

The Ancient Chinese Arts of the Ear: Etymology, Meteorology, Musicology

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Abstract This article draws on historical linguistic evidence, archeological finds, and written accounts of ancient practices to argue that, in the pre-Qin and Han periods of Chinese history, an important stratum of knowledge related to earthly energies, vibrations, pitch, tonality, music, memory, and recitation existed in conceptual parallel to systems of visual knowledge of heavenly bodies, light, color, and the written record. Masters of the former set of skills were frequently blind and entrusted with a distinct set of ritual and advisory functions, including ushering in the seasons, pronouncing on elements of the calendar, predicting military fortunes, and performing official policy admonishments. Of particular importance to this group of experts was the concept of “winds” or “airs” (*fēng*) and a closely related verb for “sing,” “chant,” or “remonstrate” (*fēng*). The etymological relationship of these words, along with words for listening, smell, sounds, and fragrance, led to a conceptual blending whereby the “energy” (*qi*) of wise words and “fragrant” virtue could carry on “winds” of oral transmission to correct public morality and governance. This led to an etiological hierarchy, in some ways inverted by current standards, in which the purpose of studying pitch and tonality was not, first and foremost, analysis of music *qua* art, but rather the encoding, transmission, and influence of natural energies and social harmony.

Keywords Winds, Airs, Music, Poetry, Vision, Hearing, Pitch, Tonality, Etymology

The Chinese word usually translated as “culture” (*wenbua* 文化) literally means “to make patterned.” The character for “pattern” here, *wen* 文 (Old Chinese (OC) mən/mə[n]) privileges visual patterns, as ancient versions of the character depict markings on a body or earthenware vessel (like a tattoo, possibly derived from “soot” (mê/m^hə 煤).¹ From early times this concept came to indicate not only visual patterns, but patterns of thought and behavior.² But what of oral/aural acculturation? Does not culture train the tongue and the ear, as well as the eye and the brush? Cross-linguistic studies of perception-related vocabulary reveal visual metaphors dominating other senses in all languages analyzed, but that same research indicates significant variability among priority assigned to perception verbs associated with different senses, and with cognition in particular.³ If it is possible, for example, that Spanish should use more verbs related to taste and Australian languages more verbs related to hearing for expressing similar cognitive concepts,⁴ it is also likely that the same language family can undergo diachronic change as a culture shifts from e.g., one with greater emphasis on oral transmission of knowledge to one privileging the written word. Moreover, the null hypothesis should be that preliterate societies will, all else equal, place greater emphasis on oral modes of knowledge transmission as compared to literate societies.

¹ See Schuessler, *ABC Dictionary*, 514. “Old Chinese” (OC) references the oldest attested state ancestral to all Chinese languages, including Middle Chinese, a medieval language system ancestral to all existing Chinese languages but the Min dialect family. OC covers a wide historical range, from the earliest writing to roughly the end of the Han Dynasty, and also included significant regional variability. When available this paper provides two Old Chinese reconstructions: first, a more conservative, “minimal” reconstruction (OCM) compiled by Schuessler, *ABC Dictionary*, and second, a typically more liberal reconstruction (OCL) proposed by Baxter and Sagart, *Old Chinese*.

² Starting in the Warring States period the literal meaning was distinguished by invention of the character *wen* 紋. It is common for an allegorical/conceptual usage to outstrip an older, literal meaning in frequency, another prominent example being *xin* 心, originally a reference to the physical organ of the heart, but better translated as “mind” for most uses since the Warring States period (see Slingerland, *Mind and Body*, 100–111).

³ See San Roque et al., “Universal Meaning Extensions.”

⁴ See Evans and Wilkins, “In the Mind’s Ear.”

Chinese high culture since the Warring States period, if not earlier, is one which comparatively privileges the authority of the written word.⁵ Yet the earliest written sources, such as the *Shijing* 詩經 (Book of Songs), clearly point to an oral stratum of knowledge transmission: the collected poems are not of purely aesthetic or ethical interest, they also record information about history, astronomy, farming, even military tactics in a memorable, orally transmissible format.⁶ This field of knowledge is necessarily obscure to later times relative to visual knowledge, so an additional null hypothesis should be that oral knowledge at all times greatly exceeded that which the written record can reflect, and the more so the less extensive or well-developed that record. Nonetheless, archeological materials, historical linguistics, and ancient descriptions of ritual, tuning, meteorology, and related practices may provide insight into that obscure world.⁷

This paper argues not only the trivial case that such knowledge must have existed, but also the stronger case that it was perceived, in the pre-Qin and Han periods, as a distinct and significant field of inquiry functioning in parallel to visual knowledge. This, in turn, reflects on the status of ancient musicology, possibly the earliest critical treatment of any art in Chinese history.⁸ Today it is assumed that music's primary function is to entertain, though awareness of sacred music remains, as

⁵ As noted in Saussy, *Ethnography of Rhythm*, 1–15, there are recorded examples of civilizations which, though literate, nonetheless prefer to retain a stratum of sacred knowledge uncommitted to print, for fear that such knowledge could fall into the wrong hands or result in decay of the techniques and faculties of memory. This was largely not the case with China since the Warring States period, when the probability of words being recorded in written medium seems roughly correlated with its perceived importance, though memorization remained an important skill.

⁶ As noted in Owen, *Readings*, 26–29, early critics played on the polysemy of *yong* 永 (last long), as in the phrase *ge yong yan* 歌詠言 (poetry/singing makes words last long): it could refer to literally stretching out a sound, as in chanting or singing, but also, by extension, to the memorable, transmissible quality of song/poetic lyrics relative to daily speech. On use of drums in battle see Furniss, *Music in Ancient China*, 59–61.

⁷ The word “ancient” throughout this paper should be understood as a broad shorthand for “pre-Qin and Han,” that is any period preceding what is typically called the “medieval” or “middle period” in Chinese history

⁸ See Saussy, “Ritual Separates.”

do other functions, like courtship or exercise. This article suggests that the situation, especially at the more elite level better attested by text and archeological finds, was much the reverse in ancient times, with music's entertainment value secondary to its practical functions, like moral education, ritual, and coordination of troop movements. Studying pitch and tonality not to better understand musical art, but to investigate and influence other aspects of the natural and spirit worlds, like climate and military fortune, is a foreign idea today. In ancient China it was a familiar and important area of inquiry with knowledge concentrated in the hands of specialists functioning in parallel to historians, astronomers, and other masters of visual knowledge. This paper suggests some preliminary avenues for better understanding the “arts of the ear” they practiced.

Vocabularies of the Eye and Ear

The topic of pre-Qin and Han oral transmission is a vast one touching on nearly all aspects of ancient life; this article therefore confines itself to that subset of oral knowledge explicitly associated with auditory skill and its cultivation. These are referred to as “aural knowledge” or “arts of the ear.” Though belonging to the realm of visual information, an easy place to look for Chinese concepts related to audition is in characters using an “ear” radical (*er* 耳) for semantic purposes. Shang Dynasty oracle bones include at least thirty-three such characters.⁹ The words associated with these fall into roughly three categories. First is the basic sensory function: ear as sense organ that collects information about the world, or as passage through which the energies of the world may reach the heart/mind. For example, the word *wen* 聞 (*mən*/*mu*[n]), meaning “listen” or “hear about,” was originally written as a man holding hands up to an ear and later as a phonetic compound of “ear”

⁹ See Shen and Cao, *Xinbian jiaquwen*, 49.

and other elements.¹⁰ Second is a social function: hearing as a means of communicating with others, including extension of the sense of “listen” to phrases like “hold court,” (*tingzheng* 聽政—literally, “listen on matters of governance”), “hear a (legal) case” (*tingsong* 聽訟), or “follow orders” (*tingcong* 聽從 or simply *ting*—analogous to English, “listen to your parents (and do what they say)”). Third are cognitive metaphors for other, more abstract abilities, such as that between sharpness of hearing and clarity of insight implied by the character *cong* 聰 (OCL s-1⁵oŋ), the pronunciation of which may derive from addition of an s- prefix to *tong* 通 (lhoŋ/1⁵oŋ), meaning “to penetrate.”¹¹ The word *cong* 聰 was frequently paired with *ming* 明 (OCL/M mraŋ), the former meaning “sharp of hearing” and the latter meaning “clear-sighted,” in addition to “bright.” These two words were both used metaphorically to mean “intelligent” or “perceptive,” as in Mandarin *congming* (“smart”), but OC “intelligence” importantly comprises a distinctly visual and a distinctly auditory component. This article argues that ancient Chinese saw a clearer division between these two fields of knowledge and types of cognition than was common in later periods, with “aural intelligence” conceived as both the talent for recognizing fine distinctions of musical pitch and also the talent for knowing wise words when one heard them.

The three functions of ancient “ear”-related vocabulary share many conceptual and etymological connections that provide insight into how OC speakers understood them. For example, in addition to the phonological connection between *cong* 聰 and *tong* 通 mentioned above were OC

¹⁰ See Baxter and Sagart, *Old Chinese*, 63 on this character’s evolution. After the oracle bone stage the character was, for a time, written with an “ear” radical and phonetic *hun* 昏. At some point before the Qin, however, the pronunciation of *hun* 昏 changed such that it was no longer a good phonetic match for the word “listen.” Since then, the phonetic “gate” (*men* 門) has been used. This demonstrates the greater flexibility of the pre-Qin script to change in response to phonological innovations.

¹¹ See Baxter and Sagart, *Old Chinese*, 150.

homophones “chimney” (*cong* 囱) (an opening in a roof) and “window” (*chuang* 窗) (an opening in a wall), suggesting the analogy between the ear and a “window,” through which, for a perceptive person, “winds” (*fēng* 風, OC pəm/prəm) and subtler “energies” (*qi* 氣) could pass, unimpeded, into the heart/mind space.¹² The reverse case was evoked by an “exoactive” version of the word for “wind,” that is *fēng* 諷 (pəms/prəm-s), meaning “to sing/chant” or “remonstrate.”¹³ One common function of the OC “s” suffix, corresponding to Middle Chinese “departing tone” and *Putonghua* “4th tone,” is to derive an outwardly-directed action from an inwardly-directed one, as with “buy” (*mǎi* 買, OCL m⁵raj²) and “sell” (*mài* 賣, OCL m⁵raj²-s).¹⁴ The famous Han Dynasty “Grand Preface” 大序 (Daxu) to the *Book of Songs* plays on this bidirectional quality by claiming that “winds” or “airs” (also a category of poetry within the collection corresponding to something like “folk songs”) have the power to stir emotion, “teach” (*jiao* 教) and “(morally/culturally) transform” (*hua* 化) the common people. The word *wèn* 問 (məns/mun-s), similarly, changes “listen” (*wén* 聞) into the exoactive “ask,” which difference may be specified by the replacement of an “ear” with a “mouth” (*kou* 口).

Those skilled in absorption and transmission of aural knowledge, in turn, were referred to by terms distinct from those used for masters of visual knowledge. A person with strong aural perception/cognition could be described with adjective s-¹oŋ 聰 or *shèng* 聖 (OC hjeŋh or ljeŋh/¹ŋeŋ-s), now commonly translated as “sage,” but likely derived from an etymology meaning simply “renowned.”¹⁵ Guo Moruo even argued that “listen” (lêŋ/¹ŋeŋ 聽), “sage” (*shèng*), and

¹² See Slingerland, *Mind and Body*, 239–247 on the “container” metaphor for body and mind.

¹³ See Schuessler, *ABC Dictionary*, 238. Though *fēng* 諷 now generally uses *Putonghua* “third tone,” the character still uses a “departing tone” (*qusheng* 去聲) in Taiwanese Mandarin and most southern dialects, like Cantonese.

¹⁴ See *ibid.*, 40 and Baxter and Sagart, *Old Chinese*, 59.

¹⁵ See Schuessler, *ABC Dictionary*, 461

“sound/voice” (*shēng* 聲, OC *hjeŋ/[l]eŋ*) were all originally written with one character; the three words were almost certainly homophones at one point but for the differences in suffix/tone (the phonetic element in the first two graphs is *ting* 壬).¹⁶ The relationship of “sound” ([l]eŋ) and “sage” ([ʃeŋ-s) therefore, could be analogous to that between “buy” and “sell” or “wind” and “chant”: a sagely person is one whose words or fame reaches others. The Eastern Han *Baihu tong* 白虎通 (Comprehensive Discourses at White Tiger Hall) describes the relationship of these concepts:

What is a sage ([ʃeŋ-s)? A sage is one with penetrating insight ([ʃoŋ), one who shows the way ([ʃuʔ-s 道); a voice ([l]eŋ). His way reaches everywhere and his brilliance (*mraŋ* 明) illuminates everything. By listening to sounds ([l]eŋ) he knows how to respond to circumstance ([dz]eŋ 情) and thereby unites in virtue with Heaven and Earth, unites in brilliance with the sun and moon, unites in order with the four seasons, and unites in omens with the ghosts and spirits.

聖人者何？聖者，通也，道也，聲也。道無所不通，明無所不照，聞聲知情，與天地合德，日月合明，四時合序，鬼神合吉凶。¹⁷

Besides real or imagined etymological connections, reconstructed pronunciation here reveals memory-aiding rhetorical flourishes now easily missed, such as the probable alliteration in words for “sage,” “penetrate,” “way,” and “sound,” or the possibly intentional rhyme of “sound” and

¹⁶ See Cao and Su, *Hanzi xingyi fenxi*, 478 and Ma, *Yinxu jiaguwen* 265.

¹⁷ Ban, *Baihu tong*, 334.

“circumstance.”¹⁸ It is further clear that “sound” here means more than simply audible sounds; it seems to encompass appraisal of a situation and the characters of those involved (arguably related to the word for “reputations,” *mingsheng* 名聲, literally, “the name and the sound” or “name and what is said about a person”).

Warring States Confucian Mencius, for example, conceived of “sound” or “voice” as a quality that reveals something of a person’s position or moral cultivation:

Mencius, on his way from Fan to Qi, glimpsed the Prince of Qi at a distance. He sighed with feeling, saying, “One’s rank changes one’s energy (*qi*) as one’s upbringing changes one’s body. Great, indeed, is the effect of rank! ...The Prince’s royal chambers, horses, chariots, and clothing are all much like others’. It is his position that made him what he is... When the prince of Lu traveled to Song he called out at the Dieze Gate and the gatekeeper said, “This is not our lord; why, then, does his voice sound so similar to our lord’s?” There is no other reason but that their ranks were similar.

孟子自范之齊，望見齊王之子。喟然歎曰：「居移氣，養移體，大哉居乎！……王子宮室、車馬、衣服多與人同，而王子若彼者，其居使之然也……魯君之宋，呼於埵澤之門。守者曰：『此非吾君也，何其聲之似我君也？』此無他，居相似也。

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¹⁸ On early Chinese euphonic rhetoric see Tharsen, “Chinese Euphonics.”

¹⁹ Meng, *Mengzi*, 317–18.

Here, the position or “rank” a person occupies (*ju* 居) affects his “energy” (*qi*), which is paired and contrasted with other forms of training and acculturation encompassed by “upbringing” (*yang* 養). *Qi*, much like “heart-mind,” likely began with a less abstract referent, like “breath” or “air,”²⁰ but gradually came to mean something more complex over time, encompassing many sorts of rarefied “substance” or “energies,” like those that animate living bodies.²¹ Mencius recognizes the qualities of the Prince’s *qi* by merely glimpsing him at a distance, further emphasizing that it is not the Prince’s palaces, clothing, or, arguably, even his physical bearing, that imbue him with a kind of “princely air,” one that other passages in the Mencius suggest could manifest in the luster of the skin or the limbs of the body, even when viewed from behind.²²

The *qi* described by Mencius belongs to a spiritual or cognitive realm explicitly contrasted to the body. This was in keeping with the philosopher’s emphasis on moral cultivation as a natural, internal process, though the results could manifest outwardly, not only in moral conduct, but in the quality of the skin, the tenor of the voice, and possibly other, subtler ways perceivable by the likes of Mencius. In the second example gatekeepers recognize something “princely” in one prince’s voice (*shēng*) by comparison to the voice of their own prince. *Shēng* here seems to communicate something about a person deeper than could be revealed by his physical accoutrements and presence, both when it literally means “voice” and also when it functions more allegorically. A sage (*shèng*) was one whose metaphorical voice reached far and wide and who, like Mencius, was adept at “hearing” others’ deeper natures before they even opened their mouths. One ancient story even suggests that a

²⁰ The oracle bone character depicts movements of air by three horizontal lines of equal length, not to be confused with the character for “three,” 三, in which the middle line is shorter.

²¹ See Csikszentmihalyi, *Material Virtue*, 144.

²² Csikszentmihalyi, *Material Virtue*, 151–157 argues that the Mencius’s famous phrase *haoran zhi qi* 浩然之氣, commonly translated as “overflowing” or “flood-like energy” more likely implied “radiantly bright” (*haoran* 皓然), and referred to the “glowing” physical presence or lustrous quality of the skin of those of high internal moral cultivation.

music master could predict a person's lifespan by listening to his or her *qi*.²³ Historian Ban Gu 班固 (32–92) claimed that ancient sages had blown on pitch pipes to determine surnames, on the theory that the “hundred surnames” corresponded to one hundred possible combinations of seasonal and elemental energies presumably revealed in the timbre or pitch of the voice.²⁴ Though likely apocryphal, such procedures reflected Han Dynasty beliefs about a person's character or psychological state expressing itself through the voice, as with the idea, described further below, of an army's battle cry revealing its chances of victory.

A possible visual analogue for the “sage” or “sagely person” was the *zhe* 哲 or *zheren* 哲人 (“knowledgeable one,” “philosopher,” OC *trat/tr[e]t*, likely related to OCM/L *tre* 知, “to know”). A passage in the *Book of Documents* describes the relationships among senses and faculties as follows:

There are five matters of personal importance: one is called “bearing,” the second is called “words,” the third is called “sight,” the fourth is called “hearing,” and the fifth is called “thinking.” Right bearing is called “reverence,” right speech is called “obedience,” right vision is called “brilliance,” right hearing is called “clarity,” and right thinking is called “cleverness.” One who is reverent achieves a solemn bearing, one who is obedient may put things in order, one who is brilliant may philosophize, one with clarity may lay plans, and one is clever may become a sage.

²³ A prince demanded of famous music master Kuang, “I have heard that you can know a person's lifespan; please tell me” 吾聞汝知人年之長短，告吾。 *Yizhou shu*, 73.

²⁴ See *Baihu tong*, 401.

五事：一曰貌，二曰言，三曰視，四曰聽，五曰思。貌曰恭，言曰從，視曰明，聽曰聰，思曰睿。恭作肅，從作又，明作哲，聰作謀，睿作聖。²⁵

Here there is a movement from a more outward, visible focus, to a more invisible, cognitive level.²⁶ The sage described seems to combine qualities of visual knowledge (*ming* 明) and aural knowledge (*cong* 聰), as well as a deeper ability to process or synthesize them both implied by “cleverness” (*ru* 睿). However, *zhe* 哲 here possesses a distinctly visual implication noteworthy for its frequent binomial pairing with *sheng* beginning no later than the Warring States period *Lisao* 離騷 (Encountering Sorrow).²⁷

At least in some cases, therefore, *sheng* and *zhe* were understood as two varieties of wise person, with the former emphasizing a connection to sound, renown, and the ability to recognize the unique “sounds” of people and situations. Moreover, the way ancient commentators describe such recognition reveals an additional sensory bifurcation: sharp vision is useful for recognizing a sage when one meets one (but they may appear only once every five hundred years or less, according to Mencius), while aural cognition is necessary for knowing a sage when one hears about him or hears his words repeated by others.²⁸ This prioritization reflects an assumption, reasonable in an age before paper, much less print, that, for most people, the chances of *hearing* the words of a sage second-hand were much greater than the likelihood of reading them, much less meeting a sage in

²⁵ *Shangshu*, 188.

²⁶ On the idea of “innermost mind” (*zhongxin zhi xin* 中心之心) see Slingerland, *Mind and Body*, 134.

²⁷ A simple search of the Pre-Qin and Han texts at Ctext.org, finds forty-two examples of phrase *mingzhe* 明哲 (plus many more phrases like “a person who knows is knowledgeable” 知人則哲) and no obvious examples associating the word *zhe* with an aural faculty, other than those clearly pairing discussion of sight and sound.

²⁸ See Csikszentmihalyi, *Material Virtue*, 197–199.

person. The ability to recognize sagacity in words heard was thus also conceived as a type of aural cognition. Moreover, even in person, a sage should be aurally, as well as visually, impressive (though not necessarily handsome, Xunzi 荀子 insisted, pointing to the strange appearances of Confucius and the ancient sage kings²⁹): the *Lüshi chunqiu* 呂氏春秋 (Lü Commentary on the *Spring and Autumn Annals*) describes how the virtue of Shun 舜 “awed” (*song* 聳 (OCM soŋʔ)) Sage King Yao 堯, who later gave his throne to him. This word’s frequent use of an ear radical and possible etymological connection to *cong* 聰 hint that the experience of feeling awe could be conceived aurally.³⁰

If renown for wisdom and virtue could spread far and wide by word-of-mouth, so too, could possibly related words for their “fragrance” (haŋ/q^haŋ 香, phaŋ/[p^h]aŋ 芳, or héŋ/q^héŋ 馨), as could the “rank odor” (OCM séŋ 腥) of vice.³¹ Though more often meaning “to hear about” or “ask about” in ancient texts, the verb mən/mu[n] 聞, possibly sharing an etymology with a Tibeto-Burman word for “smell,” also clearly means “smell” in some early passages.³² Though the latter function could be more clearly distinguished with the verb *xiu* 嗅 (OC k-huh/q^hu(ʔ)-s), the word *wen* 聞 continued to mean “smell” to the point that e.g., *haowen* 好聞 now unambiguously means “good-smelling” in *Putonghua*. There are even some dialects today in which one may *ting* 聽 a smell.³³ To further complicate matters, one may “hear about” virtues, vices, and “the Way” in ancient texts, but

²⁹ See *ibid.*, 136.

³⁰ See *ibid.*, 171–172.

³¹ See Sterckx, *Food, Sacrifice, and Sagehood*, 168–170.

³² See e.g., Jin, *Hexin ci*, 410 and the work of Paul Benedict.

³³ See Wang and Akitani, “Hanyu wen/xiu.”

as Haun Saussy notes with reference to Pauline Yu's comments on the *Lisao*, OC "virtue" could be "fragrant" in a much more literal, less allegorical sense than it can in English.³⁴

Though blurring of categories of sound and smell may seem strange, one feature clearly shared by sound, smell, virtue, and reputation is that they may be vividly perceived yet are invisible. Moreover, sounds and smells can both, intuitively, "carry" on the aforementioned "winds" (*feng*), another concept with important literal and metaphoric semantic ranges. An aspect of ancient Chinese metaphysics different from today may be a tendency, "especially as views of *qi* as a force permeating the cosmos became more prevalent," not to view spirits, souls, and ghosts as wholly immaterial, but rather as made up of very "diffuse" matter, sometimes to the point that only those with extraordinary powers of perception and insight, or those in altered states, like spirit possession, could perceive them.³⁵ This does not mean the ancient Chinese saw no clear division between mental and physical or spiritual and material realms (what Slingerland terms "the myth of holism"), but rather that the difference between a wave of sound propagating through the particles of the air and the movement of fragrant particles through the air may not have been clear to them, as they might also have perceived a connection between the "energies" that made up sounds and smells and those that animated persons and constituted ghosts. For example, food has *qi* and people need to eat to obtain the energy for life, but so, too, were ghosts believed to need offerings of food and drink, though those parts of food and drink they were thought to consume were the less substantial parts, like the smell. Moreover, the more abstract and distant from humanity the entity, the more rarefied and unprocessed the *qi* it partook of. Zheng Xuan's 鄭玄 (127–200 AD) commentaries on the "Suburban Sacrifice" 郊特牲 (*Jiao te sheng*) described in the *Liji* 禮記 (Book of Rites), for example, indicate that "smelly" (*xing* 腥) sacrifices, like blood and raw meat, were suitable offerings for

³⁴ See Saussy, *Problem of a Chinese Aesthetic*, 13–17.

³⁵ Slingerland, *Mind and Body*, 94.

Heaven and distant ancestors, while “tasty” sacrifices, like cooked meat, were suitable for recent ancestors.³⁶ Put differently, the ancient Chinese did see a distinction between the physical and the spiritual, but certain phenomena we might today deem purely physical, like smell, for them may have existed in, or straddled, the realms of the material and the spiritual (the same was also true for Greco-Roman religion and early Christianity).³⁷

Daoists of the early medieval period built on this logic to suppose that humans could become immortal by practicing fasting and gradually transitioning the diet from solid foods, to medicines and herbs, and finally pure *qi* of the sort that existed in the air and all around.³⁸ Much earlier, the *Zhuangzi* described a practice called “fasting of the mind” (*xinzhai* 心齋), ascribing a subtler nature to *qi* than to ordinary sounds or even the mind itself: “do not listen with the ears, but listen with the mind (*xin*), do not listen with the mind, but listen with the energy (*qi*). Listening only goes as far as the ear and the mind only goes as far as concepts, but energy is empty and awaits all things. Only in emptiness may the Way collect.”³⁹ On this account *qi* is a kind of substrate subtler than the mind but which may carry invisible substances, like thought, sound, and smell, as air carries oxygen. Thus, both literal and metaphoric sounds and smells, including the “sounds” and “smells” of wise words and virtuous deeds, could carry on the invisible *qi* of “winds” (though not all *qi* was invisible—there are many ancient examples of *qi* manifesting as smoke, steam, or colored light). The ability to recognize the subtle substances carried on such *qi* across great distances of space and time required being “open,” that is, allowing them to penetrate (*tong*) not only the ear, but also the mind and/or deeper levels. As the *Zhuangzi* suggests, “opening” oneself to *qi* might paradoxically require closing off avenues of proximate sense data. Mencius, for example, notes the importance of quiet

³⁶ See Boileau, “Ritual Elaborations.”

³⁷ See Sterckx, *Food, Sacrifice, and Sagehood*, 168–169.

³⁸ See Poo, “A Taste of Happiness.”

³⁹ See Zhuang, *Zhuangzi*, 53 and Sterckx, *Food, Sacrifice, and Sagehood*, 178.

and darkness for cultivation of the *qi*: too many “fettering” activities undertaken during the daytime may exhaust the restorative powers of the “nighttime energies” (*yeqi* 夜氣), presumably accumulated while sleeping or meditating in the quiet and dark.⁴⁰ Even the word for “name” or “noun” (*ming* 名; likely homophonous with “dark” 冥 but not “bright” 明 in the OC period) appears to depict a mouth speaking at night.⁴¹ As described below, certain rituals were performed at night, in windowless rooms, and/or by blind music masters, presumably on the theory that quiet, darkness, and/or inability to see deepened the ability to perceive many important kinds of *qi*, arguably including that of words and fame (*ming* and *sheng*).

Ministers of Sight and Ministers of Sound

Sages’ virtue could reach and influence others by its “fragrance,” by analogy to a wind blowing across grasses, or in the manner of one musical instrument transferring a vibration to another.⁴² Practically speaking, this meant memorable words and deeds spreading widely from mouth-to-mouth (and sometimes committed to writing). But a sage might appear only once every five hundred years or less. Their qualities were subject to much philosophical exegesis but difficult to pin down. There was, however, an historical group with a much more clearly defined reputation for mastery of the arts of the ear, namely the (typically blind) music masters referred to generically as *yueshi* 樂師, or sometimes simply *shi* 師. In oracle bones *shi* (OC *sri/srij*) means “army captain” by probable extension of an etymology meaning “(leader of) multitudes” or a “(military) host.” This meaning

⁴⁰ “By repeated fettering the ‘nighttime energy’ is gradually depleted. When the nighttime energy is insufficient, a man is not much different from a beast” 梏之反覆，則其夜氣不足以存；夜氣不足以存，則其違禽獸不遠矣。Meng, *Mengzi*, 263.

⁴¹ See Cao and Su, *Hanzi xingyi fenshi*, 369–70

⁴² On the metaphor of resonance see Csikszentmihalyi, *Material Virtue*, 182–183, 190.

later differentiated itself by use of the character *shuai* 帥 (OC *srut/srut-s*), sometimes used interchangeably with homophonous 率, and likely related to *lü* 律 (OC *rut/[r]ut*), another word meaning “lead,” “regulate,” or “law” which early took on the additional meaning of “(regulation of) musical pitch,” or simply “pitch.” That is, the word for music masters, though it could also refer to masters of other skills, connects etymologically to words like “regulate,” “coordinate,” and “lead,” as a military commander leads soldiers into battle (possibly to the accompaniment of drums and horns) and a music master leads musicians and dancers in court performance. As suggested above, moreover, there was a sense in which the ancients conceived of pitch regulation not in the service of music per se, but rather as a tool for proper measurement and expression of the virtuous “winds” or “voices” of Heaven, Earth, and the common people. Lawmaking and pitch standard determination, therefore, were likely conceived as having more in common in the ancient period than today, not only etymologically, but in terms of their goals and consequences.

The *shī* of highest rank were called *taishī* 太師 (Grand Preceptor, also written 大師), an ancient but irregularly conferred title sometimes grouped with two other close advisors of the Son of Heaven called *taibao* 太保 (Grand Guardian) and *taifu* 太傅 (Grand Mentor).⁴³ The pedagogical function associated with the *taishī* was such that it sometimes amounted to a regency, as with the Duke of Zhou and his nephew, or Dong Zhuo 董卓 (138–192) of the Eastern Han, the latter taking on the title in imitation of the former. Though the *taishī* could be one of these three high-ranking advisors, the term could also be paired, especially in the *Rites of Zhou*, with the masters of visual knowledge known as *taishi* 太史 (Grand Historian or Court Astrologer).⁴⁴ *Shī* originally meant

⁴³ See Hucker, *Official Titles*, 481–2.

⁴⁴ On certain occasions, for example, the *taishī* and the *taishi* were said to ride in the same chariot carrying their respective tools of measurement. See *Zhouli*, 2517.

roughly “scribe” (the oracle bone character depicts a hand offering a roll of documents), but the responsibilities of the *shǐ* gradually came to include more esoteric knowledge of astronomy and astrology, in addition to official record-keeping. It is now frequently translated as “historian” or simply “history” because of its association with the most famous *shǐ*, Sima Qian 司馬遷 and his father. Though not always blind themselves, the *taishǐ*'s idealized role, especially when conceptually paired with the *taishǐ*, certainly included oversight of blind experts in the art of the ear:

The *taishǐ* was responsible for the six pitches, the six pipes, and for matching the *yin* and *yang* notes... These were set to words of five [musical] tones... and performed on eight types of instrument: metal, stone, clay, leather, strings, wood, gourds, and bamboo. He taught six types of poem... .In grand sacrifices he led the blind musicians (*gu*) in song... and at great feasts as well. During the great rite of archery he led the blind musicians in singing in the season. The *taishǐ* used copper pitch pipes to listen to omens of victory and defeat in military music. At state funerals he led the blind musicians at the laying out and encoffining. All the blind musicians in the kingdom followed the example of the *taishǐ*.

大師掌六律、六同，以合陰陽之聲……皆文之以五聲……皆播之以八音：金、石、土、革、絲、木、匏、竹。教六詩……祭祀：帥瞽登歌……大饗，亦如之。大射，帥瞽而歌射節。大師，執同律以聽軍聲而詔吉凶。大喪，帥瞽而廞；作柩謚。凡國之瞽矇，正焉。⁴⁵

⁴⁵ *Zhouli*, 2207–2235.

This passage reveals the precise nature of some duties of masters of the aural arts. First was the matter of determining pitch standards (*li*), viewed similarly to fixing weights and measures. Second was teaching the methods for performance of various verse forms, a matter of political importance. Next was the performance of seasonal rituals, such as at a springtime archery festival. As further examined below, predicting and ushering in the start of spring was a matter of special importance for the *shì*. Finally, the *taishì* performed an important oracular function for sending off troops to battle. Zheng Xuan's commentary describes it in greater detail:

A work on military tactics states: "On the day the ruler commanded his armies to set out on a campaign he bestowed bows and arrows on his generals, who rallied the troops. The generals would draw their bows and lead a great cry; the *taishì* would blow on his pitch pipes to match the sound. If the sound was 're' then the soldiers were strong and victory was assured; if 'mi' the army was in disarray and lacking in spirit, portending difficulties; if 'do' it indicated a peaceful disposition, meaning the army was of one mind; if 'sol' it indicated the generals were irascible and harried, the soldiers exhausted; if 'la' it indicated the soldiers were weak and lacking in fighting spirit."

兵書曰：「王者行師出軍之日，授將弓矢，士卒振執，將張弓大呼，大師吹律合音。商則戰勝，軍士強；角則軍擾多變，失士心；宮則軍和，士卒同心；徵則將急數怒，軍士勞；羽則兵弱，少威明。」⁴⁶

⁴⁶ *Zhouli*, 2231.

The particular associations of the various scale degrees of tonal music (functioning in the ancient period as a “fixed do” solmization of the sort inscribed on e.g., Marquis Yi of Zeng’s famous bells 曾侯乙編鐘) likely also related to five element theory: “re” (*shang* 商), for example, was associated with the element of metal, and therefore thought to suggest firm resolve on the part of the soldiers crying at such a pitch.⁴⁷ “Five (musical) tones” (*wuyin* 五音 or *wusheng* 五聲) were selected from among the twelve pitches as part of the process of “regulating” natural sounds (*shēng*), including the sounds of nature and human speech.⁴⁸ In the cosmic order of the *Rites* and its commentaries, therefore, the “tone” of warriors’ voices reflected something of their collective mental state and it was the responsibility of the royal music masters to interpret such signs.⁴⁹ The association of musical tone and pitch regulation (*rut* 律) with military command (*s-ruts* 帥), the importance assigned to military music and dance, as well as the generally greater coincidence, in the Western Zhou ritual system, of high civil and military authority may further explain the ancient semantic range of *taishī* as military commander, music teacher, and/or royal tutor/regent.⁵⁰

Among those led in performance by the *taishī* were blind performers referred to by terms like *gu* 瞽, *sou* 瞍, and *meng* 矇. According to Zheng Zhong’s 鄭眾 (1st c. AD) commentary on the *Rites of Zhou*, *meng* referred to those whose eyes could open and close but not see clearly, *sou* referred to those whose eyes had no pupils or were otherwise deformed, and *gu* referred to those with no eyeballs.⁵¹ The *gu*’s visual impairment was considered “deeper” or more complete than that of the *sou*, and the *sou*’s blindness more severe than the *meng*’s. Because the ancient Chinese believed that the

⁴⁷ See *ibid.*

⁴⁸ See Wang, “Yue, yin, sheng sanfen”

⁴⁹ In a similar story music master Kuang is able to predict the movements of enemy armies by the sounds of crows’ cawing. See *Zuoqibuan*, 1052–53.

⁵⁰ See Huang, “Rise and Fall,” 17–22.

⁵¹ See *Zhouli*, 1524.

blind possessed keener hearing and other sense perceptions than the sighted (an idea partially supported by some neurological studies⁵²), the logical conclusion was that *gu*, *sou*, and *meng* should have stronger powers of aural (and perhaps also olfactory and haptic) perception than sighted people, and in that order. The *Guoyu* 國語 (Discourses of the States), for example, records the following procedure for the Zhou court:

Thus, when the Son of Heaven held court [literally, “listened on matters of state”], he commanded the assembled peerage, high and low, to present poems. The *gu* presented the melodies (*qu*), the *shi* presented historical records, the *shi* presented policy recommendations, the *sou* rhapsodized (*fu*), and the *meng* chanted (*song*). The assembled masters remonstrated and transmitted the words of the multitudes. Those close to the sovereign kept careful watch with help from the royal clan. The *gu* and the *shi* taught these lessons and the elders refined them. With such due process did the sovereign weigh and ponder matters and conduct affairs without error.

故天子聽政，使公卿至於列士獻詩，瞽獻曲，史獻書，師箴，瞽賦，矇誦，百工諫，庶人傳語，近臣盡規，親戚補察，瞽史教誨，耆艾修之，而後王斟酌焉，是以事行而不悖。⁵³

Wang Xiaodun argues that *qu* 曲 (literally “twist” or “bent”) here implies melodies for singing (*gequ* 歌曲), while both *fu* and *song* were types of chanting, though the precise meanings of all these terms

⁵² See e.g., Gougoux et al., “Sound Localization.”

⁵³ Lai, *Guoyu zhijie*, 12.

changed between the Zhou and Han Dynasties and are difficult to know with precision.⁵⁴ Proper performance of the twisting and turning melodies of *qu*, which, by the Han, may have included folk songs collected by the Music Bureau (*yuefu* 樂府) may have been more musically demanding than chanting, and therefore entrusted to the *gu*, whose blindness was “total.” Among the two types of chanting, *fu* may have mixed elite and vernacular or dialect-type registers while *song* 誦 (OC s-
lɔŋh/sə-
l]oŋ-s, another possible homonym of *tong* 通 or *cong* 聰) consisted of purely formal language and may have been more straightforward.⁵⁵ Thus, the more demanding form of chanting may have been entrusted to the *son*, while the most straightforward form could be trusted to the *meng*, whose visual impairment was least.

Gu, homophonous with and originally written with the same character as “drum” (kaʔ/[k]ʰaʔ 鼓), was also the name of a god or patron saint of musicians and teachers of all kinds (Shengu 神瞽 or Guzong 瞽宗).⁵⁶ Zheng Xuan suggests that the homophony of “drum” and “blind musician” owed to the appearance of the latter’s eyelids, but the simple association with drum playing seems sufficient explanation, with “drum” often construed quite broadly to include such percussion instruments as lithophones and bells.⁵⁷ The total number of blind performers prescribed by the *Rites of Zhou* was substantial: roughly three hundred and six blind performers of various ranks, along with three hundred sighted performers/assistants (*shiliao* 眡瞭) of inferior rank.⁵⁸ The *Analects* indicates that Confucius treated *gu* with reverence, even those his junior, hinting that such musicians may have

⁵⁴ See Wang, *Zaoqi yishu*, “Shi yan zhi chuantong.”

⁵⁵ See Wang, *Zaoqi yishu*.

⁵⁶ See Sterckx, *Food, Sacrifice, and Sagehood*, 198–199.

⁵⁷ On the categorization of blind musicians see *Zhouli*, 1524. On the wide variety of “drums” in ancient China see Furniss, *Music in Ancient China*, 21–62.

⁵⁸ See *Zhouli*, 1524.

enjoyed higher social status than in later periods, when they frequently belonged to hereditary debased classes.⁵⁹

The above idealized description (part of an argument urging an intransigent ruler not to violently suppress dissenting opinion) is one in which the Son of Heaven enjoys the absolute authority due to him, yet was prevented from error by the literal and metaphoric watchfulness (and listening) of a great variety of helpers, including the royal family, the peerage, ministers, and experts in visual and aural perception and cognition (*shǐ* and *shì*). These latter two groups played important roles in the process of collecting, composing, and performing remonstrations of various kinds, including those believed to come from the common people. Though the ruler was surrounded by fact-finders, record keepers, and sensory experts, it was also necessary to protect his senses from fixing, myopically, on improper objects, including overly emotive music: in addition to silk earplugs worn on certain occasions, the pearl curtain (*liu 旒*) hanging from his crown symbolized such a need, in addition to an idealized inscrutability.⁶⁰ Of course, blindness was not always a virtue: the sage king Shun 舜 was said to have had two pupils in each eye, while his father was an immoral blind man called Gusou 瞽瞍.⁶¹ Yet this same story supports an idea, similar to the myth of Odin, that blindness was a price one could pay in exchange for increased perception of another kind, or, in this case, that a son could enjoy a double portion of literal and ethical vision as heavenly compensation

⁵⁹ See Sterckx, *Food, Sacrifice, and Sagehood*, 200.

⁶⁰ In one such story Duke Ping brings ruin on his land by insisting on hearing more and more “moving” (悲) music against the advice of music master Kuang. His statement “I am old and music is what I love” 寡人老矣，所好者音也 seems ominous in the context (Han, *Han Feizi*, 207). See also Brindley, *Politics of Harmony*, 25–42. On methods for protecting the ruler’s senses see Sterckx, *Food, Sacrifice, and Sagehood*, 191–195. On the ruler’s need for inscrutability see the “Establishing the Originating Spirit” 立元神 (Li yuanshen) chapter of Dong Zhongshu’s 董仲舒 *Luxuriant Gems of the Spring and Autumn* (*Chunqiu fanlu* 春秋繁露).

⁶¹ See Sterckx, *Food, Sacrifice, and Sagehood*, 196.

for his father's lack. A similar logic arguably motivated "grand *shi*" Sima Qian to accept the loss of his reproductive ability as the price of an opportunity to leave his father's histories to posterity.⁶²

As many historically submitted to castration to serve imperial households, it seems likely that some chose to intentionally damage their eyes for the possibility of employment or advancement as "masters of the ear." In one famous example, a *shi* named Kuang 曠, addressed as *taishi* in a few texts like *Han Fei zi* 韓非子, was said to have damaged his eyes in order to focus his attention more deeply on matters of calendar creation and pitch differentiation.⁶³ The *Zhuangzi* describes him as a *gu* of the sort whose preternatural authority on matters of the ear prevented commoners from exercising their own, natural perceptive abilities.⁶⁴ Of course, those with damaged eyes were far more common in the ancient period. Guo Moruo argues, for example, that the character *min* 民 originally meant "slave" and depicted a blade piercing an eye, as victors sometimes marked prisoners of war.⁶⁵ Part of the legend of Kuang blinding himself may have been the idea of willing sacrifice in pursuit of the arts of the ear, which may have contrasted with the plight of the slaves and prisoners of war from whose number many of the ritually required blind musicians may have been drawn.

Music as Tool for Scientific Investigation

Even when performed by the blind, there were certain rituals that required the dark (and quiet) of night or a sealed room (free from breezes) for their proper performance. For example, the *Records of the Historian* records the following ceremony performed by the Han court:

⁶² See Durrant, *Cloudy Mirror*.

⁶³ See Wang Jia, *Shiyi ji*, 78. Older versions indicate he was born blind.

⁶⁴ See Zhuang, *Zhuangzi*, 150.

⁶⁵ See Cao and Su, *Hanzhi xingyi fenxi*, 368.

The royal clan of the Han traditionally performed a sacrifice to the spirit of the imperial star in the Sweet Spring Palace on the first *xin* day of the first month of the New Year. The nighttime sacrifice began in the evening and continued on until dawn. Often would a shooting star pass above the sacrificial altar. Seventy serving boys and seventy serving girls would sing in unison. In the spring they sang “Clear and Bright,” in the summer “Vermillion Light,” in the Autumn “Spirit of the West,” and in the winter “Spirit of the Dark.”

漢家常以正月上辛祠太一甘泉，以昏時夜祠，到明而終。常有流星經於祠壇上。使僮男僮女七十人俱歌。春歌青陽，夏歌朱明，秋歌西暉，冬歌玄冥。⁶⁶

The mention of stars and comets (the “imperial star” Taiyi 太一 corresponded to Ursa Major β or Chinese “Northern Dipper’s Second Star” 北斗二) suggests that at least part of the reason the ritual was conducted at night was because that was when stars were visible. Though Sima Qian describes a contemporary (Han Dynasty) practice, similar practices dated back to the Qin and arguably even to the Shang.⁶⁷ Not only was nighttime singing or chanting an important aspect of seasonal rites, it may have been an everyday affair: both the *Book of the Han* and the *Book of the Later Han* mention the sounds of blind masters chanting collected poems or folk songs at night (*cai shi ye song* 采詩夜誦).⁶⁸ This, in turn, may reflect a more general notion that spirits were easier to perceive or communicate with at night, or even that their descent to the mortal realm heralded or brought on the night. The

⁶⁶ Sima, *Shiji*, 1344.

⁶⁷ See Ding and Yang, *Xinbu jianbo*, 8–15

⁶⁸ Sima, *Hou Hanshu*, 854.

Lisao describes it: “Wu Xian [ancestral spirit of shamans] was about to descend in the evening... The Many spirits all descended darkening the sky” 巫咸將夕降兮……百神翳其備降兮。⁶⁹

Singing through the night was an important part of seasonal change. As mentioned above, the *gu* had a special role to play in the arrival of spring in particular, an event heralded by a special “wind” called the *xiefēng* 協風/協風 or *junfēng* 俊風. The *Discourses of the States* describes a traditional procedure:

Five days [before the start of spring], the *gu* announced that the harmonious wind (*xiefēng*) had arrived. The ruler then sequestered himself in the Palace of Fasting, attended by the myriad ministers, all of whom underwent three days of fasting... The grand *shi* then led the way, the ruler following reverently behind. The ruler then plowed one small furrow of earth himself... On this day, the leader of the *gu* and the other music ministers performed the “airing of the soil.”

先時五日，瞽告有協風至，王即齋宮，百官御事，各即其齋三日……太史贊王，王敬從之。王耕一墾……是日也，瞽帥、音官以風土。⁷⁰

“Harmonious” (*xie* 協) as a descriptor of warm winds from the east appears in Shang oracle bones.⁷¹

The ability to hear the “harmonious wind” which heralded the spring, in turn, was associated with ancient sages and the ability to bring forth life: an ancestor of Sage King Shun, Yu Mu 虞幕 was said

⁶⁹ Sukhu 2012: 36.

⁷⁰ Lai, *Guoyu zhijie*, 24.

⁷¹ See Zheng, “Shangdai buci.”

to have had this ability, presumably only possible for specialists in historical times.⁷² The process of “airing the soil” (*fēngtǔ* 風土) established whether “the soil vapors were sufficiently harmonious to produce bountiful crops.”⁷³ Wei Zhao 韋昭 (3rd c.) comments that “airing the soil” meant to investigate the quality of the soil using pitch pipes 以音律省風土. It is conceivable that the temperature and moisture content of the soil could affect its ability to transmit sound, therefore possibly reflecting something of the prospects for a new planting season.

Listening for winds and using pitch pipes to hear the vibrational qualities of the soil amounted to a kind of calendrical practice, but one unrelated to the astronomical observation conducted by the *shì* (who also used visual observation of the earth, called *mitu* 覘土, to help predict the start of spring). There were other calendar-making practices carried out by the blind and/or in sealed, dark rooms, suggesting the existence of calendar-making and meteorology of a sort now largely lost. The *Book of the Later Han* describes the following unusual method, called “watching” or “awaiting the *qi*” (*houqi* 候氣):

The *qi* of Heaven manifests through light and shadow, while the *qi* of Earth manifests through vibrations—that is, pitch (*lǜ*)... At the winter solstice the *yang qi* begins to move, the musical pitches are high and clear, the shadows are long, the *huangzhong* pitch is penetrating, and the dusts (*hu*) of the earth begin to rise... The method for awaiting the [seasonal] *qi* requires building a room with three concentric walls, doors closed, crevices thoroughly sealed, and heavy felt blankets laid all around. Within the room are wooden stands with a pipe for each pitch, arranged in accordance with the points on the compass, outsides raised

⁷² See *ibid.*, 741.

⁷³ Sterckx, *Food, Sacrifice, and Sagehood*, 199.

and insides low [sitting in the earth]. Reed ashes (*hui*) are poured to fill the inner ends of the pipes, which are observed for their correspondence with the calendar. When the *qi* [of a particular season] arrives the ashes fly out of the corresponding tube. If moved by the *qi*, the ashes disperse, but if moved by wind or human hand they collect. In the palace twelve pipes of jade were used and the waiting only carried out for the two solstices. At the Spirit Terrace (royal observatory) sixty pipes of bamboo were watched according to the dates of the calendar.

天效以景，地效以響，即律也……冬至陽氣應，則樂均清，景長極，黃鍾通，土灰輕而衡仰……候氣之法，為室三重，戶閉，塗墾必周，密布緹縵。室中以木為案，每律各一，內庫外高，從其方位，加律其上，以葭葶灰抑其內端，案曆而候之。氣至者灰（動）。其為氣所動者其灰散，人及風所動者其灰聚。殿中候，用玉律十二，惟二至乃候。靈臺用竹律六十。候日如其曆[律]。⁷⁴

Because of the Han Dynasty belief in a cosmic resonance between e.g., the seasons of the year and the frequencies of musical pitches, this sort of procedure served a dual purpose: insofar as the pitch pipes were believed accurate, the rate at which the natural *qi* of the earth caused ashes to fly out of them (in absence of any outside wind) could signal the arrival of a new season. Insofar as the goal was to find those harmonious pitches that corresponded to the natural rhythms of the earth, conversely, the timing of the ashes' dispersal could indicate something of the fidelity of the pitch standards. We have here emended the punctuation of the final two lines and included a different

⁷⁴ Sima, *Hou Hanshu*, 3016.

possible interpretation in brackets as suggested by Bodde⁷⁵—namely that the waiting could have been conducted in accordance with the dates dictated by the theory of the pitch pipes rather than the dates of the calendar. However, this ambiguity likely exists because of the perceived bidirectional influence of *qi* and musical pitch (*li*): if the pipes are known to be correct, then one can determine the calendar by waiting for the ashes; if one knows with precision when the seasonal changes should occur, then that information may theoretically determine the proper pitches for the pipes.

The above description, recorded in the *Book of the Later Han* is attributed to musicologist Cai Yong 蔡邕 (133–192), who included additional information on his comments on the *Book of Rites*’ “Monthly Ordinances” 月令(Yueling):

The ancients used their ears to fix the pitches of pipes and bells. Later this ability was lost and so mathematical calculations were used to correct the tuning. If the calculations are correct then the sound will be pure. Using mathematical calculations allows one to use writing to disseminate the proper tunings among the people. However, it is still inferior to using the ear to tune.

古之為鍾律者，以耳齊其聲。後不能，則假數以正其度，度數正則音亦正矣……
以度量者可以文載口傳與眾共知，然不如耳決之明也。⁷⁶

Thus there was a sense among commentators of the Eastern Han, like Cai Yong, that an art of using just the ear to find proper tunings had once existed but was lost, leaving belated musicologists to

⁷⁵ Bodde, “Chinese Cosmic Magic,” 357.

⁷⁶ Sima, *Hou Hanshu*, 3016–7.

rely on mathematical calculations, like the *sanfen sunyi* 三分損益 (multiplying and dividing by thirds) method used to derive a Pythagorean-type pentatonic scale of twelve chromatic pitches no later than the late Warring States period. In fact, from the earliest attested stages of Chinese civilization people were using tools to keep tune. For example, a type of clay ocarina (*xun* 埙) with only one finger hole (and therefore capable of easily producing only two pitches) has been found at the Banpo 半坡 archeological site (5th–4th millennium, BC). Such an instrument would be quite lacking in versatility for musical performance and was therefore more likely used as a pitch reference. Similarly, mythological creator figures Fuxi 伏羲 and Nüwa 女媧, credited with “measuring the heavens” and “separating *yin* and *yang*” are sometimes depicted holding musical instruments, like a set of pan pipes, in addition to other tools of measurement like a compass or carpenter’s square.⁷⁷ However, it may have been the perception and/or reality that, prior to the Warring States period, the determination of such standards (for example, how to make an ocarina to measure the standard for a particular note) relied primarily, if not entirely, on the subjective appraisal of those deemed talented in “arts of the ear,” rather than predetermined ratios.

The problem with using mathematical formulae to establish a tuning system is that it was inherently impossible to find any one system to satisfy the expectation of natural perfection implied by the correlative worldview. The Pythagorean circle of fifths (*sanfen sunyi*) method does not “arrive” where it started.⁷⁸ Generations of Chinese and Western musicians and theorists have responded to this problem, in Chinese called “going but not returning” 往而不返, by attempting various adjustments (temperaments), with Ming Prince Zhu Zaiyu 朱載堉 finally performing the complex

⁷⁷ See Niu, “Sichuan Fuxi Nüwa huaxiang”

⁷⁸ That is, one may derive the full chromatic scale of twelve pitches by progressing in pure “fifth” (3:2 ratio) intervals (C, G, D, A, E...), but without “tempering” (slightly adjusting the notes relative to their “pure” ratios) of some kind, the notes never return to precise unison with where they began. See Duffin, *Equal Temperament*.

calculations necessary for the “equal temperament” that dominates practice today.⁷⁹ One much older response to the problem is so-called “Just intonation”: to use only pure intervals (notes that fit together in such perfect mathematical ratios as to not produce any extra pulsation “noise” in excess of the harmony⁸⁰). This would likely have seemed the most “natural” to the ancient Chinese ear (or any ear); in fact, if a musician today attempts to e.g., set frets for a string instrument by ear alone, the result for any given interval will likely be closer to Just intonation than equal temperament. The problem with Just intonation is that it can only be consistently practiced by a human voice or other instrument that allow for instantaneous adjustment, since there is no single fixed tuning that allows all intervals to sound pure: the human voice is, in fact, able to achieve a musical feat no inflexible tuning system can—namely, perfect harmony for every interval.

An oft-repeated quote attributed to Tao Qian 陶潛 claims “the strings cannot compare to the bamboo and the bamboo cannot compare to the flesh... [because] each is closer to nature than the last” 絲不如竹竹不肉……漸近自然.⁸¹ This is usually interpreted to imply that sounds produced by the human lungs and voice box are more “natural” than sounds produced by the human lungs with aid of an instrument, which are more “natural” than music produced by plucking or strumming something external to the body. But part of the reason for the assumption of greater “naturalness” on the part of the human voice may be its greater ability to approximate the sort of perfection imagined to exist in nature, and which no known set of tuning pipes, fret positions, or formulae could perfectly capture. This idea, in turn, may have inspired craftsmen and mythologists to look for ways to capture the natural pitches of e.g., bird calls, as manifest in the legend of Ling

⁷⁹ Though likely slightly ahead of Western counterparts in this respect, equal temperament only came to dominate Chinese music under Western influence of the twentieth century. See Lam, *State Sacrifices*, 85.

⁸⁰ See Duffin, *Equal Temperament*, 33.

⁸¹ Tao, *Tao Yuanming ji*, 171.

Lun 伶倫 crafting pitch pipes to imitate the calls of male and female phoenixes,⁸² or, perhaps, in the selection of crane bones to make flutes found at the Jiahu archeological site 賈湖遺址 (c. 6th to 7th millennium BC).

Of course, it is not likely that waiting for seasonal energies of the earth to vibrate pitch pipes was an effective means of standardizing musical tuning or the calendar; the *houqi* method, perhaps only invented in the 1st c. BC, likely belonged more to the realm of theory than practice, though later generations of scholars periodically attempted to recreate or better explain it.⁸³ Nevertheless, it reflected a belief, foreshadowed by e.g., the *Zhuangzi*'s discussion of strings of similar pitch transmitting vibration to one another,⁸⁴ and reaching full maturity in the Han with commentaries on the *Book of Changes* and Dong Zhongshu's theories of "like moves like" (*tonglei xiang dong* 同類相動), that musical pitch and natural energies, perhaps especially the natural energies of the earth, existed in a tight cosmological relationship with the climate and human body. The times chosen to await the *qi* correspond to the twenty-four "solar nodes" (*ershisi jieqi* 二十四節氣) of the calendar, arriving twice each lunar month and still known by names like "insects awaken" (*jingzhe* 驚蟄), "grain ripens" (*mangzhong* 芒種), "lesser heat" (*xiaoshu* 小暑), and "cold dew" (*hanlu* 寒露). In recorded history these were determined by observation of the lengths of shadows (*ying* 景) cast by sundials. Though still including an important astronomical (solar) component, therefore, the naming and determination of the "twenty four solar nodes" depended heavily on the effects of the sun on the earth (lengthening of shadows, ripening of grains, formation of dew, etc.), as opposed to the position of the sun in the sky per se. Cai Yong (the likely author of the passage collected in the *Book*

⁸² See Lam, *State Sacrifices*, 82.

⁸³ See Bodde, "Chinese Cosmic Magic" and Lam, *State Sacrifices*, 83.

⁸⁴ See Goodman, *Politics of Precision*, 235–236, n. 21.

of the Later Han) explicitly claims that Heaven manifests in light and shadow (that is, visually), while Earth manifests its energies through musical pitches and vibrations.

The calculations for the “solar nodes,” in turn, were related to the so-called “eight winds” (*bafēng* 八風), appearing frequently in descriptions of both climate and pitch standards. Not only was the arrival of spring heralded by a particular “harmonious” wind (*xiefēng*) perceptible to the blind masters, each season of the year had an associated *qi*, with those who could detect it not only able to predict the weather, but even, perhaps, to aid in the smooth transition from one season to the next. The received *Wenzi* 文子 claims: “the transformations of wind and rain may be known by musical pitches” 風雨之變可以音律知也.⁸⁵ The “Record of Music” in the *Book of Rites* states:

When the five colors form orderly patterns and the eight winds carry harmonious pitches, the myriad measurements become regular and predictable. Small and great complement one another, and beginnings give rise to endings and endings to new beginnings. Thus, proper music has the power to clarify human relations, make the eyes bright and the ears clear, harmonize the blood and the *qi*, rectify customs, and bring peace to all under Heaven.

五色成文而不亂，八風從律而不奸，百度得數而有常。小大相成，終始相生。倡和清濁，迭相為經。故樂行而倫清，耳目聰明，血氣和平，移風易俗，天下皆寧。⁸⁶

This idealized picture of harmony of man and nature expressed through musical perfection (including, perhaps, a solution to the problem of “going but not returning” implied by “beginnings

⁸⁵ *Wenzi*, 238.

⁸⁶ *Liji*, 1004.

giving rise to endings...” 終始相生) reflects a conception of musicology less as a means to understand music *qua* art as a way to measure and bring into harmony other aspects of existence. Moreover, in a world of aural knowledge, music could spread wisdom far and wide because of its ability to aid memory: “Music is that by which the airs [*fēng*] of the mountains and rivers are laid open and that by which virtue is made to shine far and wide. Virtue is sung of in airs to make (virtue) go far.”⁸⁷ David Schaberg further notes that Shi Kuang, the famous blind master of the ear to whom the above is attributed, was known for his prodigious memory, in addition to a preternatural ability to perceive patterns in human affairs.⁸⁸

Polysemous *fēng* (winds, airs, folk songs, customs), in turn, was viewed as the origin of the purest, most natural music. The *Huainanzi* 淮南子, for example, describes a progression whereby pitch (*lǜ*) arises from wind, musical tones (*yīn*) arise from (regulation of) pitch, and music finally arises from the arrangements of such tones.⁸⁹ A passage from the *Guoyu* states “Administration... makes a model of music; music derives from harmony, and harmony derives from even tonality. The tones are what give music its harmony, and the pitch-standards are what make tones even.”⁹⁰ In other words, music (which, in its purest form, comes from nature and the people as “airs”) must be harmonious first and foremost, not simply because that is what sounds good, but because only harmonious music can fulfill its proper function of “carrying” words, sounds (and smells) of virtue. To cite a much later but more radical example, The *History of the Song Dynasty* states, “In ancient times the Yellow Emperor created the *yīn* and the *yáng* pitches to examine the *qì* of Heaven and

⁸⁷ Schaberg, *Patterned Past*, 118.

⁸⁸ See *ibid.*, 119–120.

⁸⁹ See Wang, “Yue, yin, sheng sanfen.”

⁹⁰ Schaberg, *Patterned Past*, 113.

Earth” 昔黃帝作律呂，以調陰陽之聲，以候天地之氣。⁹¹ On this account pitch standards were created to measure and control natural phenomena rather than as an element of musical art per se. Although ancient theorists might not have phrased it so starkly, the idea of “natural winds/airs” as prior to pitch measurement, and pitch measurement and tonality as prior to music, was much older, as suggested by the above Warring States and Han Dynasty comments. The *Book of Rites*, for example, relates a story about Sage King Shun inventing a five-string zither to sing about the southern wind.⁹² In other words, music and poetry are judged on their ability to capture the natural harmony present in the pure sounds of nature—warm breezes and bird cries—and transmit their virtues to the masses, rather than on their ability to please the ears of individuals, which may be attracted to dangerously emotive, unorthodox modes and keys.

Conclusions: Musicology as Natural Science

In the Chinese tradition poetry and the authority of the written word often seem to overshadow music and oral transmission. Far more Chinese poets leave their names to history than do composers, for example, with the latter often relegated to the social status of craftsmen or even slaves. When music did not fit poets’ ideals, poets sometimes created new music, or recreated what they imagined old music must have sounded like.⁹³ The past several hundred years of Chinese music have been described as an age of “theatrical” music (*xiqu yinyue* 戲曲音樂) contrasted to e.g., the court music (*yanyue* 燕樂) that dominated the medieval aural landscape.⁹⁴ Such music has conformed to the needs of dramatic forms like *Kunqu* 崑曲 and Beijing opera such that e.g., the prescriptive

⁹¹ Toqto’a and Alutu, *Songsbi*, 1493.

⁹² See *Liji*, 995.

⁹³ See Qian and Schoenberger, “Music, Morality, and Genre.”

⁹⁴ See e.g., Xia, *Xiqu yinyue*.

power of modal categories (*gongdiao* 宮調) has weakened in favor of performer flexibility. A performer playing a different role type, or merely possessed of a different vocal register, may flexibly raise or lower a melody such that relative melodic movements become more important defining characteristics of a piece than the absolute pitches and complex keys and modes ancient and medieval theorists spilled so much ink over. Emphasis on the interface of syllable, melody, rhythm, and, for drama, characterization, now typifies much of traditional Chinese music more than the focus on absolute pitch and harmonic resonance described above.

In a break from ancient musicology as “natural science,” vision-based epistemologies and metaphors have come to dominate scientific inquiry and observation of the natural world in both modern East and West. Musicology today is primarily the study of music as art form—its history and how and why it moves us—rather than a tool to investigate the universe or exert a salutary influence on public morality. Yet consideration of archeological finds and musicological writings suggest that this picture was more evenly balanced in the ancient period, with the oral/aural realm of winds, smells, earthly energies, vibrations, memory, recitation, and music neatly complementing the visual realm of light and shadow, colors, heavenly bodies, writing, and historical records. The experts in these fields, called *shǐ* and *shī*, were described with different vocabularies, the ability to see clearly (*ming*) and recognize virtue when one saw it distinguished from aural perceptiveness (*cong*) and the ability to know wisdom when one heard it. These two groups tended to fall into the sort of *yin-yang* bifurcation that characterized Han Dynasty thought especially, with many of the activities of the blind masters taking place at night, when spirits were thought to draw close. At the same time, one should not mistake the ancient visual masters for masters of objective knowledge and the masters of the arts of the ear as specialists of the spirit and ethereal *qi*. The spiritual and earthly realms were both open to investigation by both visual and aural means. After all, demand for divination may have inspired the earliest written characters, while the blind masters were thought to be able to

perceive substantive facts about the world, such as when spring would arrive, or whether an enemy army had retreated. Similarly the realm of *qi* should not be thought to belong to a purely visual, aural, spiritual, or physical realm, though when visible or tangible it usually had a more rarefied substance, like smoke or fog.

More heavily associated with the arts of the ear specifically was the ancient concept of “winds” or “airs” (*fēng*, OC *pəm/prəm*). This is due, in part, to a related verb for “chant” or “recite” (*fěng*, OC *pəms/prəm-s*) in which a probable “s” suffix corresponding to Middle Chinese departing tone results in an “exoactive” version of the word. “Winds” and “airs” act on the heart-mind and the heart-mind responds by singing or chanting poetry. Because of the conceptual conflation of “winds/airs” and “sing/chant,” as well as a degree of ambiguity in words for smelling and hearing, winds could carry not only memorable “sounds” but the “fragrance” of someone’s virtue. Poetry, folk song, and euphonic phrases, in turn, were a primary medium of such transmission because of their memorable quality and the lack of easy access to written words. The wisdom thus carried across time and distance could be that of a great teacher or sage (a *fēng-s* 聖 with the skill of “listening” *fēng* 聽, and whose “sound/fame” *fēng* 聲 reached many ears) or it could be the voices of the people brought to the attention of the ruler by his masters of the ear.

It was of vital importance, in turn, that the systems of pitch and intonation court musicologists used to give shape to the natural wisdom thus expressed be accurate and harmonious, lest, rather than inspiring peace and virtue, they instead inspire dissolution and defeat. This was made difficult by the impossibility of finding a single tuning system in which all musical intervals perfectly harmonize. Though a flaw in the correlative worldview, this fact still served to reinforce the idea that sound was somehow closer to nature, the earth, and the people than visual knowledge, and that tuning with mathematical formulae could never achieve the perfection of living masters of the

ear, seemingly always in shorter supply than in times past (Ming prince Zhu Zaiyu and Eastern Han musicologist Cai Yong both lament this fact). Yet if the arts of the ear seems perpetually in decline as the written record grows, the conception of music it represents seems to linger on or even gain in strength through the medieval and late imperial periods. A history of the Song Dynasty produced in the Yuan Dynasty explicitly states that pitch regulation was invented to measure the *yin* and *yang qi* of the universe, and many living traditions still emphasize the idea of music as a tool to promote social harmony and stability.⁹⁵ This, in turn, may help explain why the Chinese tradition seems to paradoxically deemphasize music in comparison to poetry while consistently lauding folk songs as the fountainhead of poetry: precisely because the oldest examples of what we might today call “musicology” treat music as a tool to investigate and influence the world in a salutary manner, it was therefore also necessary that music as art should be subsidiary to harmonious tonality, which was subsidiary to accurate pitch standards, which was subsidiary to the perfect voices of nature, sages, and the people they aimed to record and transmit.

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⁹⁵ See Thrasher, *Sizhu Instrumental Music*, 25–51.

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