instruments;
:attributes of indefinite pitches of bamboo, skin, bronze, shell and wooden instruments;
: varied intervals of pentatonic scales;
: rituals attached not only to court but also to rural music;
:cultural differences in a classification of things (Conklin 1980) as a basis of a classification of sound, color, space, proportions
: many expressions based on language families surrounding the tonal languages of China.
: the use of drone, ostinato or repetition in musical instruments

Although other contributors submitted papers of significance on these subjects they finally could not come. For those who are here their names appear in the printed program. I now end this talk with an expression of my deepest appreciation for all those who commited themselves to participate in this Symposium

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