THE MEANING OF THE MODAL FRAMEWORK IN THE SINGING OF RELIGIOUS HYMNS BY CHRISTIAN ARABS IN ISRAEL

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By the term "modal framework" we mean the accepted framework in which a certain musical repertoire is organized, as for instance, the *Maqāmāt* in Arab music or the *Raga* in Indian. Modal frameworks are currently considered to be melodic types[1], but no exact definition exists of these melodic types. Even the various theories[2] do not present a precise determination of the modal framework and this is even more markedly lacking in performance practice.[3]

There are many factors that may be considered in attempting a definition of this framework. They can be divided into four areas.

A. Elements of musical structure, which may include:

1. The scale

(a) In the conventional meaning.

(b) Considered in its system of intonation; that is, the precise pitch of tones and the exact relations between them. (The intonation is occasionally complicated but it is important in characterizing most non-Westernized music.)

[1] See, for example, the entries "Melody-type" or "Echos", in Willy Apel, *Harvard Dictionary of Music*, London, (1955), pp. 225, 438.

[2] For example, the theory of *Maqāmāt* as it was most systematically formulated by the learned theoretician Ṣafī al-Dīn in the thirteenth century suggests that the *maqāmāt* is not only a scale but is rather a framework determined by both the melody and the rhythm. (He calls this framework *ṭariqa* — that is, "the way"). However, he considers the scale and the rhythm separately and the connection between them is not clear (see H. G. Farmer, "The Music of Islam", in *The New Oxford History of Music*, Vol. I (Oxford 1957), pp. 462–465 and idem, *The Sources of Arabian Music* (Leiden, 1965, pp. XIII–XXII and 48). Contemporary Arab theoreticians are adopting modern Western terminology and methods even though they, in some ways, continue the tradition of the Middle Ages (see Baron R. d'Erlanger, *La musique Arabe*, Paris 1949, Vol. V, pp. VII–VIII). An exact definition of the term *maqām* will not, however, be found in their work. The term *maqām* is used as a label for several different things: a system of intonation, a tetrachord and a mode in the Western sense. (For details see the chapter on *maqāmāt* in the present writer's work *The Liturgical Hymns of the Christian Orthodox and Greek Catholic Arabs in Israel*, 1967, pp. 173–178).

[3] Most of the scholars who have dealt with musical practice in the Middle East (Villoteau, Jeannin, Parisot, Thibaut, Rebours, Idelsohn, Lachman, Stephan and Gerson-Kiwi) speak of the modal framework as defined by melodic motifs. They do not, however, deal with the other musical components, or take into account the problem of performance or differentiate between theory and practice.

2. The range

(a) The interval of the ambitus, by which we mean the largest interval encompassing the melody.

(b) The tessitura — that is, the relative pitch of the ambitus or the extent of the melody in relation to the finalis and central notes.

(c) The absolute range of the ambitus (diapason).

3. Rhythm and meter

4. The tempo

(a) Changes of tempo and their extent.

(b) The absolute extent.

5. The central notes

6. Characteristic intervals

7. Recitation tones

8. The melodic structure

9. The musical motifs

10. Variations and improvisations

11. Other elements such as vibrato and intensity.

B. The medium of performance — such as solo, choir, their combinations, or singing with instrumental accompaniment.

C. The role of the text (in vocal music): The content; the form; the rhyme; the various meters of the text and the mutual relation of all these with the musical components; the amount of melisma.

D. Extra-musical factors: holidays, service hours and various social functions.

Up to now only part of these elements have been examined, and definitions enabling accurate comparison have not been reached[4]. Within the musical area only four elements have been examined: the conventional scale; the tessitura; the central notes; the musical motifs.

The elements that do not change from mode to mode (even if they are highly characteristic of the music examined) have no part in definition, while the elements that change with the mode help define its framework. Thus, the framework of the music in a certain culture may be defined by all the elements mentioned above or perhaps by only some of them. There may also be an inter-dependence between the elements, so that the nature of one will influence another. For instance: a change in tempo may influence the amount of melisma; the existence of certain intervals may determine the motifs used; or each

[4] For example, much has been said about the melisma of a song, but not in consideration of quantity. Thus under the heading of "melismatic song" we find songs with slight melisma and others with heavy melisma. And we certainly do not know what part the melisma plays in the characterization of the melodies of the performer.

element may exist independently. The elements defining the framework may be known to the performer and used according to well-defined rules, or he may be unaware, or very vaguely aware, of them. The situation will probably differ in various cultures, in different geographical areas and in different historical periods.

The factors stated above may also be influenced by a specific musical tradition, oral or written, or a blend of both. If the music exists in written form, the method of notation is important. Similarly, the existence of any kind of music theory contributes to the style and the rules which govern the performed music. It is clear that some of the elements mentioned may be defined only through an examination of the performance practice.

The Material Examined

The writer has attempted to discover the significance of the modal framework in religious hymns as sung by the Greek-Orthodox and Greek-Catholic Arabs in Israel. Until the schism that took place in the nineteenth century these two sects were undivided in the Orthodox Church. The two groups still use the same religious rite, in which the hymn singing tradition is a fusion of the local oral tradition and the written neo-Byzantine tradition[5] whose principal centres are in Athens, the Lebanon and the Old City of Jerusalem.

Today a number of differences have arisen between the two sects, but their basic customs and religious beliefs are still almost identical. At the time of the study, the Greek Catholic community numbered over 20,000 souls while the Orthodox contained 15,000[6]. Most of them are concentrated in the northern district of Israel (Galilee), where they have lived for hundreds of years. Since the establishment of the state of Israel great changes have taken place in the Arab community in general and in the Arab village in particular, but the economic and social basis has not disintegrated.

Despite changes in the society, religion has maintained a central position in the community, even if its role has been weakened. The tradition formulated

[5] The term "neo-Byzantine" or "Modern Greek" is used by most scholars to describe the music and theory of the Greek Orthodox church after the reform of Chrysanthos at the beginning of the nineteenth century. (For the different names given by scholars to the various stages of Byzantine music, see H. J. W. Tillyard, *Handbook of the Middle Byzantine Musical Notation*, Copenhagen 1935, pp. 17–18).

[6] Most of this study was carried out in 1965, and thus does not deal with all the changes that have since occurred in this group. It is clear that all the information that will be presented deals only with that part of the group living in the State of Israel. But, in the light of a general survey carried out among the section that lived under the jurisdiction of the Jordan government, it seems that there is not any additional material (except that found in the Old City of Jerusalem, which is a special case) that is likely to fundamentally modify the conclusions arrived at in this work.

over hundreds of years has been preserved to differing degrees in various places and in distinct age groups. The changes occur in diverse ways: through disintegration and neglect, only the aged attending services; by curtailment of the length of the service; by the addition of foreign, non-secular material in the contemporary Eastern style propagated in Egypt and the Lebanon; by the insertion of foreign material in "old-fashioned" Western style, partly under the influence of Israel culture but mainly due to the influence exercised by the important centres of the Eastern liturgy (such as Athens and Jerusalem) where at one time there was a tendency towards Westernization (although there is now again a tendency to return to the origins).

The changes are encountered in the two Christian communities, but display different patterns. The Orthodox Church has manifested an inability to withstand change, resulting in neglect and dispersion. Greek-Catholic efforts to strengthen their Church have brought in new elements. Thus the local tradition is subjected to various influences that provoke a lack of unity in the performance of the liturgy, but many common traits remain nevertheless in the sacred music tradition.[7]

The musical material chosen for this study, the singing of the hymns in the neo-Byzantine rite, is characteristic of Oriental liturgy.[8]

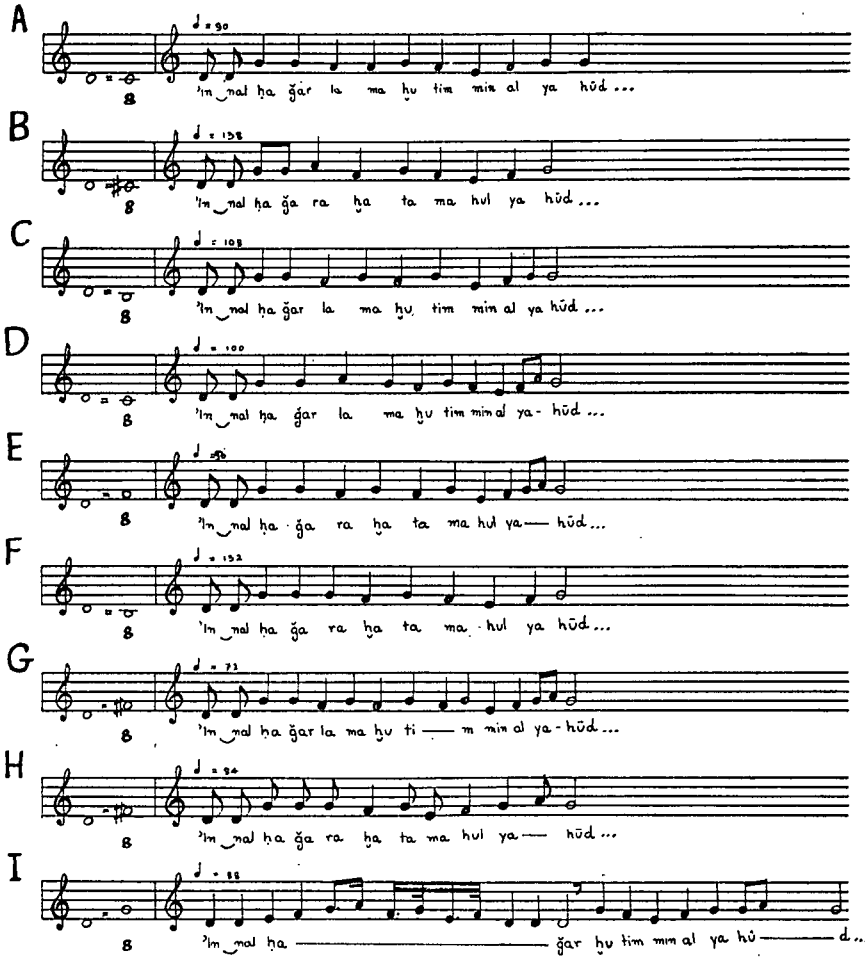
In the singing of hymns, as in most of the folk music of this group and of many other groups in our area, the performers play an important part in the actual composition. The "same" song appears in many variations when performed by different singers (see Example 1 and 2). That is why in such music thorough research demands an examination of the musical material in its varying performances. Hymn singing, which is a type of folk singing, serves our purpose very well from the point of view of the problem we have set ourselves: the identification and definition of the qualities characteristic of the style and the significance of the modal framework in the singing of the various performers. The hymns are theoretically organized into eight modes[9]: The

[7] A discussion of the various influences upon performance is given in Cohen, *op. cit.* pp. 102–109.

[8] While in the Western rite the text is chosen primarily from the Psalms, in the Eastern rite a special manifold activity developed in the composition of hymns in different meters and forms according to specific patterns. In its anonymity this activity resembles the creation of icons. The hymn types in the Byzantine liturgy were known by distinctive names — such as troparion, sticherion, canon. The hymn canon was determined in the eleventh century. Today the most widely used form is the troparion. However, the Arabs are not pedantic in their choice of terminology, so for the sake of simplicity the most encompassing term, "hymn", will be used throughout.

[9] The Arabs use the term *laḥan*, instead of "mode" or "echos", to refer to the modal framework in liturgical music. They use the term *maqām* for non-religious music. Sometimes, as we will see, they confuse the terms.

Ex. 1



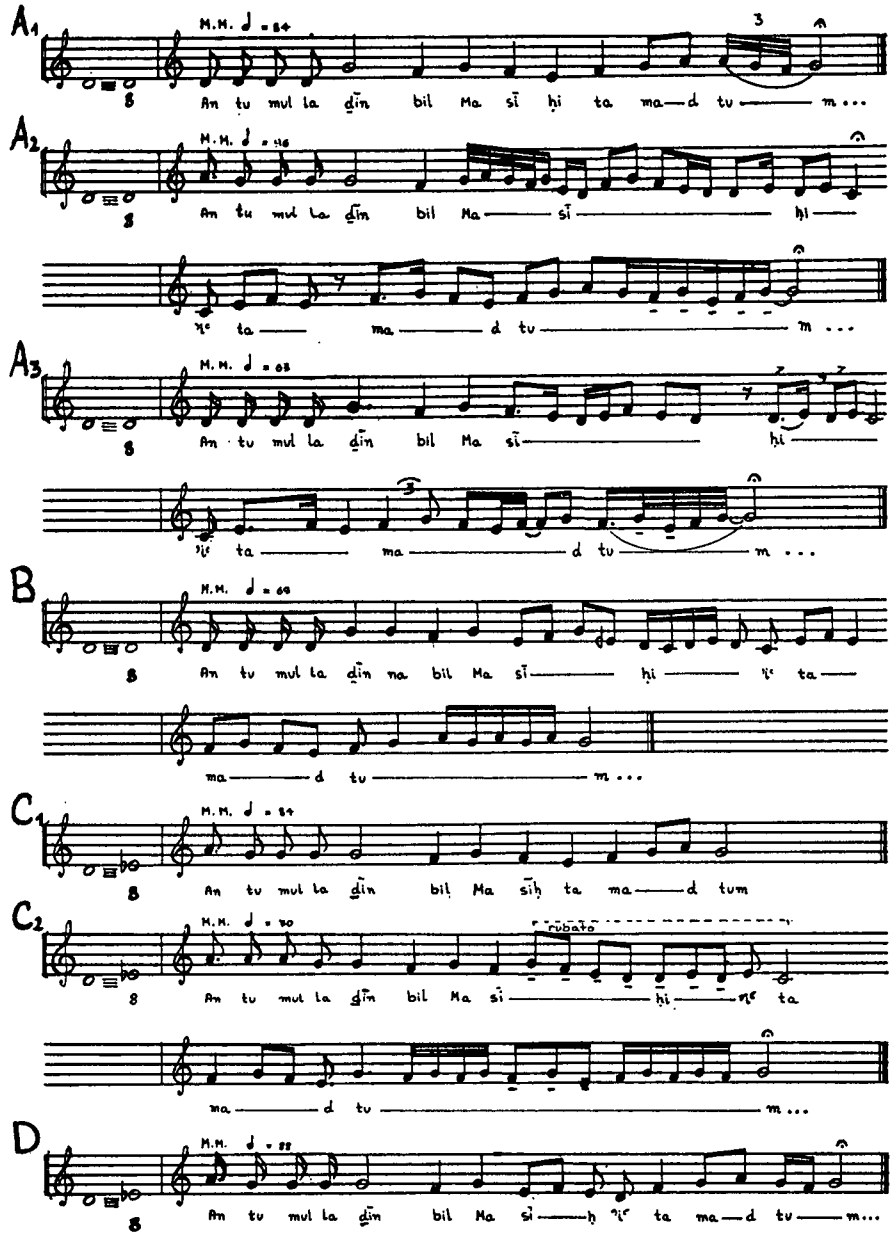
Example no. 1. — Opening of the Resurrection Troparion in laḥan I, as sung by nine informants, showing typical variations in performance of a syllabic hymn, transposed to facilitate comparison.
Translation: O! the stone with which the Jews sealed the tomb[10a].

most famous are eight hymns in the eight *alḥān* (plur. of *laḥan*) called the "Resurrection hymns". Their main theme is the resurrection of Jesus, and they are sung during the Mass[10] on Sundays, after the "little entry" — the entrance of the priest with the "Holy books". The resurrection hymns rotate

[10] The Latin term *missa* — the English mass — is dissonant when used to describe the Eastern rite, where many names exist for this part of the service, such as "the liturgy", "the holy sacrifice", "the divine sacrament", or simply "the rite". The Christian Arabs use the term *missa* when conversing with a Westerner. I have adopted this habit and occasionally, for simplicity's sake, I use the term *missa*.

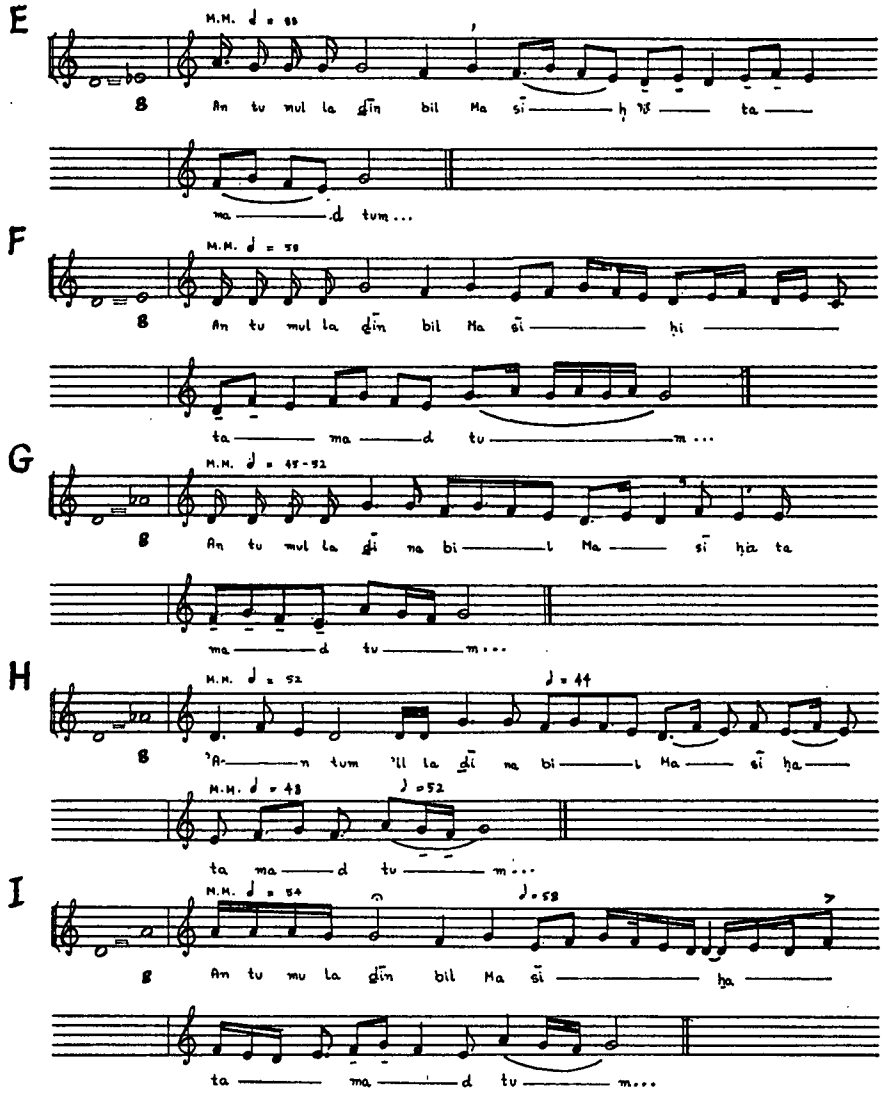
[10a] The Arabic text in transliteration appears under the musical example.

Ex. 2



Example no. 2 — Continued on the next page.

Translation: You that have been baptized in the name of the Messiah...



Example no. 2 — Opening of the well-known melismatic Troparion of the Baptism, also in *laḥan* I, as sung by nine informants from different places. (*A*, *B*, *C*, *D* and *E* are by Catholic Arabs from Šefarʿam, *F* by a Catholic Arab from Acre, *G* and *H* by Orthodox Arabs from Sahnīn). The example also shows the phrase as rendered three times by *A* (A^1, A^2 and A^3) and twice by *C* (C^1 and C^2).

in accordance with the "octo-echos" — every week of the cycle presents another resurrection hymn in a different mode. There are a few other hymns which are variations of the eight resurrection hymns and follow their melodic patterns. (Usually different performances of the same hymn by different informants are more varied than the performance of different hymns in the same *laḥan* by the same informant). To most of the Christian Arabs, the "resurrection hymns" serve as a sort of guide in recognizing the *laḥan*. Actually, not more than five or six different hymns are sung in each *laḥan*. Theoretically, some of the hymns change during the year and melodic variation is possible in certain hymns. But in practice the hymns and the *laḥan* do not change, and the specific choice of the unchanging hymns can be very instructive.

Gathering the material

The material gathered for the experimental work was assembled both from notated music and from live performance, for a separation between the two would have removed the research from contact with actuality. Most of the information on the group and its local tradition, and much data on each performer, was acquired by means of a questionnaire which was composed after visits to many villages and interviews with different types of people. The questionnaire was given to priests, precentors, members of the choir and "ordinary people" who attend church. It is clear that the replies to the questionnaire do not always exactly correspond to the facts; however, important information was gathered from the replies.

After a study of the questionnaires a choice was made of the informants whose singing was to be studied. An attempt was made to include in the study informants of all types: Orthodox and Catholic; people from the city and the village; the old and the young; those acquainted with modern Arabic music and those not; graduates of seminaries and "isolated" individuals who in the main had received their tradition orally.

The singing of a total of 38 informants was recorded, and the hymns as recorded by these informants formed the material of our examination.

The informants were asked to sing the hymns known to them in each *laḥan*.[11] Each hymn was sung by each informant a number of times. Thus, it was possible to compare different melodies in the same *laḥan*; melodies of different *alḥān*; melodies on different occasions; the same melody as sung by different informants and the same melody as sung a number of times by the same informant.

11 All of them without exception sang the "Resurrection Hymns" from the Sunday service. Most of them sang the famous troparion of the principal Holy Days, Easter and Christmas, and others sang the troparion of other days such as "Holy Week" or the "Transfiguration", the Festival of the Cross, or the Feast of Mary.

A total of 230 melodies were recorded. In addition, 12 Masses were also recorded on different Sundays at seven different churches.

Most of the musical material was transcribed into conventional music notation, in great detail. The hymns as sung by the different informants in a single voice were passed through the melograph in order to obtain the curve of the melody according to pitch. The various musical characteristics were derived from these two kinds of transcription. This information together with the information gathered on each informant, formed the basic research material from which we deduced the rules underlying the formation of the melodies: how the melodies are organized into modes; the role played by the occasion of performance and the dependence of all these on the type of informant and his environment.

The Mode as it Appears to the Performer

In order to clarify what position the term mode (or *laḥan*) occupies in the awareness of the Arabs whose singing was studied, the following questions were included in the questionnaire: (i) Do you know the modes? (ii) Can you identify them when you hear them? (iii) Can you explain what is meant by the term *laḥan*? (iv) Is there any periodicity in singing the *alḥān*? (v) Which *alḥān* are used most frequently and why? (vi) Which *alḥān* do you like most, and which are most favoured by your community?

From the answers received it was found that an awareness of the *alḥān* is widespread in the Israel groups, and is quite deeply rooted. Almost each of the informants questioned was able to identify the *laḥan* of a melody and to give examples in each of them. The identity of the *laḥan* was not always "correct" but what is important is the fact that the informants connected most melodies either consciously or perceptively in some way to the term *laḥan*. The most simple connection was to the Holy Days: during Easter, the Fifth *laḥan* is used; for the Baptismal days the First mode is used; for certain feasts the Fourth. Another connection, more common and exact, exists between the eight "Resurrection hymns" and the eight *alḥān*. The hymns occur in a cycle of eight weeks, one hymn each week. This periodicity in the *alḥān* exists also for other hymns: those sung after the "small entry", and some Psalms that are sung in the morning by some congregations before the Mass. Aside from these no other hymnal periodicity occurs. In most of the songs sung during the Mass there is a preference for one of the *alḥān*, usually the Second.

The attitude towards the *alḥān* is not one of indifference. *Laḥan* can be, as the informants say, "loved", "gladdening", "beautiful", "difficult" and other adjectives. *Alḥān* can be common, sung at every opportunity, and they can be abandonned. One of the informants said in a conversation: "The Seventh

laḥan is most serious and I don't like it. The Fourth *laḥan* is solemn (festive). The ones I like best are the First and Eighth *laḥan* (in which he sang the Cherubikon hymns) and the melodies of the Holy Week". Only three informants said that all the *alḥān* are equal in their beauty and equally liked.

Attitudes to the *alḥān* are established very much according to the Holy Days, and to a certain extent by their resemblance to certain folk songs.

From the questionnaires it was found that the most favoured *alḥān* are the First, which resembles the *maqam bayāt* and is used in the Baptismal days (see Example 1, 2); and the Fifth, whose scale resembles the minor scale and is used for Easter. The Eighth and the Fourth follow in preference. The *alḥān* which were pointed out as the most common or popular are almost identical to those that are "liked". It is interesting to point out that in Šefar'am and I'blīn (where modern music has a strong influence) the Sixth *laḥan*, which resembles the *maqām ḥiǧāz*, was included among the "liked" and "popular" ones.

We may say at this point that not one of the informants remarked on the popularity of the Second *laḥan*, though our findings show that it is the most widespread, especially in isolated places. Most of the congregational responses are in this *laḥan* (as we understand the term *laḥan*) and occasionally it unconsciously takes the place of another *laḥan*. This is a *laḥan* without a "name".

While almost all the informants declared that they knew the *alḥān*, only a few could more or less explain what they understood by the term. Most of them did not even try to touch such an "abstract, complicated" question. The explanations of how to identify a *laḥan* were in part consistent with each other, and adequately reflected the speaker.

Here are some expressions used by the informants in answering the question of how to identify a *laḥan*.

Informants Connected to Some Degree with Centres of Learning

Answers:

1. The scale, special ornaments, motifs. No connection with a tempo, in every *laḥan* there are slow and fast hymns.
2. The scale, the rhythm, the chromaticisms, and especially the sense of hearing.
3. Every *laḥan* has its own motif.
4. The scale and rhythm.
5. The pitch and the tones.

Informants Who Know the Maqāmāt

A *laḥan* is like a *maqām*.

According to the *maqām* and the scale. On the ton *re – maqām bayāt* and

the First *laḥan*. On the tone *do* – *maqām Rast* and the Eighth *laḥan*. c minor is identical to the *maqām Nahawand* and the Fifth *laḥan*. The Sixth *laḥan* is like the *maqām ḥiğāz*.

Isolated Informants

The different characters.

The different melodies.

The Mode as it Appears to the Investigator

A. *The Importance of the Modes and their Position in the Different Holy Days*

On this point the answers of the performers as outlined above reflect the situation quite reliably. On certain Holy Days the most important songs are limited to certain modes, but we find songs in each of the modes that are not limited to a certain Holy Day[12]. And most important, in opposition to the neo-Byzantine theory[13] according to which all the *alḥān* are equal in value (the equality being expressed especially in the organization and crystallization of the hymns in the eight equal modes — the "Octoechos"), in practice there is no such equality in the actual performance of the "Octoechos". The actual number of *alḥān* changes with the different informants and a preference exists for certain *alḥān*. This preference is reflected by the varying attitudes of the performers and by the frequency of occurrence of each of the modes. For example: the Sixth *laḥan* (which contains the "*ḥiğāz*" tetrachord[14], is very rare, especially in isolated villages, but common where modern Eastern music is admired, as for example in Šefar'am; the Eighth *laḥan*, written as a major scale in most of the practical books[15], is very popular in those places which are subject

[12] We cannot go into the interesting details connected with the tradition of the Holy Days because this would take us too far beyond our subject.

[13] The theory called neo-Byzantine is that which is accepted today in all the important centres of learning. At the beginning of the nineteenth century a crystallization of theories related to Orthodox music was reached in the form of broad detailed theories dealing with the actual musical material in contrast to the mediaeval Byzantine theories which consisted mainly of speculations not based on the music itself. Chrysanthus summarized these "modern" theories in 1832. A number of modifications were later incorporated, but the essential theory did not change. For details of this theory see J. B. Rebours, *Traité de Psaltique, Théorie et Pratique*, Paris 1906; Henry Julius Wetenhall Tillyard, *Byzantine Music and Hymnography* (London 1923), pp. 60–68; and A. Raes, *Introductio in Liturgiam Orientalem* (Rome 1947), pp. 251–261.

[14] The *ḥiğāz* tetrachord as written in conventional Western notation contains the following successive intervals: ¼, 1¼, ¼ (the unit is the well tempered tone).

[15] The music used today in the important centres has in the main been transcribed into conventional Western notation. Even though the notation is far from complete in describing the Oriental melody, it is possible to learn much from current practice as reflected in the

to strong outside influences, such as Haifa. Most of the congregational responses are in this *laḥan*. Also in some places the use of the Eighth *laḥan* was preferred for specific hymns (like the "Cherubikon" hymn). But the absolute priority of the Second *laḥan*, which resembles the *maqām sīga*, is most marked. This priority is shown both in the large number of songs known to the performers and in the responses of the congregation. In isolated villages the responses were only in the Second *laḥan*.[16] Some performers even sang in this *laḥan* hymns usually intoned in other *alḥān*. Three performers from different places in isolated environments actually sang all the melodies in the *alḥān* IV–VIII as if they were in the Second. It may seem paradoxical that none of the performers, when asked, pointed out this *laḥan* as the most widespread or most liked. This mode, which is probably their most popular and deeply rooted, appears so natural that it is not even sensed.[17]

B. *The Medium of Performance*

This factor does not affect the modal framework in the material examined for two reasons: (i) the material is vocal only, with no instrumental accompaniment. In the *maqām* framework, on the other hand, the instrument is a determinant to a varying extent. In the *maqām rast*, for example, the instrumental playing is more prominent than in the *maqām bayāt*. (ii) There is no common practice as to the performance of hymns and responses.[18] Thus, this also does not enter into our consideration of the modal framework.

6. *Musical Components*

The principal concern before us (of which the performers know almost nothing) is the place of the musical components in the modal framework. A general phenomenon characteristic of the songs examined is that most of the

anthologies on the importance and frequency of the different *alḥān* and their definition by central tones. For a survey of the various anthologies of the music studied, see Cohen, pp. 167–172.

16 In practical books the responses were mostly given in the Eighth *laḥan* but sometimes in the Second *laḥan* as well.

17 It is interesting to note that a modal framework resembling the *laḥan* described was found singularly important in the liturgical music before the crystallization of the "Octoechos". See E. Werner, *The Sacred Bridge* (New York 1960), p. 442, and Kenneth Levy, "On the Byzantine Sanctus", *Annales Musicologiques* (Paris 1963), vol. VI p. 57.

18 The singing may be performed wholly or in part by the congregation; by a single soloist; by a group of soloists; by a single choir; by two choirs or any combination of the above. Regardless of the wealth of performance possibilities, we find a custom common to most of the congregations — antiphonal singing by two choirs which stand to the left and right of the congregation. A single soloist or a group of soloists might be added to each of the two choirs. Occasionally the soloists of the choir appear in place of the choir. The soloists and the members of the choir are almost always male.

musical components cannot be absolutely fixed. Changes exist from informant to informant in different performances and even in a song that is repeated by the same informant. It seems that these changes are essential and should not be separated from the composition itself, so that it would be incorrect to see them as a negative phenomenon or a mere lack of precision in the performance resulting from lack of consciousness of the musical material. Acknowledging the positive nature and the eminent role of the changes in this music we examined the quality, quantity and extent of the changes in each one of the musical components and occasionally calculated averages for the sake of comparison.

Some of the musical components can be summed up from the transcription of the music into conventional notation, in simple quantitative form that can be expressed numerically. These components are: the relative and absolute range; the central tones; final, recitative and internal cadence tones; characteristic intervals; the tempo; the way it changes and its limits. It is also possible to determine the consistency of the use of these components in a repeated song; to see if the song repeated is identical with its first performance, and if not, to define the nature of the changes in rhythm, melody and general structure of the melodies. All this detailed information has been examined and summarized diagrammatically. By a comparison of the diagrams it was possible to see the similarities and differences presented by each element in its appearances in the eight *alḥān*, in the singing of each of the informants and in the music for the different Holy Days. Some of the elements were diagrammatically arranged according to their dependence upon the eight *alḥān*.

Other information derived from the transcriptions that sheds light on other characteristics of the material cannot be summed up in numbers. This information relates to elements such as the musical motifs characteristic of the *alḥān* and the rendition of the informants, the consistency of the motifs, how they are connected, their quality, their connection to a single *laḥan* or their appearance in a number of *alḥān* (that is, identical motifs occurring in different *alḥān*), the connection between the motif and its intonation. These last elements were isolated and summarized on the basis of various motifs in our material. Various motifs from all performances were chosen and transcribed into Western notation — the concluding motifs, motifs for internal cadences, the opening motif and other characteristic motifs. All the motifs in each one of the eight *alḥān* were collected according to the order of their appearance in the melody and arranged in tables. The manner of textual usage and its relation to the melody were investigated by examining the structure of the text of the hymns, the relationship between the musical sentences and the poetical phrases, the meters and the melismas. The melisma was isolated by the method of counting the number of notes and the number of syllables in

the melody as a whole (done for the whole melody) and in parts of the melody (counted separately for each sentence of the hymn). The quantity of melisma was diagrammatically analysed.

Information on the intonation, the size of the intervals, the number of changes and the nature of their inter-relationships was reached on the basis of the graphs obtained by the melograph.

The summary of all the musical elements (those discovered from the usual transcription and the written text and those inferred from the graphs) was carried out along two lines of approach. On the one hand, each element was separately summarized and its meaning for the *alḥān*, the Holy Days and the informants was determined, and on the other, all the elements were summed up from the point of view of all the decisive factors of the performance taken together: the point of view of the informants, and the *alḥān*. From our summary of the different elements' dependence on the *alḥān*, we have tried to circumscribe the meaning and definition of the *alḥān* in this music.

THE MAIN FINDINGS

The Place of the Music Components in the Modal Framework

A. *The Melismatic Quality*

Although a syllabic treatment exists in most of the hymns, neumatic (quasi-melismatic) formulae may be found. The appearance of the melismatic tones is not intended to create a defined meter in the musical phrases. On the contrary, the addition of tones often disrupts the symmetry which exists in the textual phrases[19]. The degree of melisma differs greatly in different performances. In order to be able to compare and gauge the melismas we defined them quantitatively in the following way. The degree of melismatic quantity was defined as the ratio between the excess of the number of tones over the number of syllables to the number of syllables in the phrase of song studied. For convenience this ratio will be expressed as a percentage[20]. It was found that the degree of melismatic quantity ranged between 10 and 50 percent and that it varied according to the *laḥan*, the occasion of performance, the position of the phrase in the song and the informant[21].

[19] For example see Cohen, *op. cit.* p. 36 and the music example No. 3, p. 121.

[20] For instance, if the textual phrase contains 10 syllables while the musical phrase contains 15 tones, the degree of melismatical quality is 50 per cent.

[21] The dependence of the degree of melisma on the informant is illustrated in the music examples Nos. 4 and 5, in Cohen, pp. 122, 124. Dependence on the occasion is illustrated in comparing the music examples Nos. 1 and 2 *ibid.*, pp. 118, 120. In this article we will deal in detail only with the dependence of the degree of melisma on the *laḥan*.

The degree of melisma in different hymns in each of the eight modes in seventeen different performances (of the same melodies) was studied. The results are summarized in diagram form (Figure no. 1). In studying the diagram we find that the degree of melisma in the first *laḥan* is well defined, varying between 10 and 30 per cent. The highest degree of melisma is found in the songs of the Second *laḥan* — that is, for most of the informants the highest degree of melisma occurs in this mode. For most of the informants the lowest

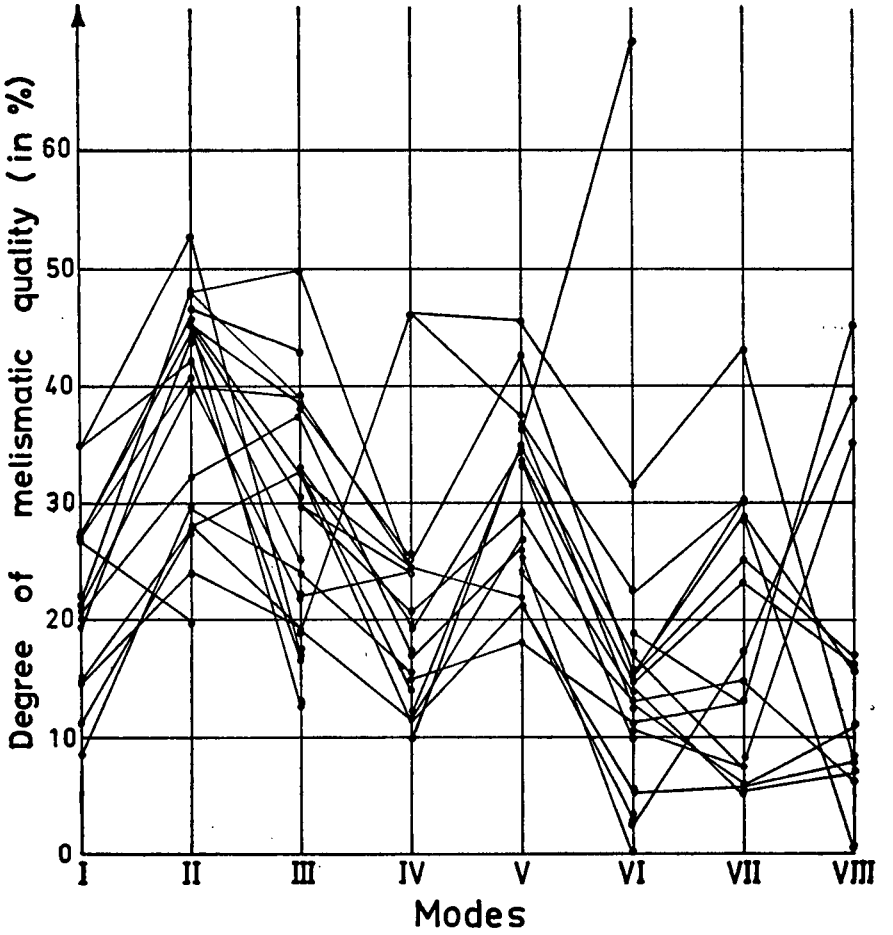


Fig. 1 — Degree of melismatic quality (D.M.Q.) and its dependence on the *alḥān* (modes) and the informants. The D.M.Q. is defined here as $\frac{(n-s).\ 100}{s}$ where n is the number of notes in the melody and s the number of syllables. The points on the axis of each mode show the D.M.Q. obtained from different performances of the same Troparion. Each line connects the points corresponding to one informant and thus shows significant fluctuations from *laḥan* to *laḥan*. The D.M.Q. of the troparia for the holy days (not shown in this fig.) have much larger values, e.g. for Easter most values lie in the range 40%–100%; for the baptismal days 40%–240% and in exceptional cases values up to 340% are found.

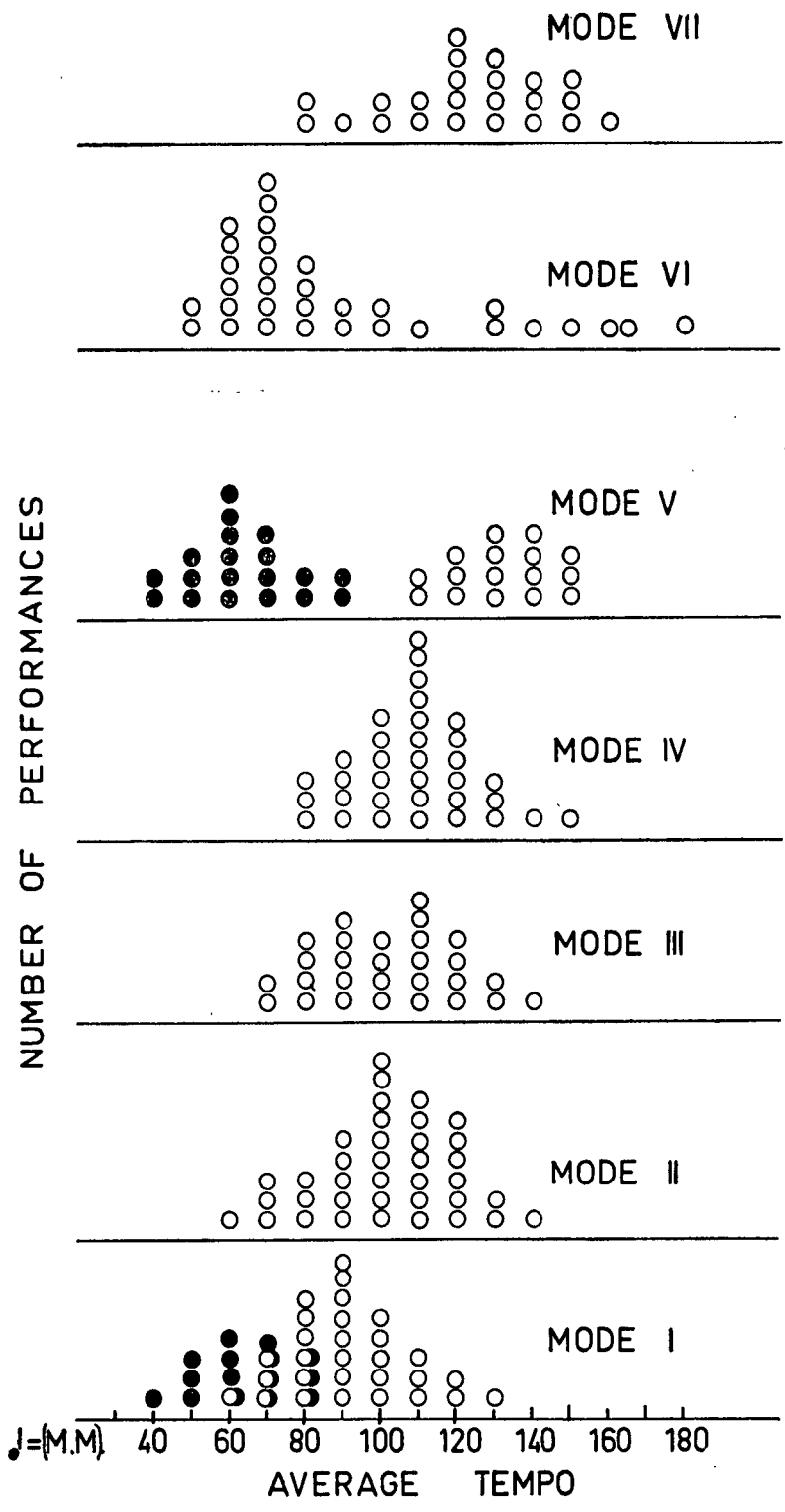


Fig. 2 — The dependence of the *tempo* on the *laḥan* (mode). For weekdays the tempo is indicated by an open circle, but for holy days — by solid circles. The melodies used on holy days are particularly slow while the melodies in *laḥan* VII (which are especially syllabic) were the fastest. There is a tempo similarity between *laḥan* II, III and IV. In *laḥan* VI large variations in tempo are found. (Changes in the same melody were found to depend on the informants and on the structure of the song but not on the *laḥan*. Generally changes did not exceed 5%–15%).

degree of melisma occurred in the Sixth or Seventh *laḥan*. It is worth mentioning that "rules" exist for the place of the melismatic tones in the song regardless of the specific mode.[22]

B. *The Tempo*

A beat is usually felt in the hymn singing and occasionally it is even constant so that one senses a definite metrical rhythm (even though the beats are hardly ever organized into simple meters). However, the beat usually changes, and sometimes the number of changes in a short period of time is so great that one has the impression of recitative singing.

It was found that the changes in tempo depend upon the structure of the melody and on the informants, but not on the *laḥan*.[23] The changes divide rather equally between the various melodies and *alḥān*.

With an awareness of the important place occupied by the tempo changes, we defined the tempo as the average count of pulses per minute in the song. It was found that in most of the songs studied the average tempo varied between 80–120 mm, and this figure was found to be dependent on the *laḥan*, the occasion, the degree of melisma, and hardly at all on the informant.

The dependence on the *laḥan* is summarized in a diagram (Figure no. 2). We see that the average tempo, and its modifications in the different performances, are similar in the Second, Third and Fourth *alḥān*.

The tempo of the melodies in the First *laḥan* is usually slower than in the melodies of the three above *alḥān*, and the tempo of the melodies in the Fifth *laḥan* is faster. Melodies of the Sixth *laḥan* are the slowest and those of the Seventh are the fastest.

C. *The Range*

1. *The Ambitus and the Tessitura*

By ambitus we mean the largest interval[24] encompassing the melody. The relative pitch of the ambitus, i.e. the tessitura, may change and in fact often does change in different performances. For example, two performances of the same song (with d as the central tone) may exist, the ambitus of the one being *re-si* and the ambitus of the second — *si-sol*. In both performances the ambitus is a Sixth, but in the first performance the tessitura is higher. We

[22] For details see Cohen *op. cit.* p. 65.

[23] On the nature and extent of the changes in tempo and their dependence on the informants and the structure of the melody see *ibid.*, pp. 67–69.

[24] The concept "interval" will be used in this paragraph to indicate only the ordinal number of the tones regardless of their exact size: thus by "Third" we simply mean the interval between one tone and the third tone from it, while its size may vary between 1.7–2.3 equal tempered whole tones. An exact description of the intonation will be found further on in this article.

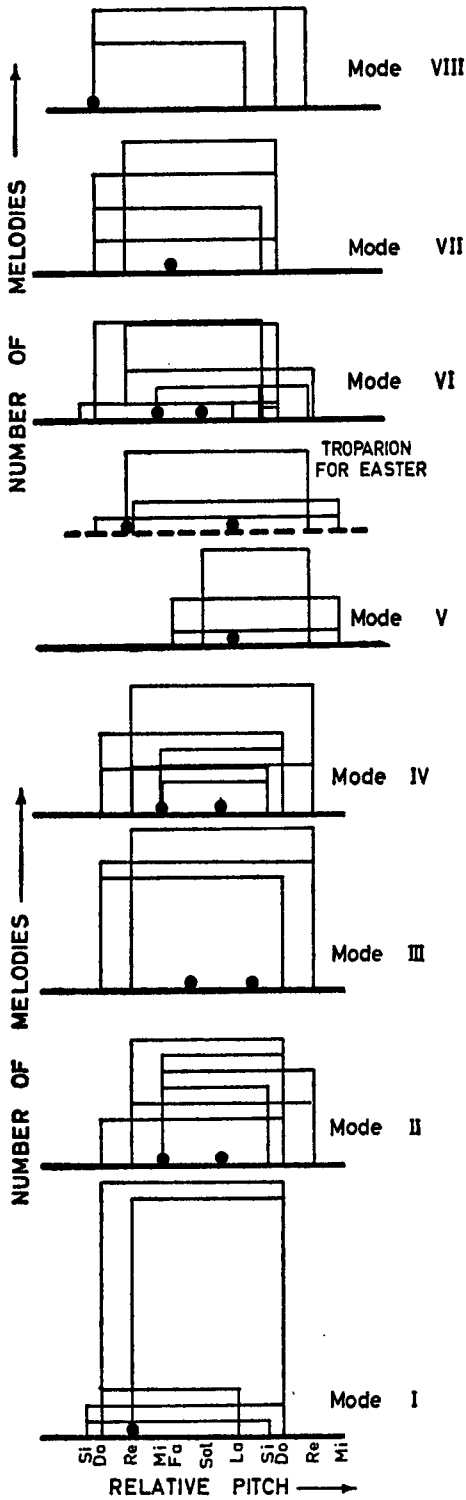


Fig. 3 — Ambitus and tessitura of the melodies in the eight *alḥan* (modes). These are indicated by horizontal lines. The most common finalis in each of the *alḥan* (modes) is indicated by the points.

found that the ambitus of the melodies studied do not exceed a Ninth, and that to a certain degree the ambitus and the tessitura are dependent on the informants and the *alḥān*.

The dependence on the *laḥan* is summarized in a diagram (Figure no. 3). We find that the ambitus of the Second and Fifth *alḥān* are the narrowest, hardly exceeding a Seventh, and moreover the greater part of the melodies in these *alḥān* do not exceed a Fifth.

In the Third *laḥan* we find a high degree of uniformity both for the ambitus and for the tessitura. The ambitus of the melodies in this *laḥan* are the widest, an Octave or a Ninth.

Most of the melodies in the First *laḥan*, as in the Seventh and Eighth, have as their ambitus a Seventh or an Octave. This is also the case in the Seventh and Eighth *laḥan* even if differences exist in the relative range of the ambitus — the tessitura.

In the Sixth *laḥan* the ambitus of most of the melodies is a Seventh. There are, however, melodies with different intervals of ambitus, and the changes in the tessitura are great.

2. *The Absolute Range (Diapason)*

The absolute range of all the melodies studied lies between g – e'. In order to compare the absolute pitch of the melodies, the absolute pitch of the relative *re*[25] was found and a comparison of the pitch was made on two levels: The melodies sung by the same informant were compared in order to ascertain whether any relationship exists between the pitches of the various *alḥān*; all of the melodies in the same *laḥan* as sung by all of the informants were compared in order to determine whether the absolute pitch of a melody plays a role in determining its *laḥan*.

The absolute pitch of the *re* changed up to a Third or a Fourth in the singing of the informants in different *alḥan*. With part of the informants the changes were expressed in that the central tones of different *alḥān* were sung on the same absolute pitch; thus for example the absolute pitch of *mi* in the melodies of the Second *laḥan* was identical with the absolute pitch of *re* in the melodies of the First *laḥan*. Among other informants there was a constant change of the absolute pitch of the *alḥān* so that there was no simple relation between their "scales". Altogether (with the exception of two Greek priests — one of them used a tuning fork) no informant was found who sang in such a way that the pitches of the different *alḥān* were determined by one simple scale.

[25] The choice of names for transcribing the tones may be made according to a number of premises. In the present study the names of tones were chosen in order to parallel the names used in theory, thus the *finalis* of the First *laḥan* was designated *re*, etc. For details and discussion of the problem see Cohen, pp. 54–55.

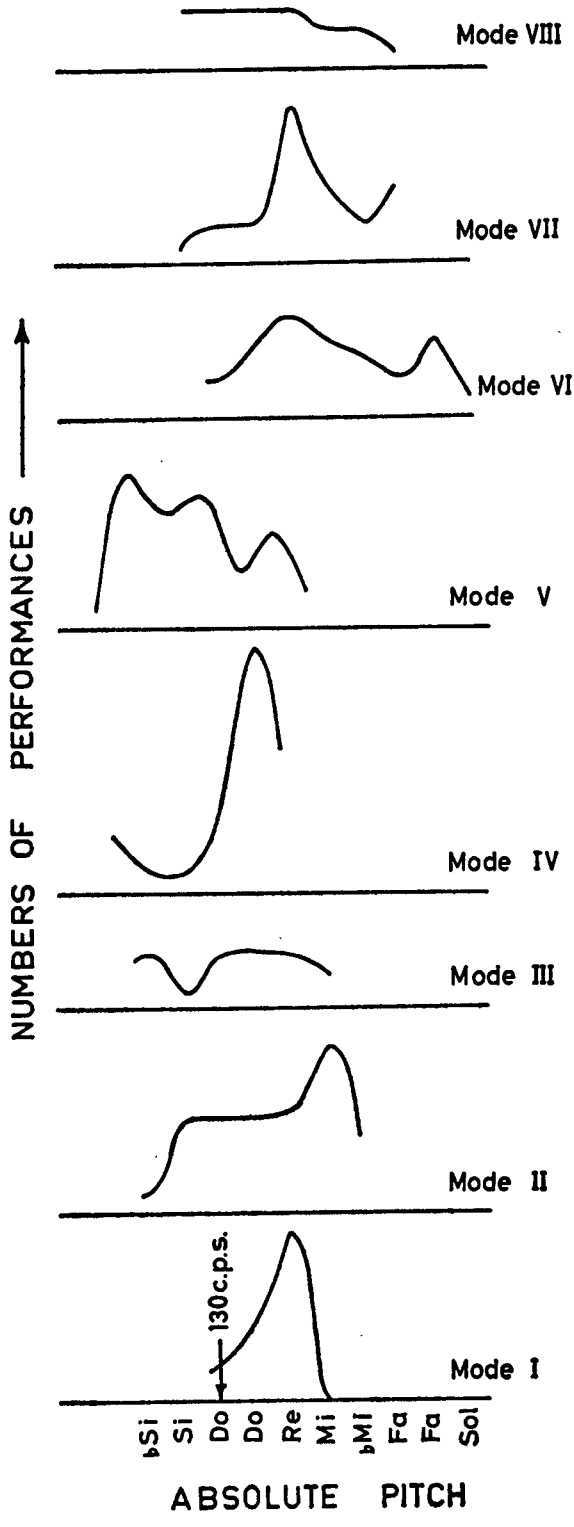


Fig. 4 — The actual pitch of the relative *re* in the eight *alḥan* (modes). None of the informants derived the different modes from one and the same scale. The absolute range of the performances can be obtained from combination of figures 3 and 4.

The absolute pitch of the eight *alḥān* is summarized in a diagram (Figure no. 4). One sees that the First *laḥan* is sung in a well defined absolute range, where the differences between the various renditions do not exceed a major Third. The *re* of the Second *laḥan* changed drastically. Part of the informants sang the *re* higher than that in the First, and others sang it lower. But since the relative range of the melodies of the Second *laḥan* is higher than that of the First *laḥan*, we understand that the melodies of the Second are sung at a higher absolute pitch. The *re* of the Third *laḥan* was lower than that of the Second with most of the informants. The *re* of the Fourth *laḥan* was as well defined as that of the First. The *re* of the Fifth *laḥan* was the lowest with all the informants. The absolute range of this *laḥan*, however, was the highest. A comparison of the Fifth and Second *laḥan*, both with a small ambitus and two central tones separated by a Third (as we will see later, the central tones of the Fifth *laḥan* are *a* and *c*, and of the Second *laḥan* — *e* and *g*), shows that the *la* of the Fifth *laḥan* is higher than the *mi* of the Second, but always less than a fourth higher. The absolute pitch of the *d* in the Seventh *laḥan* is very similar in its range and changes of pitch to that of the First *laḥan*. Further research must be done before exact conclusions on the role of absolute pitch can be reached. For, in contrast to other music components, in the analysis of absolute pitch and also tempo we can take only one measurement[26] from each melody.

Nevertheless, even the examinations described above indicate that the absolute pitch does play a role in determining the *laḥan*.

D. *Central Tones*

In every melody we find at least two central tones, one in the role of "tonic" which usually serves as the *finalis*, and the other, reminiscent of the "tuba", which forms the axis about which the characteristic musical motifs revolve. It serves as a mediant and occasionally as the final tone. Characteristic musical motifs connect the two central tones. These motifs often expand and blur the singularity of the central tones so that it is even difficult to decide which they are.

In every *laḥan* the central tones usually produce a characteristic interval. After our many examinations of the various music components we see that the central tones are among all the informants the most stable factors in determining the *laḥan*. It is worth mentioning that although the intervals between the central tones hardly change (in all the renditions of melodies in the first *laḥan*,

[26] In the measurement of intervals, for example, we receive for each song a number of occurrences of each interval. On the other hand the absolute pitch of the song even if it is repeated gives us but one measurement (except for the changes of absolute pitch that occur during the singing, that is in itself a phenomenon worth studying).

for example, the interval between the central tones was a Fourth, while in the Second "*laḥan*" the interval was a Third), the size of other intervals varies to a large degree (see n. 24).

THE CENTRAL TONES

The *laḥan*	the "tonic"	the "dominant"	Other tones that rarely serve as "mediants"
the 1st	re	sol	fa
the 2nd	sol	mi; sol	si
the 3rd	fa	la	do; re
the 4th	sol; mi	mi; sol	do
the 5th type 1	la	do	
the 5th type 2	la	re	
the 6th type 1	re	sol	
the 6th type 2	mi	sol	re
the 7th	fa	sol	re; si
the 8th type 1	like the 7th		
the 8th type 2	do	sol	mi

A summary of the principal ambiti, the central tones, and the basic motif patterns is given (Example no. 3).

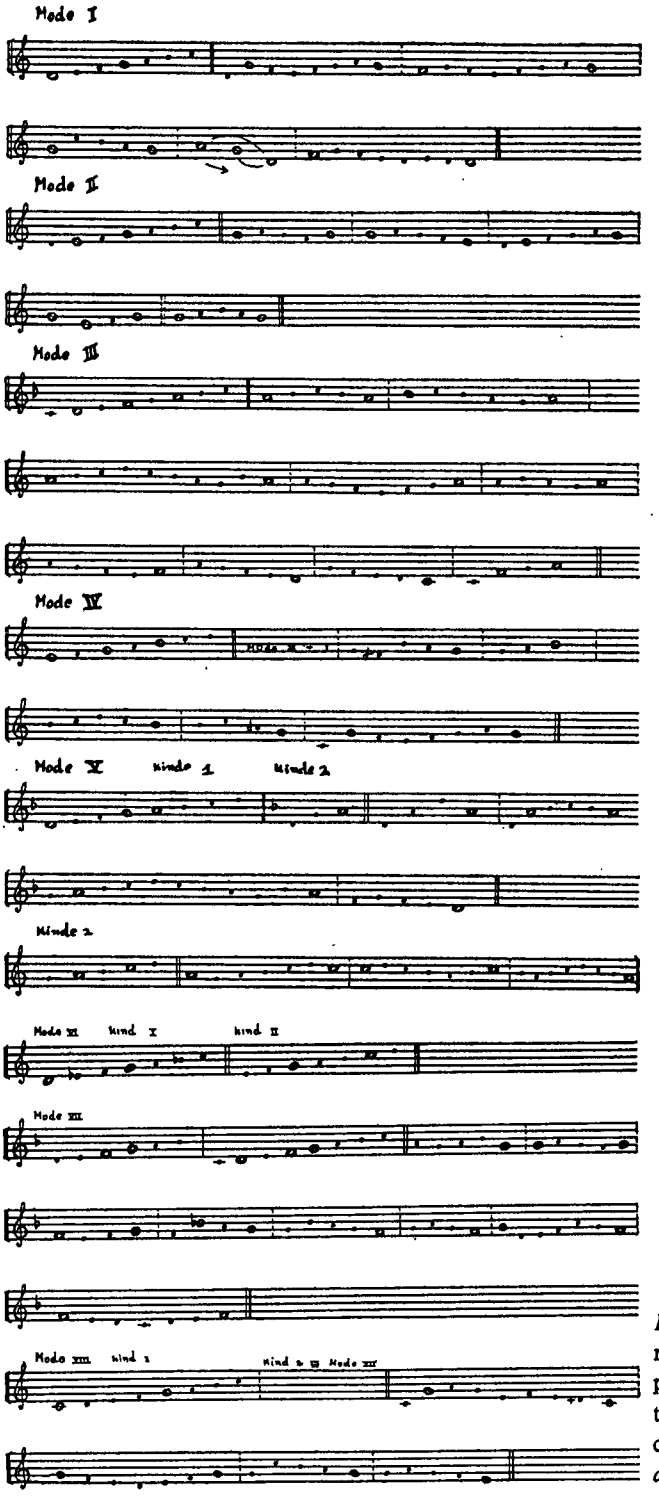
E. *Characteristic Intervals*

Seconds of all sizes are usually most important in the melodies studied. Thirds are, however, also common in all the types of songs. Fourths appear only in specific places in the melodies. In certain melodies the ascending Fourth serves to introduce the musical phrase while the descending Fourth is limited to specific motifs in certain types of melodies. The Fifth appears only in ascent.

Sometimes, the one-time appearance of an interval is enough to determine the *laḥan*; and sometimes the frequency of occurrence of a certain interval determines it. At any rate, there is no doubt as to their significance in mode determination.

In the First Laḥan

The ascending Fourth which opens the musical phrase is characteristic. The initial *re-sol* appeared in all the melodies in all the renditions. The Fourth *sol-do* appeared in half the melodies. The Fifth *re-la* appeared in 20 per cent of the melodies. The Thirds *re-fa*; *mi-sol*; *fa-la* are found in less than half the melodies. The Third *la-do* appeared in 25 per cent of the melodies.



Example 3 — Summarizes the most typical pitch arrangements of the melodies and the central tones in the eight *alḥān* (modes).

In the Second Laḥan

The Thirds stand out. In all the melodies the Thirds *mi-sol*; *sol-si*; *fa-la* were found. The Fourth *fa-si* is found in about 35 per cent of the melodies; the Fourth *sol-do* in about 15 per cent.

In the Third Laḥan

The Thirds *fa-la*; *sol-si*; *la-do*; *mi-sol* are common. The Fourth *do-fa* is often found opening the musical phrases.

In the Fourth Laḥan

The intervals are like those of the Second *laḥan* but the Fifth *do-sol* is also found.

In the Fifth Laḥan

In type 1 the Fifth *re-la* and the Fourth *la-re* are found.

In type 2 the Third *si-re*, the ascending Fourth *sol-do* and the descending Fourth *re-la* are frequent.

In the Seventh Laḥan

The Fourths are prominent. In all the melodies the Fourth *fa-si* is present. The Fourth *sol-do* appeared in about 35 per cent.

The descending Fourth *sol-re*, which appears only in a certain context, was found in about 50 per cent of the melodies. The Thirds *fa-la* and *sol-si* were also found.

In the Eighth Laḥan

In type 1 the intervals of the first type are as those of the Seventh *laḥan*.

In type 2 the opening Fifth *do-sol* is characteristic. The Thirds *do-mi* and *mi-sol* are found and to a lesser degree the Thirds *fa-la* and *sol-si*.

Thus we see that:

The Fifth is characteristic of the Eighth *laḥan* type 2 (*do-sol*) and of the Fifth *laḥan* type 1 (*re-la*).

The Fourth is characteristic of the First *laḥan* (*re-sol*; *sol-do*), the Sixth *laḥan* (*re-sol*) and the Seventh (*fa-si*; *do-fa*; *sol-re*).

The Thirds are primarily characteristic of the Second and Fourth *laḥan* (*mi-sol*; *sol-si*). In the Third *laḥan* Thirds and Fourths are found in equala mounts.

A summary of the main intervals characteristic of the various *alḥān* is given in Fig. no. 5.

F. *Recitation Tones*

A recitation tone is a tone repeated for a number of consecutive syllables.[27] In almost all the melodies studied there is recitation on at least one tone. The amount of repetition on a single tone may be lesser or greater. The recitation is usually sung on a central tone (the "dominant" or the "tonic"), or

[27] This definition is an expansion of the definition of the Recitation tone in Gregorian Chant as given by Apel, p. 612.

The Intervals

The Alḥān	*Fourths*		*Thirds*	*Fifths*
	As an ascending interval opening the phrases	*As an internal interval*		
I	1 A		3 C	
	1 C		1 D	
II	1 C			
	1 D		3 A	
III	1 A		4 B	
Va		1 A		1 A
Vb		1 (↑) B	1 A	
		1 (↓) B		
VII	1 A	1 (↓) B	2 C	
	1 C			
VIII			2 C	1 A
			2 D	

Fig. no. 5 — Summarizing of the characteristic intervals in various "*alḥān*".

The numbers designate the amount of "transpositions" of each interval (the amount of the different Thirds, Fourths and Fifths) appearing in each *laḥan*. The letters designate the frequency of occurrence of the different intervals. A — occurence of the specific interval in 75%–100% of the melodies in the examinated *laḥan*. B — occuring in up to 75% of the melodies, C — up to 50% and D — up to 25%. The arrow marks (↑ or ↓) mean that the characteristic interval appears only in one direction.

on an adjacent tone (a Second away) above a central tone, or alternatively between the two. The size of the Second between the two recitation tones (if there are two) is not defined. It usually changes during the singing in such a way that a variable tension is created between the two recitation tones.

The Recitation Tones in the Eight alḥān

In the First laḥan

There is no extensive repetition on one tone. There is, however, a characteristic short repetition on the tone *sol* (the "dominant") occuring throughout the entire melody, large and small motifs decorating and becoming involved with the recitation tone. Occasionally there is repetition on the tone *fa*.

In the Second laḥan

There is recitation on the central tone *sol*, occasionally on the adjacent *la* and occasionally on *si*.

In the Third laḥan

A characteristic reccuring short recitation exists on the tone *la* (the "dominant") and there is also recitation on *fa* (the tonic), on the adjacent tone *sol*, and on *si*.

In the Fourth laḥan

The recitation is similar to that of the Second *laḥan*. Occasionally, however, there is also recitation on the tone *do*.

In the Fifth laḥan

Type 1 (with the central tone *la* and *do*) has only a hint of recitation on the tone *do* and occasionally also on *si*.

Type 2 (with the central tones *re* and *la*) has touches of recitation on *la* (the dominant).

In the Sixth laḥan

Type 1 (with the central tones *sol* and *re*) has recitation on the two central tones and on the *la* adjacent to *sol*.

Type 2 (with the central tones *sol* and *mi*) has recitation on the tone *sol*.

In the Seventh laḥan

There is recitation on *sol* (the dominant) and on *fa* (the tonic).

In the Eighth laḥan

There is recitation mainly on *sol* (the dominant).

G. *The Structure of the Melodies and the Musical Motifs*

Structurally the technique of mosaic conglomeration stands out in the compositional technique. The composition is obtained by a free combination of a small number of fixed musical motifs which, in the main, occur more than once in the melody. This technique was, it seems, also characteristic of the development of the liturgical music of the West up to a certain stage[28]. This stage seems to have become fixed and still obtains in at least part of the melodies that we studied. The various motifs usually end on a central tone. At least part of these motifs may be considered as an ornamentation or development of the "dominant".

[28] Many researchers have dealt with the properties of this technique of composition. A. Z. Idelsohn stressed its importance in Jewish music (see his *History of Hebrew Music*, Tel Aviv–Berlin 1924, pp. 4–6, (Hebrew). E. Gerson-Kiwi discussed the significance of this type of musical expression in Jewish, Arab and especially Persian musical culture (see her monograph, *The Persian Doctrine of Dastga-Composition*, Tel Aviv 1963, pp. 10–11). H. Avenary emphasized its prominence in the different stages of the development of liturgical music (see his monograph, *Studies in the Hebrew, Syrian and Greek Liturgical Recitation*, Tel Aviv 1963, pp. 42–43). Egon Wellesz affirmed the importance of this technique in most of the mediaeval Byzantine music and in Eastern liturgical music (*A History of Byzantine Music and Hymnography*, London 1961, pp. 325–329).

The motifs crystallized into neumatic patterns occur mainly at the end of phrases. Occasionally we find the closing formula in the middle of a phrase but almost always with a rhythmic variation. For example, see the hymn *'Indama* (Example no. 4) as sung by the soloist Mr. Wadia Ḥouri from Nazareth.

A specific collection of motifs is one of the most characteristic components in defining a group of melodies in a specific *laḥan*. But the order in which the motifs are organized is also important. There are motifs whose place in the various melodies of the *laḥan* is set and defined. These motifs determine their surroundings, what precedes them and what follows them. In contrast, musical motifs exist whose place in the melody is not defined and that lend themselves to exchange with other motifs.

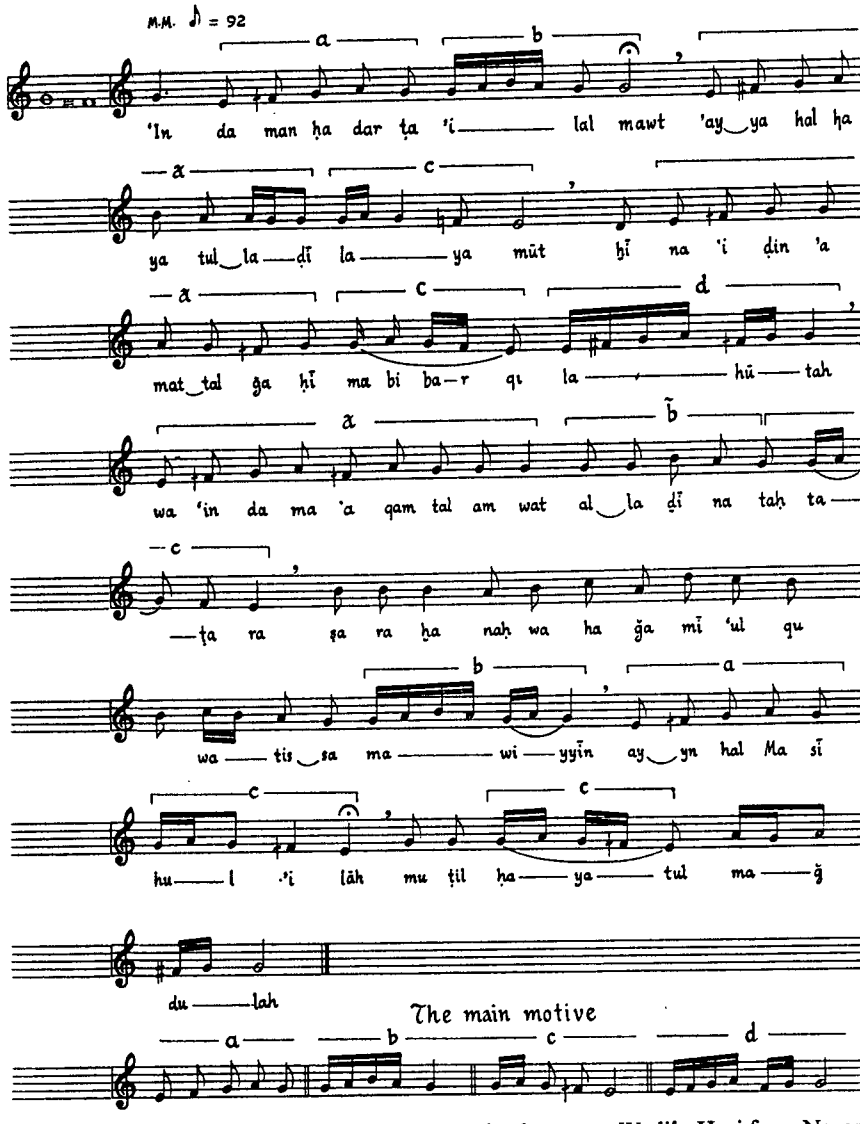
This matter of non-determination of place in the melody (within set limits) and freedom in the combination of the musical "mosaic" motifs seems to be fundamental, and was demonstrated to a great degree through the examinations conducted in this research — that is, in the examination of the same song as sung by different informants and the same song as sung a number of times by the same informant. The Resurrection Hymn in the Third mode will serve as an example (Example no. 5) of the migration of motifs in the performance of the same song as sung by different informants.

In Example 5, II, the principal motifs serving as internal cadences in this hymn and other hymns in the same *laḥan* are symbolized by letters. The motifs usually appear in different variations, thus each letter represents the motif and its variations. A major variation is indicated by the sign ~. The rendition of the same hymn by two informants is given in Example 5, I. All the cadential motifs used by the 19 informants who sang this hymn are summarized in the table, Example 5, III. From this chart we see that the place of the cadential motif is nearly constant, always occurring after a motif ending on *la*. When the motif j occurs it is always after the motif h. Motifs ending on *la* (the recitation tone), such as motifs b and c for example, do not have fixed places; they appear as cadence formulas and also in opening, internal and closing phrases.

Interestingly the motif h appears both in the First and Seventh *laḥan*, in different contexts. In the First *laḥan* the motif occurs only after a motif ending on *sol* while in the Seventh *laḥan* it appears only after a motif ending on *fa*. It is clear that a table including all the motifs, not only the cadence formulas, would present a much more colourful mosaic.

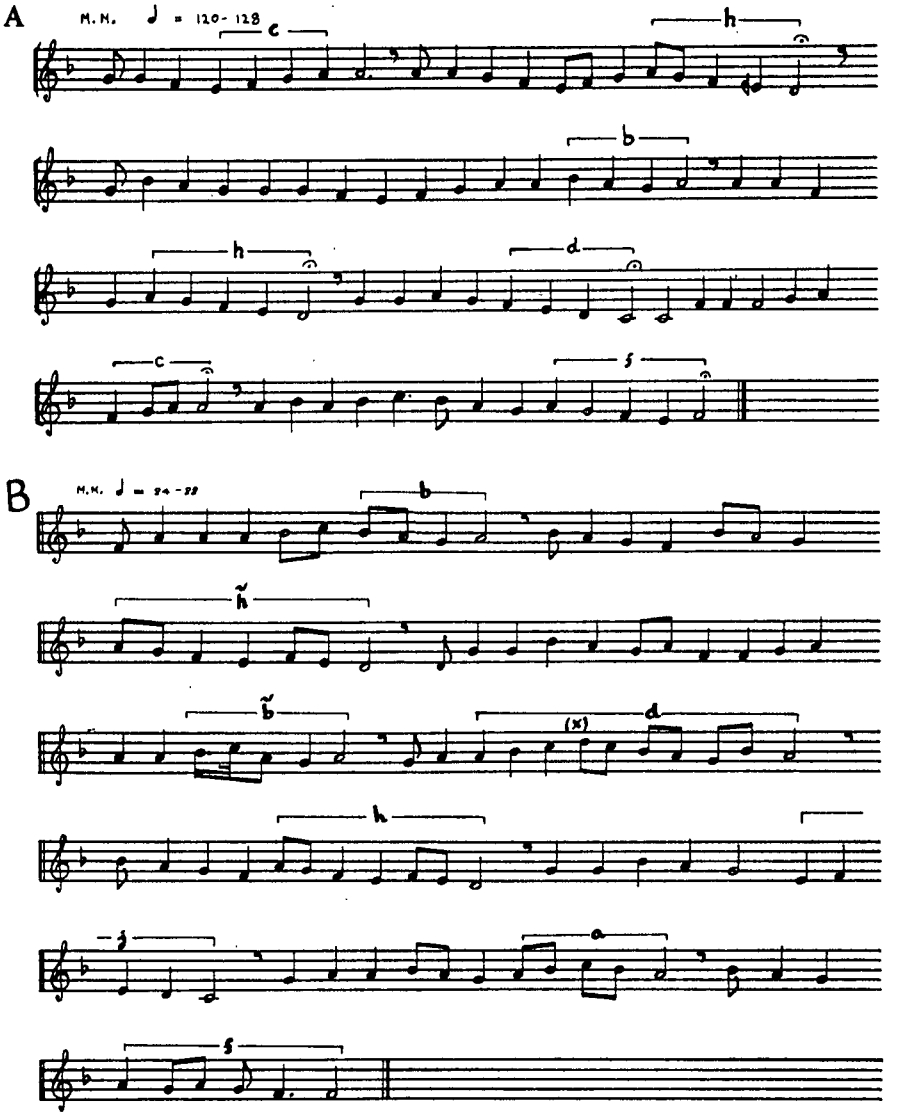
We will not be able to discuss all the variants occurring in different performances,[29] but we may say here that irrespective of the many variants between

[29] Details of the variants and changes occurring in different renditions by different types of informants are given in Cohen, pp. 83–86.

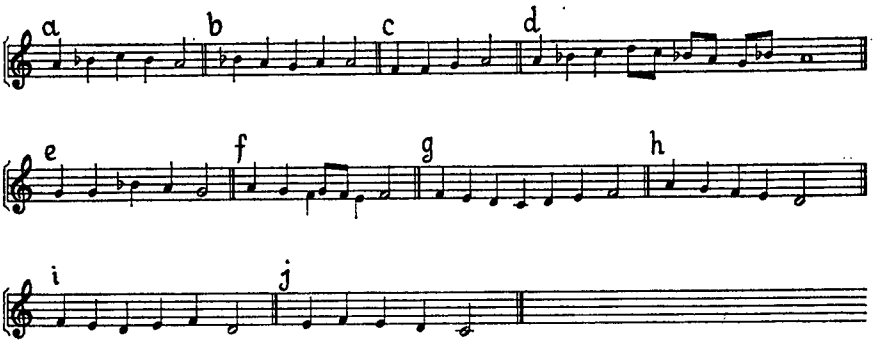


Example no. 4— The Troparion *'indama,* as sung by the cantor Wadi'a Ḫuri from Nazareth typifies the construction of the liturgical melodies through the free additive combination of a few motives or melodic patterns (every motive is indicated by a letter and its variation by ~).

Translation: 10a
When thou didst humble Thyself unto death
O, the Living and Immortal God,
Then Thou didst destroy Death by the Light of Thy Godhead.
And when Thou didst raise the dead from the bowels of earth,
All the Heavenly Powers exclaimed:
O Christ, Thou art
The Giver of Life!
Glory be to Thee!



Example no. 5, I — The Resurrection Troparion in *laḥan* III as sung by the Catholic Arab Priest from Šefar'am (A) and the Orthodox Arab Cantor from Nazareth (B).



Example no. 5, II — The main internal cadences of the "Resurrection Troparion" in *laḥan* III.

A	a	h	b	a	d	ʃ					
B	c	h	b	h	ɔ	c	ʃ				
C	c	h	ʃ̃	c	ã	h	c	a	b	d̃	ʃ
D	b	h	b	d	h	ɔ	a	ʃ			
E	c	h	b	d	h	ɔ	ʃ				
F	ʃ	c	h	c	d̃	b	h	ʃ̃	ʃ		
G	b̃	h	c	b	h	ɔ	a	ʃ			
H	c	h	b	h	ɔ	c	a	ʃ			
I	b	h	b	d̃	ʃ	c	b				
J	b	h	b	b	h	ʃ					
K	b	h̃	b	d	b	h	c	b			
L	c	h	a	d̃	h	ɔ	ʃ				
M	b	h	b	b	d	h	c	a	c		
N	b	h	b	d̃	h	ɔ	a	ʃ			
O	c̃	h	b	d̃	h	ɔ	b	ʃ			
P	c	h	b	e	h	ɔ	c	ʃ			
Q	c	h	b	d̃	h	ɔ	c	a	ʃ		
R	b	h	b	b	ɔ	b	ʃ̃				
S	b	h	ɔ	a	b	h	ɔ	ʃ			

Example no. 5, III — The cadential motifs (indicated by letters) appearing in different performances of the same Troparion (*laḥan* III), by 19 informants (indicated by capital letters), showing typical "mosaic" composition.

the modes, they differ from one another in the same way in each individual performance.

H. THE SCALE

I. The Intonation

The determination of the intonations, that is of the pitch of the tones building the melodies and the intervals between them, was done with the aid of the melograph. We cannot here discuss in detail the methods used in the work, but we will present the basic findings and conclusions.

The importance of stable and unstable tones in the singing of the Arabs has been discussed in previous papers[30]. We showed that the intonation of a group of songs, like a *maqām*, is often characterized by the place and amount of dispersion of the tones (the amount of dispersion is the range of change of pitch in the appearance of a given tone). We also showed the importance of the intervals between two adjacent tones, i.e. the Seconds, in contrast to the larger intervals, such as the Fourth and Fifth[31]. And we showed how it is possible to summarize the intonation of a song in a diagram by notating each of the Seconds separately. The various sizes of each type of Second are measured according to the graph, and recorded in a diagram along an axis representing that Second's size. Thus a characteristic summary of each Second and its amount of dispersion in the song is obtained.

In order to enable a comparison of the intonations of a large number of songs, we proceeded to clarify our summary of intonations[32]. A tonal skeleton was obtained from every diagram by taking the average size of each dispersed Second. We can describe the tonal skeleton thus: "a series of consecutive Seconds about which are dispersed the Seconds existing in the performance practice". In fact, the "theory" never gives us more than a tonal skeleton. It is not usual to obtain two identical tonal skeletons, even in different renditions

[30] See Cohen, "An Exploration into the Tonal Structure of the Maqamat", *The Journal of the International Folk Music Council* XVI (1964), pp. 102–106; also D. Cohen–R. Katz, "Some Remarks Concerning the Use of the Melograph" in *Yuval*, I, pp. 155–168.

[31] In the music examined, in contrast to Western music, the relationships between adjacent Seconds are the important determining factors, and they are often not dependent on the larger intervals which limit them. In Western music, the larger intervals (the Fourth and the Fifth) are stable, and they indicate the internal division into Seconds. Thus, in Western music, if one Second is larger, this is at the expense of a neighbouring, smaller, Second. But, in the music studied the larger encompassing interval often has no such determining importance. A discussion of the interesting intonation of the larger intervals, the Fifth, the Fourth and the Third in the music studied, is found in Cohen, pp. 100–102.

[32] The new method referred to is described by the writer in her dissertation of 1967, pp. 90–91.

of the same song by the same informant. Often, however, a strong similarity exists between the tonal skeletons, similarity here meaning the preservation of certain relations between the adjacent Seconds. These types of non-variable relations belong for the most part to the category of "greater" or "smaller" and are not exact quantitative relations.

Such groups of similar tonal skeletons I have termed "types of tonal skeleton". Two or three types of skeleton are usually found in each mode and occasionally the same type is found in different modes. Thus in studies of musical practice a concept comparable to the term "scale" would be the "tonal skeleton" or even just the type of tonal skeleton as defined above. The tonal skeleton is one of the important factors in defining the *laḥan* or modal frame. Different modes are defined by different types of tonal skeleton, which are not drawn from a single system of intonation, in contrast to the Western modes which are derived from one scale. (The scale of every Western mode is established by starting on a different note of the same single scale.)

It is worthwhile noting that a similarity was found between part of the types of tonal skeleton of the different *alḥān* and the types of tonal skeleton found in the folksongs of the widespread *maqāmāt*[33]. The types of tonal skeleton found in the *alḥān* can be summarized as follows[34].

Laḥan I has two main types of skeleton (one of which resembles the type found in *maqām bayāt*)

Laḥan II has four main types of skeleton (one of which resembles a type appearing in mode I, another the *maqām siga*)

Laḥan III has one skeleton type

Laḥan IV has the same types of skeleton mentioned for *laḥan* II

Laḥan V has two types of skeleton, one of which resembles the Western minor scale

Laḥan VI for the most part uses only one type of skeleton which resembles the *maqām ḥiğāz*

Laḥan VII has one type of skeleton, similar to that of *laḥan* III

Laḥan VIII has one type of skeleton, resembling the *maqām rast*.

[33] It is interesting to note that among some of the informants the concept *laḥan* equates with the concept *maqām* in the following way:

The 1st	"*laḥan*"	=	*Maqām*	*bayāt*
The 2nd	"	=	"	*siga*
The 5th	"	=	"	*nahawand*
The 6th	"	=	"	*ḥiğāz*
The 8th	"	=	"	*rast*

[34] A diagrammatic summary of the tonal skeletons of the eight *alḥān* is given in Fig. 8 (I–VIII) in Cohen, pp. 140–147. Details and discussion of the intonation of the music studied may be found in Cohen, "Patterns and Frameworks of Intonation", *The Journal of Music Theory* XIII/1, pp. 66–90.

II. The Internal Organization of the Scale

It is interesting to note that most of the theories dealing with the scale, from the classical Greek to those of O. Strunk[35], are based on tetrachordal units only — usually identical — whose combination produces the scale.

In the material studied it was usually found valid to divide the scale into smaller units as in the theories mentioned; but not necessarily units of four identical unchanging tones. The smaller units are determined by the central tones, the musical motif and the characteristic motif. Thus it was found that most of the melodies are organized in tetrachords (identical or not); trichords (identical or not); pentrachords plus tetrachords; pentrachords plus trichords or tetrachord plus trichord.

The First *laḥan*		conjunct tetrachords re sol do
The Second *laḥan*		a wealth of scales that are almost always organized in trichords (usually not identical) do mi sol si re and sometimes a trichord plus a tetrachord mi sol do
The Third *laḥan*		tetrachords and trichords do fa la do or according to the intonation — 2 conjunct tetrachords, similar but not identical
The Fifth *laḥan*	type 1	Trichord la do
	type 2	Pentrachord and tetrachord re la re (probably Western influence]
The Sixth *laḥan*	type 1	conjunct tetrachords re sol do

[35] In order to find the basic scale of the Byzantine music, Strunk assumed that a single scale system exists for all the modes, built on a combination of identical tetrachords. See his article "The Tonal System of Byzantine Music", *The Musical Quarterly* XXVIII (1942), pp. 190–204.

	type 2	trichord and tetrachord mi sol do
The Seventh *laḥan*		Like the Third
The Eighth *laḥan*	type 1	Like the Seventh
	type 2	pentrachord and tetrachord do sol do

SUMMARY

To sum up, we see that the modal framework still holds an important and vital place in the material examined. The attitude of the informants towards the *alḥān* is emotional, and differs for each. The *alḥān* are associated with different occasions and holy days but not with a peculiar mode of performance (such as solo, choral, antiphonal).

The modal frameworks reliably reflect the types of melody. The number of modal frameworks (the *alḥān*) varies between 4 and 10 according to the informants and depends on different factors. It is possible that according to one component such as the scale (to be more specific and exact — the "type of tonal skeleton" as defined above), two modal frameworks may be identical while according to other components they are different. The interrelations between the various components determined in the modal framework depend on the informants and their theoretical knowledge of music.

There are many components that define the modal frameworks, each important to a different degree, and in a different way. There is a kind of "area of dispersion" in the definition of each component. The lack of precise definition in the laws governing the modal framework is, it seems, one of the characteristic features of the music as it is actually performed, and this is in contrast to the "sterile laws" of music established by the theoretician who cannot accept disorder and deviation from theoretical norms.

In the material examined it was found that for all the informants the most stable components in determining the *alḥān* were the central tones and the intervals between them. These central tones aid in subdividing the scale of the *laḥan* into trichord, tetrachord and pentrachord. (In the First *laḥan*, for example — conjunct tetrachords; in the Second *laḥan* — conjunct trichords). Another important component that quite well defines the *laḥan* is the collection of characteristic musical motifs. Certain motifs occasionally appear in more than one *laḥan*, but always in different contexts. The order in which the motifs appear is also a determinant. As for the intonation of the scale of the *laḥan*, there is no single scale system for all the *alḥān* as there is, for example, in Gregorian modes. Different and independant scales (or tonal skeletons) exist for

the different *alḥān*, although occasionally the same tonal skeleton is present in different *alḥān*. The tonal skeleton is an important factor in the *laḥan's* definition. This component, perhaps more than any other, is permanent in each *laḥan* for each informant, but may change from informant to informant. These changes, in each *laḥan*, are restricted within the frameworks we have called "types of tonal skeleton". Thus the type of tonal skeleton determines the rules of intonation of each of the *alḥān*. Other components that to a lesser degree help to determine the *laḥan* are the tempo, the degree of melisma and the absolute and relative range (ambitus).

The degree of codification of the above components is different in the different *alḥān*.

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