Journal for the History of Knowledge

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Time and Temporalities in Early Modern Chinese Islam

▼ **SPECIAL ISSUE ARTICLE** in *Entangled Temporalities*

▼ **ABSTRACT** This essay brings to light the intersectionality of Time, Religion and Identity, and the complex relationship with Time and temporality that the history of Islam in China displays. The deeply embedded temporality in Islamic praxis produced expertise in time-making that secured Chinese-Muslims an important place in Chinese society and polity. At the same time, an anxiety arising from the negative effects of the passing of Time prompted Chinese Muslim scholars to come up with methods to negotiate Past, Present and Future and new articulations of Time. This essay focuses on four articulations of Time that materialized throughout the history of Islam in China. The first examines the temporal dimension of Islamic praxis and the inter-fertilization between religion and technologies. The second introduces the philological activities in the sixteenth and seventeenth centuries as a panacea for the loss of the authentic knowledge of the past. The third focuses on Liu Zhi, a prominent Chinese Muslim whose conviction that Time is universal - but can be grasped only through its various local and technical articulations - brought him to employ a matrix system that defined Time through conjunction of dates and natural phenomena. The final part will show how Liu further articulated Time as a teleological construct in his effort to present Islam as relevant and significant for readers in China. It does so by assessing the different temporal registers Liu introduced to position Muhammad and the emergence of Islam as the ultimate and decisive stage of universal Time.

▼ **KEYWORDS** Time; Islam; China; Religion; Astronomy; Practice; Philology; Translation

▼ **ISSUE** Volume 4 (2023)

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Cite this article: Dror Weil, 'Time and Temporalities in Early Modern Chinese Islam', *Journal for the History of Knowledge*, 4 (2023), 53–72 <https://dx.doi.org/10.55283/jhk.12530>

DOI: 10.55283/jhk.12530

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The growing engagement with non-European histories and interest in globalized and globalizing historiographical lenses in recent years has produced a vibrant awareness of the limiting nature of the traditional conceptualizations of Time, temporality, chronology, and even more generally, the way history is read. A series of insightful critiques have pointed to the Eurocentric and modern nation-state biases of many of these traditional conceptual frameworks, and consequently their problematic application to the study of extra-European geographies and the pre-modern periods.[1] More recently, new readings of historical agency, itinerant dynamics of knowledge and cross-cultural commensurabilities, have further urged us to rethink the linearity and singularity of our temporal frameworks.[2]

Hidden between the dominant (hi-)stories of European early modern mercantile and missionary networks and the emergence of an East Asian sinographic sphere, the history of the Muslims in China has only recently begun to receive attention as a unique case of cross-cultural liminality.[3] Living through the multi-cultural landscape of early modern China,[4] Muslims in China experienced a complex relationship with Time and temporality. Their renowned expertise in the astral sciences and the measurement of time secured them an important place in Chinese society and polity. At the same time, the construction of Chinese-Muslim histories consolidated and displayed Chinese Muslims as a distinct social group in China. They emphasized the long duration of their non-conventional religious practices and scholarship to present themselves as adherents to an ancient tradition that developed in parallel and simultaneity with, rather than in opposition to, Confucian teachings, and thus shared similar moral foundations. Yet, they were just as utterly anxious and terrified that the passing of Time would negatively affect the adherence to the proper practice of Islam. They were concerned about the growing distance from what they perceived as the historical sources of authentic Islamic knowledge and correct religious practice, just as they were worried about the infiltration of heterodoxies and that abilities to read texts in their original languages would diminish.

This essay will focus on four different, yet connected, articulations of Time that Chinese-Muslim scholars devised or used to maintain their identities, their livelihoods, and their scholarly production. The first looks at the temporal

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1 For important representatives of this discourse, see Koselleck, *Practice of Conceptual History*; Starn, "The Muddle," 296–307; Chakrabarty, "The Muddle," 663–75; Conrad, *What is Global History?*, 141–62.

2 See Smith, *Entangled Itineraries;* Manning and Owen, *Knowledge in Translation*; and Yoeli-Tlalim, *Reorienting Histories*.

3 On the history of Muslims in China, see Leslie, *Islam in Traditional China* and *The Integration*; Ben-Dor, *Dao of Muhammad*, 1–21; Rossabi, "The Muslims," 251–91; Weil, "Islamicated China" and "Chinese-Muslims as Agents."

4 For the purpose of this essay, and in order to facilitate a global conversation among historians, I use the chrono-label "early modern" to refer to the long period between the thirteenth and late-eighteenth centuries. On the issue of chrono-labels in the study of Chinese history see Struve, "Introduction," in Struve, *The Qing Formation*, 1–54, and the various chapters in the same volume.

dimension of Islamic religious life and the ways in which Time and temporality became an object of investigation, as well as a field of expertise. The second looks at the anxiety surrounding the passing of time and the consequent loss of "authentic" knowledge that emerged in the mid-sixteenth century and generated intellectual responses in the form of philology and translation. While those practicing philology and those advocating translation shared the same fear of time and the hope to overcome it, they differed in their strategies. The next two registers come out of a work compiled by Liu Zhi 劉智 (1660–1730), a prominent Chinese-Muslim scholar, on the life of the Prophet Muhammad. The third articulation came out of an attempt to situate human experience, in particular the events surrounding the emergence of the Prophet Muhammad, in a universally coherent fashion. Liu Zhi suggests that the concept of Time as a universal unity can be grasped only through its various local and technical articulations. He therefore divides time into three temporal sections. He defines each section by a matrix of different calendrical systems. The fourth articulation also comes from Liu Zhi's book and presents a teleological view of Time. Liu Zhi introduces four different temporal registers, and positions Muhammad and the emergence of Islam as the ultimate and decisive stage of all four. He uses such teleology to present Islam as the apex and nexus of universal existence.

Practical Time, Timely Practice

The conspicuous temporal dimension of Islamic religious life articulates Time through its practical application in rites and rituals. Recognizing the centrality of Time for religious practice prompted the search for proper methods to establish and measure time. Accuracy in the observation of astral bodies' movements was perceived as the standard for measuring time. Various practicalities and techniques, such as tables for timekeeping by astral movements and for regulating the times of prayer, arithmetical shadow-schemes for time-reckoning, and the application of sundials, grew out of these religious needs and developed into fully-fledged theories of Time which spread across the medieval and early modern Islamicate world.[5] As part of the global movement of knowledge and populations, astral and mathematical applications that had developed out of this search for temporal accuracy were taken out of their Islamic religious contexts and populated scientific discourses around the medieval and early modern world.

The determination of the dates and times of rituals has been a fundamental aspect of Islamic practice. The accurate performance of the five daily prayers,

5 For a comprehensive survey of such techniques and instruments, see King, *Call of the Muezzin* and *Instruments of Mass Calculation*. For the application of these methods in China, see also Weil, "Chinese-Muslims as Agents."

the announcement of the beginning and conclusion of the twelve months of the Islamic lunar calendar, and, in particular, the beginning and conclusion of the month of Ramadan and of daily fasting throughout that month, require the exactitude of timekeeping. These practical Islamic necessities[6] gave rise to the creation of theories and methods of temporality and measurement and constituted the context under which the astral and mathematical sciences flourished in the medieval and early modern periods. This scientific branch of scholarship received the name *'ilm al-mīqāt* ("The Science of Timekeeping").[7]

Global interests in dating and timing natural phenomena facilitated the transfer of the expertise of Islamicate astral and mathematical sciences to other parts of the world. The Mongol conquest of Asia in the thirteenth century materialized extensive movement of populations across Asia. This included the movement of experts in the astral and mathematical sciences, medicine, and engineering, together with their texts, instruments, and theories, to serve at the Mongol courts. These experts were recruited to render various services of timing and calculation of natural phenomena for the Mongol courts. In the case of China, astral and mathematical experts from the Islamicate world were transferred to the Yuan court to take up office in imperial bureaus. They ushered in a new era of Islamicate presence in Chinese astral institutions which lasted, with very little change, well into the late-seventeenth century.[8] They were tasked with the timing of astral phenomena—a central aspect of China's traditional political ideology that was implemented in the form of calendric systems (in Chinese *lixue* 曆學)—and astrological interpretation of these timed phenomena (in Chinese *tianwen* 天文). For that purpose, these experts produced tables of astral movements based on observation and prediction.[9] At a practical level, these foreign experts needed to come up with epistemic and methodological adjustments to reconcile the theoretical gaps between pre-existing Chinese astral theories and those imported from the Islamicate world. The chronicles of the Yuan dynasty tell us of the arrival in China of Jamāl al-Dīn (In Chinese sources: Zha-ma-lu-ding 扎馬魯丁, fl. ca. 1255–1291), an astronomer at the Ilkhanid court who was instrumental in the establishment of the Marāgha Observatory. He arrived at the Yuan court in 1267 to supervise the construction of the imperial observatory, bringing with him texts and instruments to observe and time astronomical movements such as an armillary sphere, parallactic ruler, sundials, an astrolabe and the like.[10] The non-Chinese

6 Similar necessities existed in Jewish, Christian and Zoroastrian communities within the Islamicate world and beyond.

7 On timekeeping, astronomical time and the astral sciences in Islam, see King, *Call of the Muezzin*; King, "Between Europe," 55–66; and Brentjes, *Teaching*, 77–90, 243–47.

8 On the role of Muslims in Chinese astral institutions, see Shi and Zhu, "Calculating," 311–35; Van Dalen, "Islamic and Chinese Astronomy," 327–56.

9 See Van Dalen, "Islamic Astronomical Tables."

10 See Hartner, "Astronomical Instruments"; Van Dalen, "The Activities," 24; and Weil, "The Fourteenth," 265.

textual base, instruments, technologies, and other forms of tacit knowledge upon which much of this expertise was based, maintained the presence of Muslims at the Chinese court. It also ensured a close exchange between astral knowledge at the Chinese court and in local Islamic communities up to the seventeenth century.[11]

The socio-political changes initiated by the demise of the Mongol and rise of the Ming dynasty in the mid-fourteenth century changed the way Islamicate methods of dating and timing were accommodated at the Chinese court, just as it affected the nature of Muslims' presence in China. Early Ming policies pushed the segregated Muslim communities in China towards integration into local Chinese communities, or as Donald Leslie aptly defined it, they transformed "Muslims in China" into "Chinese-Muslims."[12] The integration of scientific and technical knowledge took the form of translation and re-organization of the imperial institutions. The Ming court commissioned translations of Arabic and Persian works on computation and timing of astral phenomena, and methods of interpreting these timed phenomena, into Chinese. The Islamic calendar—a lunar system of twelve months with the System Origin set to the first year of the *Hijra* (Prophet Muhammad's migration from Mecca to Medina in 1 AH or 622 CE)[13]—was officially endorsed by the Ming court as an auxiliary to the calculation of the official imperial calendar and continued to serve as such throughout the Ming period (1368–1644) and into the early Qing (1644–1911) period (called in Chinese *Huihui li* 回回曆 "Arabo-Persian Calendar").[14] The unique features of the Islamic calendar—namely the astronomical system of non-intercalary twelve lunar months—produced a calculation error in determining the corresponding Chinese historical reign date of the *Hijra*. Consequently, some Islamic historical events were wrongly dated and recorded in Chinese texts and the collective historical memory of Chinese-Muslims.[15]

Activities of timekeeping and observations of astral phenomena were not purely reserved for the imperial court. They also played a central role in the activities and discourses of China's Islamic communities. The application of multiple methods to determine time—from the observation with the naked eye of astronomical movements to mathematical computation of datasets—raised concerns among the more pious schools of Chinese-Muslims over the religious adequacy of these methods. These concerns represented a growing epistemic anxiety among Chinese-Muslims that the passing of time brings with it the loss of authentic knowledge and the contamination of proper practice

11 Weil, "Chinese-Muslims as Agents," 116–38.

12 Leslie, *The Integration*, 27.

13 In process of adjusting the Islamic calendar to the use of the Ming court, a wrong calculation was made, and erroneously set the System Origin to the *jiwei* year of Sui dynasty's Kaihuang reign (= 584 CE).

14 On that, see Shi, "Islamic Astronomy," 41–61, and Shi and Zhu, "Calculating," 311–35.

15 On the wrong dating of the Hijra, and the subsequent erroneous dating of the arrival of Islam in China, see Weil, *The Vicissitudes*, 66, 210, 227.

with foreign, non-Islamic elements. This anxiety found expression in stelae which were erected in visible parts of community mosques and engraved with Arabic and Persian quotes from authoritative works on the proper methods of timing.[16] These usually maintained a strong opposition to mathematical calculations and insisted on the need to observe astronomical movements with the naked eye to determine the beginning and conclusion of the month of Ramadan. This anxiety was also recorded in community chronicles and histories, commemorating the heated debates among community leaders about the ways in which time should be assessed accurately.[17] Here, as well, the view that time could be derived from the mathematical manipulation of statistical datasets was defeated by a stern conservative approach to the unmediated observation of relevant astronomical phenomena.

This epistemic anxiety of loss produced movements among Chinese-Muslims that aspired to preserve authentic knowledge by reconnecting it with its original sources. In particular, a movement that called for the collection and scrutinization of Arabic and Persian texts in the mid-sixteenth century, which will be further discussed in the next section, was a manifestation of the movement to resist time-induced loss of authentic knowledge. Moreover, this anxiety that the passing of time would corrupt the adequate form of Islamic practice compelled Chinese-Muslims to compile various manuals and treatises aiming to withstand the corruptive effects of time by putting instructions for proper practice in writing and pressing it in ink. Islamic practice and its proper temporal alignment were accordingly articulated in writing to guard against their corrosion by time.

The works of Liu Zhi, one of the most prolific authors among the Chinese-Muslim scholars of the late-seventeenth and early-eighteenth centuries, whose works will be the focus of the next sections, found it crucial to protect Islamic ethics and orthopraxy from the detrimental effects of time. Liu's work titled "Selected Commentaries on Islamic Rites and Etiquette" (*Tianfang dianli zeyao jie* 天方典禮擇要解), lays out the various norms and social etiquettes he deemed authentic and proper. Within the philosophical framework of Liu Zhi's works, the correct practice of timely rites represents a nexus between the physical and metaphysical realms, between the heart-mind of the individual and the unfolding of the natural world. As such, the timely performance of rites is as important as the timely occurrence of a natural phenomenon.

An articulation of the strong relationship between temporality and Islamic practice is found in "The Five Lunar Watches" (*Wujingyue* 五更月), a short, versed theological essay Liu published in the first decade of the eighteenth century. In this essay, Liu builds a correspondence between gradation of religious devotion and the concept of Time as represented by the night's five watches (in Chinese *wujing* or *wugeng* 五更). The cosmological framework

16 Weil, "Chinese-Muslims as Agents," 127, and Huart, "Inscriptions arabes et persanes," 261–320.
17 Weil, "Chinese-Muslims as Agents," 126–27.

that underlies this poem exhibits the synthetic nature of Liu Zhi's philosophy of nature, including his view of the concept of Time. The Lunar Watches that Liu Zhi describes as loci in the progression of time resemble the Sufi concept of Stations (in Arabic, *Maqāmāt*). In Sufi theology, Stations are stages in the movement of a believer towards the Divine and are often seen as part of a progressive movement towards the unification of the believer with Allah. Liu's essay, however, alludes to a cyclical movement of Time. Chinese philosophy emphasizes the cyclical changing of natural phenomena which seems to stand at the core of Liu's conception of Time. Each of the Five Watches is divided into three states—beginning, middle and end—amounting to fifteen different states of the moon. The Chinese view of temporality is based on the definition of a year as a series of twenty-four units of time (in Chinese, *jieqi* 節氣), that is a new *jieqi* appears every fifteen days, representing the relative positions of the Sun and the Moon and the corresponding changes in the natural world. This traditional Chinese view of temporality often links such astronomical movements with agricultural activities. Liu Zhi, however, constructs a correspondence between astral positions and the progress of religious devotion. Liu Zhi's fifteen states of the moon seem to allude to the circular progress starting from a generation of a *jieqi*, followed by its demise and then again, a re-generation of a new *jieqi*. Liu thus connects these timely changes of the natural world with the routine of Islamic practice and provides a definition for temporality that is based on the intersection between religious practice and natural phenomena.

Philology as a Panacea

An anxiety over the passing of Time and the consequent loss of "authentic" knowledge–that is, the genuine understanding of Islamic scriptures and the nuanced insights they offered into the structure and operation of the natural world and human society–gave rise in the mid-sixteenth century to an intellectual movement that set Chinese Islam on a new trajectory.[18] Hu Dengzhou, a local Muslim savant from a town in the northern province of Shaanxi, happened on a visitor from Central Asia who introduced to him the Arabic text of al-Ḥarīrī's *Maqāmāt*—a versed narrative about the travels of its protagonist throughout the medieval Islamicate world.[19] Hu was very impressed by the unmediated access to, and the authenticity of, these insights of a medieval author which reading a text in its original Arabic offered. He set his heart on opening a school that could provide training in the reading of Arabic

18 On the Chinese-Islamic philosophy of nature, see Weil, "Unveiling Nature," 47–66; Weil, *The Vicissitudes*, 11–20, 99–126; Murata, *The Sage Learning*, 3–80.

19 On al-Ḥarīrī's *Maqāmāt* and its status in the Islamicate world, see Roxburgh, "In Pursuit of Shadows," 171–212.

and Persian texts and provide students with unmediated access to "authentic truths" embedded in such texts.[20]

Hu's disciples, and their own disciples, continued in their master's footsteps and opened new schools in different parts of China. These schools trained local Chinese students in Arabic and Persian grammar, logic and rhetoric, and equipped them with philological methodologies for the study of texts on Islamic jurisprudence, theology, philosophy of nature and Sufi literature.[21] Within a few decades, this network of schools covered the four corners of the Ming empire, from the Northern provinces of Shaanxi and Hebei through the metropolises of Nanjing and the Lower Delta region and well into the far south-western province of Yunnan. This intellectual emphasis on authenticity, and the philological means by which authenticity could be extracted from a textual scholarship on an Arabic and Persian archive, dramatically changed the intellectual orientation of Chinese Islam and transformed earlier forms of passive reception into active scholarship.[22]

The search for authentic knowledge prompted members of this network to set out on empire-wide journeys, looking for Arabic and Persian manuscripts that had been preserved in private libraries or that were in the possession of foreign visitors.[23] Building an archive of Arabic and Persian texts, they then meticulously studied the texts in their original languages and extracted from their contents various insights on Islamic law, theology, history, and philosophy of nature.[24] For members of this network, philological scrutiny could at once reconstruct the authentic knowledge from the time of the prophet that had been subject to corruption and loss by the passing of time, and, at the same time, pave the way for the further expansion and progression of valid knowledge in the future.[25]

After about a century of philological scholarship to restore authentic Islamic knowledge, some new voices among Chinese-Muslims raised doubts about the efficacy of philology as a method against loss. While philology has its merits in recovering the past, it lacks sufficient tools for sustaining this recovered knowledge over time. Several Chinese-Muslims scholars, in particular in the affluent Jiangnan region, advocated that the proliferation among contemporaries of Islamic knowledge in translation into Chinese and in print, rather than a digging into a text's historical layers within closed classrooms and the copying of it into only a handful of manuscripts, was a more effective

20 More on Hu Dengzhou's motivation and school, see Ben-Dor, *The Dao of Muhammad*, 39–43; Weil, *The Vicissitudes*, 99–126.

21 On their pedagogy and textual archive, see Weil, *The Vicissitudes*, 99–155.

22 See Ben-Dor, *The Dao*; Weil, "Islamicated China," 36–60; Murata, *The Sage Learning*, 3–80.

23 On the records of some of these journeys, see Weil, *The Vicissitudes*, 99–126.

24 An analysis of the genres and texts in this archive, see Weil, *The Vicissitudes*, 127–55; Weil, "Islamicated China," 36–60; Leslie, *Islamic Literature*.

25 This perspective is expressed by Zhao Can 趙燦 (ca. 1662–ca. 1722), a member of this network who compiled a chronology of masters and schools in this network up to his time, in the preface to his work, *The Genealogy of Classical Learning* (*Jingxuexi chuanpu* 經學系傳譜). Zhao, *Jingxue*, 14–15.

solution for time-induced loss of authentic knowledge. They accordingly took their school notes and reading summaries and published them as Chinese books on Islam. This gave rise to a new form of Chinese Islamic scholarship—one that published printed translations of Arabic and Persian texts as well as original treatises by Chinese-Muslim scholars.

The translation of Islamicate knowledge into Chinese was not a mere act of inter-lingual substitution. On the contrary, it entailed bringing across foreign socio-cultural realities and their underlying concepts and worldviews.[26] Concepts such as the Creation of the Universe, Prophecy and Revelation, which are fundamental elements in Islamic worldviews, had to be articulated in ways that the unfamiliar Chinese reader would be able to grasp and appreciate the significance of. Although Chinese notions of cosmogenesis and sagehood appear in Confucian, Buddhist and Daoist texts, these notions, in many cases, are not portrayed as historical events that can be situated within a linear time frame.[27] Indeed, in Islam, an important aspect of these notions is their historicity. That is to say, a Muslim would perceive Creation not only as an a-historical process by which nature came into being, but also as a historical event that took place at a specific time (at the beginning of Time); Muhammad, the Seal of Prophethood, was born in a specific place and time, and his importance to Muslims conjoins his message with his historical biography. Another example of this is the *Hijra*, Muhammad's migration from Mecca to Medina, that is heralded as the onset of Islam as a socio-political entity, and this can be dated to a specific day in the year 622 CE—the date that marks the beginning of the Islamic calendar (the so-called Hijri calendar). In their efforts to convey these foundational Islamic concepts to Chinese readers, Chinese-Muslim translators had to devise forms of articulation that could put across both their philosophical meanings and historicity.[28]

The works of Liu Zhi offer a window into the ways in which Islamic concepts and theories were articulated and presented to local Chinese readers. Growing up in the culturally and intellectually prosperous metropolis of Nanjing during the mid-seventeenth century, Liu had some acquaintance with the writing of Confucian, Daoist, and Buddhist scholars and even the works of the European Jesuits in Chinese. His father, Liu Sanjie 劉三傑, a prominent member of Hu Dengzhou's network, shared with Liu Zhi this anxiety about the loss of authentic Islamic knowledge. He accordingly trained Liu in Arabic and Persian and guided him through Islamic religious literature. Liu Zhi's

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26 On the process of translation, see Petersen, *Interpreting Islam*; Weil, "Unveiling Nature," 47–66; Weil, "Collation and Articulation," 696–704.

27 On the Chinese notions of cosmogenesis and cosmology, see Michael, *The Pristine Dao*; Henderson, *The Development and Decline*. The Chinese-Buddhist notion of Cosmoic eras (*kalpa, jie* 劫) provides a certain temporal framework, yet it does not attempt to historically date the cosmogenic narrative. On *kalpas*, see Silk, *Buddhism in China*.

28 On the articulation of Islam in Chinese, see Murata, *Chinese Gleams*; Murata, *The Sage*; Frankel, *Rectifying*; and Petersen, *Interpreting*.

scholarly upbringing, just as his father's own had bestowed time anxiety upon him, motivated Zhi to take on the mission of translating Islamic philosophy of nature, in its broadest sense, into Chinese. Liu published numerous works, including direct translations of Persian texts into Chinese, manuals of religious practice, and philosophical treatises. His works were read by both Chinese Muslim and non-Muslims scholars, and they enjoyed multiple reprint editions well into the twentieth century.[29]

Among Liu Zhi's various writings, notable are three texts he completed in 1704, 1710 and 1724. With this trilogy, Liu endeavoured to translate what he considered the fundamental Islamic theories on the structure and operation of the natural world: The Cosmos, Human Society and History. Moreover, these three works represent three different temporal modalities and views of Time that underlie Islamic philosophy of nature: the ontological, the ethical and the genealogical. The first work, titled "The Principles of Nature in Islam" (*Tianfang xingli* 天方性理), focused on introducing Islamic cosmological theories, linking the macrocosm with the microcosm, and articulating Islamic Neo-Platonic and Aristotelean theories, through their Islamic theological and Sufi iterations, in Chinese. In that work, Liu Zhi attempts to embed the Islamic notion of creation within the Neo-Confucian cosmological discourse, adding to the latter a temporal dimension.[30]

The second work, titled "Selected Commentaries on Islamic Rites and Etiquette," mentioned in the previous section, provides instructions on the routine norms and Islamic rules of conduct and the requirements surrounding their timely performance. Liu provides explanations for the rationale behind these norms, and in many instances brings out the significant relationship between human behaviour and the world of natural phenomena, whilst making a sincere attempt to reconcile theoretical differences between Chinese and Islamic philosophies.[31]

The last of this trilogy, Liu Zhi's magnum opus, is titled "The year-by-year veritable records of the Ultimate Sage" (*Tianfang zhisheng shilu nianpu* 天方至聖實錄年譜). This massive work is a loose translation of a Persian biography of the prophet Muhammad. The work presents an additional perspective on the philosophy of nature through the prism of the life and actions of Prophet Muhammad, with a clear attempt to go beyond the narrow cultural significance of this and to show its universal relevance and validity. In all three works, Time constitutes an integral component, acting as a guiding concept, or as calibration, in Liu Zhi's attempt to write an overarching philosophy that aims to be both universal and coherent.

29 On Liu Zhi's translation and philosophy of nature, see Weil, "Unveiling Nature."
30 For analysis of this work, see Murata, *The Sage Learning*, and Weil "Unveiling Nature."
31 On Liu Zhi's second work, see Frankel, *Rectifying God's Name*.

The Unity of Time in its Multiplicity

Liu Zhi completed his magnum opus, "The year-by-year veritable records of the Ultimate Sage," in 1724, and described it as a translation of a *tarjuma* (a biographical work) of the Prophet Muhammad. Analysing Liu Zhi's translation shows that he based his translation on a Persian work by Saʿīd al-Dīn b. Masʿūd al-Kāzarūnī (d. 758 AH/1357 AD), carrying the title *Tarjama-i mawlūd-i muṣṭafá* (lit. "the biography of the pure born").[32] The title that Liu Zhi chose for his translation—"Year-by-year veritable records of the Ultimate Sage"—alludes to two well-known Chinese historiographical genres of *shilu* 實錄 (veritable records) and *nianpu* 年譜 (year-by-year chronology). The former is comprised of dated records of the actions and policies of a ruling monarch. These records serve as the main resource for the compilation of dynastical histories (*zhengshi* 正史), and, as their name suggests, they are considered more authoritative than other historiographical texts. Whereas dynastical histories are often compiled by the succeeding dynasty, the *shilu* records are prepared closer to date. *Nianpu* refers to a linear list of year-by-year entries that comprise a biographical sketch of a person of interest and are employed in most cases for dignitaries and only rarely for monarchs. By choosing this title for his translation, Liu Zhi framed the *tarjuma* text along the lines of the two Chinese genres and their temporal settings.

The translation of al-Kāzarūnī's text presented Liu Zhi with various challenges, such as the articulation of terms and names, and explanation of historical contexts which were rather foreign to the common eighteenth-century Chinese reader. One of the most perplexing issues was the issue of how to situate the events and people that al-Kāzarūnī wrote about on a temporal yardstick which could be well grasped by the common Chinese reader. These temporal yardsticks were more than points of reference. Indeed, they carried loaded meanings of temporality and the directionality of history that developed along the history of Arabo-Persian literature and were on al-Kāzarūnī's mind as he wrote the biographical text. Liu Zhi's perplexation is evident in the lengthy preface to his translation (titled *Fanli* 凡例 "Editorial Notes") in which he discloses to the reader the methods he employed in producing his translation. There he also draws the reader's attention to some inherent difficulties in such a translation.

The "Editorial Notes" also include six long paragraphs on the issue of dating. Liu Zhi explains here that the year-by-year chronology (*biannian* 編年) is prepared with an Islamic calendar written in large script on top. These dates are then accompanied by a list of dates of various other calendars appended as comments below. This matrix, Liu explains, provides proof (*kaozheng* 考證) of the fact that societies might be geographically distant but still "operate as if they were based in a single room." In other words, such a matrix of

32 Leslie, *Islamic Literature*, 49–50.

calendars and dates displays, according to Liu Zhi, a certain unity of Time that is articulated in its multiplicity. This notion of the unity of time is intimately linked to Liu Zhi's aim to present Islam through this biography as universally relevant and significant. The unity of Time, according to Liu Zhi's explanation, is concealed by the technicalities of time making that differ between calendrical systems. These systems, Liu asserts, differ in their layouts and their numerical or alphanumerical representations, the methods by which they are calculated and the names of the months and days of the week, the techniques by which they determine the first day of a new month, and the effects of geographical location on observation of celestial bodies. Time is one, yet it is the technologies of assessing and determining time and the employed temporal registers that diversify it.

Liu Zhi chose to present the universality of time by dividing human history into three temporal segments: (1) "Pre-History" that begins with the creation of the universe and ends with the birth of Muhammad (*qi jiangsheng* 起降生); (2) Muhammad's attainment of the divine message (*weisheng* 為聖), the birth of Islam as a religion and the sealing of prophethood; and (3) The Hijra (*qiandu* 遷都)—Muhammad's migration from Mecca to Medina and the emergence of Islam as a socio-political player. These three points of reference, for Liu Zhi, are far more than historical moments, as they carried thick universal and a-historical significance. These three points divide time and provide a framework with which to evaluate human history.

While these three temporal points of reference are universal, grasping them requires the application of temporal technologies. To facilitate this grasping, Liu Zhi defines each point as the conjunction of various dates and events. As Liu Zhi explains in the Editorial Notes, this matrix of calendrical systems and temporal technologies is nothing but a tool to arrive at Time that is universally single. The first point of reference—the birth of the prophet—is defined as the conjunction of "the year of the Elephant [a pre-Islamic Arabic chrono-type]; the second month of the forty-second year of Khusrow Anūshīrwān's reign; that is, the second month of the 822nd year of Alexander's reign; or, the thirteenth day of the eleventh month of the *Bingyin* [the third in the Chinese Sexagenary cycle] year of the Datong reign of the Liang dynasty in the Eastern Lands [here, China]."[33] This moment, Liu Zhi suggests, should also be aligned with the astronomical phenomenon of the Winter solstice.

The second point—the attainment of the divine message—is presented as the conjunction of "the *bingwu* day [the forty-third day in the Chinese Sexagenary cycle], that is, the fortieth year of the Elephant in Islamic chronicles; or, the twentieth year of Khusrow Parviz's reign; or, the 842nd year of Alexander's reign; or, the 916th year of the reign of *Hou-zhe-tu-li-er-ji-zi* [后哲突立而齎子 sic.]; the sixth year of the Kaihuang reign of the Sui dynasty according to the East Calendar; The fourth year of the Zhide reign of the Chen dynasty. In the

33 Liu Zhi, *TFZSSL*, 14:98.

third month – that is, *Rabi' al-awwal* [Islamic month name]; the eighth month in the Eastern Calendar. On the twelfth day, that is the thirteenth day of the Eastern Calendar. In that point of reference, Liu asserts, the Prophet was forty years and thirteen days old, or "fourteen days if using the Eastern calendrical system." This point occurred on a Monday – *Dushanbe* [the Persian word for number]."[34]

The final point—the time of Muhammad's hijra—is defined as the conjunction of "the year *siwei* [the fifty-sixth year in the Chinese Sexagenary cycle]; that is, the fourteenth year of the Prophetic period; or, the thirty-fourth year of Khusrow Parviz's reign; or, the ninth year of Hercules' reign according to the Byzantine calendar; or, the nineteenth year of the Kaihuang reign of the Sui dynasty according to the East Calendar."[35] Moreover, Liu suggests that this historical event happened to take place when the first month of the solar, lunar, Chinese and Byzantine calendars coincided. This occurrence, Liu explains, has to do with the effects of intercalary months added in some lunar systems. He further suggests that the Islamic system takes this point as its System Origin (*liyuan* 歷元, a technical astronomical term), as the point in time according to which the entire calendrical system is calculated. This System Origin, Liu adds, was later taken up by other systems as well, alluding to the endorsement of the Islamic system and the Hijra as the System Origin of the Yuan, Ming, and Qing Chinese courts.

These matrixes show the painstaking efforts which Liu Zhi took in order to situate Islam, present it as universally relevant and make his point about the unity of Time as displayed through the multiplicity of temporal technologies and registers. Moreover, Liu Zhi's matrix of calendars, including the Alexandrian, Persian and Byzantine calendars, brings to light the richness and global coverage of some of the texts in the Chinese-Islamic archive as well as Liu Zhi's genuine attempt to go beyond chronological singularity and offer a multi-cultural framework for history-writing.

Teleological Time

Time, in Liu Zhi's work, functioned as more than a yardstick or a way to situate events and people. Time had directionality and purpose. Liu Zhi's translation of the biography of the Prophet provides an example of the various articulations of Time and its various forms of directionality. The passing of Time, according to this theory, has a certain purpose and should be perceived teleologically. Temporal technologies and registers, such as the ones described in the previous section, place their emphasis on technical yardsticks such as

34 Liu Zhi, *TFZSSL*, 14:120.
35 Liu Zhi, *TFZSSL*, 14:154

System Origins according to which the entire system collaborates.[36] Time as a single abstract concept, however, Liu Zhi suggests, is defined first and foremost by its telos. Thus, Time is best conceptualized as History, in particular the kind that the biography of the Prophet Muhammad presents.

Liu Zhi places the persona of the Prophet Muhammad at the core of Time. This centrality, Liu Zhi suggests, is displayed as the conjunction and telos of four different temporal registers: Genealogical Time (in Chinese *shitong yuanliu* 世統源流 "trajectory of the generational system")[37], Imperial Time (*guotong yuanliu* 國統源流 "trajectory of the imperial system"), Prophetic Time (*daotong yuanliu* 道統源流 "trajectory of the doctrinal system"), and Natural Time (*huatong yuanliu* 化統源流 "trajectory of the system of Change"). The meaning and significance of Time in these four registers are therefore derived from their leading to the birth of Prophet Muhammad.

Genealogical Time articulates Time as a chain of genetic transmission, starting with Adam (in Chinese A-dan 阿丹), the Primordial Patriarch (*chuzu* 初祖). It continues with the biblical genealogy according to its Islamic iteration down to Ibrāhīm (Abraham, in Chinese Yi-bu-la-xin 易卜臘欣) whose given the title of "the Minor Patriarch" (*shaozu* 少祖). It goes on with Ibrāhīm's son, Ismāʿīl (Ishmael, in Chinese Yi-si-ma-yi 易司馬儀) down to al-Naḍr ibn Kināna (in Chinese Na-zu-er 納祖爾), who is described as the patriarch of Muhammad's Arabian tribe of Quraysh, and further down to Hāshim (Ha-shen 哈申), the minor patriarch (*shaozong* 少宗).[38] Liu Zhi explains that this genetic chain spanned fifty generations from Adam to Muhammad, passing on the Divine Spark (*baoguang* 寶光 lit. "Treasured Light"). This passing of the Divine Spark, Liu adds, ceased with the birth of the prophet. The fifty generations that comprise Genealogical Time, Liu asserts, extend over 6130 years.

Imperial Time situates the Prophet Muhammad as the inheritor of the great empires of the ancient world. It comprises Six epochs (*ji* 紀), of which the sixth emerges with Muhammad. Imperial Time begins with Adam, who was the first to receive the divine mandate to establish his rule. Adam and his successors of ten generations up to Nūḥ (Noah, in Chinese: Nu-hai 努海) were all sage kings (*shengwang* 聖王) and constitute the Primordial Epoch (*Kaipi ji* 開闢紀) that extended over 2257 years. This epoch was followed by the Kai-yang epoch (*Kaiyang ji* 開陽紀) that starts with Nūḥ's son, Sām (Shem, in Chinese: San-mu 三穆), whom Liu Zhi identified with a king called Kai-yu-mo 開郁默 (seeming to refer to the legendary founder of the

36 On calendars in the ancient world and their underlying philosophy, see Stern, *Calendars*, and Cullen, *Astronomy*, 1–66.

37 These terms appear as titles for charts that lay out these various articulations of time. See Liu Zhi, *TFZSSL*, 14:77–80.

38 Interestingly, al-Naḍr ibn Kināna is not given a central place in most other Islamic genealogies of the Prophet. Compare with Guillaume, *The Life of Muhammad*, 41. On the genealogies of the Prophet Muhammad and the genre of *Nasab*, see Szombathy, "Genealogy," and Robinson, *Marriage*, 43–81.

Pīshdādiyān Persian dynasty, Keyumars (Kuyūmarth). This epoch concludes with the eleventh ruler in that chain, whom Liu Zhi calls Sha-xi 沙息. The third epoch, *Shikang ji* 世康紀, begins with Kai-gu 開古 (seeming to stand for Kayqubbād, the legendary founder of the Persian Kayānyān dynasty) and concludes with Alexander (in Chinese Xi-kan-de 西刊德), the fourteenth ruler in that epoch. Next is the Handan Epoch (*Handan ji* 韓丹紀), beginning with Ashk (A-shi-ke 阿氏克) and ending with Ardwān (E-er-te 額爾忒). The penultimate epoch, *Samang ji* 灑茫紀, begins with Ardashīr (E-er-de-shi 額爾德施) and concludes with Anūshirwān (Nu-shi 努氏).[39] The final epoch, which Liu Zhi calls the Arabic Epoch (*A-er-bi ji* 阿爾壁紀), begins with the emergence of Muhammad. Muhammad is thus portrayed as the final successor of the great empires of the ancient world.

Prophetic Time perceives Time from the creation of the universe to the birth of Muhammad through the chain of transmission of this Prophetic Knowledge. Liu Zhi translated the concept of Prophetic Knowledge using the loaded Chinese term *Daotong* 道統 ("The System of Orthodox Teaching"). This term was used in Confucian circles to describe the transmission of what Confucians saw as the orthodox teachings across generations. Prophetic Time begins with Adam, and goes through Shith (Seth), Nūḥ, Ibrāhīm, Yāqūb (Jacob), Mūsa (Moses), Dāwud (David), and ʻĪsá (Jesus). This chain of transmission terminates with Muhammad, after whom Prophetic Knowledge ceased to be transmitted.

Natural Time charts a chain of transformations in the natural world. It begins with the divine Great Mandate (*daming* 大命) and the creation of the universe, moving through the creation of the various natures and qualities, the Primordial Qi (*yuanqi* 元氣), Yi and Yang, the Four Images (*sixiang* 四象), Four Phases (*sixing* 四行), and then the various types of creatures. Natural Time concludes with the creation of The Ultimate Sage (*zhisheng* 至聖), Prophet Muhammad.

Liu Zhi's four articulations of Time constitute a teleology which points to the universality and ultimate significance of the persona and teachings of Prophet Muhammad. They perceive Time as a chain of successive transmutations and transformations of power, knowledge, and natural phenomena. Bearing some similarity to our contemporary view of Modernity as an ultimate stage of human experience, and our current perception of Time in relation to Modernity (premodern, early modern etc.), Liu Zhi's teleological view defines time by its objective. Ultimately, to Zhi, it is the emergence of Muhammad and Islam that gives Time its telos and value.

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39 The names of these monarchs appear in shortened versions here. Their reconstruction is tentative and is based on the information given by Liu Zhi. The names of the second, third and fifth epochs might stand for Kayānyān, Arsaces (in Persian: *Ashqāniyān*), Sasannian (*Sāsāniyān*). These dynasties appear in Arabic and Persian biographies of the prophet, sometimes under the title of *mulūk al-ṭawā'if* ("The Petty Kings"). Liu Zhi, however, seems to have made some inaccurate translations here.

Conclusion

The history of Chinese Islam displays a complex relationship with Time and temporality. The deeply embedded temporality evident in Islamic praxis produced expertise in time-making that secured Chinese-Muslims an important place in Chinese society and polities. At the same time, an anxiety around the negative effects and oblivion that the passing of Time might produce occupied the minds of some Chinese Muslim scholars from the mid-sixteenth century onwards. This anxiety led to the production of new ways of negotiating Past, Present and Future through the employment of methods of philology and translation. These methods re-articulated Time and applied innovative temporal registers to convey meanings and significance.

The four parts of this essay focused on articulations of Time displayed in the history of Islam in China. The first part examined the temporal dimension of Islamic praxis and the inter-fertilization between religious requirements and technologies. The second part of this essay introduced the philological activities which grew in the mid-sixteenth century out of an anxiety surrounding the destruction of authentic and true knowledge that the passing of time generates. The search for and copying of old Arabic and Persian manuscripts, and the translation of these texts into Chinese, were seen as protective means against oblivion and the repercussions of time passing. One of the most prominent Chinese-Muslim scholars to emerge during this period and who took part in these philological circles was Liu Zhi. To convey the subtle meanings of Islamic texts to the wider Chinese audience, and to situate Islam in a universally coherent framework, Liu Zhi had to deal with the concept of Time. His conviction that Time is universal but can only be grasped through its various local and technical articulations, led him to employ a matrix system that defined time through conjunction of dates and natural phenomena. To present Islam as relevant and significant for readers in China, Liu further articulated Time as a teleological construct, and introduced different temporal registers that positioned Muhammad and the emergence of Islam as the ultimate and decisive stage of universal Time.

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Acknowledgements

I would also like to extend my deepest gratitude to all those who have read earlier versions of this article and presented me with invaluable insights,

comments and corrections. In particular, Anna-Maria Meister, Hansun Hsiung, Laetitia Lenel and the Entangled Temporalities group, Marie-Paule Hille and Harry Spillane.

Bibliography

Ben-Dor Benite, Zvi. *The Dao of Muhammad: A Cultural History of Muslims in Late Imperial China*. Cambridge, MA: Harvard University Press, 2005.

Brentjes, Sonja. *Teaching and learning the Sciences in Islamicate Societies (800–1700)*. Turnhout: Brepols, 2018.

Chakrabarty, Dipesh. "The Muddle of Modernity." *The American Historical Review* 116, no. 3 (2011): 663–75.

Conrad, Sebastian. *What is Global History?* Princeton, NJ: Princeton University Press, 2017.

Cullen, Christopher. *Astronomy and Mathematics in Ancient China: the Zhou Bi Suan Jing*. Cambridge: Cambridge University Press, 2007.

Dalen, Benno van. "Islamic and Chinese Astronomy Under the Mongols: A Little-Known Case of Transmission." In *From China to Paris: 2000 Years Transmission of Mathematical Ideas*, edited by Yvonne Dold-Samplonius, Joseph W. Dauben, Menso Folkerts, and Benno van Dalen, 327–56. Stuttgart: Franz Steiner Verlag, 2002.

———. "Islamic Astronomical Tables in China: The Sources for the Huihui Li." In *History of Oriental astronomy*, edited by S.M. Razaullah Ansari, 19–31. Dordrecht: Springer, 2002.

———. "The activities of Iranian astronomers in Mongol China." *Bibliothèque iranienne* 58 (2004): 17–28.

Frankel, James D. *Rectifying God's Name: Liu Zhi's Confucian Translation of Monotheism and Islamic Law*. Honolulu, HI: University of Hawai'i Press, 2011.

Guillaume, Alfred. *The Life of Muhammad: A Translation of Isḥaq's Sīrat Rasūl Allāh*. Oxford: Oxford University Press, 2002 [1955].

Hartner, Willy. "The Astronomical Instruments of Cha-ma-lu-ting, their Identification, and their Relations to the Instruments of the Observatory of Marāgha." *Isis* 41, no. 2 (1950): 184–94.

Henderson, John B. *The Development and Decline of Chinese Cosmology*. New York: Columbia University Press, 1984.

Huart, M. Cl. "Inscriptions arabes et persanes des mosquées chinoises de K'ai-fong-fou et de Si-ngan-fou." *T'oung Pao* 6, no. 1 (1895): 261–320.

King, David A. "Between Europe and China: Aspects of the Astronomical Traditions of the Lands of Islam." In *Dall'Europa alla Cina: contributi per una storia dell'astronomia*, edited by Isaia Iannaccone and Adolfo Tamburello, 55–66. Naples: Università degli Studi Federico II and Instituto Universitario Orientale, 1990.

———. *The Call of the Muezzin*. Vol. 1 of *In Synchrony with the Heavens: Studies in Astronomical Timekeeping and Instrumentation in Medieval Islamic Civilization*. Leiden: Brill, 2004.

———. Instruments of Mass Calculation: Studies X–XVIII. Vol. 2 of *In Synchrony with the Heavens: Studies in Astronomical Timekeeping and Instrumentation in Medieval Islamic Civilization*. Leiden: Brill, 2005.

Koselleck, Reinhart. *The Practice of Conceptual History: Timing History, Spacing Concepts*. Translated by Todd Samuel Presner et al. Stanford, CA: Stanford University Press, 2002.

Leslie, Donald Daniel. *Islamic Literature in Chinese, Late Ming and Early Ch'ing: Books, Authors and Associates*. Canberra: Canberra College of Advanced Education, 1981.

———. *Islam in Traditional China: A Short History to 1800*. Canberra: Canberra College of Advanced Education, 1986.

———. *The Integration of Religious Minorities in China: The Case of Chinese-Muslims*. Canberra: Australian National University, 1998.

Liu Zhi, "Tianfang zhisheng shilu nianpu 天方至聖實錄年譜" in *Qingzhen Dadian* 清真典, edited by Huang Xiefan 周燮藩 et al. 14:1–14:365. Hefei shi: Huangshan shushe, 2005. [shortened as *TFZSSL*].

Manning, Patrick, and Abigail Owen, eds. *Knowledge in Translation: Global Patterns of Scientific Exchange,1000–1800 CE*. Pittsburgh, PA: Pittsburgh University Press, 2018.

Michael, Thomas. *The Pristine Dao: Metaphysics in Early Daoist Discourse*. Albany, NY: State University of New York Press, 2005.

Murata, Sachiko. *Chinese Gleams of Sufi Light: Wang Tai-Yü's Great Learning of the Pure and Real and Liu Chih's Displaying the Concealment of the Real Realm*. Albany, NY: State University of New York Press, 2000.

Murata, Sachiko, William C. Chittick, and Tu Weiming. *The Sage Learning of Liu Zhi: Islamic Thought in Confucian Terms*. Cambridge, MA: Harvard University Press, 2009.

Petersen, Kristian. *Interpreting Islam in China: Pilgrimage, Scripture, and Language in the Han Kitab*. Oxford: Oxford University Press, 2018.

Robinson, Majied. *Marriage in the Tribe of Muhammad*. Berlin and Boston, MA: De Gruyter, 2020.

Rossabi, Morris. "The Muslims in the Early Yüan Dynasty." In *From Yuan to Modern China and Mongolia: The Writings of Morris Rossabi*, edited by Morris Rossabi, 251–90. Leiden: Brill, 2014.

Roxburgh, David. "In Pursuit of Shadows: Al-Hariri's *Maqāmāt*." *Muqarnas* 30, no. 1 (2014): 171–212.

Starn, Randolph. "The Early Modern Muddle." *Journal of Early Modern History* 6, no. 3 (2002): 296–307.

Shi, Yunli. "Islamic Astronomy in the Service of Yuan and Ming Monarchs." *International Journal for the History of the Exact and Natural Sciences in Islamic Civilisation* 13 (2014): 41–61.

Shi, Yunli, and Zhu Haohao. "Calculating the Fate of Chinese Dynasties with the Islamic Method: The Chinese Study and Application of Arabic Astrology in the 17th Century." *Micrologus* XXIV (2016): 311–35.

Silk, Jonathan A., ed. *Buddhism in China: Collected Papers of Erik Zürcher*. Leiden: Brill, 2013.

Smith, Pamela. *Entangled Itineraries: Materials, Practices, and Knowledges across Eurasia*. Pittsburgh, PA: University of Pittsburgh Press, 2019.

Stern, Sacha. *Calendars in Antiquity: Empires, States, and Societies*. Oxford: Oxford University Press, 2012.

Struve, Lynn A., ed. *The Qing Formation in World-Historical Time*. Cambridge, MA: Harvard University Asia Center, 2004.

Szombathy, Zoltán. "Genealogy in Medieval Muslim Societies." *Studia Islamica*, no. 95 (2002): 5–35.

Weil, Dror. "Islamicated China: China's Participation in the Islamicate Book Culture During the Seventeenth and Eighteenth Centuries." *Intellectual History of the Islamicate World* 4 (2016): 36–60.

———. *The Vicissitudes of Late Imperial China's Accommodation of Arabo-Persian Knowledge of the Natural World, 16th-18th Centuries*. PhD diss., Princeton University, 2016.

———. "The Fourteenth-Century Transformation in China's Reception of Arabo-Persian Astronomy." In *Knowledge in Translation: Global Patterns of Scientific Exchange, 1000–1800 CE*, edited by Patrick Manning and Abigail Owen, 262–74. Pittsburgh, PA: Pittsburgh University Press, 2018.

———. "Unveiling Nature: Liu Zhi's Translation of Arabo-Persian Physiology in Early Modern China." *Osiris* 37, no. 1 (2022): 47–66.

———. "Chinese-Muslims as Agents of Astral Knowledge in Late Imperial China." In *Overlapping Cosmologies in Asia: Transcultural and Interdisciplinary Approaches*, edited by Bill M. Mak and Eric Huntington, 116–38. Leiden: Brill, 2022.

———. "Collation and Articulation of Arabo-Persian Scientific Texts in Early Modern China." In *Routledge Handbook on the Sciences in Islamicate Societies*, edited by Sonja Brentjes, Peter Barker, and Rana Brentjes, 696–704. London: Routledge, 2023.

Yoeli-Tlalim, Ronit. *Reorienting Histories of Medicine: Encounters along the Silk Roads*. London: Bloomsbury Academic, 2021.

Zhao, Can 趙燦. *Jingxue xichuanpu* 經學系傳譜. Xining: Qinghai renmin chubanshe, 1989.