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APPLIED FIELD-ALLOCATION ASTROLOGY IN ZHOU CHINA: DUKE WEN OF JIN AND THE BATTLE OF CHENGPu (632 B.C.)

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This article offers an account of the ancient Chinese system of judicial astrology known as “field-allocation” (*fenye*) astrology. This form of prognostication, premised on archaic cosmological conceptions about the correspondence between the celestial and terrestrial realms, is best known in the highly systematized and regular form preserved in sources of the Warring States and Han periods. This mature form was achieved after a long process of evolution and systematization. This study will provide a brief account of this process and then illustrate how the principles and astronomical observations involved came to be applied in two epochal military and political contexts—the battle of Muye (1046 B.C.) and the battle of Chengpu (632 B.C.). Field-allocation astrology may have played a significant role in decision-making in the early Zhou.

FEW EPISODES IN ANCIENT CHINESE HISTORY can compare for historical drama and political significance with the struggle for supremacy in north China between the states of Chu 楚 and Jin 晉 in the early Spring and Autumn period (722–481 B.C.). Besides constituting an epochal challenge to the dominant northern Hua-Xia 華夏 cultural heritage, the military conflict in 633–632 between Jin and the distinctive southern Man-Yi 蠻夷 tradition represented by Chu was also the final act of the intense competition for ascendancy that followed the lapse of the eastern state of Qi 齊 after the demise of the illustrious Duke Huan 桓公 (685–643). “The deer was loose,” as commentators of a later epoch would put it when imperial dignity was the game. In mid-seventh century the contenders all knew that Duke Huan’s status as Lord Protector (*ba* 霸) of the ruling Zhou 周 dynasty (1046–256) was up for grabs.

As if this scenario did not provide drama enough, Jin’s ascendancy is inextricably linked with the fascinating personal history and celebrated adventures of Prince Chong Er 重耳, better known as Duke Wen 文公 of Jin. Intrigued against at the Jin court, he fled with his maternal relatives, spent nineteen years in exile—twelve among his mother’s people, the Di 狄 barbarians—and then was an itinerant guest at various state courts, all the while accompanied by loyal retainers. Recognition of his personal qualities and potential usefulness resulted in magnanimous treatment by the rulers of some of Jin’s major rivals, including Qin 秦 and Chu. Ultimately, at age sixty-one, Chong Er was restored to power as Duke Wen of Jin in 636, with military backing from Qin. Not long after, Jin was drawn into military confrontation with Duke Wen’s nemesis, Premier Ziyu 令尹子玉 of Chu, when the armies of Jin and Chu collided at the Yellow River.

The decisive clash came in early 632 at Chengpu 城濮 near the Yellow River in western Shandong. Chu had the advantage of better tactical position, but superior generalship by Jin’s commanders (supported by troops from Qi and Qin) resulted in a total rout of Chu’s expeditionary forces, which had been marauding in western Shandong. The Chu army, though supported by Cai 蔡 and Chen 陳, was below strength, apparently because of King Cheng’s 成王 (671–626) dispatch of inadequate reinforcements, being displeased with Premier Ziyu’s aggressiveness in pursuing a grudge against the former Prince Chong Er, and also, apparently, because the King saw no compelling reason to seek a decisive confrontation with Jin, now in the ascendancy. Indeed, the precise timing of the battle of Chengpu and the eagerness of Jin to confront Chu at this juncture will shortly be the focus of our interest. In the event, however, all but Ziyu’s army of the center went down to defeat, and Ziyu himself, one of Chu’s most able military commanders, was shamed into committing suicide while enroute back to Chu.

Here is how the modern historian Tong Shuye characterizes this epic confrontation at Chengpu:

The battle of Chengpu was the first great battle of the early part of the Spring and Autumn period, one which fully concerned the whole situation in the Central Plain. At the time Chu was projecting its power throughout the Central Plain, and had already invaded the great states of the lower reaches of the Yellow River like Qi and Song 宋, while Lu 魯, Wèi 衛, Zheng 鄭, Chen, and Cai had already capitulated to Chu. On the other hand, the barbarian Di forces had also attacked the royal lands, forcing the Zhou king into flight. By this time Duke Huan of Qi’s career as

Lord Protector was over. The age was truly one in which “aggression by southern and northern barbarians coincided, and survival of the central states hung by a thread.” Had Duke Wen of Jin not risen to prominence in the north and taken the situation in hand, the royal Zhou house and the lords of the central states would have been swept away long before the Warring States period. After the total defeat of the Chu armies the influence of the southern Yi barbarians receded from the Central Plain and the incursions of the northern Di also gradually declined. Thus the survival of the Hua-Xia states and their culture was secured, and Duke Wen of Jin is to be credited with this great achievement!¹

HISTORICAL ACCOUNTS OF DUKE WEN OF JIN'S ASCENDANCY

Despite the early date, the events of Chong Er's life and this epic confrontation are especially well documented in the historical record. Although the expected intertextual dependency is noticeable in late accounts, especially that in Sima Qian's 司馬遷 *Shiji* 史記, there is a remarkable complementarity between the earlier Warring States period narratives preserved in *Zuozhuan* 左傳 and *Guoyu* 國語—the *Guoyu* version being unique in a number of important respects. The version of events in the *Spring and Autumn Annals* 春秋 and *Zuozhuan* commentary is a fairly straightforward account of the high points of Chong Er's career, culminating in a series of precisely dated military and political activities during the months before and immediately after his restoration and the battle of Chengpu. Most of this account, differing only in minor detail, is reproduced in the “Hereditary House of Jin” 晉世家 chapter in *Shiji*. These accounts are corroborated in important respects by the recently discovered royal commendation inscribed on a set of bells cast by Chong Er's maternal uncle, Zi Fan 子犯, who, besides serving him faithfully during his long exile, was also the brilliant strategist who helped engineer Chong Er's restoration and the subsequent defeat of Chu.² For our purposes the precise dates of significant events in the first year of Duke Wen's reign, 636, and in the spring of 632 will prove particularly valuable because of what they reveal about considerations of timing.

¹ Tong Shuyue 童書業, *Chunqiu shi* 春秋史 (Taipei: Kaiming shudian, 1975), 180.

² See Feng Shi 馮時, “Chunqiu Zi Fan bianzhong jinian yanjiu” 春秋子範編鐘紀年研究, *Wenwu jikan* 文物季刊 4 (1997): 59–65, and Zhang Guangyuan 張光遠, “Gugong xincang chunqiu Jin Wen cheng ba ‘Zi Fan he zhong’ chu shi” 故宮新藏春秋晉文稱霸“子範和鐘”初釋, *Gugong wenwu yuekan* 故宮月刊 13.1 (1995): 4–30.

Of special interest will be the version in the *Guoyu*'s “Discourses of Jin” 晉語 which, in addition to retelling the story of Chong Er's exploits, recasts the history of the period in astrological terms, as the playing out of a sequence of events preordained by Heaven. The only similar passage in *Guoyu* is Ling Zhoujiu's 伶州鳩 famous “musicological” analysis (in the “Discourses of Zhou” 周語) of the sequence of events leading up to the Zhou conquest of Shang 商 in 1046 B.C. There, the text reports the locations of principal heavenly bodies during the campaign of conquest and alludes to their significance in terms of the “field-allocation” (*fenyue* 分野) system of astrological correlations. Elsewhere, I have demonstrated that certain of these positional observations, most significantly that of Jupiter in the astrological space called Quail Fire (Chunhuo 鶉火, the immediate vicinity of Alpherd or α Hydrae) traditionally allotted to Zhou, are accurate and help to explain much about the timing of major events, as well as the import of the Zhou leaders' pronouncements concerning conferring Heaven's Mandate on the Zhou dynasty.³

Later it will become apparent why these two watershed events, the Zhou conquest and the battle of Chengpu, are singled out in *Guoyu* for special attention and astrological interpretation. For the moment, suffice it to say that celestial events accompanying the Zhou conquest established important astrological precedents against which subsequent claims of heavenly endorsement had to be measured. What I intend to show here is that sufficiently informative traditions concerning those astrological precedents were known to the author of *Guoyu* in the late Warring States period, as were the astrological circumstances of Chong Er's ascendancy and the battle of Chengpu. Before discussing those considerations in detail, however, it will be helpful briefly to review what is now known about applied field-allocation astrology as it was practiced in the mid- to late Zhou.

³ See David W. Pankenier, “The Cosmo-political Background of Heaven's Mandate,” *Early China* 20 (1995): 121–76. For a discussion of the field-allocation system of judicial astrology in terms of its origins, characteristics, and the explicit correspondence between celestial and terrestrial cosmography, see Pankenier, “Characteristics of Field Allocation Astrology in Early China,” in *Cultural Aspects of Astronomy: An Intersection of Disciplines* (Durham, N.C.: Carolina Academic Press, forthcoming). A comprehensive survey of historical materials relating to field-allocation astrology is found in Li Yong 李勇, “Dui Zhongguo gudai hengxing fenyue he fenyue shipan yanjiu” 對中國古代恒星分野和分野式盤研究, *Ziran kexue shi yanjiu* 自然科學史研究 11.1 (1992): 22–31.

PRINCIPLES OF FIELD-ALLOCATION ASTROLOGY

Preoccupation with the correlation of celestial and terrestrial phenomena preceded by centuries the elaboration of systematized cosmo-political theories, gradually establishing the conceptual parameters within which such theories would develop. Such archaic predilections certainly contributed to the formation of the influential Yin-Yang and Huang-Lao 黃老 thought of the late Warring States (fifth to third centuries B.C.) and Han periods (206 B.C.–220 A.D.), a dominant principle of which was that knowledge of the natural world translates directly into political power. Thus, in his discussion of the cosmological chapters of the *Huainanzi* 淮南子, John S. Major shows how this assumption underlies the world-view that “cosmology, cosmography, astronomy, calendrical astrology, and other forms of cosmology form a seamless web, the principles of which a ruler would ignore only at his peril.”⁴ Similarly, Mark Edward Lewis has described the popular Warring States-period *mythos* in which a non-heroic figure with no combat skills gains victory over a great warrior through the possession of a divinely or magically revealed military treatise, showing that “military theorists thought of their doctrines as an esoteric wisdom that expressed divine patterns inherent in the cosmos.”⁵ At its simplest, the most basic principle of the so-called “calendrical model of warfare” held that killing was consonant with the cosmos only when carried out according to the seasons of the year. Other accounts that describe revealed texts, such as the so-called “River Diagram” 河圖 and the “Luo Writing” 洛書, also point to the connection of these texts with astral portentology and political ascendancy. More to the point, perhaps, *Huainanzi* ranks astrological factors first among those to be taken into tactical consideration, in this way pointing directly to the agency by means of which patterns of cosmic order having military application were revealed.⁶ Such conceptions are reinforced by still earlier textual

⁴ Major also argues that “the credibility of the Huang-Lao School in the early Han may have rested in part on the degree to which it was grounded in widely shared assumptions that went back to the foundations of Chinese civilization” (*Heaven and Earth in Early Han Thought* [Albany: State Univ. of New York Press, 1993], 14).

⁵ Lewis, *Sanctioned Violence in Early China* (Albany: State Univ. of New York Press, 1990), 98.

⁶ See *Huainanzi*, ch. 15, “Bing lue xun” (Treatise on Military Affairs), (*Sbby*), 15.5a: “Clearly understanding the motions of the planets, stars, sun, and moon; the knack of expedient [application] of punishment and moral suasion; the advantage of facing to the front or rear, or going left or right; these are helpful in battle.” Cf. D. C. Lau and Roger T. Ames, tr. *Sun Bin: The Art*

accounts in *Zuozhuan* and *Guoyu* concerning the correlation of political and military actions with celestial events, most notably Jupiter’s motion.⁷ By the early imperial period, the conjunction of the five planets constituted a definitive sign of the bestowal of Heaven’s Mandate on a new dynasty.

Generally speaking, in all its early manifestations “field allocation” as a concept refers to the correlation between terrestrial regions and their celestial counterparts, based on certain patterns of correspondences, for the purpose of divining the good or ill fortune of the terrestrial locations. The regular field-allocation scheme whose application is described in the *Zhouli* 周禮 or *Rites of Zhou* (see Table 1) dates from late Warring States times.⁸ The general principles and motives underpinning this astrological scheme are succinctly stated in the job description of the Astrologer Royal, Bao zhang shi 保章氏:

[The Astrologer Royal] concerns himself with the stars in the heavens, keeping a record of the changes and movements of the stars and planets, sun and moon, in order to

of Warfare (New York: Ballantine, 1996), 153, 155, where Sun Bin asserts that astrological calculations can assure victory in six battles out of ten, and that he who has mastered the way of warfare “understands the course of the heavens above and the topography of earth below.”

⁷ When one reads in *Guoyu* (*Sbby*), 10.11a, “the space Shi Chen (Orion), this is the dwelling place of the Jin people,” the statement should not be taken as metaphorical, but rather as indicative of the functional identity at a certain level between the celestial and terrestrial realms. By the same token, as indicated above, a basic axiom of astrological prognostication was that celestial bodies were susceptible to the particular emanations (*qi*) of terrestrial regions as they traversed their corresponding celestial spaces, and so it is perfectly natural for Sima Qian to say of Jupiter’s location: “[The state] wherein Jupiter is located may not be attacked, but it may attack others”; see *Shiji* (Beijing: Zhonghua shuju, 1959), 27.1312 where this axiom is attributed by Sima Qian to the Warring States astrologer Shi Shen 石申 (fl. 4th c. B.C.).

⁸ There is considerable evidence to suggest that the nucleus of the system—a correlation of the four celestial quadrants with the cardinal directions and perhaps even with the sequence of seasonal powers and their associated colors—may already have been in place by the second millennium B.C.; see Pankenier, “Cosmo-political Background of Heaven’s Mandate,” 132–44. In his history of ancient Chinese astronomy, Chen Zungui 陳尊堯 concluded that the basic concept of astral-terrestrial correspondences goes back to the “primitive” period, and that the correlation of specific stars with certain terrestrial locations cannot be later than the Spring and Autumn period and may date to the Zhou period; see his *Zhongguo gudai tianwenxue shi* 中國古代天文學史 (Shanghai: Shanghai renmin chubanshe, 1955), 89.

examine the movements of the terrestrial world, with the object of distinguishing (prognosticating) good and bad fortune. He divides the territories of the nine regions of the empire in accordance with their dependence on particular celestial bodies. All the fiefs and principalities are connected with distinct stars, and from this their prosperity or misfortune can be ascertained. He makes prognostications, according to the twelve years [of the Jupiter cycle], of good and evil in the terrestrial world. . . .⁹

Table 1 reproduces the standard scheme of correspondences among the twelve Jupiter stations, solar chronograms, twenty-eight lunar mansions, and terrestrial regions.¹⁰ The scheme of apportionments shown here is obviously the product of a process of systematization which necessarily dates from sometime after the *de jure*

⁹ *Zhouli zhushu (Shisanjing zhushu)*, 26.181, tr. Joseph Needham, *Science and Civilisation in China*, vol. 3, 190. Cf. also Edouard Biot, *Le Tcheou-Li ou Rites des Tcheou* (Taipei: Ch'eng Wen, 1975), 2: 113ff. The ambiguity of the passage with regard to how the astral and terrestrial correspondences were established has led to varying interpretations, all based on fragmentary and inconclusive evidence from other late Zhou and Han texts. The most frequently cited operative principles include: (i) relating the nine provinces to the seven stars of the Big Dipper (see n. 11); (ii) tying the five planets and their associated terrestrial regions to stellar locations; (iii) the regular system of allocating the twenty-eight lunar mansions among the terrestrial polities; (iv) defining the astral correlate of an ancient feudatory as the celestial location of Jupiter at the time of enfeoffment; (v) identifying the celestial correlate of a locality as the asterism to which ancient inhabitants of that place principally offered sacrifice. Of these, Zheng Qiao 鄭樵 (1104–62) accepts only the last as having a sound historical basis; for his measured criticism of the various theories, see the quotation in *Gu jin tushu jicheng* 古今圖書集成, ch. 57, 1341. For a recent study of the problem, see Li Yong, “Zhongguo gudai hengxing fenye,” 26–27.

¹⁰ A similar tabulation found in chapter three of the *Huainanzi* differs in minor detail, on the one hand by omitting the state of Jin and reversing (possibly erroneously) the lunar mansion correlates of Wei and Zhao, and on the other by separating Wu and Yue so that they correspond to Serving Maid (Nü; Aqr) and to Southern Dipper/Ox Leader (Dou/Niu; Sgr/Cap), respectively. This curious Han-dynasty variation produces an idiosyncratic list of thirteen divisions, rather than the standard twelve. John Major speculates that this greater discrimination may be a reflection of the *Huainanzi*'s “southern orientation” (*Heaven and Earth in Early Han Thought*, 128). The preeminence of Jupiter's role in astrological prognostication based on this system is evident in the lines immediately following in the *Huainanzi* passage (3.15a/b) on which Major comments: “As shown by the prognostication rules given . . . all of the attention given here to the description

partitioning of the state of Jin by Zhao, Han, and Wei in 403 B.C. In it an older scheme based on the nine provinces (*jiuzhou* 九州) has now been expanded to take account of the political and military realities of the early Warring States period.¹¹ Three additional “provinces” have been carved out of the older scheme of nine—Bing, San He,

and apportionment of the lunar lodges is for the purposes of the ‘Yin-yang Militarist’ School, to indicate good or bad military fortune for the several states.” Despite this, and unlike the standard listing shown here which begins with the first Jupiter station Xing ji, the *Huainanzi* begins the list with the first lunar mansion Horn (Virgo), presumably because that is the sequence the author follows in the passage immediately preceding giving the dimensions of the mansions in degrees. As one might expect, the military value of calendrical astrology is made even more explicit in the *Huainanzi* treatise on military affairs; see note 6 above. The twenty-eight lunar mansions in the order given in table 1 are:

南斗，牽牛，婺女，虛，危，營室，東壁，
奎，婁，胃，昴，畢，觜，參，東井，輿
鬼，柳，七星，張，翼，軫，角，亢，氐，
房，心，尾，箕。

¹¹ Although the astrological prognostication involving the stars of the Big Dipper does not play a role in the discussion to follow and cannot be documented prior to the Han dynasty, it is worthwhile to point out here the correlations previously alluded to between the Dipper's stars and the nine provinces. It is some aspect of this system of astrological correlations that Sima Qian implies was historically used in tandem with the more familiar field-allocation system: “The twenty-eight lunar mansions govern the twelve provinces and the Dipper's handle seconds them; the source [of this scheme] is lost in antiquity” (*Shiji*, 27.1346). Exactly what Sima Qian means by this allusion to the Big Dipper is not perfectly clear, though in referring specifically to the handle of the Dipper it may be that he had in mind the latter's use as a sort of celestial clock. There is evidence to suggest that the Dipper's use as a seasonal indicator goes back well into the Neolithic; see, for example, Yi Shitong, “Beidou ji: dui Puyang Xishuipo 45 hao mu beisu tianwentu de zai sikao” 北斗機：對濮陽西水坡 45 號墓貝塑天文圖的再思考, *Zhongyuan wenwu* 中原文物 1996.2: 22–31.

Province	Star in Big Dipper
Yong 雍	Kui shu 魁樞 “Chief” “Pivot” Dubhe
Ji 冀	Xuan 璇 “Whorl; Rotator” Merak
Qing, Yan 青兗 Ji 璣	“Axis; Armillary” Phecda
Yang, Xu 揚徐	Quan 權 “Balance; Scales” Megrez
Jing 荆	Heng 衡 “Balance arm” Alioth
Liang 梁	Kaiyang 開陽 “Yang initiator” Mizar
Yu 豫	Yaoguang 搖光 “Twinkling brilliance” Benetnash

The names of the seven stars of the Dipper begin with the brightest at the tip of the bowl and proceed in order to the end of the handle.

Table 1: The Field Allocation System of Astrological Correlations¹²

Jupiter station 歲次	Chronogram 日辰	Field 地域	Province 州	Lunar Mansion 28 宿	Direction 方向
Xingji 星紀	chou 丑	Wu-Yue 吳越	Yang 揚	Dou, Niu (Sagittarius-Capricorn)	NNE
Xuanxiao 玄枵	zi 子	Qi 齊	Qing 青	Nü, Xu (Aquarius)	N
Zouzi 餗觜	hai 亥	Wèi 衛	Bing 并	Wei, Shi, Bi (Aquarius-Pegasus)	NNW
Jianglou 降婁	xu 戌	Lu 魯	Xu 徐	Kui, Lou (Andromeda-Aries)	WNW
Daliang 大梁	you 酉	Zhao 趙	Ji 冀	Wei, Mao (Aries-Taurus)	W
Shi chen 實沉	shen 申	Wei 魏 (Jin) 晉	Yi 益	Bi, Zui, Shen (Taurus-Orion)	WSW
Chunshou 鶉首	wei 未	Qin 秦	Yong 雍	Jing, Gui (Gemini-Cancer)	SSW
Chunhuo 鶉火	wu 午	Zhou 周	San He 三河	Liu, Xing, Zhang (Hydra)	S
Chunwei 鶉尾	si 巳	Chu 楚	Jing 荆	Yi, Zhen (Crater-Corvus)	SSE
Shouxing 壽星	chen 辰	Zheng 鄭	Yan 兗	Jiao, Kang (Virgo)	ESE
Dahuo 大火	mao 卯	Song 宋	Yu 豫	Di, Fang, Xin (Libra-Scorpio)	E
Ximu 析木	yin 寅	Yan 燕	You 幽	Wei, Ji (Scorpio-Sagittarius)	ENE

Table 2: The Nine Fields of Heaven and their Correlations

Direction	Field	Province	Lunar Mansions	States
Center	Revolving 鈞	[Yan]	Jiao, Kang, Di;	[Han, Zheng]
E	Azure 蒼	[Yu]	Fang, Xin; Wei,	[Song, Yan →]
NE	Changing 變	[Yang]	Ji; Dou, Niu,	[Yan; Wu, Yue →]
N	Dark 玄	[Qing]	Nü; Xu, Wei; Shi,	[Yue; Qi; Wèi →]
NW	Somber 幽	[Xu]	Bi; Kui, Lou,	[Wèi; Lu →]
W	Brilliant 昊	[Ji]	Wei; Mao, Bi;	[Lu; Zhao;]
SW	Vermilion 朱	[Liang]	Zui, Shen; Dongjing,	[Jin; Qin →]
S	Fiery 炎	[Yong]	Yugui; Liu, Xing,	[Qin; Zhou →]
SE	Luminous 陽	[Jing]	Zhang; Yi, Zhen	[Zhou; Chu]

You—and the territories to which each has been made to correspond (Wèi, Zhou, Yan) have been reassigned accordingly. Table 2, taken from *Lüshi chungiu* (*Spring and Autumn Annals of Master Lü*), shows the “nine fields” of

Heaven (*jiuye* 九野) which correspond to the nine provinces and can serve to illustrate the contrast.¹³

Here, each of the nine fields corresponds to three lunar mansions, except “Dark Heaven” (*xuantian* 玄天), which has four. As may be seen from the punctuation and arrows in the fourth and fifth columns, this apportionment results in a straddling of boundaries by some lunar mansions which conventionally refer to a single terrestrial location. For example, the state of Yan in column 5 ordinarily

¹² The scheme presented in table 1 is found in Zheng Xuan's 鄭玄 (A.D. 127–200) commentary to *Zhouli* and is essentially identical to that attributed to Shi Shen's 石申 (fl. 4th c. B.C.) *Xingjing* 星經 (Canon of Stars), which is reproduced in the astrological monograph in *Jinshu* 晉書 (Beijing: Zhonghua shuju, 1974), 11.307ff., and also adduced in a commentary to *Shiji*, 27.1346. According to Zheng Xuan, an earlier lost work had elaborated the astral correlates of the Nine Provinces but all that could be reconstructed in his time were the terrestrial correlates of the twelve Jupiter stations (*ci* 次, lit., “stage of an army's march”) in the more familiar field-allocation system. In his commentary, *Zhouli shu* 周禮疏 (*Shisanjing zhushu*, 26.181), Jia Gongyan 賈公彥 (fl. 650), takes *fexing* 分星 (allocated asterisms) to refer to the stars of the Big Dipper and reproduces the scheme of correlations shown below in table 2 from the Handynasty apocryphal work *Chunqiuwei wen yao gou* 春秋緯文耀鉤. Little else is known about the principles of this system except that its prognostications presumably relied on perceived

changes in the brilliance, color, or visibility of the stars of Ursa Major; for examples, see the commentaries in *Shiji*, 27.1293ff. Cf. Major, *Heaven and Earth in Early Han Thought*, 135.

¹³ *Lüshi chungiu* (*Sbby*), 13.1b. Although the passage does not supply the names of the nine provinces, its tabulation of the nine fields of Heaven giving the cardinal and intercardinal directions of each, together with their associated lunar mansions, makes the correspondences unambiguous. The terrestrial correlations are those assigned by Gao You 高誘 (168–212) in his commentary. They conform to those specified in the parallel passage in *Huainanzi*, 3.2b; see Major, *Heaven and Earth in Early Han Thought*, 69; and Li Yong, “Zhongguo gudai hengxing fene,” 22, 25.

corresponds to province You and mansions Wei (Sco) and Ji (Sgr) (see table 1), but here those two lunar mansions are allotted separately to provinces Yu and Yang (column 3), respectively, and province You does not yet appear. This is a clear indication that the pattern of augmentation of the divisions, first from four¹⁴ to nine, and ultimately to twelve, came about over time, the second before and the last after the distribution of the twenty-eight lunar mansions among the twelve chronograms (Jupiter stations) was conventionalized. In transforming the scheme of nine divisions into twelve (in table 1), one new province, Bing, was interposed between Qing and Xu and assigned to the state of Wèi; another, San He, was placed between Yong and Jing and assigned to Zhou; and a third, You, was placed between Yu and Yang and given to Yan. In addition, the name of the WSW province was changed from Liang to Yi and made to correspond to the territory of the state of Wei, one of the three successor-states of Jin.¹⁵

On the whole, the two systems' apportionments are in basic agreement. It is clear that the expansion by three terms did not alter preexisting astrological relationships between celestial and terrestrial locations. Instead, the

¹⁴ For the early history of astrological correlations between specific asterisms and terrestrial polities in Shang and Zhou and evidence of a nascent form of field-allocation astrology in the late second millennium B.C., see note 7 above and the conclusions of Guo Moruo 郭沫若 and Zheng Wenguang 鄭文光 cited in Li Yong, "Zhongguo gudai hengxing fenyue," 27.

¹⁵ The implicit correlation between province Liang and the state of Jin in the Nine Fields system strongly suggests a different identity for Liang than given in later texts. In the "Yu gong" 禹貢 chapter of *Shangshu* 尚書 Liang is identified with southern Shaanxi province, specifically the region between Mt. Hua and a tributary of the Han River known as the Black River; see William H. Nienhauser, ed., *The Grand Scribe's Records*, vol. 1: *The Basic Annals of Pre-Han China* (Bloomington: Indiana Univ. Press, 1994), 27. But there is no doubt that the state of Jin and its immediate predecessor Tang were located near the Fen River in western Shanxi, above the Yellow River's abrupt eastward bend near its confluence with the Wei River. Just west of the confluence of the Fen River with the Yellow River is Mt. Liang, one of the peaks which demarcate the watersheds regulated by the legendary Xia dynasty founder, Yu the Great, in the border region between provinces Ji and Yong; see Nienhauser, *Grand Scribe's Records*, 22. It is probable, therefore, that province Liang was originally located in this area in pre-Zhou times and only later relocated and redefined to include southwestern Shaanxi and Sichuan after the extermination of the principality of Liang by the state of Qin in the mid-Zhou dynasty. See Tan Qixiang, *Zhongguo lishi ditu ji*, vol. 1 (Beijing: China Cartographic Publishing House, 1996), 17–18, coordinates @2.

motive was no doubt to accommodate ancient tradition to new political realities by making terminological adjustments "on the ground," as it were. Chief among the historical changes demanding accommodation, besides the break-up of Jin, was the eastward removal and subsequent decline of Zhou after 771 B.C., coupled with the rise of Qin in the former Zhou homelands in the Wei 渭 River valley in Shaanxi. Taken together, these adaptations point to a late Western Zhou or early Spring and Autumn-period date (eighth to seventh centuries B.C.) for the *jiuye* precursor to the field-allocation scheme.

DERIVATION OF RELEVANT ASTROLOGICAL CORRESPONDENCES

The antecedents of field-allocation astrology are to be found in certain conceptions already influential in the second millennium B.C. Apart from the rare planetary conjunctions already verified, several passages in pre-Qin works preserve the remnants of etiological myths and traditions that establish the existence of definite connections between certain celestial locations and terrestrial polities or peoples. One of the most famous is the legend of E Bo and Shi Chen, which is preserved in the *Zuo Commentary* (Duke Zhao, first year):¹⁶

Formerly, Gao Xin 高辛 had two sons, the eldest was named E Bo and the younger one Shi Chen. They lived in Kuanglin 曠林 but could not get along, daily taking up shield and lance against one another. In the end, Gao Xin could no longer condone it and removed E Bo to Shang-qiu 商丘 to have charge of [the asterism] Chen 辰 ("Great Fire," in Scorpio); the ancestors of the Shang people followed him, therefore Great Fire is the Shang asterism. [Gao Xin] removed Shi Chen to Da Xia 大夏 to have charge of Shen 參 (Orion), so the people of Tang 唐 followed him, and there served the houses of Xia and Shang. The last of their line was Tang Shuyu 唐叔虞. When [Zhou dynasty] King Wu's wife Yi Jiang 邑姜 was pregnant with Tai Shu 太叔 (i.e., Tang Shuyu), she dreamed that the Lord on High told her: "I have named your son Yu and will give Tang to him, make Tang belong to Shen (Orion), and cause his descendants to flourish." When the child was born he had the character *yu* 虞 on his hand, and so his name was called Yu. When [Zhou] King Cheng 成 王 extinguished the old house of Tang he enfeoffed Tai

¹⁶ *Combined Concordances to Ch'un-ch'iu, Kung-yang, Kuliang and Tso-chuan*, Harvard-Yenching Institute Sinological Index Series, supplement 11 (rpt. Taipei: Cheng Wen, 1966; hereafter "Concordances"), 1:344; cf. James Legge, *The Chinese Classics*, vol. 5: *The Ch'un T'sew with The Tso Chuen* (rpt. Taipei: Wen shi zhe chubanshe, 1972; hereafter "Legge"), 580.

Shu there, hence, Orion is the star of Jin. From this we can see that Shi Chen is the spirit of Shen (Orion).

and again (Duke Xiang, ninth year):¹⁷

The ancient “Regulator of Fire” was offered sacrificial nourishment either in the asterism Heart 火 (α Sco) or in the asterism Beak 喙 (δ Hya) in order (for the people) to take out and bring in their fires. For this reason Beak is [called] “Quail Fire” 鶉火 and Heart is [called] “Great Fire” 大火. Tao Tang’s 陶唐 (i.e., Emperor Yao’s) Regulator of Fire, E Bo, dwelt at Shangqiu and sacrificed to Great Fire (α Sco), using Fire to mark the seasons there. Xiang Tu 相土 (grandson of Xie 契 and father of the Shang people) continued in like manner, and so the Shang principally focus on Great Fire. They observed that the incipient signs of their calamities and defeats invariably began with Fire.

The same legend is alluded to in an equally famous passage in *Guoyu*, “Jinyu” (Discourses of Jin):¹⁸

I have heard that when Jin was first enfeoffed, Jupiter was in Great Fire, which is the star of E Bo; in truth it marked the periods of the Shang.

This famous nexus of Jin astral lore about E Bo and Shi Chen, which has abundant echoes in later literary tradition, weaves together elements of cultural significance in characteristic fashion. At bottom, it is a classic example of the kind of etiological myth dating from the preliterate period that served both to explain and to transmit vital astronomical and calendrical knowledge. In this pithy story we can discern a euhemerized tale about the human origins of the deities associated with the principal constellations of spring and autumn, Scorpio and Orion, which are diametrically opposed or “at odds” in the heavens and hence cannot appear in the sky simultaneously. As if unable to abide each other’s presence, E Bo invariably ducks beneath the western horizon just before Shi Chen rises in the east. These personified asterisms are then linked to the cardinal directions (east and west), to seasonal activity for which they anciently served as harbingers (the carrying out and in of the hearth fires, marking the beginning and end of the agricultural season),¹⁹ as well as to the dominant political entities of the archaic period (Shang and Xia), their successor states, and the hereditary lines of astrologers and calendrical specialists who served them. In this and other examples

of such astral lore (notably texts linking the above-mentioned bird asterism “Beak” to the fortunes of the Zhou people) it is possible to discern the basic astrological correlations and operative principles that underpinned the prognostications preserved in pre-Qin texts.

JUPITER IN APPLIED FIELD-ALLOCATION ASTROLOGY: ZUOZHUAN EXAMPLES

In order to clarify the main features of applied field-allocation astrology of particular interest in Warring States and Han times, it will be useful to examine typical passages in *Zuozhuan* involving Jupiter before considering the examples in *Guoyu*. Essentially the same principles apply in the case of other heavenly bodies and celestial manifestations; however, because Jupiter plays the dominant prognosticating role in military and political contexts, the discussion will focus on that planet only. Reproduced here are three of the eight instances in *Zuozhuan* where Jupiter’s location is given in relation to the astrological fields associated with various states.²⁰ The texts display two principal features of field-allocation prognostication: (i) forecasting of events based on the passage of one or more integral twelve-year cycles of Jupiter; (ii) Jupiter’s presence in a state’s astrological space confers military advantage.

A. In the eighth year of Duke Zhao (533 B.C.) the *Spring and Autumn Annals* records the destruction of Chen 陳 by Chu; *Zuozhuan* elaborates:

The Marquis of Jin asked the historiographer Zhao 史趙, “Will Chen cease to exist after this?” and was told, “not yet.” “Why is that?” asked the Duke. [The historiographer] replied: “[The house of Chen] is descended from Zhuan Xu 顓頊. Jupiter was in Quail Fire 鶉火 and [the dynasty of Zhuan Xu] was extinguished; it will be the same with the extinction of Chen. Now [Jupiter] is in the [Milky Way] ford at Split Wood 析木, [Chen] will be restored again. Moreover, the branch of the House of Chen which is in Qi 齊 will obtain the government of that state and only after that will Chen perish.”²¹

The restoration of Chen by Chu occurred in 529, its annihilation by Chu in 479. A venerable historical-genealogical tradition is adduced as the basis for the prediction that the time of Chen’s demise has not yet come. The prognostication is explained in the *Zuozhuan* commentary for the next year, as follows.

¹⁷ *Concordances*, 266, cf. Legge, 439.

¹⁸ *Guoyu*, 10.3a.

¹⁹ The supergiants Alpher (δ Hydrae) and Antares (α Scorpii) are noticeably orange to reddish in hue.

²⁰ The eight are found in Duke Xiang 3rd year; Duke Xiang 28th year (three examples); Duke Zhao 8th year; Duke Zhao 9th year; Duke Zhao 10th year; Duke Zhao 11th year; Duke Zhao 32nd year.

²¹ *Concordances*, 369; tr. Legge, 623 (modified).

B. In the ninth year of Duke Zhao (532 B.C.) the *Spring and Autumn Annals* records a fire in the capital of Chen; *Zuozhuan* adds:

In the fourth month there was a fire in Chen. Pi Zao 裨灶 of Zheng said: "In five years the state of Chen will be restored and after fifty-two years of restoration it will finally perish." Zi Chan 子產 asked the reason, and [Pi Zao] replied: "Chen belongs to [Zhuan Xu's element] Water. Fire is antagonistic to Water, and chu [as descended from Zhu Rong] emulates Fire. Now the Fire [Star] has appeared and set fire to Chen [indicating] the expulsion of Chu and the establishment of Chen. Antagonistic [relations] reach fulfillment in fives, therefore I say 'in five years'. Jupiter will reach Quail Fire five times and after that Chen will finally perish. That Chu will then be able to possess it is the Way of Heaven. Therefore, I said 'fifty-two years'."²²

Here, the correlative cosmology of the "Fire Phases" (*wuxing*) is invoked to explain the antagonism between Chen and Chu, based on their archaic astrological linkage with watery and fiery asterisms. The spring appearance of the Fire Star, Antares, is said to be the cause of the conflagration in Chen.

C. In the thirty-second year of Duke Zhao (510 B.C.) the *Spring and Autumn Annals* laconically reports: "In summer Wu attacked Yue." *Zuozhuan* amplifies:

This was the first instance of a [regular] expedition by Wu against Yue. Historiographer Mi 史墨 said: "In less than 40 years Yue is likely to possess Wu! Yue has obtained [the advantage of] Jupiter [being located in its astrological space], yet Wu attacks it; [Wu] is certain to suffer misfortune from this."²³

The prognostication is of the defeat of Wu by Yue in 478 B.C. and Wu's annihilation the following year. Here Wu acts rashly, in defiance of the principle that the state within whose astrological space Jupiter is stationed cannot be attacked with impunity.

APPLIED FIELD-ALLOCATION ASTROLOGY: THE *GUOYU*
ACCOUNT OF DUKE WEN'S RESTORATION

The *Guoyu* account, in that text's "Discourses of Jin," contains two passages that relate the circumstances of Chong Er's exile and subsequent restoration as rightful ruler of Jin. The first recounts a famous episode that purports to date from 644, when Chong Er found himself in dire straits while traveling through the territory of Wèi:

On passing through Wulu [Chong Er] begged a rustic for food. The man picked up a clod of earth and offered it to him. The Prince became incensed and was about to whip the man, but Zi Fan said: "This is a gift from Heaven. If the people offer you the land, what more could you ask of them? The workings of Heaven are invariably pre-figured [in portents]. [This one means] *in twelve years* you must capture this land. You officers mark my words. *Jupiter is currently in Shou Xing* 壽星; when it reaches Chun Wei 鶉尾, will [the Prince] not possess this land? Heaven has decreed it by this means. [*When Jupiter is once again in Shou Xing, [the Prince] must gain the lords of the states.* It is Heaven's way . . ."]"²⁴

The second, longer narrative concerns the sequence of events surrounding Chong Er's restoration in 636:

[Historiographer] Dong Yin 董因 [of Jin] came out to meet Duke [Wen; i.e., Chong Er] at the Yellow River. The Duke asked, "Might I cross?" [Dong Yin] replied: "Jupiter is in Da Liang 大梁 and about to complete its heavenly travel. *Thus, in your first year you will start by gaining the star of Shi Chen.* As for the space Shi Chen, [its terrestrial correlate] is the abode of the people of Jin and that whereby Jin arose. Now that my lord's return coincides with Shi Chen [it means] you have but to cross! When my lord departed, Jupiter was in Great Fire, which is the star of E Bo. [Great Fire] is called the Great Asterism 大辰. The Great Asterism is for bringing goodness to fruition; Hou Ji 后稷 emulated it, and Tang Shu was enfeoffed during it. The historical records of the blind [historiographer] say: 'Successors will continue the ancestral line, like the increase of grain, there must needs be a Jin state.' Your servant divined by milfoil and obtained all eights for [hexagram] *tai* 泰 [Peace], [whose judgment] says: 'Heaven and Earth unite in receiving sacrifice; the smaller departs and the greater approaches. [Good Fortune. Success]. The present [circumstances] correspond to this, so how could you not cross? What's more, *you left under Chen* 辰 [Great Fire = Scorpio] and *you return under Shen* 參 [Shi Chen = Orion]. These are both auspicious signs for Jin; they are Heaven's great seasonal markers. If you cross and complete your grasp [of power in Jin], you are sure to dominate the lords of the states as Hegemon. Your descendants are depending on it; have no fear, my lord."

The Prince crossed the river and summoned [local headmen]; [the localities of] Linghu 令狐, Jiushuai 臼衰, and Sangquan 桑泉 all capitulated. The people of Jin were frightened, and Duke Huai 懷公 [of Jin] fled to Gaoliang

²² *Concordances*, 370; tr. Legge, 625 (modified).

²³ *Concordances*, 434; tr. Legge, 740 (modified).

²⁴ *Guoyu*, 10.1b; cf. also *Zuozhuan*, Duke Xi, 23rd year.

高粱, leaving Lü Sheng 呂甥 and Ji Rui 冀芮 in command of the army. On day *jiawu* (31) [the Jin Army] encamped at Luliu 廬柳. The Earl of Qin sent Gongzi Zhi 公子縶 into the army [to inform its command]; then the army withdrew and took up station at Xun 郇. On day *xinchou* (38), Hu Yan 狐偃 [i.e., Zi Fan] together with grandees from Qin and Jin entered into a covenant at Xun. On day *renyin* (39), Duke [Wen 文] went among the Jin army. On day *jiachen* (41), the Earl of Qin returned [home]. On day *bingwu* (43), [Duke Wen] entered Quwo 曲沃. On day *dingwei* (44), he entered [the Jin capital at] Jiang 絳 and ascended the throne in the temple of Duke Wu 武宮. On day *moushen* (45), [Duke Wen had] Duke Huai killed at Gaoliang.²⁵

There is much of historical and literary interest in these two passages but our focus here will be on the prognostications and their implications. First, it will be noted that both passages invoke the main operative principles of field-allocation astrology identified above; that is, the strategic advantage conferred by Jupiter's presence in a state's astrological space and prediction based on integral twelve-year cycles. From the point of view of Jin, Jupiter's twelve-year cycle begins and ends in Shi Chen, the astrological space allotted to that state. In explaining his prediction, the historiographer Dong Yin also invokes venerable traditions about the significance of Shi Chen and Great Fire in Jin history, previously described in our account of the origins of field allocation correlations.

Reduced to their essentials, the astrological prognostications, which are obviously *ex post facto* reconstructions, may be tabulated as follows:

Zi Fan (Hu Yan)'s and Dong Yin's astrological history

Date	Event	Asterism
655 B.C.	Chong Er flees Jin	Great Fire (Scorpio)
•		
644	Begs food at Wulu	Shou Xing (Virgo)
•		
637	Dong Yin meets at River	Da Liang (Pleiades)
636	Duke Wen of Jin 1st Year	Shi Chen (Orion)
635		Chun Shou (Gemini-Cancer)
634		Chun Huo (Leo [Hydra])
633		Chun Wei (Corvus)
632	Battle of Chengpu	Shou Xing (Virgo)
631		Xi Mu (Sagittarius)

According to the first passage containing Hu Yan's prediction, because the omen at Wulu occurred while Jupiter was located in the Jupiter station Shou Xing, Heaven has decreed that when Jupiter next returns to the same location twelve years hence Chong Er will capture Wulu from Wèi, then win the allegiance of the lords of the states, and be confirmed as Hegemon. The second, more elaborate astrological passage, again in the form of wise counsel proffered by an astrologically expert historiographer, is consistent with the first and invokes the legendary roles played by Great Fire and Shi Chen in Jin history. Jupiter's location in Shi Chen, Jin's astrological space, at the very moment Chong Er is to make his bid for power, is underscored as especially auspicious. Historical and genealogical analogies, together with an apposite judgment text from the *Yijing* alluding to the flight of Duke Huai of Jin at Chong Er's approach, are adduced to persuade Chong Er that the recommended action is not only consistent with astrological precedent, but that success is virtually assured because of the propitiousness of the moment. Indeed, not to act as advised is indirectly portrayed as a dereliction of Chong Er's filial duty to his ancestors as well as his descendants.

Apart from the prescience of Zi Fan and Dong Yin in accurately forecasting the future, the fictional nature of the prognostications and their reconstruction after the fact is shown by a four-year error in identifying Jupiter's location. The following table is based on analysis of the planet's true longitudes in the years indicated and shows where Jupiter ought to have been placed by contemporary observers. It is apparent that instead of being located in Jin's astrological space in Duke Wen's first year as claimed, Jupiter's location was most likely identified as Shi Chen in 644 and again twelve years later in 632, at the time of the battle of Chengpu.

Jupiter's actual location in the years in question

Date	Event	Asterism
655 B.C.	Chong Er flees Jin	Chun Shou (Gemini-Cancer)
•		
644	Begs food at Wulu	Shi Chen (Orion)
•		
637	Dong Yin at River	Xing Ji (Sagittarius-Capricorn)
636	Duke Wen of Jin 1st Year	Xuan Xiao (Aquarius)
635		Zou Zi (Pegasus)
634		Jiang Lou (Andromeda)
633		Da Liang (Pleiades)
632	Battle of Chengpu	Shi Chen (Orion)
631		Chun Shou (Gemini-Cancer)

²⁵ Guoyu, 10.11a-12a; cf. Zuo zhuan, Duke Xi, 24th year.

In some cases there may be some variability involved in establishing what contemporary observers would have called a given year based on Jupiter's location, because of the phenomenon of "station creep," arising from the incommensurability of Jupiter's synodic period with a solar year (398.88 vs. 365.24 days). Jupiter's continued motion during its annual seven-week period of invisibility behind the sun causes the planet to reappear a few degrees farther along in a given station on each successive visitation. After about seven twelve-year cycles the accumulated "creep" will approximate one year's travel, and if the planet's location is routinely assigned on the basis of a sequential twelve-year count rather than rigorous positional observation, at some point actual observation of Jupiter's reappearance will eventually show the planet to have unexpectedly skipped a station (*shi ci* 失次).²⁶

Shi Chen years, in particular, pose an identity problem because that station's range in longitude is just under 15°, or about half of Jupiter's annual motion, so that in any given Shi Chen year the planet will actually spend most of its time outside the station's nominal boundaries, at least as they were defined in late Warring States times. That being the case, determination of what constitutes a Shi Chen year can depend vitally on what the immediately preceding years have been called. In the present instance, the difficulty is compounded by the fact that most of Jupiter's travel through Shi Chen during the cycle in question took place while the planet was obscured behind the sun, during May–June of 633. Reappearing on or about June 21, 633 (fig. 1), Jupiter was already at the nominal eastern boundary of Shi Chen, at least according to the "old degree" system of determinative stars which mark the boundaries of the lunar mansions.²⁷

In order to conclude with confidence that Jupiter's twelve-month period of visibility (which can begin in any month) is correctly described as this or that Jupiter year, benchmarks are needed against which to compare Jupiter's behavior on a given occasion with recorded positional determinations showing the range of acceptable

variability. Fortunately, such benchmarks exist. In the case at hand, it is instructive to compare Jupiter's true location in 632 with the actual circumstances in the years 242 and 206 B.C. (figs. 2 and 3) which have been shown to agree with the contemporary observations recorded in the Mawangdui manuscript *Wuxing zhan* 五星占, "Prognostications of the Five Planets."²⁸ Figures 2 and 3 graphically illustrate the variability of Jupiter's position at its dawn reappearance in Shi Chen before and after three Jupiter cycles had elapsed between 242 and 206 B.C. Note that in the latter case, in 206 B.C., Jupiter's position is identical with that in 633 shown in figure 1. In the absence of detailed knowledge about how Jupiter's location was denoted in the seventh century B.C., such a record of actual practice from the late third century provides solid evidence that identifying Jupiter's location as Shi Chen during its period of visibility in 633–632 is consistent with later observational practices.²⁹

As I have shown in the past, the account in "Discourses of Zhou" locating Jupiter in the Zhou astrological space Quail Fire (Chun Huo) in the year Shang was conquered is correct.³⁰ The true date of the Zhou conquest was probably

²⁸ See Xi Zezong 席澤宗, "Mawangdui boshu zhong de 'Wu xing zhan'" 馬王堆帛書中的"五星占", in *Zhongguo gudai tianwen wenwu lunji*, 55.

²⁹ If we assume this portrayal of the circumstances to be accurate, the argument has interesting implications for the dating of the *Guoyu* account. The dates of Duke Wen of Jin were known in Warring States times. Any error in the *Guoyu* identification of Jupiter's location would presumably have arisen from retrospective calculation at the time of the text's compilation. That being the case, it should be possible to calculate when that time was. An author working in late Warring States times would necessarily have assumed a twelve-year period for Jupiter, the same figure given in the "Prognostications of the Five Planets" and still in use well into the Han dynasty. Since the actual period is 11.86 years, a retrospective extrapolation compounding an error of 0.14 years per twelve-year cycle would have to span some 28–29 cycles (336 to 348 years) to accumulate a four-year error. This would place the approximate date of the text's compilation at the very end of the fourth century B.C. or the very beginning of the third (i.e., 636–336 = 300; 636–348 = 288). This result compares favorably with the range of scholarly opinion regarding the date of compilation of *Guoyu* based on considerations of grammar, usage, and historical allusion. For example, E. Bruce Brooks has proposed a date for the text of 305–307 B.C.; see "The Present State and Future Prospects of Pre-Han Text Studies," *Sino-Platonic Papers* 46 (July 1994): 50, and *Warring States Working Group Newsletter*, 2nd series, 2 (1 July 1996): 2.

³⁰ Pankenier, "Cosmo-Political Background of Heaven's Mandate," 124ff.

²⁶ This is precisely the situation referred to in *Zuozhuan* (Duke Xiang, 28th year) where Jupiter's reappearance in station Xing Ji was anticipated, but the planet "transgressed" (*yin* 淫) and appeared in Xuan Xiao instead. For a graphic illustration of this phenomenon, see Pankenier, "Astronomy and Astrology in Shang and Early Zhou," *Early China* 7 (1981–82): 10, fig. 2.

²⁷ For the "old degree" system of reference stars in use prior to the second century B.C., see Wang Jianmin 王建民 and Liu Jinyi 劉金沂, "Xi Han Ruyin Hou mu chutu yuanpan shang er-shiba xiu gu judu de yanjiu" 西漢汝陰墓出土園盤上二十八宿古距度的研究, *Zhongguo gudai tianwen wenwu lunji* 中國古代天文文物論集 (Beijing: Wenwu chubanshe, 1989), 59–68.

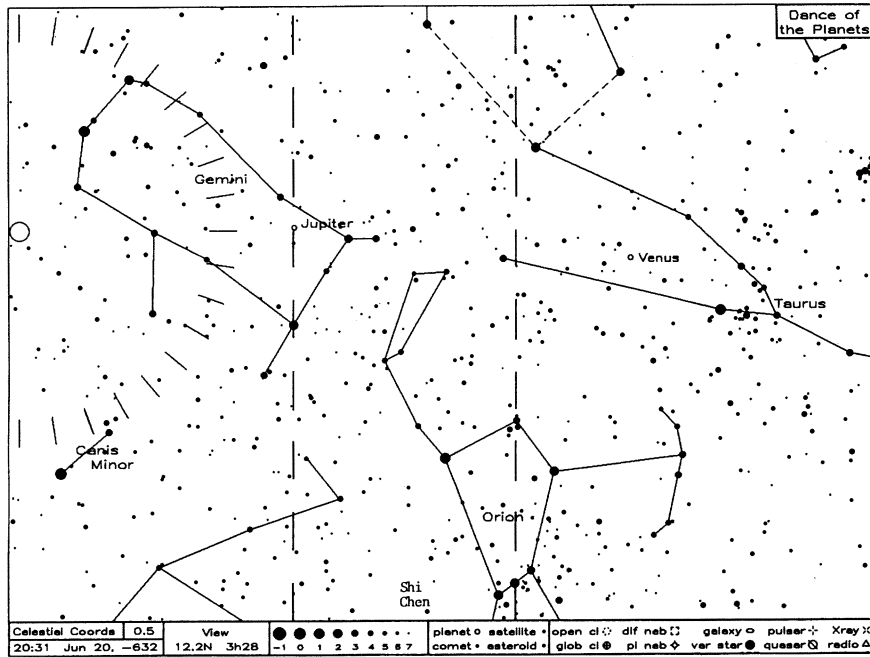


Fig. 1: Jupiter's location in Gemini at first visibility before dawn in the east in late June, 633 B.C. Vertical lines through determinative stars Lambda Orion and Gamma Gemini denote the nominal boundaries of the station Shi Chen according to the pre-Han "old degree" system. (Dance of the Planets © ARC software)

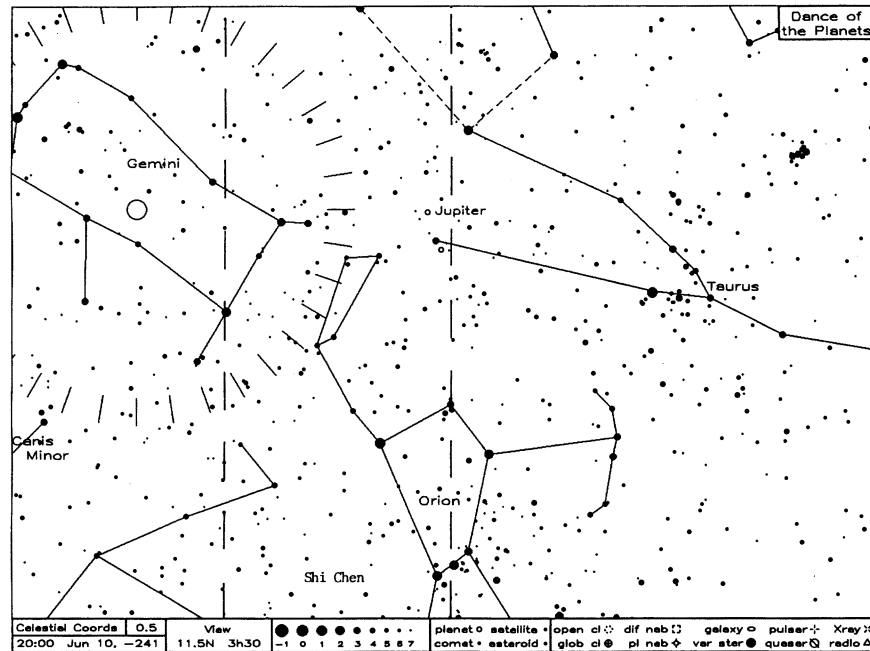


Fig. 2: Jupiter's location in Orion at dawn in Shi Chen year 242 B.C. (Dance of the Planets © ARC software)

not known in late Warring States times, and even if it had been, no retrospective calculation using a twelve-year period for Jupiter could have correctly placed Jupiter in Quail Fire, hence this bit of astral lore had to have been based on received tradition. Therefore, it is not unreasonable to suppose that the *Guoyu* author also had access to astrological portents associated with Duke Wen's restoration and the battle of Chengpu, events more than four centuries nearer his own time than the Zhou conquest of Shang. For example, tradition might have held that "when Jin achieved hegemony, Jupiter was in Shi Chen," or something similarly ambiguous, which the author of the astrological discourses of Dong Yin and Zi Fan would have interpreted and embellished on the basis of his other sources and retrospective calculation. At a minimum, it seems likely that the *Guoyu* author was not fabricating his astrological account from whole cloth. The coincidence of Shi Chen with Duke Wen's first year as emphasized in the text, and in all probability with the battle of Chengpu, suggests that field-allocation astrology may have played a more prominent role in the planning of military strategy in the early Spring and Autumn period than has previously been understood. The remainder of this discussion will therefore take a closer look at the timing of datable events and their coincidence with significant celestial phenomena in an effort to learn what, if any, astrological considerations may have influenced decision making.

CORRELATION OF POLITICAL AND MILITARY ACTIVITY
WITH CELESTIAL PHENOMENA

The Appendix provides a detailed timeline of events from the time of Chong Er's restoration to the victorious Jin army's return home after the decisive victory over Chu at Chengpu. All dates given in the various sources have been reconciled and their astronomical accuracy checked using a computer program (*Dance of the Planets*) as well as reconstructions of China's pre-Qin calendars, specifically the tables of new moons and intercalations for the Spring and Autumn period (722–480 B.C.).³¹

One clear indication of the attention being paid to celestial phenomena in scheduling political events is the correlation between full moons and ritually significant investiture ceremonies, first at the time of Chong Er's return to the Jin capital of Qu Wo 曲沃 and assumption of power as Duke Wen of Jin in the fifth month of 636 B.C. (May 10), and subsequently at the time of the elaborate investiture and covenant ceremony confirming Duke Wen

as Lord Protector in the presence of the Zhou king and the assembled lords in the fifth month of 632 B.C.³² In addition, the fact that a number of other dated events coincide with either new or full moons suggests that certain kinds of military and ritual activity required such timing, for reasons which we now can only guess at. For example, on its victorious return march to Jin in the sixth month of 632, the Jin army forded the Yellow River during a full moon, perhaps to take advantage of the evening moonlight, while the subsequent triumphal entry into the Jin capital, instead, coincided with a new moon. The battle of Chengpu itself occurred the day following a new moon, with the new moon's thin crescent barely, if at all, visible. Such correlations might seem purely coincidental were it not for the fact that fully one-third (five of fifteen) of dated events coincide with either new or full moons and still others fall within a day of the precise time of syzygy.³³

As interesting as such lunar correlations may be from a tactical or ritual standpoint, however, they are prosaic by comparison with the planetary phenomena coincident with the battle of Chengpu and the subsequent ceremonies. We saw above how 633–632 B.C. was the first occasion after Duke Wen assumed power that Jupiter took up station in Shi Chen (Orion-Gemini), the astrological space allotted to Jin. In astrological terms this means that this would have been the ideal opportunity for Jin to undertake military adventures, since Jupiter's presence in a state's astrological space confers a definite advantage. Moreover, this opportunity would recur only after another twelve years had elapsed, and only after the astrological advantage conferred by Jupiter had passed, first to Qin, then after Zhou to Chu, and on to each of the other states in turn. Therefore, to the extent that astrological considerations figured in strategic planning, as *Guoyu* strongly hints they did, it would have been most difficult given the political and military circumstances for Duke Wen and his advisors to let such an opportunity pass.

But the spring and early summer of 632 B.C. witnessed an even more remarkable coincidence of celestial and terrestrial events, for as the months progressed it would have become obvious to astute observers that a planetary

³² Following up on the reference in *Zuozhuan* to the precedent-setting investiture of Duke Huan of Qi in 679 B.C., the famous Kuiqiu 葵丘 "Sunflower Hill" covenant in the eighth month of that year, indicates that it too may have been scheduled to coincide with a full moon. See note 39 below.

³³ It is noteworthy in this connection that the remarks of Sun Bin quoted above in note 6 concerning the use of astrological calculations in warfare come from chapter 6 of *The Art of War*, entitled "The Moon and Warfare."

³¹ See Zhang Peiyu 張培瑜, *Zhongguo xian Qin shi libiao* 中國先秦史曆表 (Ji'nan: Qi Lu shushe, 1987).

gathering of some significance was in the offing. Figure 4 shows Jupiter prominent in Gemini in the evening sky just at the time of the battle of Chengpu in March. Figures 5 and 6, on the other hand, show how during the period March through May three more planets approached Jupiter's position, culminating in an impressive alignment of Venus, Mercury, Jupiter, and Mars in Cancer in late May (fig. 6), precisely at the time of the investiture ceremony and covenant, in the Zhou king's presence, that formally confirmed Duke Wen's status as Lord Protector. This adjunction of planets was not as complete as that of five planets in 1059 B.C., which signaled the conferral of Heaven's Mandate on King Wen, but as these things go it would certainly have commanded attention, and what's more, it was ritually appropriate, in that as hegemon Duke Wen would have merited only four planets and not the "royal" five. What is remarkable, and this would have been all the more striking to observers in 632 who had knowledge of the Mandate precedent, is that this conjunction of four planets took place in the identical location as the Zhou Mandate conjunction some four centuries earlier (fig. 7). Hardly less striking is the fact that the famous alignment of all five planets in May, 205 B.C., recorded by Han historians as signaling Heavenly approval of Liu Bang's founding of the Han dynasty, also was centered on this very location in the sky (compare figs. 7 and 8).³⁴

ASTROLOGICAL PARALLELISM IN TWO *GUOYU* ACCOUNTS

Recalling now that a regularly applied operative principle in field-allocation astrology is the twelve-year Jupiter cycle or "Great Year," it will be helpful to compare the Zhou Mandate precedent with the prognostications concerning Duke Wen of Jin. In the latter case, we saw how fulfillment of the prediction was based on Jupiter's return to a given location after one twelve-year cycle had elapsed. In the passage from "Discourses of Jin," the

³⁴ For the earliest record of this planetary event, see *Shiji*, 27.1348. See also comments by Liu Yunyou 劉雲友, "Zhongguo tianwen shi shang de yi zhong zhongyao faxian—Mawangdui Han mu boshu zhong de 'Wu xing zhan'" 中國天文史上的一種重要發現—馬王堆漢墓帛書中的"五星占", *Wenwu* 文物 1974.11: 35. By late Han times, the portentous role of planetary apparitions was firmly entrenched in both popular imagination and decorative repertoire. Eloquent testimony to this is provided by a perfectly preserved silk bag recently unearthed from an Eastern Han tomb in the remote oasis of Niya 尼雅 in Xinjiang. Woven into the cloth is the legend, "When the Five Planets appear in the East it is beneficial to China" 五星出東方利中國; see Sun Yu'an 孫遇安, "Niya 'wu xing jin' xiao shi" 尼雅五星錦小識, *Wenwu tiandi* 文物天地 2 (1997): 10–12.

author reconstructed this cycle as beginning and ending in Shou Xing, with Duke Wen's first year coinciding with Shi Chen. In actual fact, contemporary observers would probably have seen Jupiter's presence in Shi Chen as coinciding with the portent at Wulu (644) and the battle of Chengpu (632). On this basis it was conjectured that the *Guoyu* author had at his disposal accurate, though perhaps ambiguous, astrological accounts of the period that hinted at the auspicious role of Jupiter and Shi Chen, leaving it to the narrator's imagination to reconstruct the precise details.

Turning to the earlier Zhou Mandate precedent in mid-eleventh century B.C., the sequence of events may be schematized as follows:

- 1059 May 28 Dense massing of all five planets in Chun Shou (Cancer-Gemini) near the "beak" of the Vermilion Bird.
- 1058 March Jupiter on station at Bird Star in Chun Huo (Quail Fire); King Wen declares "First year of the Mandate."
- 1048 Fall Jupiter advances toward Quail Fire, then suddenly retrogrades; Zhou army's advance is aborted at Mengjin ford despite allies' entreaties: King Wu admonishes "You do not know Heaven's Mandate."
- 1047–1046 Jupiter resident in Quail Fire, takes up E. station within 3° of the Bird Star for several weeks in March; Battle of Muye on March 20, 1046 (Mandate 13th year, 2nd month, first day *jiazi*).

From 1058 Quail Fire to 1046 Quail Fire is thus one complete Jupiter cycle or "Great Year." Clearly, the astrological circumstances of the spring of 632 B.C. recapitulate in detail the salient features of the Zhou Mandate precedent in mid-eleventh century: (i) Jupiter is in the station astrologically associated with the state assuming military advantage; (ii) the timing of events (or prognostication) correlates with the passage of one Jupiter cycle; (iii) Jupiter is at eastern station and/or about to resume direct motion at the time of the decisive military engagement; (iv) an impressive conjunction of planets occurs near the beak of the Vermilion Bird constellation, signaling Heavenly endorsement of what has just occurred or will shortly occur.

CONCLUSION

Records of the planetary massing in 1059 B.C. and of Jupiter's location in Quail Fire at the time of the Zhou

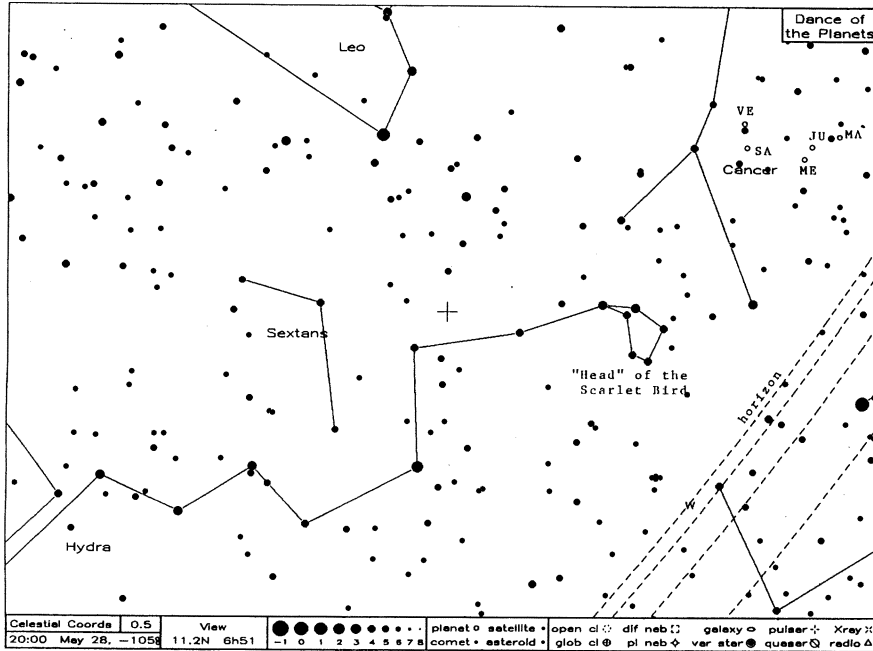


Fig. 7: Zhou Mandate conjunction of 1059 B.C. in Cancer. (Dance of the Planets © ARC software)

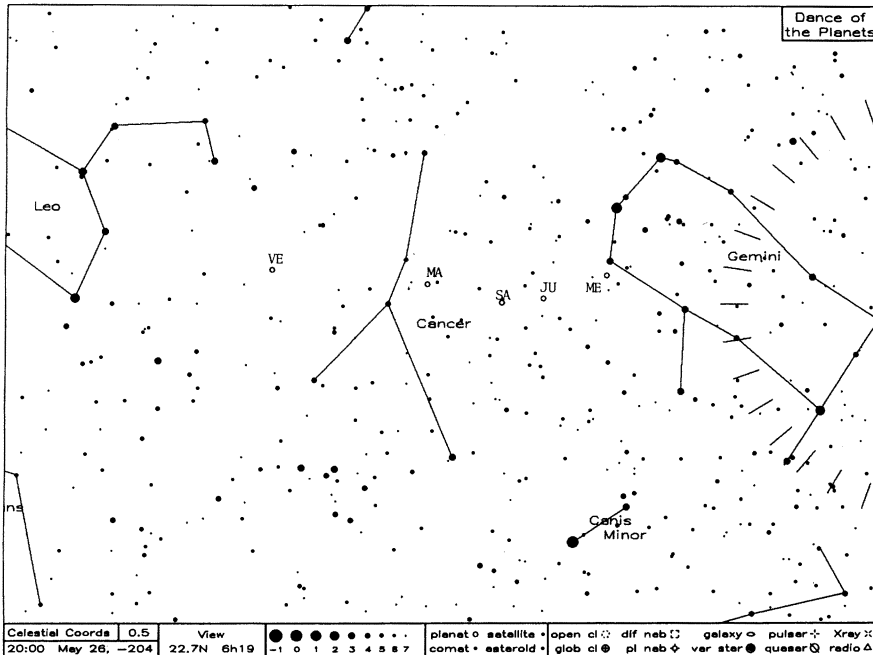


Fig. 8: Five-planet alignment in Cancer in 205 B.C. affirming the rise of Han. (Dance of the Planets © ARC software)

conquest have survived in Han and Zhou texts.³⁵ Persistent traditions regarding a “scarlet bird’s” apparition in connection with the Mandate’s conferral (sometimes explicitly as a phoenix) indicate that knowledge of the actual location of the Zhou portent was still widespread in Warring States and earlier times. It is only recently that reconstruction of the astronomical circumstances of the Mandate’s conferral and the Zhou conquest have recovered or reestablished the precise correlation of Jupiter’s twelve-year period from Quail Fire to Quail Fire (i.e., the astrological space allotted to Zhou in field-allocation astrology) with the pivotal events of the Zhou conquest period.

The recurrence of such portentous planetary phenomena in precisely the right location in connection with Duke Wen’s victory over Chu and elevation to the status of Lord Protector must have profoundly impressed those who witnessed the events in 632 B.C. Certainly, to the extent that the participants embraced such astrological concepts, field-allocation astrology would have figured importantly in strategic planning. Indeed, Jupiter’s presence in the astrological space allotted to Jin in 632 could help to explain the eagerness of Jin to engage Chu and, conversely, account for King Cheng of Chu’s evident lack of enthusiasm for military confrontation with Jin. In any event, it seems likely that Duke Wen’s investiture as Lord Protector, and probably the battle of Chengpu itself, were scheduled to coincide with what was happening in the skies.³⁶ Given the extraordinarily prestigious, precedent-setting events at the founding of Zhou, and given that

these are the only two instances in *Guoyu* where the astrological circumstances of historical events are elaborated to this degree, it seems fair to conclude that the astrological parallels were present in the mind of the author or authors of the pertinent passages.

We are led to the conclusion, therefore, that field-allocation astrology figured importantly in military planning during the Spring and Autumn period, and that precedent-setting events at the time of the conquest in early Zhou established the principal parameters for astrological prognostication in such contexts. Echoes of these astrological practices and principles, especially regarding the role of Jupiter and its twelve-year cycle, survive in Warring States historical narratives such as *Zuozhuan* and *Guoyu* and attest to the importance of astral-terrestrial correspondences in the conceptual world of the Spring and Autumn and Warring States periods. Finally, the timely recurrence of impressive planetary conjunctions in virtually the same highly symbolic celestial location on three occasions—1059, 632, and 205 B.C.—can hardly have failed to reinforce in the minds of witnesses the already strong conviction that Heaven manifested a special interest in the destiny of Hua-Xia civilization.

APPENDIX

TIMELINE OF DUKE WEN OF JIN’S RESTORATION
AND EVENTS (INDICATED BY ●) SURROUNDING THE
BATTLE OF CHENGPUR, 12 MARCH 632**637–636 B.C. (Duke Xi of Lu’s 23rd–24th year)**

Guoyu contains astrological prognostications based on field-allocation astrology and the twelve-year Jupiter cycle; *Shiji*, “Hereditary House of Jin,” 39.1661 (following *Zuozhuan*) has:

- Duke Wen of Jin, 1st year (636), spring, Chong Er “reaches the Yellow River,” then:

- 2nd month, *jiawu* (31)** “Jin army encamps at Lu-liu” [dated only in *Zuozhuan*]
- 2nd month, *xinchou* (38)** “Grandees of Qin and Jin covenant at Xun 旬.”
- renyin* (39)** “Chong Er joins the Jin army.”
- 3rd month, *jichou* (26)** *hui* “last day of the month; attempt on Duke Wen’s life.” [only *Zuozhuan* gives lunar phase]³⁷

³⁵ Elsewhere I have shown that the interpolation in the *Bamboo Annals* passage erroneously locating the Zhou Mandate conjunction in Scorpio rather than Quail Fire derives from *wuxing* speculative theories about the ruling element of the Han dynasty. See Pankenier, “Cosmo-Political Background of Heaven’s Mandate,” 132, n. 17 and 134, n. 20, and especially the discussion in Christopher Cullen, *Astronomy and Mathematics in Ancient China: The Zhou bi suan jing* (Cambridge: Cambridge Univ. Press, 1996), 32.

³⁶ The parallels between the battle of Muye in 1046 and the battle of Chengpu in 632 are actually even more precise, since at the time of both engagements Jupiter was either standing still at its East Station or just resuming direct motion after this annual stationary episode. Highly suggestive parallel correlations are now coming to light in Mayan astrology. See, for example, John S. Justeson, “Ancient Maya Ethnoastronomy: An Overview of Hieroglyphic Sources,” in *World Archaeoastronomy* (New York: Cambridge Univ. Press, 1989), 104. Justeson discusses how stationary episodes of Jupiter and Saturn were used to schedule human affairs “ostensibly as sacred mandates for elite decision-making.” For further examples, see Susan Milbrath, “Jupiter in Classic and Postclassic Maya Art,” in *Cultural Aspects of Astronomy: An Intersection of Disciplines*.

³⁷ There is a one-month discrepancy between the *Zuozhuan* (Lu) dates given here and the calendar reconstructed for the

- [4th month] *bingwu* (43) “Chong Er enters Quwo.”³⁸
- dingwei* (44) “Chong Er installed as Lord of Jin in Wu Gong 武宮.”
- mushen* (45) “Duke Wen orders Duke Huai killed.”

634–632 B.C.

The *Spring and Autumn Annals* and *Zuo* have:

- **Xi 26; 634 B.C.** Lu covenants with Wèi and Ju 莒; Qi displeased, invades Lu; Lu appeals to Chu for help in attacking Qi.
- **Xi 26** Song turns on Chu and sides with Jin, so Chu troops first attack Song and besiege Minyi 緡邑.
- **Xi 26** Lu leads some Chu troops to attack Qi; captures Guyi 穀邑 (upstream from Pu 濮) and garrisons the town with Chu troops.
- **Xi 27** Lu, winter; Chu King Cheng personally leads troops of Zheng, Chen, Cai, Xu in besieging Song; Lu participates in covenant on Song territory.
- Song appears to Jin for help; Cao and Wèi recently collaborated with Chu (Wèi and Chu recently established marriage ties).
- Jin strategy is to goad Chu into confrontation: first attack Cao and Wèi, this way Chu will have to respond, thereby relieving siege of Song and Chu incursion into Qi.
- **Xi 28; 632 B.C.** Jin first establishes the Three Armies; raises troops to invade Cao and attack Wèi; captures Wulu 五鹿 (near Puyang; cf. *Guoyu* prophecy of twelve years earlier) from Wèi.
- **Xi 28, 2nd month** Jin and Qi covenant at Lianyu 斂盂 (Wèi territory near Puyang).
- Duke Cheng of Wèi wants to take part in covenant; Jin refuses him for duplicity; people of Wèi drive him out to Xiangniu 襄牛 in the south to curry favor with Jin.
- Lu sends troops to defend Wèi; Chu troops are unsuccessful in relieving Wèi; Lu fears Jin, kills Chu grandee Gongzi Jia 公子賈 to placate Jin, dissembles in telling Chu it was because he was not resolute in relief of Wèi.
- **Xi 28, 3rd month, *bingwu* (43) [17 Feb 632]** Jin army occupies Cao; Chu siege of Song becomes acute; Song again appeals to Jin for relief.
- Duke Wen of Jin hesitates to break openly with Chu because Qi and Qin are still unwilling to cooperate fully.
- Duke Wen’s advisor Xian Zhen 先軫 persuades with a stratagem: have Song bribe Qi and Qin to approach Chu about making peace; Jin will capture Cao lord and give Cao and Wèi land to Song; Chu protects Cao and Wei, so will not agree to peace with Song despite Qi and Qin request; the latter will become incensed and Jin thus can obtain Qi’s and Qin’s cooperation against Chu.
- Jin proceeds as planned: captures Cao Bo and delivers to Song (Cao is a former vassal of Song).
- King Cheng of Chu withdraws to Shen 申; orders Chu troops to leave Qi town Guyi and calls on Premier Ziyu to lift the siege of Song; King Cheng, unwilling to oppose Jin, retires.
- Ziyu, refusing to do as ordered, sends deputy to plead with Chu king to declare war on Jin; self-serving arrogance offends Chu king who sends only token reserves and lets Ziyu act on his own.
- Ziyu sends an emissary to Jin demanding that Wèi ruler be allowed to return and Cao be re-established, after which he promises to lift the siege of Song.
- Advisor Xian Zhen persuades Duke Wen of Jin with stratagem: privately allow lords of Cao and Wèi to return home causing Cao and Wèi to desert Chu, then arrest the Chu emissary to provoke Chu.
- Stratagem works: Cao and Wèi desert Chu; Ziyu, predictably outraged, attacks Jin army.
- Duke Wen fulfills old promise made while a guest of the King Cheng of Chu to retreat three stages (ninety *li*) to avoid confronting Chu army; the majority of Chu forces are reluctant to pursue. Ziyu, willful and vainglorious, insists on attacking Jin.
- **Xi 28, 4th month, *wuchen* (5) [11 March]** Jin, Song, Qi, and Qin troops occupy Chengpu; Chu army takes advantageous tactical position and encamps. [*Zuo* date; 4th month began on *dingmao* (4), March 10]
- **4th month, *jisi* (6) [12 March, moon age 1.6d]** Jin and Chu declare intention to fight. **Battle of Chengpu.** Jin’s superior tactics and deception carry the day; only Ziyu’s army of the middle withdraws undefeated; Jin army feasts on captured Chu provisions for three days. [*Spring and Autumn Annals*, *Zuo*, *Shiji* all provide the date]
- ***jiawu* (31) [6 April; moon age 26.8d in Psc]** Jin army withdraws to Hengyong 衡雍 (days 10–30); Duke Wen builds “King’s Palace” at Jiantu 踐土 and

period by Zhang Peiyu, probably due to the insertion of an intercalary first month in Lu at the beginning of Duke Xi’s twenty-fourth year. See Zhang Peiyu, *Zhongguo xian Qin shi libiao*, 137. For an alternative explanation of the calendrical discrepancy based on the date recorded in the *Zi Fan he zhong* inscription, see Feng Shi, “Chunqiu Zi Fan bianzhong jinian yanjiu,” 63–64.

³⁸ The moon was 15.9 days old the preceding evening, May 9, at which time it was ninety-nine percent illuminated.

invites Zhou king; Zheng state, which had been colluding with Chu, in fear now sues for peace with Jin. [only *Zuozhuan* dates]

- **5th month, *bingwu* (43) [18 April; month began on *dingyou* (34)];** Jin and Zheng covenant at Hengyong. [only *Zuozhuan* gives the date]
- ***dingwei* (44) [19 April];** Zhou king arrives; Jin presents Chu captives; Zheng ruler comes to assist King in officiating in the ceremonies; gives rewards, makes declaration.³⁹ [only *Zuozhuan* gives the date]

³⁹ Zhou King Xiang's commendation of Zi Fan on this occasion as recorded in the *Zi Fan he zhong* inscription reads: "The King's fifth month, *chuji*, day *dingwei* (44). Zi Fan assisted the Duke of Jin as advisor and brought about the restoration of his state. [When] the several Chu [followers] did not come to hear [the royal] commands in the King's presence, Zi Fan, together with the Duke of Jin, led the Six Armies of the West [i.e., Jin] in extensively punishing Chu and achieved great merit. Chu is bereft of its armies, its commanders annihilated. Zi Fan assisted the Duke of Jin as advisor in mediating among the several Lords, causing them to appear before the King, [and so] was able to settle the King's throne. [Now, therefore,] the King bestows on Zi Fan . . ." Because day *dingwei* was the same lucky day chosen for Chong Er's investiture as Duke Wen of Jin in 636, four years earlier, and because the narration begins with this event, Feng Shi argues ("Chunqiu Zi Fan bianzhong jinian yanjiu," 63) that the date refers to that occasion. Though Feng's argument is plausible, my own impression is that this portion of the inscription is actually quoting verbatim from the text of the King's commendation in 632. Therefore, the date specified in the preface may well refer to Zi Fan's actual audience with King Xiang, at which time the rich rewards listed in the inscription were bestowed on him by the king. In either case, it is especially worth noting that the *Zi Fan he zhong* inscription identifies day *dingwei* as *chuji* 初吉 "first auspicious." In fact, *dingwei* was the tenth day of the fifth month in 632 (and the eighteenth day of the fifth month in 636). Whichever occasion this inscription refers to, it demonstrates unequivocally that the term *chuji* did not apply only to days falling during the first lunar quarter, but almost certainly was a hemerological term having nothing to do with the particular phase of the moon. Therefore, attempts to reconstruct early Zhou chro-

- **5th month, *guichou* (50) [25 April; moon age 15.9d at 20:00, 98% full in Sco];** Jin grandee Wangzi Hu convenes the feudal lords; first big covenant since Duke Huan of Qi at Kuiqiu⁴⁰ 葵丘; Jin Qi, Lu, Song, Wèi, Zheng, Cai, Ju all covenant; Chen Hou comes to observe; after declining three times, Duke Wen of Jin is confirmed as Hegemon by Zhou King Xiang 襄 with elaborate investiture ceremony.⁴¹ [*Spring and Autumn Annals* gives *guichou* (50); *Zuozhuan* and *Shiji* both have *guihai* (60)]; [precise full moon was at 18:19 on *renzi* (49) the preceding day; Jupiter now brilliantly prominent in Cancer, to be joined by Me, Ve, Ma within days.]
- [6th month], *renwu* (19) [May 24; moon age 15.8d at 20:00, 100% full in Sgr]; Jin army fords Yellow River on homeward march;
- **Autumn, 7th month, *bingshen* (33) [June 7; new moon]** troops enter the capital of Jin in triumphal array. [As of May 23, 4 planets are tightly grouped in Cancer and easily visible in the evening sky.] [Only *Zuozhuan* gives the date.]

nology that assume that *chuji* refers to the first lunar quarter (with *jishengpo* 既生霸, *jiwang* 既望, and *jisipo* 既死霸 as the other three) are untenable. Cf. Pankenier, "Reflections of the Lunar Aspect on Early Zhou Chronology," *Toung Pao* 77 (1992): 52, 55, and especially Feng Shi, "Chunqiu Zi Fan bianzhong jinian yanjiu," 64, and "Jin Hou Su zhong yu Xi Zhou lifa 晉侯穌鐘與西周歷法," *Kaogu xuebao* 考古學報 127.4 (1997): 414.

⁴⁰ A check of the calendar for Duke Xi, 9th year, 9th month, *mouchen* (5) covenant at Kiuqiu (Sunflower Hill) as recorded in *Zuozhuan* shows that in 651 B.C. the ninth-month new moon was *bingchen* (53) = August 6. Therefore, *mouchen* (5) was August 18. On that evening the waxing moon was ninety-eight percent full by 20:00h, age 13.6d. Precise full moon was on *gengwu* (7) August 20 at 6:21 a.m., thirty-four hours later.

⁴¹ Sima Qian (*Shiji*, 39.1666) slips in quoting a passage from *Shangshu*, "Wen Hou zhi ming," containing a charge from Zhou King Ping 平王 (770–720) to his contemporary Wen Hou of Jin 晉文侯 (780–746), apparently in the mistaken belief that the *Shangshu* passage was referring to this ceremony investing Chong Er over a century later.