

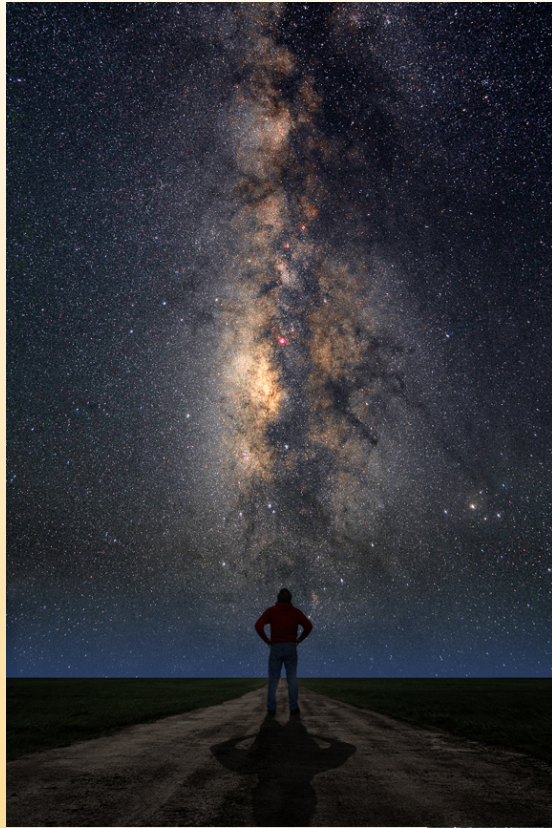
Preface to Yao dian 堯典:
Conforming with Heaven
is Governance

David W. Pankenier
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Preliminary thoughts:

What dimension have we been overlooking?



“Take first the pure and undimmed lustre of the sky and all that it enshrines: the stars that roam across its surface, the moon and the surpassing splendor of the sunlight. **If all these sights were now displayed to mortal view for the first time** by a swift unforeseen revelation, what miracle could be recounted greater than this? What would men before the revelation have been less prone to conceive as possible? Nothing, surely. So marvelous would have been that sight – a sight which no one now, you will admit, thinks worthy of an upward glance into the luminous regions of the sky. **So has satiety blunted the appetite of our eyes.**”

— Lucretius (c. 94– c. 55 BCE)

Milton K. Munitz, *Theories of the Universe* (NY: Simon & Schuster, 2008), 55.

Preliminary thoughts

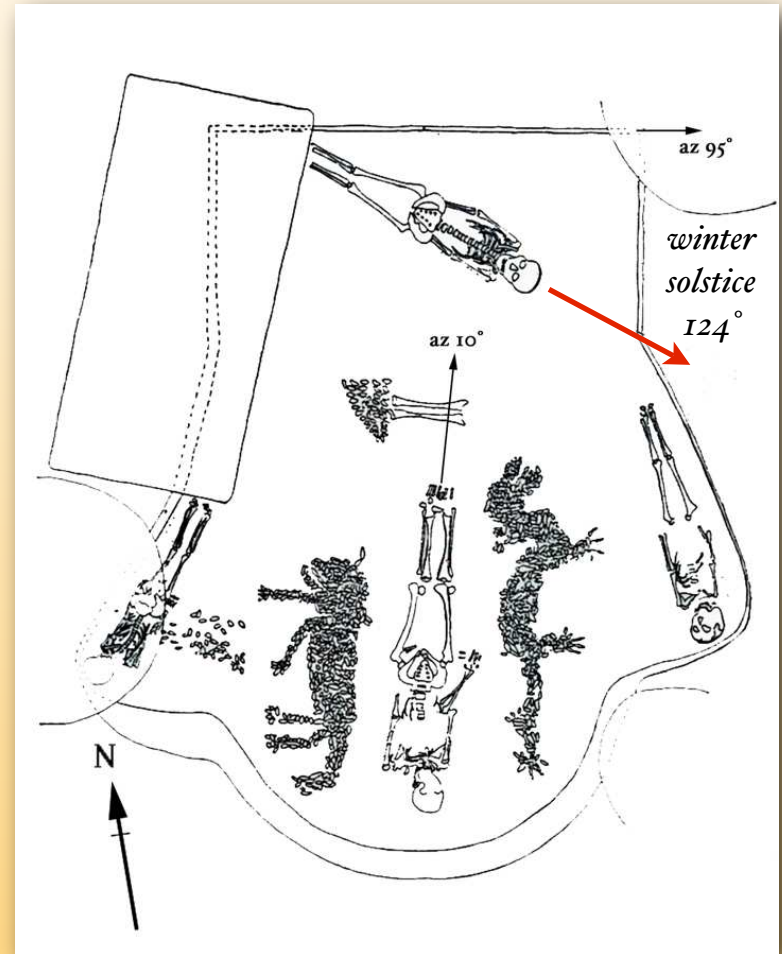
“[ancient accounts of the creation and ordering of the world] follow a similar narrative pattern . . . **all of them assign a determining function to the calendar and the seasonal cycle in the process of world formation.** This function appears to be a **distinctive feature of the oldest Chinese cosmogonic accounts** and provides an interesting contrast to what can be found in the cosmological literature of later times.”

– Marc Kalinowski

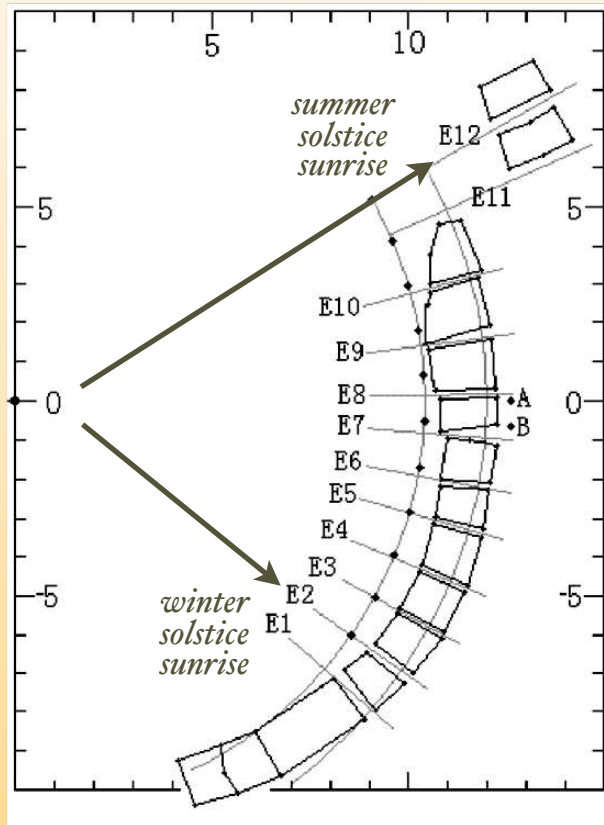
Neolithic Puyang 'cosmo-priest' burial, ca 3000 BCE



The high-status occupant in the center is accompanied by sacrificial victims and flanked by shell mosaics of tiger and dragon, with the DIPPER to the north, DRAGON to the east and TIGER to the west — cosmologically correct and consistent with conventions 2500 years later.



Solstitial Alignment $\Rightarrow$ Horizon to Gnomon



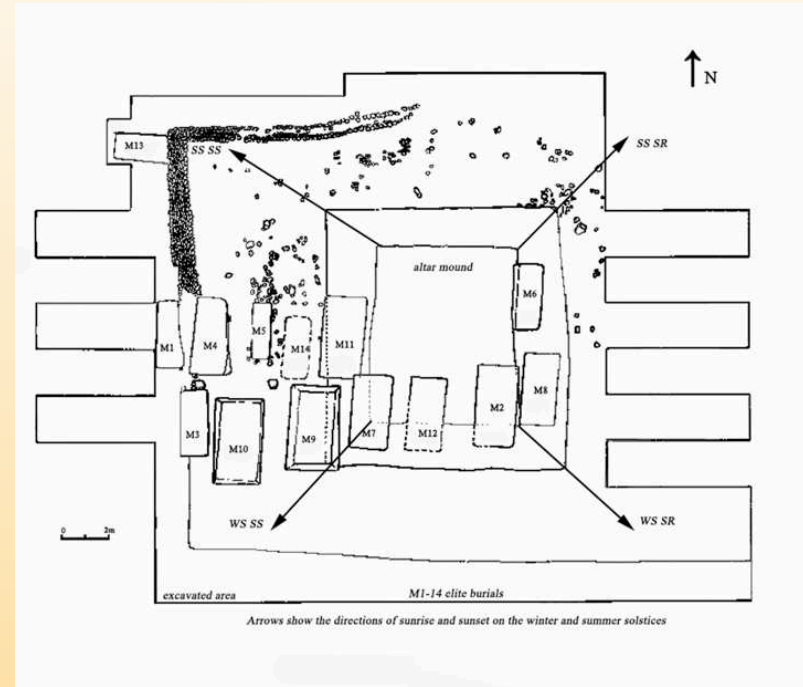
"In 2002, a **lacquered wooden rod** was unearthed from the top part of the chamber of the royal Tomb IIM22 of Middle Period at **Taosi** walled town, traditionally considered the capital of King Yao in Pingyang. Standing against the SE wall of the chamber, the rod was originally 180 cm long . . . **painted in alternating black and green bands bounded by pink stripes**, implying a special function."
– He Nu



Taosi (Longshan) sunrise observation terrace, topmost tier of three platforms adjacent to the city wall, ca 2100 BCE
(arrows $\rightarrow$ indicate **precise solstitial alignment**)

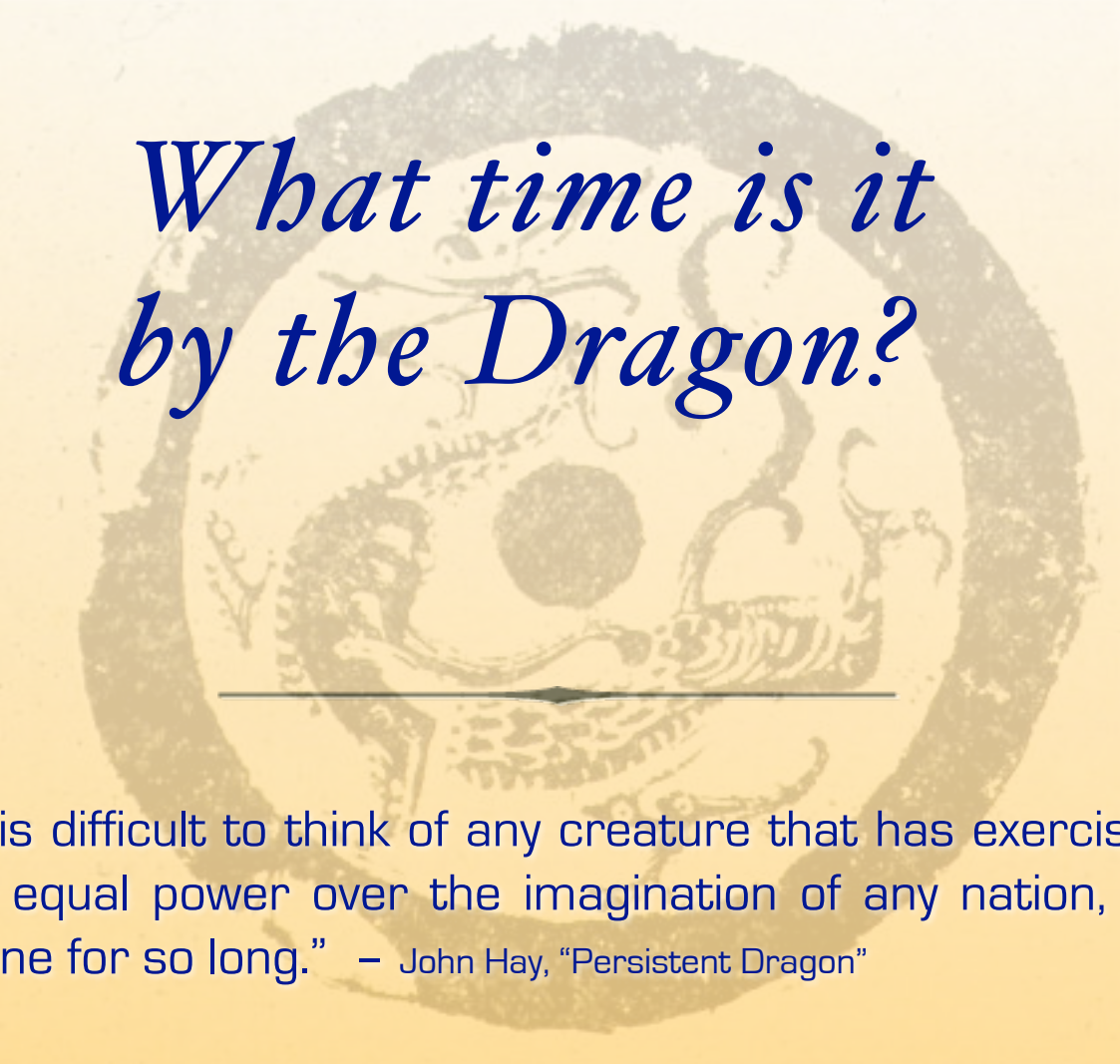
Solstitial Alignment $\Rightarrow$ Horizon to Gnomon

In 1987, a Liangzhu Culture altar was first found on the peak of **Yaoshan** 瑤山. The altar is aligned north-south, with dimensions of about 24m by 18m; the flat natural mountain bed rock can be seen on the top of the 400 sq. m. altar, which was built and meticulously chiseled flat and even. There is a square-shaped marl earth frame, with N-S length of the outer frame of 11m and E-W width of 10m, N-S length of the inner frame 7.6m, E-W width of 6m, and with depth of 0.65m-0.85m, constructed by trenching and earth filling. Its four angles 45° , 135° , 225° and 305° , respectively. In 1991, a virtually identical altar was discovered on **Huiguanshan** 匯觀山 in Pingyao, differing only slightly in its dimensions from the **Yaoshan** altar.



Yaoshan and **Huiguanshan** Liangzhu altar platforms & royal tombs; Longshan period, ca 3000 - 2500 BCE

- arrows show approx. azimuths of **solstitial sunrise/sunset**
- trapezoidal mound made with **layers of differently colored soils**



What time is it by the Dragon?

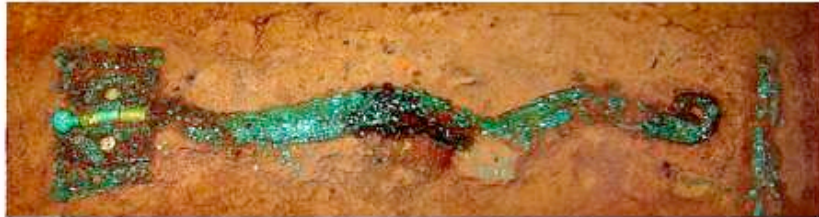
“It is difficult to think of any creature that has exercised an equal power over the imagination of any nation, let alone for so long.” – John Hay, “Persistent Dragon”

“Belief and image arise together, as mutually dependent as life and form. In the political sphere, [they] must have been necessary to the establishment of a state and its ruling house. In such a time, **the power to make images must have been reciprocally related to political power . . .**” – John Hay, “Persistent Dragon”

One can see in this nexus of associations an example of what Tambiah calls the ‘dynamic totalistic weaving of nature, society, myth and **technology**’ characteristic of late Neolithic and early Bronze Age thought.

– Stanley Tambiah, “Magic, Science, religion and the scope of rationality,” 106.

Erlitou & Shang dragons



1. 绿松石龙形器 (原物)



2. 仿制绿松石的绿松石龙形器



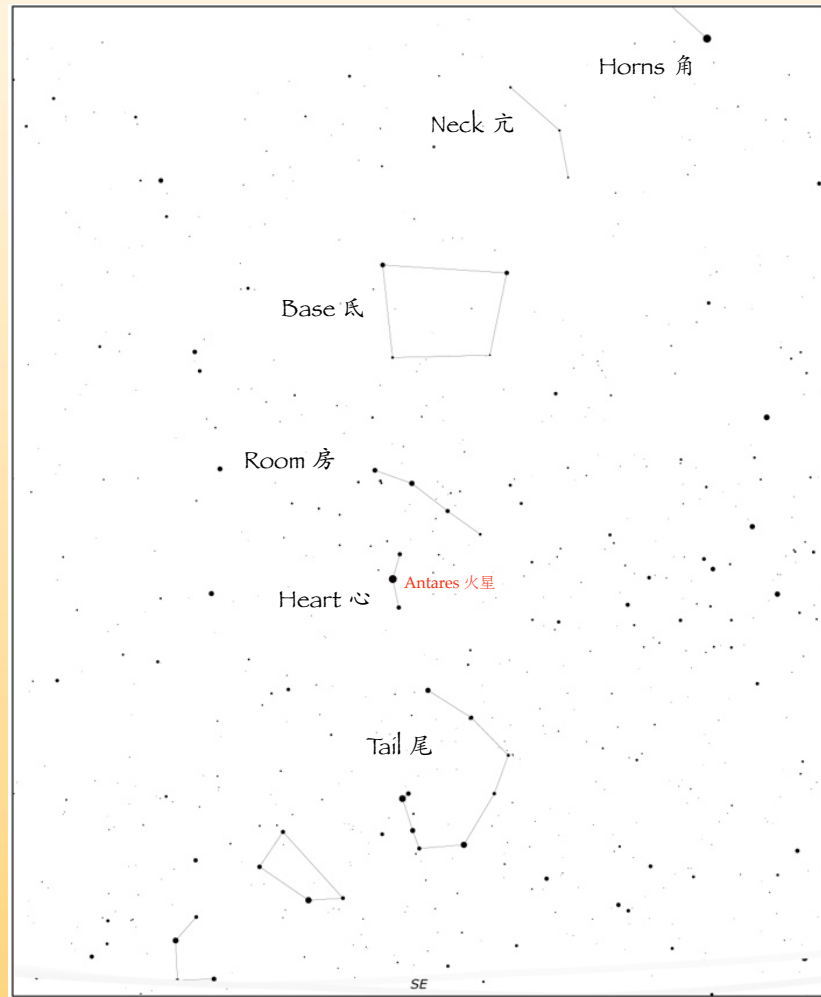
Erlitou dragon scepter inlaid with turquoise, found together with small bronze bell (Yanshi, Erlitou, Xia Dynasty, ca 1800 BCE).

Late Shang dragon basin.



Imaging the Dragon

Dragon constellation climbing into the pre-dawn sky in December, ca 2000 BCE.



Drivers of Dragons 御龍氏



A natural “dragon”

“ . . . natural entities and phenomena were regarded as discrete presences in which the living were implicated. The landscape was a mediator between the visible and the invisible worlds, an area of ‘lived myth,’ and the life of each group was guarded by its totems and ancestors immanent in the landscape. The concept of **participation** conveyed . . . this felt relation between the self and person, and the phenomena of the mythic landscape; ultimately **participation** enacted the relation between man and the immanent and/or transcendent.”

Tambiah, “Magic, Science, religion and the scope of rationality,” 106.



Whose seasonal activity does he bring to mind?

This small alligator is sometimes also known as the Yangtze alligator because now it lives almost entirely in or near the Yangtze. In late Neolithic and Shang time they were also denizens of the swamps of the lower Yellow River drainage. During the winter, they hibernate in underground burrows to keep warm, and during the spring they will only hunt during the warmer parts of the day. In the summer, they switch to a nocturnal schedule. They have to stock up on food from March until October so they can safely hibernate through the winter.

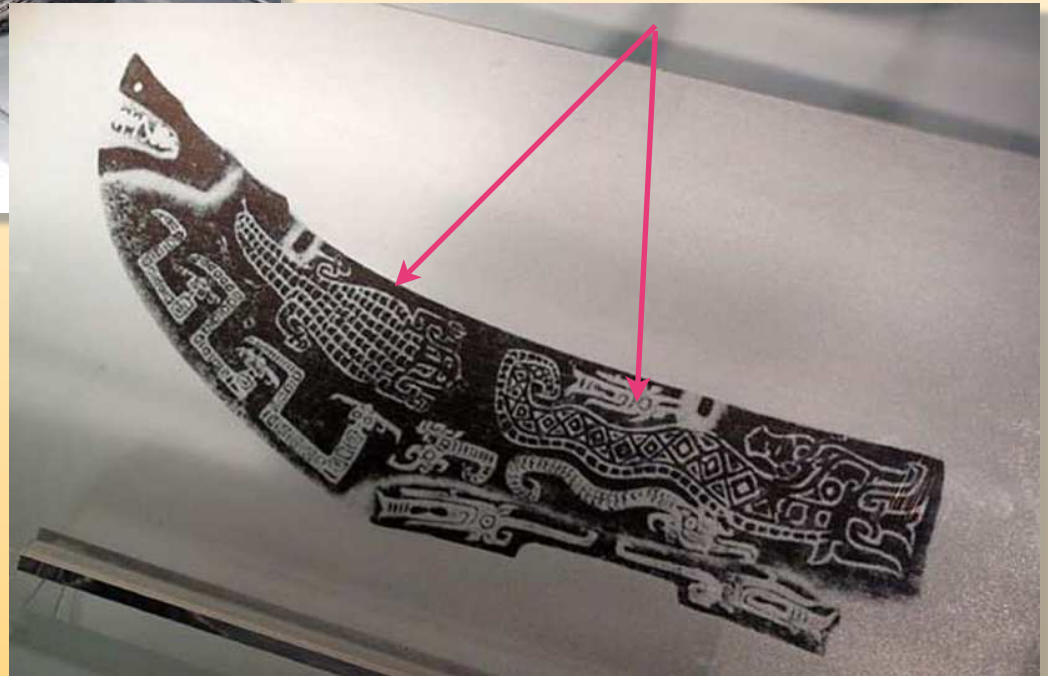
Northern Zone dragon gong, ca 1300 BCE



Alligator & stylized Dragon

Top: note knob and roundels atop the bottle horns.

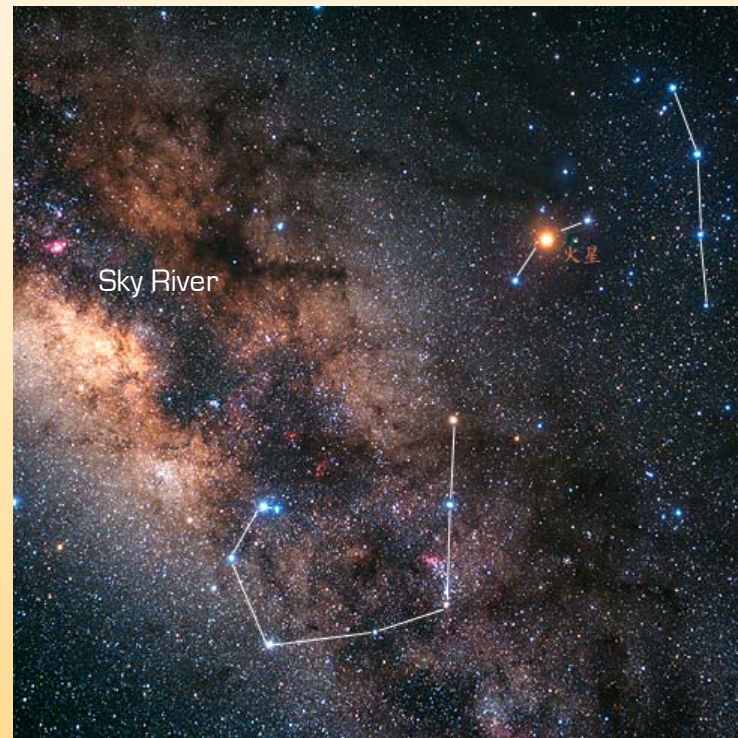
Right: note juxtaposition of alligator and dragon.



The Iconic Dragon in the Sky

Xu Shen's Shuowen jiezi [ca. 58 – ca. 147 CE], glossing the character **long** “dragon” says: ‘at autumn equinox it conceals [itself] in the watery void; at spring equinox it climbs into the sky.’ [cf. Longtoujie 龍頭節: “二月二龍抬頭”]

Shang oracle bone and
bronze forms [lower middle] of
龍 ca 1300 BCE



The imperative — keep in step with the
dragon's seasonality!

Northern Zone 'dragon gong' has it all



Lower three asterisms, most prominent of the Dragon



Dragon 'gong': note idiosyncratic asymmetry and variable roundel sizes.



Han dynasty stone relief, ca 100 CE

Book of Changes 周易 ca 10th c. BCE

first hexagram *qian* (pure *yang*)

☰ 乾 1

乾元亨利貞

初九潛龍勿用

九二見龍在田利見大人

九三君子終日乾乾夕惕若厲无咎

九四或躍在淵无咎

九五飛龍在天利見大人

上九亢龍有悔

用九見群龍無首吉

1. hidden Dragon

2. Dragon appearing in the fields

3. [the superior man strives all day long; by night is quiescent; no fault]

4. perhaps bounding in the void

5. soaring Dragon in the sky

6. imperious Dragon; cause for regret

all nines: headless 'flock/lord (?)' of Dragons appears

"If dragons had not been seen morning and night,
who could have made them thus iconic?"

– Cai Mo 《左傳》昭公 29

[Pankenier, "Astronomy in the Age of Dragons"]

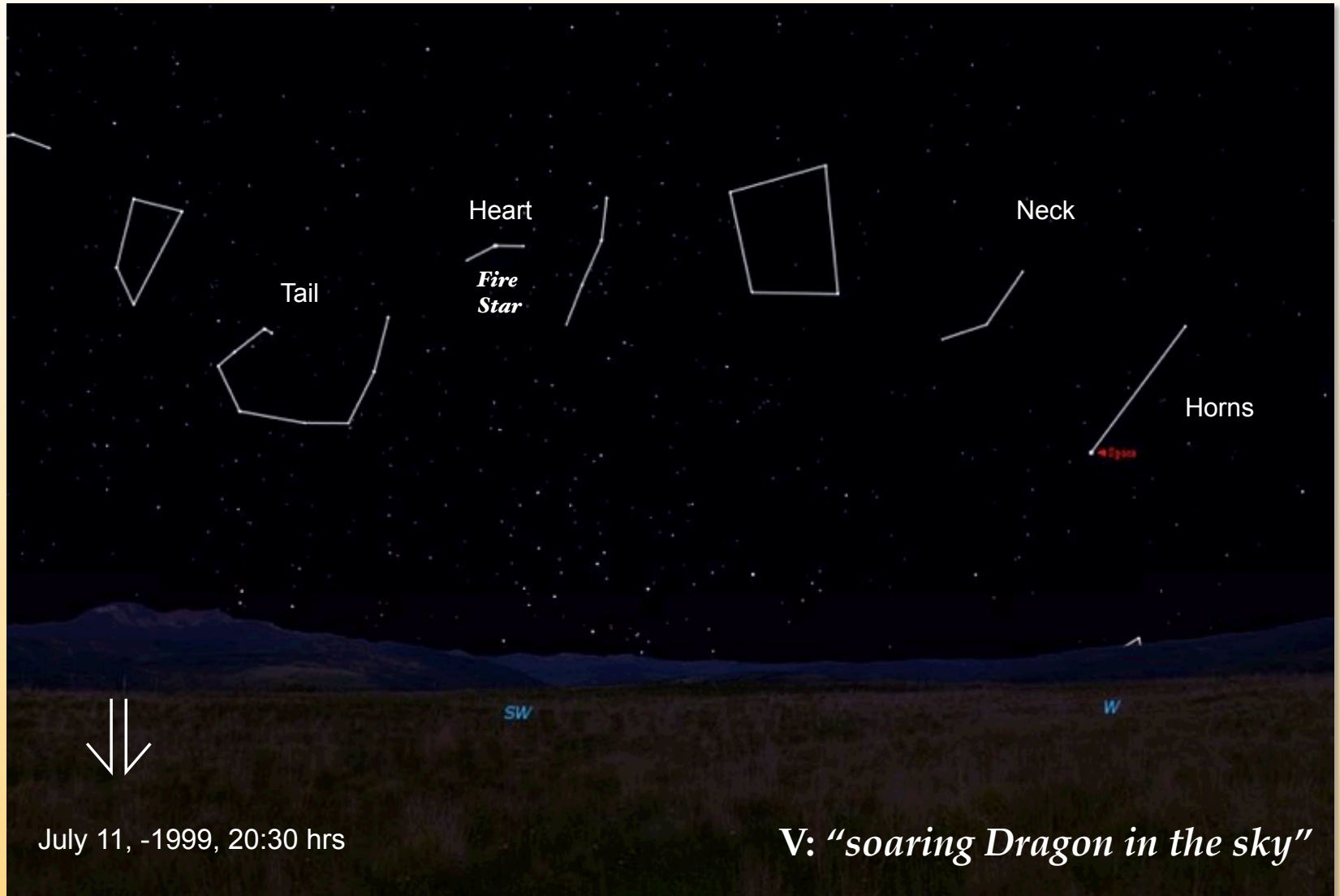
Beginning of Spring 立春 (WS + 45 days)

II: "Dragon appearing in the fields"

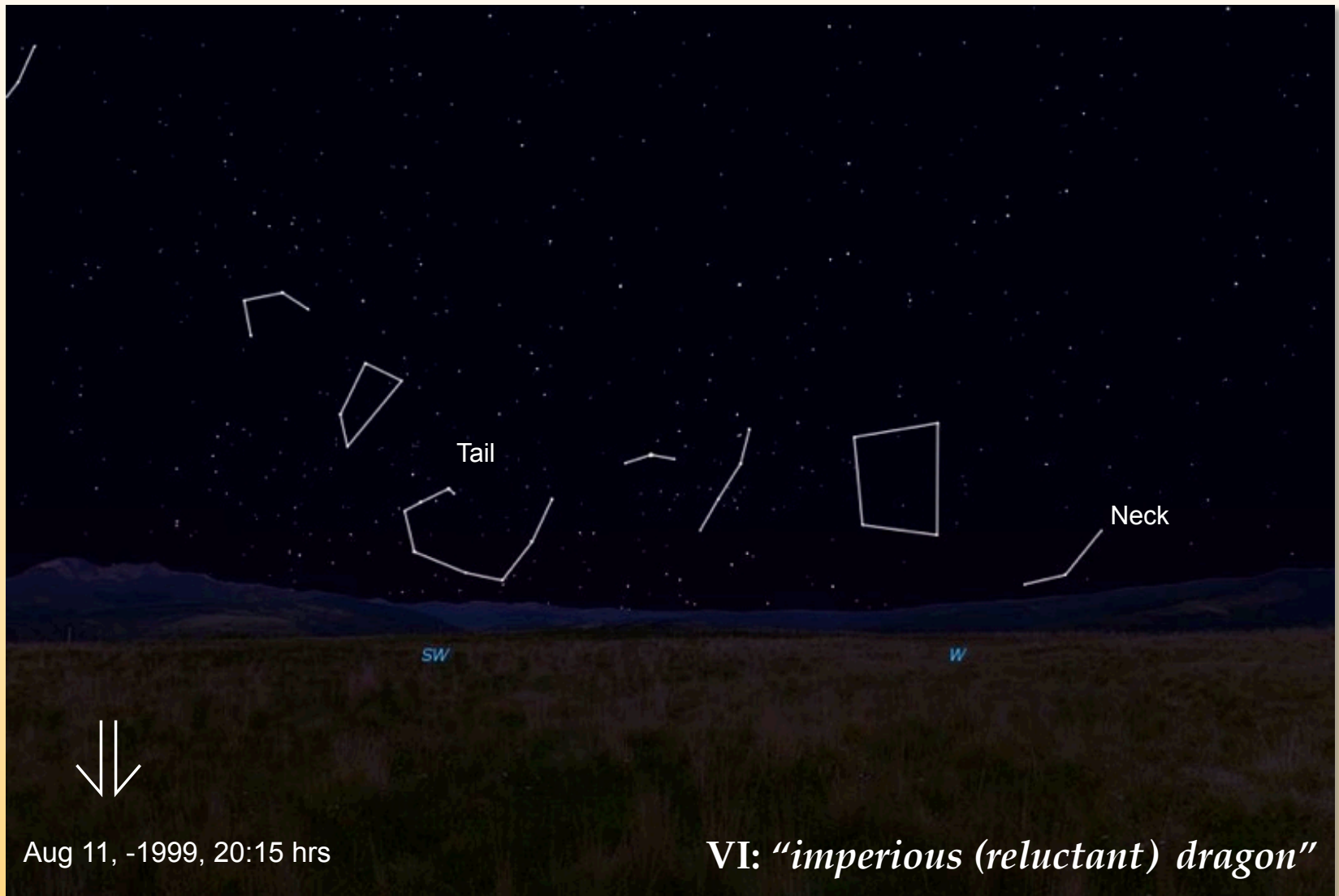


The **Yang** Dragon rising in the east **after sunset** at the Beginning of Spring:
"On the 2nd of the 2nd month, the Dragon lifts its head . . ."

Summer Solstice 夏至



Headless Dragon



Imperious only if he still has a head . . .

Autumnal Equinox 秋分

Six weeks later comes the autumn-winter Yin Dragon's pre-dawn rising at AE



Beginning of Spring 立春 (WS + 45 days)

II: "Dragon appearing in the fields"



The **Yang** Dragon rising in the east **after sunset** at the Beginning of Spring:
"On the 2nd of the 2nd month, the Dragon lifts its head . . ."

Beginning of Spring 立春 (WS + 45 days)

But the Yin Dragon is still visible in the pre-dawn sky! Two Dragons in the sky??!!
The wintry Yin Dragon is overtaken by the dawn, on the very same day
the Yang Dragon first appears at dusk!



Image: “dragons battle in the wild, their Way is at an end ”
[only now is the cycle complete].

“The Power to Make Images”

予欲宣力四方. . . 予欲觀古人之象—日月星辰
山龍華蟲—作會宗彝；藻火粉米黼黻—絺繡以
五采彰施于五色作服 (皋陶謨)

“I desire to extend my power throughout the Four Quarters. . . I desire to see the emblems of the ancient men — **Sun, Moon, stars, mountain, dragon, tiger** — combined on my ancestral temple vessels; and have the designs of water-plant, fire, hulled grain, rice, **black-and-white emblems, black-and-blue emblems** — finely woven in five-colors into my **five-hued** court dress.” [K 1950, 11]

Emblematic Shang Raptor



Niu fang ding (late Shang)



Niu fang ding raptor (detail)

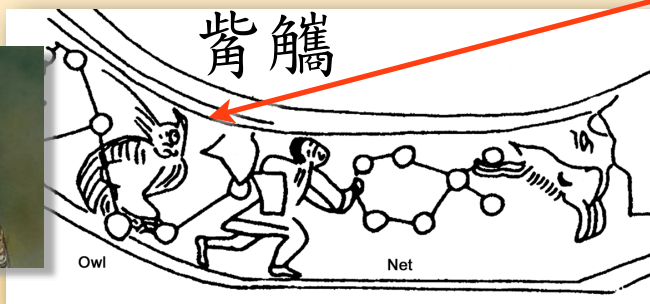
Emblematic Shang Raptor 鷹 (Triaster? 參)

Discovery in 1987 of the Xi'an W. Han tomb ceiling with a **horned owl** representing 觜觿 asterism resolved the confusion about the interpretation of the name for this lodge; Hu Lin'gui (1989), 87. Its **dual identity** as both "Tiger's head" and "Horned Owl" reflects an overlay of the iconic Tiger on the earlier individual asterisms of the western palace.

In Yizu 彝族 astronomy it is said to be a **Parrot**.



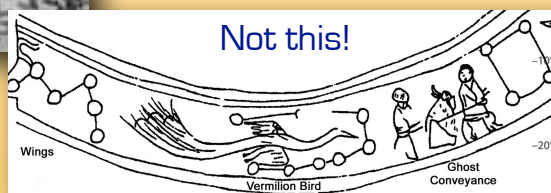
貓頭鷹



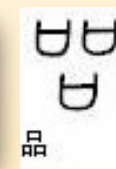
Xi'an Jiao-Da bihua (W. Han)



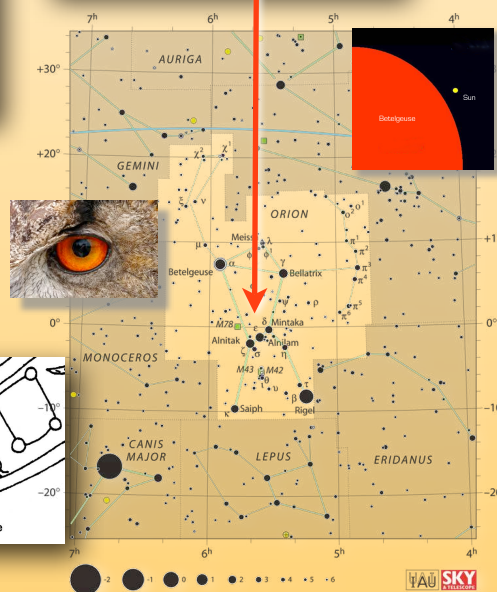
Shang pan



Small seal 參 (left);
OBI [right] Jao 1998, 39

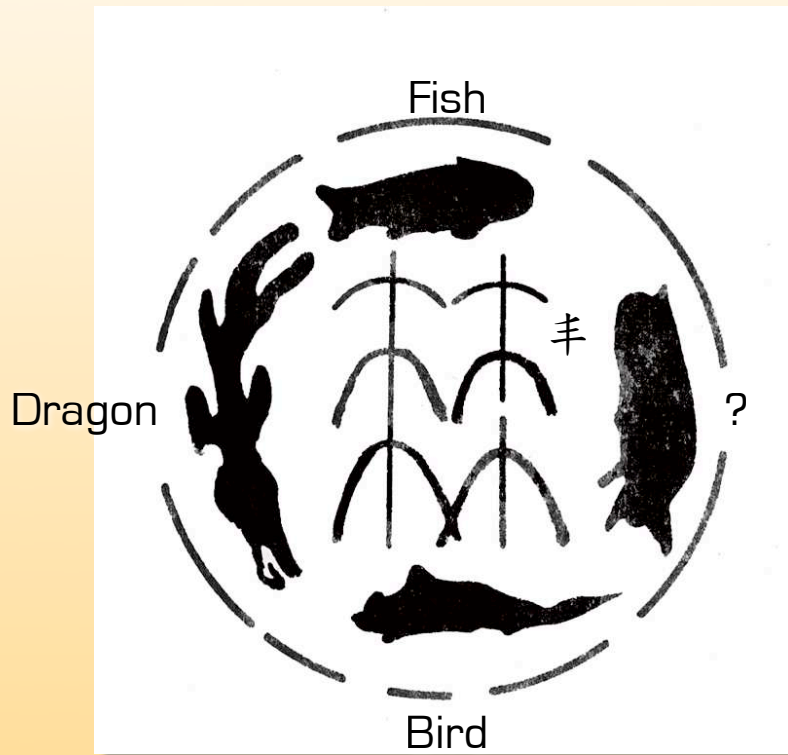


參 in Shuowen



Correlations in place by early Western Zhou

“古人之象”



Pre-dynastic W. Zhou eave (?) tile from the site of the pre-dynastic W. Zhou capital Fengjing 豐京. After Feng Yunpeng (1893), ch. 6.



Shang Dynasty dragon basin (pan). Adapted from Pope et al. (1967), vol. 1, Pl. 3.

Correlations in place by early Western Zhou

The following table illustrates the cosmological correlations of the Three Dynasties so far recovered from the oracle-bone and bronze inscriptions, archaeological discoveries, and verified locations of astronomical phenomena (1953, 1576, 1059 planetary clusters). Inconsistencies with the later Warring States versions (e.g., Shang $\approx$ Metal; Fish as icon of the north in Shang/W. Zhou), and the inverse seasonal sequence given by the planetary clusters (Winter $\Rightarrow$ Autumn $\Rightarrow$ Summer) and colors, points to an early scheme of correlations. In any case, the table is sufficiently complete to make it clear that associative thinking along these lines, quite possibly including “materials” (if not yet “phases” or “agents”), was already occurring by the late second millennium BCE.

Archaic terminology in the “Canon of Yao” dealing with directionality, **unintelligible to the Zhou compilers of the “Canon,”** was dutifully copied and **transmitted** nonetheless. Today, with the benefit of references in the Shang OBI we recognize what the Eastern Zhou compilers of the Shangshu could not.

— Liu Qiyu 2004, 68.

Correlations in place by early Western Zhou

Dynasty	Color	Direction	Icon ~ asterism	Palace ^a <i>Mozi</i>	Quadrant ~ wind ^b <i>Shang (Heji 14294-95)</i>	Material ~ season	<i>Yao dian</i> “peoples”
XIA	black	N ~ up	Fish ~ Turtle 鰓(龜) Pegasus 定	<i>Xuan</i> 玄 Dark	宛 <i>yuan</i> ~ 役 <i>yi</i>	Water ~ winter	欽民隩 <i>ao</i>
SHANG	white	E ~ left	Dragon 龍 Scorpius 大火	<i>Biao</i> 鑣 Bright	析 <i>xi</i> ~ 協 <i>xie</i>	Metal ~ autumn	析 <i>xi</i>
ZHOU	red	S ~ down	Bird 鳥 Hydra 鳥	[<i>Chi</i> 赤] [Red]	夾 <i>jia</i> ~ 微 <i>wei</i>	Fire ~ summer	因 <i>yin</i>
		W ~ right	Tiger 虎 Orion 參伐		夷 <i>yi</i> ~ 彝 <i>yi</i> ^c		夷 <i>yi</i>

DOCUMENTED COSMOLOGICAL CORRELATIONS IN THE 2ND MILLENNIUM BCE

This pattern suggests that we should exercise caution in concluding that “correlative” thinking (possibly including elemental “materials” and number magic) are diagnostic of Warring States or Han intrusions. There clearly were Three Dynasties **antecedents**.

Correlations by early Western Zhou: Notes

- ^a The meridian transits of the four cardinal asterisms of the Bronze Age in the “Canon of Yao,” characterized in terms of the length of day and night on the solstices and equinoxes, implicitly identify the four seasons. One might also add a column for the seasonal sacrifices at different temples, whose regular rotation in the OBI Keightley (1998, 801, n. 100) characterizes as reminiscent of later Luminous Hall (mingtang) ritual.
- ^b Chang Zhengguang (1989a; 1989b); Liu Qiyu (2004, 66). Oracle bones of Shang king Wu Ding period (13th–12th centuries BCE) bearing the relevant inscriptions are Heji 14294–5. Voluminous research exists on the four winds and the sacrifices to the deities of the Four Quarters; cf. Liu Zongdi (2002), <http://hi.baidu.com/fdme/blog/item/00dda88fcb3796fb503d92d8.html>.
- ^c It is of considerable interest that this word 彝 **is the name of the Yi minority, which is thought to descend from the Qiang 羌, perennial adversaries of the Shang on the west who had close historical ties with the Zhou.** The calendrical astronomy in the **Heguanzi**, **Xia xiao zheng**, “You guan” chapter of **Guanzi**, and the “**Canon of Yao**” all have strong affinities with each other and with the cosmography of the Classic of the Mountains and Seas (**Shan hai jing**). In particular, there is **a close connection between these texts and the astro-calendrical traditions and practices of the Yi minority;**
- Chen et al. 《Yizu tianwenxue shi》 彝族天文學史; Hwang Ming-chorng (1996).

“Yao dian” *astronomical composite* has pride of place

乃命羲和，欽若昊天，曆[歷]象日月星辰，敬授人時

“then commanded Xi and He, in reverence to August Heaven, to ‘calendar’ [track] the [celestial] signs, Sun, Moon, stars, and seasonal asters, so as to respectfully bestow the seasons on the people”

- 分命羲仲，宅嵎夷[東]，曰暘谷。寅賓出日，平秩東作

“reside in Yuyi, called Yanggu, host the rising Sun, and regularly arrange the initiation of affairs in the east”

- 分命和仲，宅西[X]，曰昧谷。寅餞納日，平秩西成

“reside in West X, called Meigu, take leave of the setting Sun, and regularly arrange the completion of affairs in the west”

- 申命和叔，宅朔方[北]，曰幽都。平在朔易

“reside in Shuofang, called Youdu, and there regularly attend to the change in the north [of the Sun’s motion]”

- 申命羲叔，宅南交[郊]。平秩南訛，敬致

“reside in Nanjiao and there regularly attend to [the Sun’s] southward displacement, and reverently [mark] the solstice”

“Yao dian” *astronomical composite: star calendar*

日中，星鳥，以殷仲春。厥民析，鳥獸孳尾

Sun is at the Bird Star (α Hya) on VE three months prior to SS

日永，星火，以正仲夏。厥民因，鳥獸希革

Sun is at the Fire Star (α Sco) on SS three months prior to AE

宵中，星虛，以殷仲秋。厥民夷，鳥獸毛毳

Sun is at Ruins (β Aqr) on AE three months prior to WS

日短，星昴，以正仲冬。厥民隩，鳥獸氄毛

Sun is at Topknot (Pleiades) on WS three months prior to VE

“Il est un fait établi que le **calendrier** a occupé en Chine une place prépondérante.” – Marc Kalinowski, 2004, 87.

“Yao dian” *astronomical composite: stars and seasons*

- **Sidereal calendar** is used **as a check** on the luni-solar calendar; still familiar in Warring States — Han [夏小正, 左傳, 月令]. [cf. “imperious Dragon”, Kongzi Jiayu {below}]
- The Fire Star (Antares **star calendar**) & Shen (Ori); Ding 定 ~ 正 (Pegasus) already in use by Shang
- Epithets applied to 厥民 (“its folk X”) are archaic **Shang technical terms** for the four quarters, were **opaque** by late Zhou. They belong with the preceding “directions” passage.

帝曰：咨！汝羲暨和，朞三百有六旬有六日，
以閏月定[正]四時成歲

- “‘adjust’ [correct] the seasons using intercalation.”
- that is, after **observing the stars to confirm** the season.

“Yao dian” *astronomical composite: notes*

曆象日月星辰

“to ‘calendar’ (track) the [astral] signs, sun, moon, stars, and seasonal asterisms”

- 曆 “calculate” cannot be correct; original had 歷 “track, follow, to sequence, to calendar”
- The pair 羲和 are a variation on the theme in Zuo [Zhao, 1] where Yan Bo 閼伯 and Shi Chen 實沉 are two feuding brothers “banished” by Di Ku [高辛氏] to the east and west to seasonally observe Scorpius [Great Fire] and Orion [Shen] (two of the three 大辰 “great seasonal asters”), harking back to a very early date when the two marked the equinoxes.
- In Yao dian, 羲和 are **similarly charged, but also with diurnal sunrise/sunset observations** [confusingly conflated here with seasonal observation of the stars] By late Shang, solar observations were cultic rituals not necessarily connected with the calendar. Much earlier at Taosi they knew that **watching for sunrise alone is sufficient** to regulate the calendar. So the superfluous elaboration of 羲和’s roles in “Yao dian” reveals later systematizing and symmetry. By W. Zhou the calendar was already being mathematized [**counting** took precedence over actual observation (cf. Shang ritual calendar)]
- study of the astronomy reveals a defective understanding by the “Yao dian” compilers of ancient practices that long predated E. Zhou.

Cf. Scribe-Astrologer Cai Mo’s elliptical explanation of why dragons could no longer be taken alive [Zuo, Zhao 29; Pankenier 2013, “Astronomy in the Time of Dragons”].

Yao dian: why the calendar is of signal importance

Even as late as the sixth century BCE Confucius is supposed to have famously deplored mismanagement of the calendar, expressing his disapproval of the powers that be in a classic set-piece in which incompetent astro-calendrical officials are proxies for the ruler:

Ji Kangzi asked Confucius: “This is the Zhou 12th month, the Xia 10th month, and still there are katydids, why is that?” Confucius answered: “I have heard, ‘after the Fire Star has set, the hibernators have all gone.’ But now the Fire Star is still declining in the west. The calendar officials are wrong.”

Ji Kangzi asked, “By how many months are they off?” Confucius said: “By the 10th month of the Xia calendar the Fire Star has already set. But now the Fire Star is still visible; [they have] missed intercalating twice.”

— Kongzi Jiayu, “Bianwu.” Compare Zuozhuan, Duke Xiang, 27th year

Conclusions

That the early texts like Shangshu should refer only obliquely to the phenomena is not in itself remarkable. A similar reticence is observed in classic Maya texts:

‘[As] Maya astronomy concerned the behavior of the sky gods, “deities whose activities vitally influenced human affairs”. . . astronomical correlates of historical events have begun to be recognized in the essentially historical narratives. **Classic texts almost never mention these correlates; seldom do they make any explicit astrological statements, referring instead to associated human events. . . So the features that may correlate with specific astronomical events generally are not reflected by direct textual statements; if their presence is marked at all, it is in accompanying scenes.**’

— Justeson, “Ancient Maya Ethnoastronomy: an Overview of Hieroglyphic Sources,” 76, 115.

Conclusions

The powerful images of the starry sky and their changes (registered in the calendar, astral prognostication, iconography, metaphor) provide the ubiquitous backdrop to the action, rarely explicitly invoked but ever-present. We must not assume that the astronomy and calendrical science in “Yao dian” represent the state of the art in early Zhou. On the contrary, they were already antiquated. When in Shangshu one encounters sporadic references to how Heaven displays “bright manifestations,” these are allusions either to **celestial constancy** . . .

天明畏自我民明威達于上下 — “Heaven’s discernment and severity work through our people’s discernment and severity. **There is correspondence between above and below.**” (皋陶謨: K 1950, 9) [cf. Ptolemy, “as above, so below”]

在昔殷先哲王迪畏天顯 — “anciently Yin’s former wise kings in their conduct stood in **awe of Heaven’s bright manifestations**” (酒誥: K 1950, 45)

嗚呼!天明畏弼我不丕基 — “Oh, **Heaven is bright and awesome**, it supports our very great foundation.” (大誥: K1950, 55)

Conclusions

... or else I submit they refer to **portentous anomalies**. It is hardly surprising that this particular category is best represented in the Zhou conquerors' harangues like “**Duo shi**” and “**Duo fang**.” There are more than adequate grounds to **not** read this as figurative language:

在今後嗣王, 誕罔顯于天... 誕淫厥佚, 罔顧于天顯民祗 — “their successor in our time greatly **lacked clear manifestations in Heaven** ... he was greatly licentious in his dissoluteness and **did not pay proper attention** to Heaven's manifestations and the people's observances” [多士: K1950, 55]

我其敢求位? 惟帝不畀, 惟我下民秉為惟天明畏 — “How should we have dared seek the throne? The Supernal Lord did not give favor to [Yin]; what our lower people grasped and acted on — it was **Heaven's bright severity**” [多士: K1950, 55]

我有周佑命, 將天明威, 致王罰敕, 殷命終于帝 — “We Zhou have assisted the Command by **wielding Heaven's bright majesty** and effecting the kingly punishment, on command [assuming] the Mandate of Yin; it was terminated by the Supernal Lord.” [多士: K1950, 55]

天惟求爾多方, 大動以威, 開厥顧天. 惟爾多方罔堪顧之 — “Heaven then searched in your numerous regions and greatly shook you by its severity; it would condone those who had **regard for Heaven**, but in your numerous regions **there were none who were able to have regard for it.**” [多方: K1950, 64]

Why is the calendar of such signal importance?

The 4th century BCE Chu Silk Manuscript states in no uncertain terms:

“if men **do not know the yearly cycle**, they have
no way to render homage to the gods”

Why stress this if desuetude/obsolescence were not a problem?
(Note the felt need to invoke the sanction of **supra-visible powers**.)

This perennial theme tells us that: (i) conforming with Heaven had been a (the?) **top political-religious priority** of the State, and (ii) by Spring & Autumn this preoccupation was already anachronistic, an **archaic fixation** now more honored in the breach than in the observance.