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Musical Structure

Cosmology and the Universal Order, c. 1100–1800

By far the most significant idea that the twelve-maqam system carried from the time of the Caliphate to the cusp of the modern era was the idea that music's correct conception and execution had an absolute relationship with the natural order and human existence. In writings that discuss the twelve-maqam system, this initial conception of music was often expressed at the beginning, as it was in earlier musical writings of the Caliphate. To introduce a detailed explanation of the twelve-maqam system, authors generally asserted in one way or another that music was ʿilm (*ʿilm, ʿūlum,* pl.), riyazi *(riyāẓī),* fann *(fann),* or sinaʿat *(ṣināʿat).* In the nineteenth century, modern Orientalists in Europe, and even modern scientists, took such assertions in premodern Arabic and Persian writings about music to be a validation of the modern distinction between art and science as part of the natural order. Many writings about the twelve-maqam system could be read as discussing protomodern conceptions of music by taking ʿilm and riyazi to denote science and math, and distinguishing these from art, expressed as fann, or sinaʿat. Even as ancient Greece came to stand as the inevitably antecedent to Europe's modern existence, Greek influence on premodern Middle Eastern conceptions of music held similar modern connotations beginning in the nineteenth century. Discussions of music in Persian or Arabic that applied term *ʿilm* stood as equivalent to Europe's medieval category of *musica speculativa:* purely speculative discussion of music in theory, not the reality of musical practice.[1] Indeed, Farmer's analytical distinction between the Graeco-Arabic writings on music and his so-called Systematic School was the extent to which ancient Greek influence on musical thought resulted in either a purely aspirational "science-ing" about music, or a systematic conception of music that was executable in practice. Descriptions

of the twelve-maqam system marked the beginning of music's full realization as a balance between science and art, theory and practice.

These bifurcated concepts, however, were not the basis of the terminology in use surrounding the twelve-maqam system. Like the Latin word *scientia,* ʿilm was knowledge.[2] Declaring music to be ʿilm classified it as a realm of knowledge that one could come to understand and use according to objective, predictable parameters. It did not, however, delineate music as purely theoretical or distinct from the practice of human musical expression. The reason for expounding on music as knowledge was to indicate its ideal parameters in human expression. Music as a realm of knowledge followed from the observation that sound itself had set parameters of expression. Sound could only be produced via the collision of two bodies in air. If sound had such rules of production in nature, so too did music. Such laws of nature were not a theoretical imposition: they were as inherent in the nature of music as they were to the nature of sound. Understandings of the twelve-maqam system thus proceeded from the idea that musical knowledge needed to be investigated and documented for the purposes discovering the natural parameters of music. These natural parameters determined the proper use of music within humanity as a whole.

The further application of the term *riyazi* to music related to the active nature of music as knowledge. The Persian word for math was taken from the Arabic term for math *(riyāḍīyāt).* The root of this word *(r-ū-ḍ)* related closely to systematic training both conceptual and physical: math but also exercise and sport. The Arabic equivalent to the Persian word *riyazi* could actually mean either a mathematician or an athlete. Qutb al-Din Shirazi presented an approach to analysis that demonstrates the complexity of how music as knowledge related to the realities of active music-making. Qutb al-Din acknowledged a difference between a knowledge-based method of establishing consonant pitches *(ʿilmī)* and a theory-based method *(naẓarī).* In Qutb al-Din's schema, the approach based on knowledge "extracts the intervals from an instrument according to the confines of the strings and can be explained easily with an instrument in hand." By contrast, his theoretical approach consisted of working out intervals using pure mathematical calculation of intervals.[3] In the music section of the *Nafāʾis al-fanūn,* Amuli similarly associated the working out of musical intervals on stringed instruments with the ʿilm of music, specifically referencing this method of interval derivation back to Safi al-Din.[4]

In Qutb al-Din's conception, the knowledge-based approach to choosing consonant pitches was not a purely theoretical one: it was determined by the confines of a musical instrument and had its basis in what could actually be done in the course of practice. Nor was the act of computating consonant musical intervals as abstract ratios strictly defined as a question of ʿilm, specifically because the knowledge of music related to what could be physically done in practice. The distinction

designated by Maraghi indicated a somewhat different concept of two dependent approaches to music. In addition to music as ʿilm, he described music as ʿamal *(ʿamal),* which is typically translated as practice. While he describes musical knowledge as separate from musical practice, he nevertheless emphasized a dependent relationship between these two concepts. Maraghi did not write about only one or the other. He had to write about both together because proper musical practice derived from correct musical knowledge, and correct musical knowledge was expressed in musical practice. From this perspective one could not understand the twelve-maqam system or use it properly without first considering the parameters of musical knowledge, and then practicing music in light of that knowledge.

To this end, treating music as fann or sinaʿat related to music's skillful practice. Writing about music some time between 1341 and 1363, Hassan Kashani described the sinaʿat of music as

> The most noble of the sinaʿat because most types of knowledge *(ʿulūm)* are dependent on it, such as algebra and geometry and astronomy and the ʿilm of medicine and calculation . . . and the sinaʿat of music is based on the ratios and the calculation of intervals and cycles; hence it is the most noble of the sinaʿat because the stuff of the [other] sinaʿat and practices are from the objects of nature and their subjects are physical structures, except music, whose subject is spiritual essence; and it affects the souls *(nūfūs)* of the listeners [and] the emotion of the affect of the listener derives from its spiritual influence.[5]

Kashani's statement connected the notion of ʿilm to that of ʿamal via the notion of sinaʿat. Understanding knowledge of music meant being able to practice it in skillful ways that systematically engaged the human body and the cosmos. It did not require any visible existence, yet it still had set parameters in nature. By continuing to view music as a realm of knowledge, discussions of the twelve-maqam system described this particular music system as functional vis-à-vis the natural world and the cosmos. This meant that making music had correct universal methods that were both discoverable and desirable.

The writings of both Kashani and Qutb al-Din highlight a key goal of understanding musical knowledge and applying it correctly in practice: to affect the human soul *(nafs)* and emotions in specific ways. Rather than simply affecting emotion in an audience, musical performance under the twelve-maqam system continued the conception of music as a practice capable of physically altering audiences via music's systematic ability to create change in humanity's mentality. This formed the basis of a legend demonstrating al-Farabi's musical ability that stayed in circulation in texts about the twelve-maqam system. First he played a melody for his audience and made them spontaneously laugh, followed immediately by another melody that spontaneously made them cry, followed immediately followed by another melody that spontaneously put them to sleep so he could leave. This story expressed the one-to-one relationship between properly executed musical knowledge and the audience's emotional and physical response.

The basic notion that music's fundamental structures had a direct relationship with human physicality, emotionality, and spirituality carried over from the Graeco-Arabic tradition into writings about the twelve-maqam system. An idea that twelve-maqam authors expressed repeatedly was the notion that certain maqam, avaz, and shoʿbeh should be played to invoke specific types of emotions in different types of people. Hence Safi al-Din states:

> Know that every shadd has an affect in the soul *(nafs),* pleasing but different. Some have the affect of strength and bravery and expansion and those are ʿOshshaq *(ʿoshshāq)* and Busalik *(būsalīk),* and Nava *(navā);* and that is why they are pleasing to the Turks and the Abyssinians *(ḥabasheh)* and the Ethiopians *(zanj)* who reside in the mountains. However, Rast *(rāst)* and Nawruz *(nawrūz)* and ʿIraq *(ʿirāq)* and Isfahan *(iṣfahān)* have a cheering and pleasant affect, while Bozorg *(bozorg)* and Rahavi *(rahāvī)* and Zirafkand *(zīrāfkand)* and Zanguleh *(zankūlah)* and Husayni *(ḥūsaynī)* have the affect of a type of sorrow and angst.[6]

Though Safi al-Din stated that different aspects of the twelve-maqam system were likely to affect different language groups in different ways, he referenced the notion that these different groups had different inherent personality traits to which the music related. This conception had its basis in humeral theory. Thus in an eleventh-century text, *Qābūs-nāmeh,* the author ibn Qabus (1021–1099) provided the following advise for musicians:

> When you are seated in a gathering, look about you. If the audience comprises men with a ruddy and sanguine complexion, play mostly on the second string *(dūrūd);* if they are yellow-faced and choleric, play mainly on the lower strings *(zīr);* if they are dark-skinned, lean, and melancholic, play on the third string *(setār);* if they are pale-faced, obese with a clammy complexion, play mostly on the bass string *(bam);* these strings *(rūd)* have been invented to suit the four different human temperaments; and those knowledgeable of the ʿilm music made this sinaʿat based on these four temperaments.[7]

Both of these sets of instructions tie the needs of musical performance to the tendencies of physical traits, which further related to emotional tendencies. Writings about the twelve-maqam system give many variations on this theme of music's ability to systematically manipulate the whole of humanity's physical, emotional, and spiritual experiences in systematic ways. For instance in the *Jāmiʿ al-ʿulūm* by Fakhr al-Din Muhammad ʿUmar Razi (1149–1210) the author explained that

> The melody that is happy and ecstatic occurs when the low pitch goes to the high pitch so that the soul *(nafs)* goes from the descent of sadness to the assent of ecstasy *(ṭarab)* and joy. And the melodies that are appropriate for sadness and wailing are those where one hears low pitches after high pitches . . . so that the soul goes from the height of happiness to the descent of sadness.[8]

In another variation, ʿabd al-Rahman Sayf Ghaznavi attributed different healing powers to different maqam:

> He [Plato] says that the virtues of singing the maqam of Bozorg and its melodies are this: that it heals intestinal pain and it is beneficial for colic. Hearing it clarifies the mind. The maqam's affects are from the house of Leo with the shoʿbeh of Homayun *(homāyūn)* and Nahoft *(nahoft)* . . . and he says the maqam of Rahavi is beneficial in regard to the illness of convulsions and paralysis and trembling and back pain, its effects are from the house of Pisces and known with the shoʿbeh of Nawruz-i Arab *(nawrūz-i ʿarab)* and the shoʿbeh of Nawruz-i ʿAjam *(nawrūz-i ʿajam)*.[9]

The status of people in society also had a relationship with the natural order, which meant that the twelve-maqam system could also be systematically invoked to affect different classes of people:

> For the great kings, they sing in the maqam of Hijaz *(ḥijāz)* and Segah *(segāh),* Nawruz-i ʿAjam and . . . and Rahavi and Husayni and Dogah *(dogāh)* and Mohayyer *(moḥayyer)* [and] they enjoy it; and for the solitude the ascetic it would be nice if they sing in the maqam of Rahavi; and in front of the students if they sing in the maqam of ʿIraq and Nishaburak *(nīshābūrak)* and Maghlub *(maghlūb)* they gain much zeal and enthusiasm.[10]

In all of these ways, the twelve-maqam system could manipulate the nature of the human condition to invoke certain physical and emotional responses in a perfunctory manner. The fixed nature of both music and the human condition allowed anyone to infer how a modality would affect any given person based on the known emotional affects of modalities and the known attributes manifest in a person's characteristics. This was the universal power of musical knowledge in the context of practice.

Safi al-Din's statement about mountain-dwellers indicates that physical differences between peoples indicated larger differences in personality, yet both physical and emotional differences between people could be related back to the different physical environments in which they resided. The original humeral theory associated the different humors of the body with different elements of the Earth, and such associations could be extended to music. Different maqam could be matched to different humors and elements, or different strings on a stringed instrument could have these associations. The association between different maqam, avaz, and shoʿbeh and different climates more broadly came from the systematic relationship between music and the movement of celestial bodies, which had implications for climate on Earth:

> In the season of fall when the sun is in the house of Libra, Scorpio, and Sagittarius one must sing several melodies that are appropriate to their nature of dirt and cold and dryness: like ʿOshshaq and Chahargah *(chahārgāh)* and Busalik and Bozorg and Kuchak *(kūchak)* and Nayriz *(nayrīz)* and Homayun and ʿOzzal *(ʿozaāl)* and Husayni.[11]

These types of discussions about how music should be performed in the context of the twelve-maqam system in order to be most impactful on an audience highlight the interconnectedness of musical knowledge with other types of knowl-

edge. Writings about the twelve-maqam system address the question of how music would affect a listener in very specific, physical ways. Hence the twelve-maqam system's veracity and relevancy derived from its ability to systematically interact with known aspects of natural existence. Developing musical knowledge facilitated this systematic interaction, which stood as the ideal of musical performance in the twelve-maqam system.

THE UNIVERSALITY OF THE TWELVE-MAQAM SYSTEM

The understanding of the twelve-maqam system as a core manifestation of correct musical knowledge made it a universally applicable music system for humanity and the known natural world. Demonstrations of its universality come in descriptions of the systematic ways it can affect humanity in practice, but also in its systematic relationship with peoples both within and beyond its known geographic range. Writings about the twelve-maqam system often associated different maqam, avaz, and shoʿbeh with both different types of people from different physical environs and different humanly organized geographies. Writing in 1666, the author ʿInayatallah bin Mir Haj al-Herawi described the following scenario:

> In ʿArabistan sing in the maqam of Rahavi and Zanguleh and Chahargah and ʿOzzal; and in the kingdom of Khorasan sing in the maqam of Rast and Panjgah *(panjgāh)* and Hijaz and Segah; and in the kingdom of Transoxiana *(mavarāʾ al-nahr)* sing in the maqam of Husayni and Dogah *(dogāh)* and Mohayyer and Kuchak and Bayati *(bayātī),* and they will like it and the residents of that region have happiness and enthusiasm; in the kingdom of ʿIraq sing in the maqam of Isfahan, Nayriz *(nayrīz),* and Nishaburak and Mahur *(māhūr)* and they will like it; and in the area of the Roman Empire *(Rūm)* sing in maqam Nava and ʿOshshaq and they will like it; and in the region of India *(Hindūstān)* sing in the maqam of Busalik and Bozorg and Saba *(ṣabā)* and Chahargah and ʿOzzal and they will like it and the residents of that area would be delighted.[12]

These types of different geographical associations for different aspects of the twelve-maqam were common in descriptions of its structure and significance, both within and somewhat beyond its known geographical distribution. One anonymous seventeenth-century stated that "The instrumentalist, the reciter *(qawwāl),* and the singer . . . must be of many essences so that his singing is like a flower in Turkish and Persian and Arabic and Hindi and other languages like these." It also described music as "the twelve pardeh and six shoʿbeh; and every melody that exists from Arabic, Persian, Turkish, Roman, Armenian, Hindi, and others is not outside of these twelve pardeh."[13] Another seventeenth-century perspective took this notion one step further, doling out different maqam to the entire world, using the seven regions of the globe associated with Ibn Khaldun's geography of the world.[14]

In the minds of those who knew of it, the twelve-maqam system was an applicable music system for all known humanity. The universal applicability of its musical knowledge was only further demonstrated by contact with different methods of music-making from beyond its realm. With the rise of the twelve-maqam system coming at the cusp of Mongol rule, musical instruments from East Asia initially had a place in the twelve-maqam system's performance practice. Two surviving texts from the Ilkhante, one titled "The Chinese Instrument of Bowls" ("Sāz-i qaṭʿāt-i chīnī") and the other titled "Instrument of Bars They Make from Metal" ("Sāz-i alvāh ke az pūlād sāzand"), described East Asian metalophones and their use in the context of both the twelve-maqam system and Safi al-Din's conception of consonant pitches.[15] The text described the tuning of the instruments according to Safi al-Din's seventeen-note gamut and stated which aspects of the twelve-maqam system each instrument could produce. According to the author, the Chinese segmented instrument consisted of a series of gongs that were tuned to produce Hijaz, Nahoft, Husayni, and Mohayyer. The text about the instrument of metal bars stated that the first row of bars on the instrument was tuned to Rast and that the instrument could also produce Dogah, Mohayyer, and Gardanieh *(gārdāniyeh).*

In the *Jāmiʿ al-alḥān,* Maraghi described many instruments he observed used at court, and some were stringed instruments that, like the instruments of metal bowls and slats, were associated with the ruling class originating in northeast Asia. Despite their distant origins, Maraghi still described what aspects of the twelve-maqam system such instruments could produce. These included a stringed instrument called the *shudraghū,* which could play ʿOshshaq, Nava, and Busalik, and another called *yātūghān,* which could extract all of the maqam, avaz, and shoʿbeh.[16]

The twelve-maqam systems' encounters with instruments coming from other cultural contexts did not weaken perceptions of the system's universal premise. Even encounters with wholly different concepts of musical structures did not necessarily call the universality of the twelve-maqam system into question. Encounters with other concepts of musical structure were most extensive in the Mughal Empire, where descriptions of the twelve-maqam system came alongside descriptions of the gendered rag/ragini system of South Asia. Mughal Persian writings about the twelve-maqam system typically indicated that the rag/ragini system was indigenous to South Asia *(Hind).* Conversely, they often identified the twelve-maqam system as coming from a different place, northwest of Hind variously referred to as Iran, Turan, and Fars. While these three locations were all somewhat different, such terminology accounted for the twelve-maqam system's geographic origins relative to the Mughal Empire, among the Timurid domains of the Mughal's dynastic antecedents. It further referenced the twelve-maqam system's association with dynastic legitimization, referencing three ancient kingdoms ruled by legendary dynasts whose legends continued to legitimate dynastic authority.

Though they acknowledge musical difference associated with geographic difference, Mughal writings about the twelve-maqam system ultimately determine that the differences between the twelve-maqam system and the rag/ragini system are not that significant. These two systems are merely two different manifestations of music's shared universal principles. One reason to describe these two systems side by side was to demonstrate their structural similarities despite their different geographic origins. Mughal writings disagree on the specifics of these similarities. It is most common for these writings to consider the maqam equivalent to rag, and the shoʿbeh or the gusheh equivalent to ragini.[17] Most Mughal writings have specific sections dedicated to explaining the two systems' similarities and all ultimately engaged in the same discourses of music's basis in universal knowledge. Indeed, the one Mughal author that did not note any specific equivalencies, Baqiya Na'ini (c. 1594–1640), used the introduction to his text to expound on the unity of voice between these two musics as a reality of metaphysical truth, with no need for specific explanation of musical similarity.[18]

While the twelve-maqam system could be largely interpreted as a manifestation of universal knowledge on the edges of its central area of usage, it did experience some direct challenge to its authority in its primary regional context. In 1273 an astronomer, ibn al-Munajjim, challenged Safi al-Din's assertions about twelve shadd in his polymath work *Ashjār va aṣmār*. In discussing music, the author praised the work of Safi al-Din, but then went on to describe a different music system that encompassed only seven primary modes, each of which he associated with one derivative mode for a total of fourteen modes.

The author referred to all of the modes as pardeh and he used names like Rast, Isfahan, Busalk, ʿOshshaq, ʿIraq, and others associated with the twelve-maqam system to name his fourteen modes. The author did not elaborate on the system enough to know what implications its differences could have for creating music, yet the fundamental logic of its structure related closely to that which legitimated the twelve-maqam system. As an astronomer, the author focused on the number seven as a significant number in the cosmos, referencing the seven known heavenly bodies: the sun, the moon, Mercury, Venus, Mars, Jupiter, and Saturn. Indeed, ibn al-Munajjim associated each of his primary pardeh and its derivative with one of these planets.[19] This logic indicates that ibn al-Munajjim operated within the same principles that legitimated the twelve-maqam system. Music still had a knowable set order based on the broader natural order. Ibn al-Munajjim presented an alternative model for what the order could be, based on different priorities of knowledge.

Ibn al-Munajjim's unique idea about music's structure mirrored the more common associations of the twelve-maqam system with various aspects of the natural order, including the seven planets. Other texts also designated only seven maqam as the original modes from which four others were derived, and the seven planets are occasionally cited as the source of these original seven maqam.[20] Attributing

specific maqam to the seven regions of the world was derived from the differing astral location of the seven planets over each region. Writings that address reasons for the final number of twelve maqam often tied it to the twelve houses of the zodiac and authors frequently associated each of the twelve maqam with a specific house of the zodiac.[21]

Such connections between the twelve maqam and heavenly bodies extended out into other aspects of the natural order. In keeping with the movement of heavenly bodies across the sky, music treatises routinely recommended that certain modalities of the twelve-maqam system be played at specific times of the day and night. They also associated different maqam, avaz, and shoʿbeh with specific seasons of the year and days of the week.[22] Starting in the sixteenth century, treatise authors extended these types of associations between the twelve maqam and the natural order and began to associate specific avaz, maqam, and shoʿbeh with the vocalizations of various different wild animals.[23]

THE KEEPERS OF MUSICAL KNOWLEDGE: WISDOM AND THE WRITTEN WORD

The conception of music as a fundamental reality derived from the broader realities of the cosmos placed musical norms outside the realm of custom or reflexive preference. Writings about the twelve-maqam system were not about a localized, human musical creation. Instead, music resulted from a discovery of natural musical phenomena, at once external to but affective on the human condition. When music was manifest in its correct and natural form, it worked in tandem with the human condition and the universe at large, with the latter being an aspect of the former. For many centuries, the twelve-maqam system represented the most correct music system according to these considerations. It did not, however, have to be the only musical answer to these broader questions of how the cosmos worked. Beyond the alignments the twelve-maqam system embodied vis-à-vis the cosmos, it required additional legitimation within humanity's ongoing pursuit of knowledge.

This additional legitimation came from people categorized as keepers of wisdom. Texts about the twelve-maqam system consistently cite wise men of the past to legitimate both the twelve-maqam system itself and the musical concepts discussed in its wake. Sometimes these luminaries were cited collectively as the wise ones *(ḥukamā')*, or the ancient ones *(qudamā')*. Other times authors cited specific people from the past whom they considered wise and knowledgeable. This practice of looking to affirmed people of past wisdom for answers about music predated the twelve-maqam system. Initially, relied on the reputation of such names as Aristotle, Pythagoras, Plato, and Euclid to begin thinking about music as something that had a known natural order. The twelve-maqam system embodied a continuation of this cultivation of musical knowledge based on the previous work of wise men.

Some wise men cited in Persian music treatises about the twelve-maqam system were still ancient Greek philosophers, while others were the authors of Graeco-Arabic writings about music that predated the twelve-maqam system. Safi al-Din and Maraghi were also added to the pantheon of the wise. Some of these ancients did not have specific texts associated with their names, and even when they had specific written ideas to be referenced, legend could dominate documented ideas regarding their contributions. In some cases, the wise have no specific connection to music: having standing in any area of knowledge could indicate the ability to contribute to proper understanding of music.

This wisdom of ancients could be spoken of in terms of specifics or generalities. The more ancient the wisdom, the vaguer assertions became about their contribution to music. The group of authors Farmer associated with his Systematic School, for instance, were mostly in a direct line of wise commentary. Safi al-Din's ideas about music were premised on ideas forwarded by al-Farabi and ibn Sina. Qutb al-Din Shirazi directly referenced ideas forwarded by Safi al-Din, while also referencing al-Farabi, ibn Sina, and Euclid. Maraghi directly referenced Safi al-Din, while also discussing ideas forwarded by al-Farabi and ibn Sina. Bana'i, writing somewhat later, in the early sixteenth century, directly cited the writings of Safi al-Din and Maraghi. In this scenario, engaging in direct and specific commentary on past wisdom legitimated each discussion of music.[24]

In addition to specifically citing texts written by past authorities, music treatise authors also cited stories and legends about various wise men's great musical works. Hence, while some authors cite al-Farabi as an authority based on his texts, others recount the tale of his performance at court that made people laugh, cry, and fall asleep, which does not appear in any of his known writings. Such legends were common, more so than commentary on previously established musical discourse. One of the most common explanations of the origins of the twelve-maqam system retold a legend about Pythagoras from ancient Greece, recasting it in relation to the twelve maqam:

> One night a person appeared before Pythagoras in a dream and said, "Tomorrow go to the bazaar of the blacksmith in order to discover a secret from all the secrets of wisdom." He woke up; it was early morning. He arose and went in the direction [of the bazaar of the blacksmith] and he was in that bazaar thinking about discovering the secret, when he heard a sound from the collision of two heavy bodies that sounded an interval together that was appropriate and caused pleasure. He went to a corner and put a hair in his mouth and plucked it with his nail and a sound came out from there, but it was weak so he substituted silk for it and was thinking of how to create an instrument that had silk strings tied to it. One day, passing by a mountain, he came across a [dead] turtle. Its flesh was decayed; the skin was in the shell. Because the wind passed through its holes a sound came out from there. He took it up and built the lute *(barbaṭ)*. . . . Know that the original maqam were twelve . . . [and] they have said that Pythagoras produced seven of them.[25]

The story of Pythagoras inventing music and musical instruments based on the consonant pounding of metal in a blacksmith shop entered discussions of the twelve-maqam system from the earlier Graeco-Arabic writings on music that directly referenced ancient Greek writings on music.[26] Variations on this story were the most common creation stories for music found in texts that discuss the twelve-maqam system. Pythagoras's discovery of music itself and the twelve maqam are one and the same in this story: the wise man discovered the natural phenomena of music, which meant he discovered the basis of the twelve-maqam system. Beginning around the sixteenth century, descriptions of Hebrew prophets discovering music via the twelve maqam also became common. In another version of music's discovery, each of the twelve maqam was discovered by a different prophet as part of the story of their prophecy.[27] A more common story specifically tied the discovery of music and the maqam to the life and prophecy of Moses, whose name *(Mūsā)* bore some visual resemblance to the first two syllables of the word *music (mūsīqī).*[28] The story added the twelve maqam into a story about Moses described twice in the Qur'an (Surat al-Baqarah 60, Surat al-Aʿraaf, Aiya 160), where Moses was able to bring forth water from a rock. Thus, Dawreh Sofrachi in his *Risāleh-i kermānīyeh* (c. 1582) wrote that

> Some have said that Moses, at the time of crossing the river Nile, when he arrived at the river, he saw a rock. His majesty Gabriel said, "Oh Moses! Pick up this rock so that you may come to use it." Moses picked it up and carried it until the time he arrived weary to the wilderness with his tribe and they remained [there] for forty days. Thirst became prevalent among them. Moses prayed. Gabriel arrived [and said,] "Oh Moses! Strike your cane to the rock." When he hit [it], springs of water came out and they occurred in twelve portions and from each portion a voice came so that from them [there were] exactly twelve. Gabriel came and said, "Oh Moses! Moses, take the twelve maqam." [And] from there he acquired [them].[29]

In some cases, Sasanian kings who ruled between the initial prophets recognized by Islam and the coming of the Prophet Muhammad were also considered progenitors of music and maqam. The Sasanian king Khosrow Parviz (590–628) and his son Kavadh II *(Shīrūyeh),* who ruled for only a year after his father, were the most common kingly references. Hence, Dawreh Sofrachi recounted the story of Moses discovering music above, but also described how some said seven of the Hebrew prophets created the first seven maqam and the rest were added at the time of Khosrow Parviz and Kavadh II. Though the initiators of the system were consistently well-known people even by modern standards, secondary contributors cited as adding to the system later could be more obscure. Hence Haji Husayn Isfahani Zahiri, writing sometime in the seventeen century, described how the six avaz were created by six prophets and said that "these six were all that the people of music had until the time of the kingdom of Khosrow Parviz; and then Khalif Shams al-Din Mohaqeq Farsi and the master Saʿdi ʿIraq—who were rarities of the epoch—situated a maqam in the low end and high end of each avaz."[30]

Though the prophets and Khosrow Parviz were oft-discussed historical figures, Khalif Shams al-Din Mohaqeq Farsi and Saʿdi ʿIraq are more obscure references. Yet Zahiri's description of them as "rarities of the day" placed them in the category of the exceptionally wise people capable of discovering music, including music that the prophets themselves missed. Khosrow Parviz's appearance in narratives about sources of music and the twelve-maqam system related to the musicians of his court. The names above are more obscure references to these musicians.

A musician named Barbad was the most often mentioned musician of Khosrow Parviz's court written about in Arabic and Persian literature after the fall of the Sassanian Empire. Outside of writings about music, Barbad stood as one of Khosrow Parviz's most legendary musicians for his wit and cunning, but he rarely made an appearance in writings dedicated to the subject of music. An exception to this trend appeared in Nishaburi's treatise. Nishaburi wrote that Barbad created the first seven maqam in accordance with the seven planets, while Saʿdi, his student, made them into twelve maqam under the rule of Kavadh II.[31] While the attribution of the first seven to Barbad is unique, the logic of the attribution is not. According to Nishaburi, Barbad was not the source of the first seven maqam because he was a witty musical performer. Rather he was the source because he—like Pythagoras—had knowledge of music's relationship with the heavily bodies.

The wise progenitors of music were thus cast as a polyglot set of wise men, with knowledge and insight beyond that of most people. With this knowledge and insight they were able to discover the fundamental nature of music, which led them to discover aspects of the twelve-maqam system. The earliest wise men who discovered the twelve maqam were usually from before the rise of Islam. Later wise men writing in Arabic brought additional knowledge that further clarified the nature of the system.

Because the demonstration of their wisdom was the discovery of fundamental aspects of music, the wise men associated with the twelve-maqam system were typically ancient relative to the system itself. Indeed ʿabd al-Qader al-Maraghi was the only wise man to emerge as a point of reference for musical knowledge after Safi al-Din. Beyond direct commentary, texts generally referencing the wisdom of Maraghi began appearing around the sixteenth century. He was the only person to write about the twelve-maqam system in Persian to achieve classification as one of its wise men.

Maraghi's later classification demonstrates the parameters of who could be considered a source of historical wisdom on music. Maraghi's writings about music and the twelve-maqam system persistently stressed his own wisdom. Initially, Maraghi produced multiple commentaries on the writings about music from past wise men.[32] Even in his longest work, the *Jāmiʿ al-alḥān,* he first addressed the themes of past authorities concerned with the ʿilm of music before addressing music as practice *(ʿamal)* of his time.

By dedicating an unusually large amount of space to commenting on past musical authorities and participating in discussions about their concerns, Maraghi emphasized his own alignment with established wisdom and knowledge concerning music. Maraghi's discussion of practice, however, was not merely a passive description of music in his time: it was a unique demonstration of Maraghi's own musical knowledge. Throughout his discussion of practice he described how he revived disused musical practices and instruments.[33] He also described his invention of new instruments.[34] His inclusion of his own contributions was unique. Including a section describing musical instruments was a common feature in writings about the twelve-maqam system, yet other authors focused strictly on their breadth and classification, similar to Graeco-Arabic writings.[35] They did not focus on the novelty of any newly invented instrument, whether by the author or any contemporary.

Maraghi thus described different aspects of practice in order to describe his unique contributions to practice via his great musical knowledge, which referenced back to previously established priorities of musical knowledge. Reviving disused instruments and practices demonstrated his valuation of ancient musical wisdom. Conversely new inventions also valued the ancient. While the legend of al-Farabi's amazing application of musical knowledge in practice did not come from al-Farabi himself, Maraghi tells his own amazing story of his exceptional musical knowledge. In his discussion of the multisectional suite the nawbat murattab *(nawbat murattab),* Maraghi described how he had invented a fifth piece to add to its typical four-song structure. He then further described his musical prowess by recounting how he composed a different nawbat murattab for each night of the month of Ramadan, far more than any person wise in the ways of music thought could be composed in such a short amount of time.[36] This story mirrors the amazing stories about other wise men regarding their musical contributions, yet Maraghi was the only person to write about the twelve-maqam system and also tell such a story about himself.

With all of these unique engagements with the framework of musical knowledge surrounding the twelve-maqam system, Maraghi could achieve the status as a source of musical wisdom like that of more ancient sources. Hence, it was not uncommon for authors living after Maraghi to venerate him as a source of musical wisdom and to cite him as a source of musical knowledge. Many song texts of unknown origin are attributed to Maraghi beginning in the sixteenth century. The legitimacy of the twelve-maqam system's expansion to include the gusheh related specifically to the question of whether or not Maraghi endorsed it as a modal designation. Aqa Mo'men Mosannef, writing in the sixteenth century, stated that the gusheh was not mentioned by Maraghi and declared the gusheh illegitimate based on Maraghi's omission of it.[37] Conversely, Sadr al-Din Muhammad Qazvini writing around the same time came to the opposite conclusion and legitimated the gusheh because he believed it was handed down from Maraghi.[38]

This kind of contradiction highlights how wisdom was constructed to create wise men, whose legends then influenced musical thought and practice. Writers used the various wise men to legitimate their positions on various details of the system's structure. Changing notions of who these wise men were and what these wise men did and said had the ability to affect how music was conceived and practiced. Writings about the twelve-maqam system asserted certain truths about the nature of music that were observable in the cosmos. They asserted other truths about the twelve-maqam system based on what wise men of the past had discovered. The twelve-maqam system stood as the ultimate manifestation of musical knowledge from these two legitimating forces.

Depending on correct knowledge, skill, and wisdom, the twelve-maqam system maintained a close relationship with the rarity of the written word and the use of language as a conspicuously esoteric act. This is most visible in sections of writings about the twelve-maqam system that discuss rhythm, where the usul were discussed as an extension of the rules of poetry, while composition was conceived of as a conceptual process of writing. While the twelve-maqam system itself could be classified as central to the knowledge of compiling melody *(ʿilm-i taʾalīf),* it was knowledge of rhythmic aspects of music *(ʿilm-i iqāʿ)* that connected the twelve-maqam system to proper musical composition *(taṣnīf).*[39]

Unlike individual avaz, maqam, shoʿbeh, and gusheh, individual usul were consistently notated using various linguistic methods of structural representation. Sometimes authors actually notated usul using the notation specifically reserved for poetic meter either as a substitute for or as an addition to a specific system of notating the usul. Other times authors simply used terminology associated with poetic meter to describe usul. Words such as *poetic foot (vatad), syllable (ṣabāb),* and *interval (fāsilah)* are all applicable in discussions about poetic meter and also used in description of rhythm. This detailed knowledge of ʿarūz and the ability to demonstrate the system of poetic meter on paper fell strictly within the realm of the literate and highly educated. Indeed several poets including Jami (1414–1492) and Omar Khayyam (1048–1131) actually wrote music treatises, and other treatises might also set descriptions of the twelve-maqam system as poetry.[40]

Descriptions of the twelve-maqam system were surrounded by such conspicuous applications of Arabic-derived poetic language structure. Yet the connection between composition and esoteric language usage could also be seen in the lesser-discussed subject of composition itself. The few authors who actual used a notation of melody to describe the twelve-maqam system used it only to demonstrate the basic premise of combining an aspect of the twelve-maqam system with usul in order to compose a melody. Beyond such generalized models, specific compositions were only represented if they were songs, because they were represented as words. The words of compositions—the poetic texts sung—were the most common representation of compositions using the twelve-maqam system. The word for a musical composition *(taṣnīf)* referred to a compilation of some-

thing, often written documents, while the word for composer *(muṣannif)* referred to a compiler of things in a general sense, rather than a specific creator of melody *(mulaḥn).* The lack of functional musical notation to record specific melodies did not separate the music of the twelve-maqam system from specialized systems of description. Written words were the specialized system of description.

The relationship between music and complex forms of written language demonstrates that the authors of music treatises were not merely dependent on wise men of the past to tell them which musical ideas were legitimate. In reality, the authors themselves were themselves wise men: members of a narrowly defined educated elite associated with the court. The very fact that treatise writers were able to write about music as a complex area of knowledge and practice attested to the fact that those who wrote about the twelve maqam were a selective group of people who could use the rarified lingua franca of empire and also the language of Islam. While the twelve-maqam system stood as an objective reality of universal musical truth, that truth was not meant to be accessible to everyone. It could only be understood by people who were well informed, infinitely wise, or divinely blessed.

CONCLUSION

The twelve-maqam system defined a culture where music needed to meet an objectively determined universal standard, which focused on achieving a universal relationship between the cosmos and humanity. It was a culture defined by rare amounts of education and literacy that most commonly emanated from the court and an insular aristocracy associated with dynastic structures of governance. This served as the twelve-maqam system's primary cultural context, defining its venues and its audience as polyglot and cosmopolitan, but also isolated. The twelve-maqam system held the distinction of being universally applicable to humanity, and it existed in a cosmopolitan setting where the universality of music was consistently tested for universal relevancy. Yet this cosmopolitan setting was also one of special privilege for certain elites who often existed apart from the broader population of dynastic subjects.

The ways in which music was defined and classified in writings about the twelve-maqam system reveal the continuing influence of Islamic philosophy's initial classifications of knowledge, and its initial derivation from ancient Greek philosophy. Yet they also reveal an ever-growing indigenization of Greek notions of knowledge over time, as Greek concepts of knowledge became intertwined with notions of wisdom more central to Islam.

For instance, in the *Enumeration of Knowledge,* al-Farabi listed six categories of knowledge and placed music in a category he called instructionary or preliminary knowledge (*ʿilm al-taʿlīm*), which also included the knowledge of math, geometry, optics, astronomy/astrology, weight measurements, and tool-making/mechanics.

His category of preliminary knowledge owed much to the ancient Greek quadrivium, while not being strictly defined by its limited four subjects. Al-Farabi also recognized two types of knowledge within his six categories of knowledge: theoretical knowledge *(al-ʿilm i-nnaẓarī)* and practical knowledge *(al-ʿilm al-ʿamalī)*.

The interest in discussing music as knowledge versus practice common in writings about the twelve-maqam system owed much to concepts of knowledge classification like those of al-Farabi, where both music as pure concept and music as a physically delimited activity had their distinct knowledge-based conceptions. On this basis, whether or not discussions of the twelve-maqam system treated music as only ʿilm or as ʿilm and ʿamal, either classification related to conceptions of music as knowledge. In this sense, there was no practice of music related to the twelve-maqam system apart from knowledge of music. It defined music-making as an act of knowledge.

In his knowledge category of tool-making al-Farabi included the skill *(ṣināʿah)* of making musical instruments, alongside instruments for use in astronomy and mathematics. Even as tools of astronomy revealed more knowledge of the cosmos, instruments of music revealed more knowledge about music. And the application of this knowledge in practice had implications for its ability to manipulate the human soul.

The philosopher Shahab Ahmed has noted a turn philosophy took in the Islamic world as ancient Greek ideas took on more Islamic influence. In bringing the concerns of Greek philosophy into a world defined by Islamic concepts of divinity, two themes became central: establishing theoretical rules of the cosmos, and further establishing practical rules to put humanity in consonance with cosmic law. Among these practical rules were those specifically for perfecting the soul. This transformation of priorities was matched by a change in terminology. By the fifteenth century philosophy as a concept *(falasafah)* was replaced by general notions of divine wisdom tied directly to the terminology of the Qur'an *(ḥikmah)*.[41]

This indigenization of knowledge defined the twelve-maqam system's conception and importance in historical context. The importance of universal, cosmic law also meant that music needed to account for the whole of known humanity and the various differences among humanity that were nevertheless underpinned by a larger cosmic design. The notion that music could manipulate humanity in systematic ways was not new, but the growing concern with executing music within the parameters of some specific cosmic design became paramount. The twelve-maqam system's variations on musical structure all addressed practical rules for practicing music within a systematic, divinely established universal existence. This was the shared cultural basis of Farmer's Systematic School, but also of the conception of the twelve-maqam system beyond this limited range of discourse.

In fact, an emphasis on cosmic knowledge and divine truth had more possible sources of wisdom from which musical knowledge could come. The pantheon of wise people who could validate musical knowledge was relatively diverse, as divine

knowledge was not delimited by specific parameters of education or literacy. The prophets of Islam and other cosmic actors were as likely a source of cosmic knowledge as Pythagoras, as was any musician who had demonstrated an ability to apply knowledge of music in practice to elevate humanity and the human soul. How someone applied music in practice derived heavily from ideas about how music could best influence humanity. While there was no one answer to the question of how music might be applied to achieve harmony with cosmic law, the twelve-maqam system stood as a long-term demonstration of a system that was in keeping with this cosmic law.

While Shahab Ahmed presented his analysis to demonstrate the active role of Islamic philosophy throughout premodern Islamic societies, this cultural frame for music's meaning, significance, and possibilities for practice was nevertheless limited. The twelve-maqam system did not represent common music, as cosmic knowledge was not common. It explicitly represented a higher dimension of human existence, seeking to remove music from regional variation and place it into a context of universal practice. It was tied to courtly aristocracy and its concomitant religious elite. In this context, the twelve-maqam system derived from discourses of universal truth, even as it embodied a rarified form of musical knowledge.