

ROMANIAN *OCHTOECHOI* AND SIMILARITIES TO MIDDLE EASTERN MODES AND PRACTICES: A CASE STUDY (PART I)

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Abstract: *This two-part article will try to capture, trace and analyze the Byzantine musical modes, as they appeared at a brief moment, some nineteen hundred years later, in a specific geographical place, a former part of the Byzantium Empire. We will try to compare the Church modes, as they appear in two Romanian Seminary textbooks, published one in 1900 and the other one in 1939 to other modal structures developed in the heartland of Eastern Christianity, the Middle East.*

Keywords: *Ochtoechoi, Maqamat, Makamlar, diatonic, chromatic, enharmonic.*

1. Introduction

Orthodox Christians proud themselves and distinguish themselves from other Christian denominations by the direct unbroken lineage from Jesus and His Apostles, with unchanged doctrine and the original practices of worship. It is also said that Eastern Orthodox Christianity is the only Christian denomination that has a complete philosophical system. Although it claims to be profoundly a-political, it was at the center of an Empire, by which name it is known today: Byzantium. The vast areas the Empire comprised helped crystallize and develop a unique style of Painting, a unique style of Architecture,

religious poetry and music system, which today are known as Byzantine Art. Some elements were there when the religion started, in the times of Jesus, as it is the case with music. Tight rules and practices kept the tradition intact from generation to generation, with minimal changes and adaptation. But did indeed this Art go unchanged for two thousand years?

2. Diachronic perspective on Middle Eastern musical system

The Byzantine system of modes is called *Ochtoechoi* and it is comprised of eight modes called *Echoi*. The system was thought to have originated from the Greek

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modes (due to the Eastern Orthodox post Byzantine center, in Greece). After the conquest of Constantinople, Greece established itself as the main center of Eastern Orthodoxy especially due to the center of Orthodox monasticism of Mount Athos where other Eastern European countries (besides Greece, of course), such as Romania, Serbia, Georgia and Russia have monasteries; however the Patriarch of Constantinople (modern Istanbul) is still considered today the “First Among Equals” in between the Patriarchs of different National Churches.

Today it's widely accepted in Byzantine music scholarship that the *Ochtoechoi* have originated from the old Temple Jewish Chant and were later influenced by (pre-Islamic) Syriac Music.

Byzantine music has only one purpose, and that is to serve the religious texts, to mold to the syllables, without interfering and at the most to emphasize certain words or phrases. Islamic music and in particular that of certain Sufi orders, work exactly in the same way, where music will support and enhance the meaning of the religious poems.

Due to the modern organization of the Eastern Orthodoxy in National autocephalous and autonomous Churches in communion with each other, and to the functionality of Byzantine music that is applied to the text, each National Church developed a tradition of slightly different chants but in the same system of modes. The continuity, development and perfection of Byzantine Art tradition over the ages occurred in the monastic environment. In the case of music, the National languages influenced the actual chants, as the focus would switch to music instead of the words, if hymns would be translated on the same melody from one language to another. The functions of the *Echoi*, their astral correspondent and their rotation into the Orthodox service based on

calendar days could be the subject of an entire paper, although enough research has already been done on the topic. The only exception, the only National Church where the *Echoi* lost some of the tradition is the Russian Orthodox Church, where cultural imports brought in by Peter the Great determined a Westernization of the modal structures, simplifying the chants and eliminating the un-tempered scale degrees. Due to these facts, we will limit our research to Romanian *Ochtoechoi* as they appear in treatises at the beginning of the 20th century.

In the realm of creativity and the relationship between composer – performer – listener, the Middle Eastern music and the Byzantine one differ radically one from another and from the Western classical ideal. While writing music, the Middle Eastern composers merely suggest a line; it is then for the performer to perfect and adjust it in each performance, based on the input from the audience. The audience is an active participant, they approve or disapprove phrases, they can request repetition of favourite phrases, and the performer can accommodate some of the request.

In the Byzantine modal system, the composers are usually anonymous, and I would draw a comparison with another Art (I'm using this word in this context only for convention) in the Eastern Church – the Ikon painting. Just like the music, the Ikon serves a specific purpose and function in the Eastern Church: Ikons are to be venerated and the Ikon Are the Holy Person they depict; the painters of Ikons are trained anonymous monks free and devoid of any artistic individuality. The Ikon is not Art and should not be comprehended in terms of Art. The music for the service and for other religious poems is composed in the same way, with a few exceptions of recent (from the late 1800s) classical trained composers.

Traditionally, performing Byzantine and Middle Eastern music is done mainly in a heterophonical style, the most with some sustaining pedal tones. While Makamlar can be performed in laic environments with instruments as well, Byzantine music is sung traditionally almost exclusively by male voices.

But the most important issue is the tuning of these systems of modes. While there has been some scholarship in this field in Byzantine music, it's been surpassed by far by the amount of research performed in the Middle Eastern modes, which doesn't mean it's a bad thing in itself after all. The multitude of research into *Maqamat* (the system of Middle Eastern Modes) and *Makamlar* (the system of Ottoman Modes) established a conventional nomenclature in describing the modes in quarter tones, although most Treatises in the field acknowledge that theory is different from practice and that there are finer tunings than that: "pitches in performance vary from the theoretical pitches (...) in makam saba, for example, the fourth degree consistently measures an average of 29 cents higher in practice than in theory" [1]; parts of it had to do with the desire and search of explaining the Maqamat and Makamlar with Greek Pythagorean theory; one of the approaches in explaining intervals in Ottoman and Middle Eastern music has been by giving fractions of string vibrations using a long necked fretted lute such as the Ottoman *tanbur*, and even that method in itself is debatable.

But in the case of Byzantine Music theory, where there are no instruments allowed (although in the distant past, the organ was used in the Orthodox Church; the organ was also used in the Jewish temple and in the early Syriac Christian Church) [2], it is even harder to determine the exact pitches for each individual modal structure, and we will have to rely on the tradition: "Fetis shows us on Western notation these formulas; but they don't

correspond with those that were transmitted to us through tradition." [3]

Unfortunately, the equal temperament of the Ochtoechoi is a reality in today's Romanian Orthodox Music. A modern textbook published in 1997 [4] to be used in seminaries across the country compares the modes with the neumatic notation with modern linear notation in equal temperament. Indeed, while listening to a recording over the Internet of the chant *Ceea ce ești bucuria* (Romanian for "The One that are the Joy") by the Choir of the Bucharest Seminary, everything is sung in equal temperament.

3. Romanian Byzantine music textbooks

As we wrote before, the two earlier Romanian textbooks for seminaries, Popescu-Pasărea (1939) [2] and Severeanu (1900) [5] describe the modes in microtonal tuning.

Before going into more details, we feel obliged to draw attention to the title employed by these two older treatises, of *Oriental Psaltic Church Music*. Both of them use the term *Oriental*, which might be an indicator showing the belonging of the Romanian Orthodox Music practice to the Middle Eastern style as opposed to the Russian (Westernized) style; it might as well be an indicator opposing the Greek origin of the modes (in the late 1800s and early 1900s it had just been proven that the Byzantine modes are traced from the Middle East Jewish chants from the Temple and the Syriac chant, as we mentioned before, and not from the Greek modes).

The interesting aspect in both of these treatises is that although their authors show the structure of the Echoi while using the word "quarter tone", when summed up, the quarter tones of each Byzantine scale sum up to only 22 units to an octave. Did they just forget to add one half tone (or two more quarters) or was there a different division

employed by the practice of singing the Orthodox hymns? Or does it really matter, are the results still the same or about the same? To allow our reader to take this decision, we are showing in our comparison charts the number of cents that result from these “quarter tones” as 22 to an octave (and therefore divided 1200 cents to an octave to 22) next to the numbers of cents if this would indeed be quarter tones (24 to an octave). We are also converting the results to comas, where 1 coma equals 23 cents (as Signell has in his book of Makamat [6]), to ease the comparison with the Ottoman pentachords [7]. Besides comparing them to Ottoman Makamlar pentachord structures, we will also show one correspondent with Arab Maqams, as they appear in the Volume 5 of the Arab Music treaty by D’Erlanger [8].

4. Comparative study

We have made the choices of comparison modes in a somewhat arbitrary way, sometimes looking at the coma structure, sometimes looking at the “quarter tone” structure or even due the homonymic term of scales. We will state that all notations, in quarter tones, comas etc. in all books that we are using have shortcomings, and the results or even the premises are debatable, therefore we are doing an exercise of imagination in bringing these together at a common denominator or on a common ground. The numbers will prove and show the degree of adjusting that we have made or the differences in the existing notation that we are starting from. Our interpretation can be challenged and debated, and not once did we have to choose from several possibilities, especially while choosing a comparison Maqam from D’Erlanger’s treaty. In the lower corner we are also showing the transcription in linear notation as it appears in Lungu et al (1997), with the exception of the *Diatonic* Scale

structure, for which we are using our own linear notation using neutral pitches and no finer tuning than the standard quartertone.

The *Ochtoechoi* is a collection of eight modes formed by four authentic modes and their plagal versions. The term *Echoi* appears in Byzantine music in the 6th century (sever from Antiohia) [9], but Ioan Damaschinul is considered the one who systematized the *Ochtoechoi* – “the book used for the religious services for each day of the week.”[10] Each mode has one or several (usually two) different tonics and even more dominants (or cadenzas) according to the Rhythmic Style (usually either Sticheraic, Heirmologic and Papadic). According to Constantin Râpă, “Sticheraic Style is the one which establishes the modal features of byzantine music (functionalities, formulas, interior and final cadences, etc.) [...], mean while the melodies in Heirmologic Style are frequently consisting of four, five, six sounds, using small intervals, and usually pre-octaviant ambitus [...] The Papadic Style allows more liberties in using melodic formulas, cadences and tonics, being the most apprehensive one regarding Turkish and Arabian influences”.[11]

These rhythmic styles have to do more with text painting and the use of syllables per note than with actual tempi, thus the difference and the uniqueness of chants in various National languages, for the various autonomous Churches.

The Byzantine system of modes actually uses three structure scales, as opposed to the Western Music system which uses only one (the tempered scale) and the Maqamat and Makamlar systems which use several. An article by Takis [12] clarifies the distribution of the scales to the eight modes, and his explanation is corresponding perfectly with the nomenclature from all the three Romanian books (1900, 1939 and 1997). The three scales are the *DIATONIC* one, the

CHROMATIC one and the ENHARMONIC one.

The structure of the Diatonic scale resembles the Western scale except the E and the B are neutral pitches about half way between E flat and E natural and respectively B flat and B natural; the descending Diatonic scale uses the B flat instead of the neutral B; Echoi VIII (or plagal IVth), I, IV and the Vth (or plagal Ist) use this scale.

Takis writes that the Enharmonic scale has tempered intonation and is exactly the like Western Major scale; Echoi III and VII (or plagal IIIrd) are using this scale.

The Chromatic scale contains augmented seconds and it is used for the Echoi II and its plagal version, VI. He identifies a Soft Chromatic and a Hard Chromatic Scale and argues that some of the modes VI use the Hard Chromatic Scale, while some of the Modes II use the Soft Chromatic Scale. He describes the Soft Chromatic Scale as being based on G and having the A above slightly flatted. Additionally, if the melody goes above C, the high E is flat, but if the melody goes to the lower C, then the low D is also flatted. The Hard Chromatic Scale is based on D followed by Eb, a very sharpened F#, G, A, Bb, C# (very sharp as well) and D, as seen in figure no. 1:



Fig. 1. *Hard Chromatic Scale*
(by Takis)

Far on we are showing a chart of Byzantine *Ochoeχοi* as they appear in the Romanian 1997 textbook by Lungu, Costea and Croitoru, with the tonic and dominants for each mode in each rhythmic style. The chart does not include the other scales of Nisabur, Hisar and Mustar. The authors write that these three extra scales do not make up independent modes or Echoi, but rather are used as passing scales in modulation, only when needed to emphasize

the significance of certain passages in the religious text. The chart is not complete for the Echoi and has some omissions in respect to a few other variants of certain modes, due to different other issues such as combinations between Echoi, text setting, tempo and religious motivival use. The fact that these variants use the same modal structure spares the authors of this article from a lengthy argument.

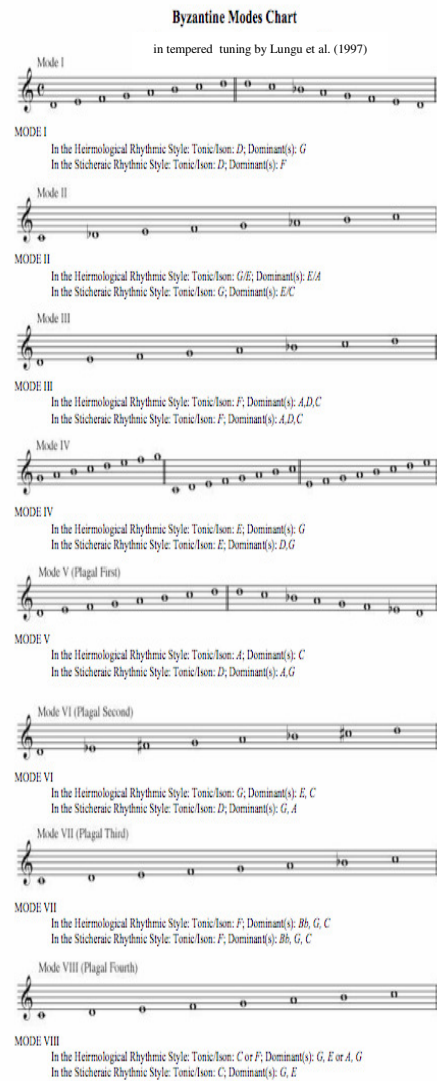


Fig. 2. *Byzantine Modes*

The byzantine modes are grouped in two categories: the first four are authentic scales (dorios, lydios, phrygios, mixolydios), the other four are plagal hypodorios, hypolydios, hypophrygios, hypomixolydios). [13] One can observe that some of these scales are similar or even identical. But the differences between them will appear concerning their inner characteristics: the type of structure, formulas and modal cadences, the functionality of the sounds in the system etc.

4.1 The Diatonic scale

The scale structure used by the largest number of Echoi is the *Diatonic* scale. Four Echois are using it: 1, 4, 5, 8. Even if the diatonic scale contains tones and semitones, these intervals, from the byzantine modal concept, have different sizes. Originally the byzantine scale is divided into 68 micro-intervals, but later, Anton Pann simplified it by using only 22 “divisions” of the octave, as follows:

Byzantine octave: **68**

pa	vu	ga	di	ke	zo	ni	pa
3	7	12	12	9	7	12	

Anton Pann octave: **22**

pa	vu	ga	di	ke	zo	ni	pa
3	2	4	4	3	2	4	

Fig. 4. *Divisions of the octave*

Thus, in the byzantine diatonic scale Anton Pann uses three sizes of intervals:

- Hard tone (4 quarter tones);
- Soft tone (3 quarter tones);
- Semitone (2 quarter tones).

Further on we are choosing to compare the 1st Diatonic scale from the Byzantine system:



Fig. 3. *First Echoi (dorean)*

with the Husayini mode in D’Erlanger instead of Bayati, due to several reasons.

First of all, this byzantine mode represents a landmark for the Ochtoechoi, as Victor Giuleanu affirms in his treaty: “The first mode is – in theoretical order – the first diatonic system of byzantine melody. The prototypical modal formulas, its cadences, the processes used in melodic configuration, the composition diversity of the three rhythmic styles – sticheraic, heirmologic and papadic – and its characteristic expressivity make this scale the starting and orientation point for the entire byzantine diatonism”. [14]

Also we want to underline the pitch of *B neutral* in the ascending scale versus the *Bb* in the descending scale (although the 1900 and 1939 don’t show the descending scale structure there are plenty of sources, including Lungu et al. (1997) to convince us of the lowering of the *B* in the descending scale); according to D’Erlanger, *Bayati Maqam* uses the *Bb* in the ascending scale as well as in the descending one; only the *Husayini Maqam* has the *neutral B* in the ascending mode.

While analyzing the structure of the Byzantine Diatonic scale, the question that arouses in the case of the authors of the 1900 and 1939 is why are there only two so-called “quarter tones” between *E* and *F* and *B* and *C*? Did the authors start from the assumption that between *E* and *F* and *B* and *C* there is only a half step, and therefore 2 “quarter tones”? Are they forgetting that *E* and *B* are neutral pitches and therefore there should be added 1 quarter tones to these intervals (like D’Erlanger does for the Husayini structure)?

But that would add the sum of the quarter tones up to 24, and all other scales in Popescu-Pasărea and Severeanu add up to only 22. We are so convinced that the Diatonic scale structure has *E neutral* and *B neutral* that in the lower right hand

corner of the Diatonic Comparison Chart, we are showing our transcription into linear notation (in all other charts we are using the tempered tuning linear notation as it appears in Lungu et al.).

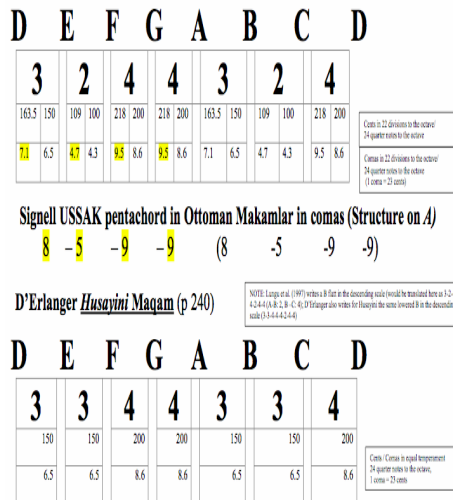


Fig. 4. *Byzantine Diatonic Scale Structure*

For space editing reasons regarding our actual study, we need to include in the second part the chromatic and enharmonic scales comparative discussions. We will also take a look at the chants from the modern theories based on Paolo Ferretti’s views on centonization [15], and look at the melodic formulas that comprise the modes, instead of the pitches comprising it (which is the traditional mode of thought of Western music theorists).

5 Conclusions

It is very hard to calculate the exact intonation of the Byzantine scales, as it is that of the Arab Maqamat and Ottoman Makamlar. Exact electronic measurements have certainly not been made by the time the early Romanian textbooks were published. Rather they were written based on previous treatises and transmitted

knowledge and practice. Even like that, the human voices that might be measured are subject to external influences. Unfortunately, today’s Westerner has lost the sensitivity to microintervals and fine-tuning, but maybe it wasn’t during the time of Severeanu and Popescu-Pasărea.

Maybe a better method of tracing the Ochoeχοi structures and exact pitch location would start by analyzing the construction of the early Organs used in the Jewish Temple and in the Syriac Church. By comparing the results to the structures, as they appear in theory and Byzantine music practices today, one might be able to trace better the evolution of the modes in time.

Unfortunately the contemporary Romanian Orthodox churches practices of singing, in urban environments changed, and are moving towards the Western style equal temperament. The only places where the traditions are well conserved are the enclosed communities of the monasteries.

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