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The Kongjiapo Monthly Ordinances and the Position of *Rishu* “Day Books” in the Tradition of Early Chinese Technical Literature

My talk today concerns one section of the early Han dynasty manuscript known as the Kongjiapo 孔家坡 *rishu* 日書 or “day book” (hereafter KJP), which was discovered in 2000 by archaeologists excavating the ancient cemetery at Kongjiapo in Suizhou, north-central Hubei. Archaeological work at the Kongjiapo site began in October 1998 when it first came to light while excavating clay for a local brick and tile factory, and grave M8 was found to contain three texts: a grave contract, a calendar, and KJP.¹ The calendar covers the year 142 BC, the same year that the tomb is believed to have been sealed, and the grave contract, which confirms the burial date, identifies the tomb occupant as a *ku qiangfu* 庫嗇夫 (“armory supervisor”) named Bi 辟 of the District of Tao 桃侯國, an otherwise almost unknown minor principality of the early Western Han Dynasty.² KJP itself was found on 703 whole and fragmentary bamboo slips, the full-length slips being approximately 33.8 cm long and 0.7 – 0.8 cm wide, and in total the reconstructed text covers 478 slips and includes over 10,000 graphs. Because little trace remains of the three parallel straps which once bound the slips of the manuscript in mat form, scholars have struggled to reconstruct the original slip order based on both archaeological and internal textual criteria, and several

¹ For archaeological data about the Kongjiapo site, including photographs and a preliminary transcription of the Kongjiapo day book, see Hubeisheng wenwu kaogu yanjiusuo 湖北省文物考古研究所 and Suizhoushi kaogudui 隨州市考古隊 eds., *Suizhou Kongjiapo Han mu jiandu* 隨州孔家坡漢墓簡牘 (Beijing: Wenwu, 2006).

² The position of *ku qiangfu* (“armory supervisor”) is studied on the basis of both transmitted and excavated documents in Qiu Xigui 裘錫圭, *Gudai wenshi yanjiu xintan* 古代文史研究新探 (Nanjing: Jiangsu guji, 1992), 461 - 467. Qiu shows that an armory not only *stored* weapons, armor, carts and chariots but also *produced* wood and metal items for both military and non-military usage. Thus an armory supervisor was in charge of skilled craftsmen - in some cases slaves or prisoners sentenced to hard labor - as well as the logistics of supplying them with raw materials.

points of contention about the format of the manuscript remain to this day.

Initially, KJP was called a *rishu* by analogy with a manuscript bearing that title discovered at Shuihudi 睡虎地 in Yunmeng, Hubei in December 1975.³ Like its namesake, which contains many overlapping but not always identical passages, KJP is composed of a plethora of systems, some in textual form and some drawn as diagrams or charts, pertaining to topics as disparate as travel, illness, getting a promotion, managing a farm and catching a thief – in short the myriad affairs of daily life in ancient China. It is a text primarily concerned with the selection of auspicious times and places for various activities, and a close relationship with the earlier Shuihudi manuscript was further confirmed when infrared photography belatedly revealed a title on the verso of KJP slip 236 once again containing the graphs *rishu* 日書.⁴

Although KJP is only the second manuscript known to bear the inscribed title of “day book,” in recent decades, reports of excavated manuscripts of this type and therefore also called “day books,” have become almost commonplace. By 2002, at least eighteen manuscripts or manuscript fragments had been recovered in archaeological excavations from widely separate geographical regions of China.⁵ The earliest published exemplar is a set of 4th century BC slips from the Warring States region of Chu found at Jiudian 九店 in Jiangling county, Hubei.⁶ The latest currently known fragments, from the final years of the Western Han dynasty, include wooden slips found near former border fortifications in Juyan,

³ The manuscript carrying the title *Rishu* “Day Book” is one of two similar almanac-like manuscripts found in tomb 11 at Shuihudi. The full archaeological report on this discovery, including photos and annotated transcriptions of the two day books, can be found in Shuihudi Qin mu zhujian zhengli xiaozu 睡虎地秦墓竹簡整理小組 ed., *Shuihudi Qin mu zhujian* 睡虎地秦墓竹簡 (Beijing: Wenwu, 1990).

⁴ The full title found on the verso of KJP slip 236 by infrared photography is *Rishu* 日書, probably meaning something like, “Day Book of the (Auspicious) and Inauspicious.”

⁵ For a convenient summary of eighteen day book manuscripts or manuscript fragments known in 2002, see Liu Lexian 劉樂賢, *Jianbo shushu wenxian tanlun* 簡帛數術文獻探論 (Wuhan: Hubei jiaoyu, 2002), 27-38.

⁶ See Hubeisheng wenwu kaogu yanjiusuo 湖北省文物考古研究所 and Beijing daxue zhongwen xi 北京大學中文系 eds., *Jiudian Chu jian* 九店楚簡 (Beijing: Zhonghua, 2000).

Gansu.⁷ In all cases the texts directly pertain to daily life across social classes, and in the cases of manuscripts discovered in tombs, the archaeological context of the discovery generally does *not* imply the owner was a professional diviner. Instead, day book manuscripts appear to have been read and used by a variety of literate people, who were able to shape the texts according to their own interests. We now know that day book manuscripts and the knowledge they transmitted were an integral part of the broader culture in early China and not solely the domain of a small number of technical specialists.

Although in speaking of day books as constituting a textual genre I am inherently emphasizing commonalities - shared content or characteristics - I must emphasize that one of these common characteristics is a remarkable fluidity that allows individual manifestations of the texts to carry passages that are unique in content and/or format. It is one such unique passage in the KJP manuscript that I will introduce today. Because the material does not appear in the same form in other day books, there has been a tendency to view it as peripheral to the genre, a kind of one-time addition to the text that is not necessarily illustrative of the genre as a whole. It will be my larger contention that quite the opposite is true, i.e. that the passage is fundamentally connected to other content in KJP but also related in ways we haven't seen before to transmitted literature outside of the day book genre, and for this reason it is valuable for helping to place day books in the wider tradition of early Chinese technical literature.

The final 21 slips of the KJP day book comprise a short cosmological essay entitled *Sui* 歲 (“Year”; slips 458 - 478) with no counterpart in other published exemplars of the day book genre.⁸ Containing both an abridged account of the formation process of the universe

⁷ See Liu Zhaorui 劉昭瑞, “Juyan xin chu Han jian suo jian fangshu kaoshi” 居延新出漢簡所見方術考釋 in *Wenshi* 文史 No. 43, (Beijing: Zhonghua, 1997), 49 - 59.

⁸ The title appears in the upper margin of KJP slip 458. Although the text as a whole is unique, we will see that portions of it are in fact reflected in other day books.

with its spatial, temporal, and correlative systems and a complete set of monthly ordinances, the text clearly differs from the hemerological systems that pervade the rest of the manuscript. This anomalous nature and the direct relevance of the text to the study of early Chinese religion and natural philosophy have naturally generated interest among scholars, and several preliminary studies have already been published. Liu Lexian 劉樂賢 has discussed some of the technical terminology related to nested time cycles within the calendar year and drawn a connection between the passage and works classified as belonging to the “yin-yang school” as described by Sima Tan 司馬談 in the preface of *Shiji* 史記 (*Records of the Grand Historian*).⁹ A more focused study by Yan Changgui 晏昌貴 has analyzed some of the five agents correlative relations described in “Year” and shown by comparison with the transmitted text *Heguanzi* 鶡冠子 (*The Pheasant Cap Master*) that they may have characteristics of Chu regional traditions.¹⁰ Finally, in an as-yet-unpublished discussion pertaining to the text, Donald Harper has observed that the cosmogony described differs from other contemporaneous accounts in both excavated and transmitted texts by prioritizing the five agents over yin-yang dualism.¹¹

The Monthly Ordinances

Less remarked upon, however, has been the second section of the “Year” passage (i.e. slips 469 - 478), which contains a list of the twelve months of the year followed by formulaic comments linking each month to a command at one of the twelve earthly branches and to omens pertaining to illness and agriculture as functions of seasonally appropriate or

⁹ Liu Lexian 劉樂賢, “Kongjiapo Han jian *Rishu* ‘sui’ pian chu tan” 孔家坡漢簡《日書》“歲”篇初探 in Wuhan daxue jianbo yanjiu zhongxin 武漢大學簡帛研究中心 ed., *Jianbo* 簡帛 (II) (Shanghai: Shanghai guji, 2007), 409 - 414.

¹⁰ Yan Changgui 晏昌貴, “Kongjiapo Han jian *Rishu* ‘sui’ pian wuxing pei yin ji xiangguan wenti” 孔家坡漢簡《日書·歲》篇五行配音及相關問題 in Wuhan daxue jianbo yanjiu zhongxin 武漢大學簡帛研究中心 ed., *Jianbo* 簡帛 (II) (Shanghai: Shanghai guji, 2007), 415 - 426.

¹¹ Harper, Donald. “Science and the Natural World in Ancient China” (forthcoming).

inappropriate weather.¹² Each month and its attached commentary is clearly separated from the next month and its accompanying text by a punctuation dot in the manuscript. The following chart of the monthly ordinances text shows the pairings of months, earthly branches, and commentary in diagram form.

Month	Earthly Branch & Command	Omen Statement
正月 1 st month	並居寅以謀春事。 Reside together at <i>yin</i> in order to plan the affairs of spring.	必溫，不溫，民多疾，草木，五穀生不齊。469 It must be warm. If it is not warm, the people will suffer from widespread disease, and grasses, trees, and the five grains will grow irregularly.
二月 2 nd month	發春氣於丑。是謂吾已生矣。發子氣矣。 Emit spring <i>qi</i> at <i>chou</i> . This is called, “I have already generated; emit your <i>qi</i> .”	必風，民多腹腸之疾，草木不實。 There must be wind. (If there is not wind,) the people will suffer from widespread stomach and intestinal disease, and the grasses and trees will not bear seed or fruit.
三月 3 rd month	止寒於戌。是 470 謂吾已成矣。子敬毋殺。 Stop the cold at <i>xu</i> . This is called, “I have already developed; be respectful and do not kill.”	必溫，寒名曰執，早寒早執，暮寒暮執，終日寒三執。 It must be warm. (If it is not warm,) the cold is named “obstinacy.” Morning cold is morning obstinacy; evening cold is evening obstinacy; and all-day cold is triple obstinacy.
四月 4 th month	並居 471 卯以受夏氣。 Reside together at <i>mao</i> in order to transmit the summer <i>qi</i> .	必溫，不溫，五穀夏天，草木不實，夏落，民多戰疾。 It must be warm. If it is not warm, the five grains will die prematurely in summer; the grasses and trees will fail to bear seed or fruit and will fall in summer; and the people will suffer from widespread warfare and disease.

¹² Omens in months four, eight, and nine make apparent reference to warfare, always with the expression “*min duo zhanji*” 民多戰疾 (“the people will suffer from widespread warfare and disease.”). I will suggest that this could be a result of scribal errors that have been introduced into the text. The omens for the final three months of the year are also exceptional.

五月 5 th month	治虫於辰巳。是謂 472 吾已長矣，子戒毋敢微。 Control the insects at <i>chen</i> and <i>si</i> . This is called, “I have already grown; be careful and don’t you dare cross.”	必星(晴)，小雨小虫，大雨大虫。 ¹³ It must be fair weather. (If it is not fair,) a small rain will bring small insects; a large rain will bring large insects.
六月 6 th month	止雲霧於亥。是謂吾已長矣，子毋敢 473 微。 Stop the clouds and mists at <i>hai</i> . This is called, “I have already grown; don’t you dare cross.”	大雨大微，小雨小微。 A large rain will bring a large crossing; a small rain will bring a small crossing.
七月 7 th month	並居申以行秋氣。 Reside together at <i>shen</i> in order to set in motion the autumn <i>qi</i> .	必寒，溫，民多疾病，五穀夭死。 It must be cold. If it is warm, the people will suffer from widespread illness, and the five grains will die prematurely.
八月 8 th month	止陽氣 474 於未。是謂吾已殺矣，止子氣。 Stop the <i>yang qi</i> at <i>wei</i> . This is called, “I have already killed; stop your <i>qi</i> .”	必寒，不寒，民多戰疾，禾復。 ¹⁴ It must be cold. If it is not cold, the people will suffer from widespread warfare and disease and the standing grains will fall over.

¹³ I tentatively read *qing* 晴 “fair weather” for *xing* 星 “star.” Wang Li notes that the two graphs are cognates and are sometimes interchanged in transmitted texts. See Wang Li 王力 ed., *Wang Li Gu Hanyu zidian* 王力古漢語字典 (Beijing: Zhonghua, 2000), 436. The *Shuowen* 說文 dictionary (compiled A.D. 100) relates the words paranomastically by defining 「姓：雨而夜除，星見也。」 “*qing* 姓 (an alternate form of *qing* 晴) means ‘rain clears in the evening and the stars appear.’” Thus, the Han dynasty connotation of *qing* may have been specifically “fair weather in the evening.”

¹⁴ Chen Xuanwei suggests the sense of “fall over” for the word *fu* 復. See Chen Xuanwei 陳炫璋, *Kongjiapo Han jian rishu yanjiu* 孔家坡漢簡日書研究 (MA thesis, Department of History, National Tsinghua University, Hsinchu, Taiwan, 2007), 213.

九月 9 th month	爲計於卯。 Make a plan at <i>mao</i> .	早風以於草木，濫以 475 清，五官受令其[風，忘]有大事，計不成。其黃也，有土功事；其黑也，有憂；其白，有兵；其青 476 也，有木功事；其赤也，民多戰疾，鬼(槐?)火哀。 ¹⁵ The early wind will take (the plan) to the grasses and trees. It will be warm and clear. The Five Officials transmit commands to their respective winds. If one forgets the sacrifices, the plan will not succeed. If it is yellow, there will be earthwork; if it is black, there will be anxiety; if it is white, there will be warfare; if it is green, there will be woodwork; if it is red, the people will suffer from widespread warfare and disease. Burning locust wood will mean sorrow.
十月 10 th month	稱藏於子。 Weigh and store at <i>zi</i> .	必請風，忘有大事，受藏不成。477 It is necessary to invite criticism (“the wind”). ¹⁶ If one forgets the sacrifices, the receiving and storing will not succeed.
十一月 ¹⁷ 11 th month	廩事於酉。 Report matters (?) at <i>you</i> .	必請風，忘，政亂，下不聽。 It is necessary to invite criticism (“the wind”). If one forgets (the sacrifices), governance will become chaotic, and those below will not obey.
十二月 12 th month	置、免於午。 Make appointments and removals at <i>wu</i> .	必請風，忘，執政、置官不治，若有大事。478 It is necessary to invite criticism (“the wind”). If one forgets (the sacrifices), holding power and appointing officials will be unmanageable, and a major upheaval could result.

¹⁵ The omen text for the ninth month is exceptional because it includes the only references to five agents theory in the monthly ordinances section. The last three graphs are also a mystery. Although scholars including the KJP editors, Liu Lexian, and Chen Xuanwei have consistently transcribed them as “*gui shui ai*” 鬼水哀, in my opinion the KJP manuscript actually reads “*gui huo ai*” 鬼火哀, which fits better with the context of the color red and the agent fire. While this does not necessarily clarify the meaning, it does suggest a couple of interesting leads. First, in the poem of the *Chuci* 楚辭 collection titled “Ai sui” 哀歲 (“Lamenting the Year”), we find the line 「神光兮頽頽，鬼火兮熒熒」。 Alternatively, in “Yue ling” 月令 fragments attributed to the *Zhoushu* 周書, there is a reference to “huai (zhi) huo” 槐(之)火. For reference, compare with the penultimate graph on KJP slip 438, which is clearly *huo* 火 “fire.”

¹⁶ Chen Xuanwei first suggested reading *feng* 風 (“wind”) as *feng* 諷 (“criticism”). Chen Xuanwei (2007), 213.

¹⁷ The graph “一” is missing in the KJP manuscript.

Of particular interest in this passage is the unusual pairing of months with earthly branches. Clearly some corruption of the text has occurred, as both months four and nine correspond to the earthly branch *mao* 卯 and month five is assigned two branches, *chen* 辰 and *si* 巳. However, to a significant degree, the text can be reconstructed with the help of earlier passages in KJP and important parallels in both excavated and transmitted literature. Toward that end, it is important to note that months one, four, and seven are distinguished by the phrase *bingju* ... 並居 ... (“reside together at ...”) after the month and immediately before an earthly branch. Although it is nowhere explicitly specified what and what reside together, given that the text is part of the section titled *Sui* 歲, it is natural to recall the following passage from the “Tianwen” 天文 (“Pattern of Heaven”) chapter of *Huainanzi*.

斗杓爲小歲，正月建寅，月從左行十二辰。咸池爲太歲，二月建卯，月從右行四仲，終而復始。太歲迎者辱，背者強，左者衰，右者昌，小歲東南則生，西北則殺，不可迎也，而可背也，不可左也，而可右也，其此之謂也。大時者，咸池也；小時者，月建也。¹⁸

The dipper handle is *Xiaosui* (“Little Sui”). In the first month it is established at *yin*, and each month it travels clockwise through the twelve earthly branches. *Xianchi* (“Broad Pool”) is *Taisui* (“Great Sui”). In the second month it is established at *mao*, and each month it travels counterclockwise through the four cardinal directions, starting again after a cycle has been completed. As for *Taisui*:

One faced is disgraced; one behind is powerful.

One on the left is in decline; one on the right is robust.

Little Sui generates in the south and east and kills in the north and west.

One may not face it but may be behind it.

One may not be on the left but may be on the right.

They are spoken of this way.

Dashi 大時 (“Great Shi”) is equivalent to *Xianchi*; *Xiaoshi* 小時 (“Little Shi”) is equivalent to *Yuejian* 月建 (“Monthly Establishment”).¹⁹

The important point here is that this *sui* 歲 is not a single astrological entity. Rather it is two (imaginary) bodies cycling through heaven at different rates and in opposite directions,

¹⁸ *Huainanzi jishi* 淮南子集釋 (Beijing: Zhonghua, 1998), 219.

¹⁹ Note that *Yuejian/Xiaoshi* is also equivalent to *Xiaosui*.

meeting at regular intervals, and ultimately defining a calendar year (also *sui* 歲) by returning to their original positions where the cycle begins again.²⁰ These entities also figure prominently in several of the earlier passages of the KJP manuscript. For example, the passage titled *Shi* 時 (“Period”) on the upper register of slips 111 – 122 reads:

時：

- 正月，小時居寅，大時[居]卯，不可東徙。111.1
- 二月，小時居卯，大時居子，不可北徙。112.1
- 三月，小時居辰，大時居酉，不可東徙。113.1
- 四月，小時、大時並居南方，不可南徙。114.1
- 五月，小時居午，大時居卯，不可東南徙。115.1
- • • • • [徙]。116.1
- • • • • [徙]。117.1
- • • • • 徙。118.1
- • • • • 徙。119.1
- • • • • [可]北徙。120.1
- • • • • [不] 可西北徙。121.1
- • • • • 122.1

Period

1st month: Little Shi resides at *yin*; Great Shi resides at *mao*.²¹

One must not shift east.

2nd month: Little Shi resides at *mao*; Great Shi resides at *zi*.

One must not shift north.

3rd month: Little Shi resides at *chen*; Great Shi resides at *you*.

One must not shift east.

4th month: Little Shi and Great Shi reside together in the south.²²

One must not shift south.

5th month: Little Shi resides at *wu*; Great Shi resides at *mao*.

²⁰ It is standard to define Sui as Jupiter and Taisui as Jupiter’s imaginary counterpart, but that is clearly not the case here because Jupiter and its counterpart each have a period of approximately 12 years, not one year and three months respectively. See discussion in Liu Lexian 劉樂賢, *Shuihudi Qin jian rishu yanjiu* 睡虎地秦簡日書研究 (Taipei: Wenjin, 1994), 101-104. Instead, the movement of the *sui* bodies defining the year is reminiscent of the sons of Fuxi 伏羲 pacing the year as described in the cosmogony of the Chu silk manuscript.

²¹ In this line the two stars in fact “reside together in the east,” but in order to show clearly the starting orientation of the system, the text prefers to spell out “Little Shi resides at *yin*; Great Shi resides at *mao*.”

²² Note that Little Shi is at *si* and Great Shi is at *wu*, and thus they are both in the south, although not at precisely the same branch.

One must not shift southeast. (or “south or east”?)
[shift].
[shift].

[must (not)] shift north.
 must [not] shift northwest.

Despite damage to the latter half of the text, we can clearly discern that the two entities, seen here by their alternative names “Great Shi” and “Little Shi,” are cycling with the rates and directions *Huainanzi* suggests they should have.²³ The only difference is that Great Shi resides at *mao* in the first month, instead of being there in the second month as the *Huainanzi* suggests. This results in a different starting orientation of the annual cycle. Qiu Xigui 裘錫圭 has argued that the text of *Huainanzi* is corrupt and has emended “*eryue jian mao*” 二月建卯 (“In the second month it is established at *mao*”) to “*zhengyue jian mao*” 正月建卯 (“In the first month it is established at *mao*”) on the basis of paleographic evidence from a Han wooden document fragment found near Dunhuang, but it may also be the case, as Yan Changgui has argued, that slightly different systems are represented rather than one text or the other being more accurate.²⁴ In any case, two points should be emphasized: first, some variance or ambiguity has long existed regarding the starting orientation of the two *sui* bodies, and second, regardless of the starting orientation of the bodies, of great importance are the points throughout the year when they “reside together.”

Returning now to the KJP “Year” passage, as previously mentioned, the pattern of

²³ The omens for each month can also be derived from the *Huainanzi* statement regarding the front, back, left, and right positions relative to each star. For a thorough study of the system behind the omens and a full reconstruction of the text of this passage, see Chen Xuanwei (2007), 59-62.

²⁴ Yan Changgui 晏昌貴, “Jianbo *Rishu* sui pian hezheng” 簡帛《日書》歲篇合証 in *Hubei daxue xuebao* (*zhexue shehui kexue ban*) 湖北大學學報—哲學社會科學版 (vol. 30, no. 1, 2003), 76. For Qiu’s original argument, see Qiu Xigui (1992), 20-21. For an alternative reading supporting Qiu’s position, see Zhang Peiyu 張培瑜, “Chutu Han jian boshu shang de lizhu” 出土漢簡帛書上的曆注 in *Chutu wenxian yanjiu xujiji* 出土文獻研究續集 (Beijing: Wenwu, 1989), 138.

correspondence between months and earthly branches is very unusual. However, when considered as general markers of a cardinal direction, a pattern does become discernable.

Month &	1 寅	2 丑	3 戌	4 卯	5 辰/	6 亥	7 申	8 未	9 卯	10 子	11 酉	12 午
Branch	<i>yin</i>	<i>chou</i>	<i>xu</i>	<i>mao</i>	巳 <i>chen/si</i>	<i>hai</i>	<i>shen</i>	<i>wei</i>	<i>mao</i>	<i>zi</i>	<i>you</i>	<i>wu</i>
Direction	E	N	W	E	E/S	N	W	S	E	N	W	S

With the exceptions of the problematic stem *mao* 卯 in month four and the extra stem *si* 巳 attached to month five, the system shows a regular monthly shift counterclockwise through the cardinal directions – the behavior expected of Great Sui. In fact, this chart alone suggests that the branch *si* 巳 (representing south) belongs with month four, as the other two southern branches are used in months eight and twelve. In all likelihood, it was mistakenly copied onto the text attached to month five in an earlier manuscript version of the monthly ordinances that wrote the text corresponding to each month on a separate bamboo slip, in which case the slips for months four and five would, of course, have been adjacent to one another. The gap in the text for the fourth month was then awkwardly filled by the fourth earthly branch *mao*.

Interestingly, a passage in the Qin dynasty Fangmatan (B) 放馬灘(乙) [hereafter FMT(B)] day book manuscript supports this theory. On FMT(B) slip 157 we find:

五月辰日，大雨大虫，小雨小虫。157

Fifth month, *chen* day: a large rain will bring large insects; a small rain will bring small insects.

Not only does the text closely match that of the fifth month in the KJP monthly ordinances and thus support a reading for the fifth month that includes only the earthly branch *chen*, but in terms of the format of the manuscript, we also see a concrete example of

an omen corresponding to a single month being written on its own separate bamboo slip.²⁵

A Strange Parallel in an Unexpected Source

Any lingering doubts about this pattern are dispelled by a remarkable textual parallel in an unexpected source.²⁶ In the chapter of the *Lingshu jing* 靈樞經 (hereafter LSJ) titled “Suilu” 歲露 (“Annual Dew”), we find the following passage, displayed below in chart form for easy comparison with the KJP monthly ordinances quoted above:

Month	Earthly Branch	Omen Statement
正月 1 st month	朔 ²⁷ new moon (day 1)	天利溫不風，糴賤，民不病；天寒而風，糴貴，民多病。此所謂候歲之風，[血+彡]傷人者也。 If Heaven favors (the world with) warmth and no wind, grain will be cheap, and the people will not get sick. If Heaven is cold and windy, grain will be expensive, and people will suffer from widespread illness. This is what is called observing the annual wind. (?) harmful to people.

²⁵ FMT(B) slip 157 has been placed within a series of slips containing agricultural and medical omens based upon observation of the rain at significant times during the year. In that context, it is not obvious that the material has any relation to a monthly ordinances system. Elsewhere in the FMT(B) manuscript, however, we do find explicit reference to the kind of *sui* system underlying the KJP monthly ordinances. For example FMT(B) slip 139 reads: 正月東方，四月南方，七月西方，十月[北方]凡是咸池會月[建]殿。不可垣其鄉。 . . . “First month in the east, fourth month in the south, seventh month in the west, tenth month [in the north] – at all of these times *Xianchi* meets the Dipper’s handle, and one must not build a compound wall in the said direction. . . .” See Gansusheng wenwu kaogu yanjiusuo 甘肅省文物考古研究所 ed., *Tianshui Fangmatan Qin jian* 天水放馬灘秦簡 (Beijing: Zhonghua, 2009) 30 and 94.

²⁶ A similarity between the patterns of earthly branches in the “Sui” passage of KJP and the “Suilu” 歲露 (“Annual Dew”) chapter of LSJ was first noted in a 5/29/2007 post by Ziju 子居 to the discussion thread *jianbo yandu* 簡帛研讀 (“Reading and Study of Bamboo and Silk Manuscripts”) at <http://www.bsm.org.cn/bbs/read.php?tid=1185&fpage=8>, but the details of the connection were not analyzed at that time.

²⁷ Obviously, the familiar graph read *shuo* 朔 (“new moon”) is not one of the earthly branches. In this case, however, I will argue that it should be one of them, namely *yin* 寅.

二月 2 nd month	丑 <i>chou</i>	不風，民多心腹病。 If there is no wind, the people will suffer from heart and stomach disease.
三月 3 rd month	戌 <i>xu</i>	不溫，民多寒熱。 If it is not warm, the people will suffer from “cold heat.”
四月 4 th month	巳 <i>si</i>	不暑，民多瘧病。 If it is not hot, the people will suffer from widespread fever (?). ²⁸
十月 10 th month	申 <i>shen</i>	不寒，民多暴死。 ²⁹ If it is not cold, the people will die suddenly (?) in great numbers.

Not only do the earthly branches found here in months two and three match those of the corresponding months in the KJP text, but careful comparison also shows that the omens for months one through four closely match the meteorological and medical content in the omens of the corresponding parts of the KJP text. To fully see this, it is necessary to note that the omen in the fourth month text rendered variously as *minduo zhanji* 民多戰疾 (“the people will suffer from widespread warfare and disease”) in KJP and *minduo danbing* 民多瘧病 (“the people will suffer from widespread fever”) in LSJ reflects confusion between the graphically similar *zhan* 戰 and *dan* 瘧.³⁰ Any conclusion about which reading is preferable must remain tentative for now, but the relative absence of military themes in the “Year” passage of KJP might suggest that the reading of LSJ is preferable. In any case, the important point is that they derive from a common source. Similarly, in the omen

²⁸ A gloss in commentary to the “Qi bing lun” 奇病論 (“Discourses on Strange Diseases”) chapter of *Suwen* 素問 explains 「瘧，謂熱也。」 “*dan* refers to ‘heat’ (illness).” See *Suizhou Kongjiapo Han mu jiandu* (2006), 130, note #4.

²⁹ *Lingshu jing* 靈樞經 (*Si ku quan shu* 四庫全書 edition), Ch. 79, “Sui Lu” 歲露, folio 12, p. 9.

³⁰ Note that the graph *dan* 瘧 appears in the KJP manuscript, e.g. on slip 14, which explicates the meaning of *chu* 除 (“eradicating”) days. Like in the LSJ usage, it is found as part of the compound *danbing* 瘧病 (“fever”), but parallel text describing *chu* days on FMT(A) slip 14 and FMT(B) slip 15 uses the term *danji* 瘧疾, which represents an intermediate step between *danbing* 瘧病 and *zhanji* 戰疾.

statements for the third month, KJP uses the graph *zhi* 執, somewhat awkwardly translated as “obstinate,” where LSJ uses the graph *re* 熱. Again, graphic similarity suggests a common origin, and the less anomalous omen statement of LSJ, as well as the parallelism with the contrasting word *han* 寒, suggests that the reading *re* 熱 “hot” may be preferable. The one significant difference between the two texts appears to be the expressions included in LSJ for the first month regarding the price of grain. Interestingly, while these do not have a counterpart in the KJP “Year” passage, they do appear in KJP slips 447 – 451 in a system of related agricultural omens that closely precedes the passage, a point to which we will return shortly.

To complete our comparison of the KJP and LSJ texts, it is necessary to take a closer look at the context of the LSJ passage. Doing so suggests that the expression *zhengyueshuo* 正月朔 (“The new moon of the first month”) probably should read *zhengyueyin* 正月寅 (“In the first month at *yin*”) because the passage of LSJ immediately preceding this one contains a series of seven consecutive omen statements all beginning with the phrase *zhengyue shuori* 正月朔日 (“The first day of the first month”).³¹ In other words, a scribe’s tendency to preserve parallel phrasing seems to have carried over into a new passage where it should no longer have applied. Finally, by recognizing the LSJ graphs *shiyue* 十月 (“10th month”) as a very common scribal mistake for *qiyue* 七月 (“7th month”), the omen and earthly branch for that month are seen to accord with the KJP text as well, and it becomes clear that the pairing of branches with months in the two texts can, in fact, be considered a perfect match. This correspondence confirms that the KJP text for the fourth month should be corrected to read *siyue bingju si* 四月並居巳 (“In the fourth month, reside together at *si*.”).³²

³¹ Note that if my argument for the replacement of the graph 朔 with the graph 寅 is not accepted, there arises the question of what happened to the graph 日, which is rigorously preserved in the parallel phrasing of the previous seven omen statements. Explaining 朔 as a miswriting of 寅 solves this problem.

³² The complex story of insect omens, the earthly branches *chen* 辰 and *si* 巳, and their pairing with months

The Reconstructed Manuscript and its Implications

More than simply an exercise in textual criticism, the above discussion enables us to derive with confidence the following revised KJP pairing of months with branches (red indicates modifications of the text found in the KJP manuscript based upon the above-described comparison with LSJ):

Month & Branch	1 寅 (together at) <i>yin</i>	2 丑 <i>chou</i>	3 戌 <i>xu</i>	4 巳 (together at) <i>si</i>	5 辰 <i>chen</i>	6 亥 <i>hai</i>	7 申 (together at) <i>shen</i>	8 未 <i>wei</i>	9 卯 <i>mao</i>	10 子 <i>zi</i>	11 酉 <i>you</i>	12 午 <i>wu</i>
Direction	E	N	W	S	E	N	W	S	E	N	W	S

Far from being an isolated text attached haphazardly to the end of the KJP manuscript, the monthly ordinances passage thus appears to be a two-body annual *sui* system that complements several other systems in the manuscript and elaborates on their application to ordering and understanding the agricultural year. Apart from the KJP *Shi* (“Period”) passage quoted above, these include passages such as those entitled *Sisui* 司歲 (“Overseer of the Year”; 427.1 – 436.1, 437 – 438) and *Zhusui* 主歲 (“Ruler of the Year”; 427.2 – 436.2), which are found together on the upper and lower registers of slips 427 – 438 respectively and which assign annual governing responsibilities on a rotating basis to various deities and spirits.³³

four and five does not end here, however. In the agricultural manual *Sishi zuanyao* 四時纂要 (*Compiled Essentials of the Four Seasons*; late 9th or early 10th century) the confusion reflected in the KJP manuscript became compounded and resulted in increasingly elaborate (yet still recognizable) omen schemes.

³³ The titles of these passages are assigned for convenience by the editors of KJP and, unlike the case of *Sui* (“Year”), do not appear in the original manuscript. Although the choices are natural in the sense that each title figures prominently in its appropriate text, it is likely that the two texts are, in fact, just different sections of a single text. The main implication of reading them as such is that throughout *both* sections, the phrase “first day of the month” would always refer to the first month of the year, a condition that is explicitly noted only at the beginning of *Sisui* “Overseer of the Year.” I have translated this way because from the context it seems that the color emperors of the *Zhusui* “Ruler of the Year” section should change shifts on an annual and not a monthly

Consider, the first few lines of each passage.

正月：

子朔，聞(攝)民(提)格(格)司歲，四海有兵，有年。427.1

丑朔，單[闕]日百興(司歲)³⁴，實日秋食。428.1

寅朔，執(舍+邑)(徐)司歲，日食毋(無)寒。429.1

• • • • •

甲乙朔，青畜(帝)主歲，人炊行沒(役)³⁵。青禾爲上，白中 427.2

中，黃下，麥不收，吏人炊。428.2

丙丁朔，赤畜(帝)產(主)[歲]，高者行沒(役)。赤禾爲上，黃中，白 429.2

下，少旱。吏高者。430.2

戊己朔，黃畜(帝)主歲，邑主行沒(役)。黃禾爲上，赤 431.2

中，白下，有風雨，兵起。432.2

• • • • •

First Month:

The first day is a *zi* day.

Shetige oversees the year. Troops will be everywhere. There will be a harvest.

The first day is a *chou* day.

Ming'e (oversees the year).³⁶ (???) bear seed or fruit. There will be a solar eclipse in the autumn.

The first day in an *yin* day.

Zhixu oversees the year. There will be a solar eclipse. It will not be cold.

Etc...

basis.

³⁴ The text of this line is somewhat corrupt. Liu Lexian has suggested that the graphs 日 and 百 correspond to a miswriting of *sisui* 司歲 (“oversees the year”), and Chen Xuanwei accepts this suggestion. See Liu Lexian 劉樂賢, “Kongjiapo rishu *Sisui* bushi” 孔家坡《日書》“司歲”補釋 (posted 2006.10.10) at http://www.bsm.org.cn/show_article.php?id=436 and Chen Xuanwei (2007), 200. From looking directly at the photographs of KJP slip 428, I would alter the claim slightly to argue that all three graphs 日, 百, and 興 correspond to a miswriting of *sisui* 司歲.

³⁵ The KJP editors gloss *xingmo* 行沒 as *chumo* 出沒 (“appear and disappear”). I would suggest that there is a more formal relationship between the deities of different ranks by reading the term as the graphically similar term *xingyi* 行役 (“act as an emissary”). Even with the original reading, however, my suggested meaning could be inferred.

³⁶ Gao You's 高誘 (ca. 168-212) commentary on the *Huainanzi* states that in this context the graph 單 (usually read as *dan* or *shan*) should be read with the pronunciation “ming” like the *ming* 明 in 明揚 *mingyang* (“raise in public”). Later commentators have pointed out, however, that the graphs 明揚 could be a mistake for *danyang* 丹楊 (a place name), which would suggest the common pronunciation “dan.” See *Huainanzi jishi* (shang) 淮南子集釋[上] (Beijing: Zhonghua, 1998; reprinted 2006), 264. To make matters worse, modern dictionaries like the *Hanyu da cidian* 漢語大辭典 list the compound as *chanye* 單闕. For now, any of these choices must be tentative.

(First Month continued):

The first day is a *jia* or an *yi* day.

The Green Emperor rules the year and Renchui travels on his behalf. Green millet is good; white is fair; yellow is bad. Wheat will not be harvested. The emissary is Renchui.

The first day is a *bing* or a *ding* day.

The Red Emperor rules the year and Gaozhe travels on his behalf. Red millet is good; yellow is fair; white is bad. There will be a slight drought. The emissary is Gaozhe.

The first day is a *wu* or a *ji* day.

The Yellow Emperor rules the year and Yizhu travels on his behalf. Yellow millet is good; red is fair; white is bad. There will be wind and rain. Troops are raised.

Etc...

Note that the stem-and-branch value of the first day of the year will imply *both* an overseer *and* a ruler, i.e. two different deities of different rank for the year. A compelling possibility is that these deities may each be associated with one of the two *sui* bodies, and thus that they are the entities “residing together” for different purposes at the beginning of each season.³⁷ Recall that in the KJP monthly ordinances (corresponding to the months when the *sui* entities do not cohabit), we find a series of quotations of the deity who commands the appropriate fluctuations of *yin* and *yang*. These are first-person pronouncements of the form “This is called ‘I (have done something); you (do or don’t do something else).’” In every case, the quotation of direct discourse comes in a statement-command form, and the speaker is clearly “on high.” He states that he has generated (the new life of spring) and commands that *qi* be emitted. He states that he has killed (in autumn) and commands that *qi* be reigned in. And so on. These commands *are* the ordinances, and the deities issuing and receiving them can be viewed as traveling a set course throughout the year to make the appropriate pronouncements from the appropriate spatial and temporal positions.³⁸

³⁷ In the case of the “ruler” of the year, the text actually seems to imply that he remains in his own color domain, as prescribed by five-agents correlations, and an emissary travels on his behalf.

³⁸ As noted above, from the perspective of the physical KJP manuscript, the “Ruler of the Year” and “Overseer

Looking separately at the case of the parallel LSJ passage, we find a context in which the movements of the god Taiyi 太一 at specific points during the year are said to produce the various winds and rains used as the basis for prognostication about the public health.³⁹

太一移日，天必應之以風雨，以其日風雨則吉，歲美民安少病矣。先之則多雨，後之則多汗。⁴⁰

On the days when Taiyi moves, Heaven must respond with wind and rain. Wind and rain on that day are auspicious; the year will be a good one and the people will be at peace with little illness. (Wind and rain) beforehand portend an excess of rain. (Wind and rain) afterwards portend great drought.

These shifts of Taiyi are described as taking place at intervals of 45 or 46 days starting at the winter solstice and continuing on the days corresponding to the beginning of each season, the solstices, and the equinoxes.⁴¹ The eponymous “annual dew” of the chapter is in fact *defined* in the text as the wind and rain resulting from the movements of Taiyi.

逢其風而遇其雨者，命曰遇歲露焉。⁴²

Encountering the winds and rain (resulting from the movements of Taiyi) is called meeting the “annual dew.”

of the Year” passages share a discrete set of slips. There is only weak evidence for their current placement in the manuscript, and it is also possible that they were originally even more closely juxtaposed with the “Year” passage.

³⁹ All passages quoted here from LSJ, including the initial textual parallel with the KJP manuscript, derive from what Yamada Keiji identifies as the oldest stratum of that text, namely a relatively small set of dialogues between Huangdi 黃帝 and his teacher Shaoshi 少師. In the same dialogues, there is also a close textual parallel with the inscription found on the Taiyi jiugong 太一九宮 (“Taiyi and Nine Palaces”) divination board discovered in tomb M1 at Shuanggudui 雙古堆 in Fuyang, Anhui. See Anhuisheng wenwu gongzuo dui 安徽省文物工作隊, Fuyang diqu bowuguan 阜陽地區博物館, Fuyangxian wenhua ju 阜陽縣文化局, “Fuyang Shuanggudui Xi Han Ruyinhou mu fajue jianbao” 阜陽雙古堆西漢汝陰侯墓發掘簡報 in *Wenwu* 文物 (1978.8), 12-31 and Yamada Keiji 山田慶兒, “Jiugong bafeng shuo to Shaoshi pai no lichang” 九宮八風說と少師派の立場 in *Tōhō Gakuhō* 東方學報 52 (Kyoto: Research Institute for Humanistic Studies, 1980) for details.

⁴⁰ *Lingshu jing* 靈樞經 (*Si ku quan shu* 四庫全書 edition), Ch. 77, “Jiu gong ba feng” 九宮八風, folio 11, p. 17.

⁴¹ Note that the implied calendar behind the system is a solar calendar.

⁴² *Lingshu jing* 靈樞經 (*Si ku quan shu* 四庫全書 edition), Ch. 79, “Sui lu” 歲露, folio 12, p. 8.

While the timing and direction of Taiyi's shifts do not fully match those of either *sui* body in the KJP text, it is interesting to note that in the “reside together” months, the deity is always at the locations expected in the KJP system. Thus both the KJP and LSJ systems describe the pattern of movement of a deity whose actions at the proper times and places in the course of a year regulate the wind, rain and temperature. In the following section we will explore the deeper connection between them. To do so, it will help to broaden our perspective on the “Year” passage by considering its commonalities with the other parts of the agricultural section of the KJP manuscript, particularly the persistent underlying theme of health and illness.

The KJP Agricultural Texts

As we have already seen, the “Year” passage includes a significant amount of medical content, and in fact, throughout the agricultural passages in KJP, we find sporadic references to health and illness.⁴³ For example, the passage titled by the editors *Shuozhan* 朔占 (“Divining on the First Day of the Month”) reads:⁴⁴

子朔有歲。440.1

丑朔敗種，寡旱。441.1

卯朔戶幾(饑)。442

辰巳朔五種。443

午未朔多雨。439.2

申朔蚤(早)殺。440.2

酉朔莫(暮)殺，有歲。441.2

三以甲朔大孰(熟)。444.1

⁴³ A third topic that appears occasionally in the final, primarily agricultural passages of KJP is military affairs. Whether or not references are present in the “Year” passage itself is debatable.

⁴⁴ I have discarded the first line of the text assigned by the editors and found on KJP slip 439.1 because, as Chen Xuanwei has noted, despite being formatted together with this system, it does not fit the pattern of earthly branches seen in the subsequent lines. See Chen Xuanwei (2007), 206. In fact, this line is an abridged repetition of the text found in the second register of KJP slips 429 – 430.

- 三以乙朔中、??爲。444.2
- 三以丙朔禾、麻爲。444.3
- 三以丁朔歲戶。444.4
- 三以戊朔大植、大中、叔(菽)、蓋(?)爲。445.1
- 三以己朔歲大爲，女子有疾。445.2
- 三以庚朔歲不孰(熟)。445.3
- 三以辛朔下田收。445.4
- • • • 大孰(熟)。446

.....

The first day of the third month is a *ji* day: The harvest will be great; *a female will become ill.* (445.2)

.....

Here on slip 445.2 an isolated medical omen appears in an otherwise agricultural text. As was noted above, the reverse situation applies in the LSJ parallel to the “Year” text, which although almost exclusively medical, oddly mentions the ramifications for grain prices in the omen statement for the first month of the year. Similar cases are pervasive enough to show that despite the seemingly different natures of KJP and LSJ, the textual parallel connecting them is no accident. It reflects the borrowing of common source texts that were then edited or selectively copied to varying degrees by writers with different agendas. In the case of LSJ, the material was applied to medical purposes and only rare editorial lapses indicate any connection to agricultural concerns. In the case of KJP, agriculture is the primary concern, but medical content represents a significant secondary topic.⁴⁵ Clearly, technical specialists in both areas were basing their respective theories of health and agriculture on concepts like the wind, rain, and temperature, and the titles in both manifestations of the material strongly indicate a close association with the astrology of the calendar year.

⁴⁵ The editing process was apparently one in which material suiting particular purposes was selectively drawn from source texts that originally had more diverse concerns. This implies that the relatively diverse KJP manuscript is a better reflection of the source texts than LSJ, and it is quite possible that one type of source text for LSJ was something much like KJP.

Trickle-Down Technical Texts

Based on these characteristics of the KJP agricultural passages, including the “Year” passage itself, it appears that the texts of the KJP agricultural section have roots in elite, meteorologically and calendrically based prognostication literature. The “Year” passage, in particular, preserves parts of otherwise unknown monthly ordinances, possibly from two different sources as the ordinances of months 10, 11, and 12 reflect political concerns that are very different in tone than the ordinances of the preceding months, which as we have seen are primarily concerned with public health and agriculture.⁴⁶ At the same time, both the LSJ and KJP incarnations of the text refer to systems in which deities follow a fixed course of travel through the year ensuring appropriate weather for each season, and this would imply that aspects of those systems as well were part of the mutual textual heritage. Taken together, the above-described characteristics suggest that we regard these particular source texts as a variety of Ming Tang 明堂 (“Bright Hall”) literature.⁴⁷

In retrospect, this is perhaps not surprising because commentators as early as Zheng Xuan 鄭玄 (127 – 200) have described content from transmitted versions of monthly ordinances, such as those found in *Lüshi chunqiu*, being collated into a no-longer-extant *li* 禮 (“protocol”) text called *Mingtang yinyang* 明堂陰陽 (“Bright Hall Yin Yang”).⁴⁸ An

⁴⁶ Note, however, that even the political months maintain a connection to the wind. Presumably because the text for these months comes from a different source, month ten does not continue the expected pattern of emphasizing that the sui stars are residing together. Month nine is also exceptional as it contains an odd insertion of five agents theory that is otherwise completely unmentioned after the first lines of the “preface” to the “Year” passage. Nevertheless, as we saw above, all of these months do abide by the directional associations of a sui system.

⁴⁷ Note also that the LSJ passage with a parallel counterpart on the Shuanggudui divination board contains a copy of the 3 x 3 magic square described in the “Ming Tang” 明堂 (“Bright Hall”) chapter of *Da Dai Li ji* 大戴禮記. See note 40 above.

⁴⁸ Yang Kuan 楊寬, “Yue ling kao” 月令考 in *Gu shi lunwen xuanji* 古史論文選集 (Shanghai: Shanghai renmin, 2003), 467. This text is listed in surviving fragments of Liu Xin’s bibliography *Qilüe* 七略, see Liu Xin 劉歆 (Yao Zhenzong 姚振宗, ed.; Deng Junjie 鄧駿捷, comp.), *Qilüe Biehu yiwén Qilüe yiwén* 七略別錄佚文 七略佚文 (Shanghai: Shanghai guji, 2008), 115. Yan Changgui has also pointed out that the only known bibliographical reference to a text called *Rishu* 日書 (“Day Book”) occurs in Zheng Qiao’s 鄭樵 (1104-1160) encyclopedia *Tongzhi lüe* 通志略 where it is categorized as a *li* 禮 (“protocol”) text of the monthly ordinances type and attributed to the author Tan Rong 譚融. See Yan Changgui (2007), 416.

ancient script (*guwen* 古文) version of monthly ordinances quoted repeatedly in *Shuowen jiezi* 說文解字 is also identified by the title *Mingtang yueling* 明堂月令 (“Bright Hall Monthly Ordinances”).⁴⁹ But the KJP version is different from anything we have seen before and fills an important gap in our understanding of these texts. Here the ruler’s movements and actions are not prescribed throughout the entire year. Instead, the text for the first nine months seems to refer to actions appropriate to deities, and only for the last three months do the ordinances appear to be aimed at the ruler himself.⁵⁰ The source texts were undoubtedly edited to suit the purposes of the day book genre, and we have seen that they were edited even more violently to serve the purposes of the LSJ text. Nevertheless, by comparing these later manifestations, it is clear that the “Bright Hall” and monthly ordinances tradition was considerably broader and more closely connected to other varieties of prognostication literature than one might imagine from the vestiges that survive today in transmitted texts.

Of even greater interest to the study of day books as a genre is a concrete sense that a considerable proportion of the material they contain has roots in elite texts that must have come into the hands of technical specialists and been edited by them for their own purposes. In this sense, we can regard the agricultural sections of KJP as a kind of “trickle-down” technical literature, and from manuscript evidence, we can see a process of technical arts moving from a court-centered milieu to the private sphere, probably as a result of there being fewer opportunities for specialists with technical skills to find patronage in the chaotic years of the later Warring States period. Texts that once described a range of social repercussions

⁴⁹ For a discussion of the relationship between surviving fragments of this text and the transmitted versions of “Monthly Ordinances,” see Yang Kuan (2003), 514-517.

⁵⁰ One of the most interesting aspect of the KJP monthly ordinances, however, is not just that the passages of quoted discourse can be plausibly associated with such and such a deity, but also that the definitive attribution to the deity is absent. As a result, the same text functions as a sort of generic *Mingtang* script. In other words, a ruler with this text in hand would have his role for each month clearly described, including the proper position at which he should abide and the actions to be taken at that position so that he could symbolically reflect the workings of a deity above in the domain of man and thus resonate properly with the guiding force of the calendar. The omens for months ten, eleven, and twelve, when there is a lull in the agricultural year seem to speak directly to such a ruler of men with advice for putting political affairs in order.

of various deities' actions - as reflected in natural phenomena like the wind, rain, and temperature - were subsequently directed to particular applications like agriculture and medicine. At the same time, they were often provided with an additional theoretical apparatus of five-agents theory. The results can be seen in fragmentary form across nearly all examples of the day-book genre as well as in transmitted texts like LSJ, but it is the unique nature of the KJP manuscript that it finally provides sufficient context to begin tracing the particularities of this historical process. Texts like KJP have a great deal to contribute to our understanding of early Chinese religion and natural philosophy at all levels of society, and when the evidence of their transmission history is gleaned from close reading of the manuscripts, they will also yield insights about the social and cultural forces that shaped the development of Chinese technical arts.

Appendix

The directional associations of the earthly branches

