

THE SEXAGENARY NUMBER/DATE SYSTEM OF TRADITIONAL CHINA

A Technical Interlude

Early Chinese culture relied on several timekeeping notations to keep track of days, months, and years. Among these were the familiar methods of numbering the months of the year from one to twelve and counting years in terms of the reigns of rulers. However, one form of timekeeping was independent of the events or history and even of the rhythms of nature. This was a system of counting that involved the combination of two series of signs, which yielded a total of 60 possible combinations. This is called the system of “Heavenly Stems and Earthly Branches.” (It is called a sexagesimal system because that term denotes “base-sixty”; Babylonian calculation also employed a sexagesimal form. “Sexagenary” refers to a system of 60 “counters.”) This series was applied to broad range of phenomena in China and it is not possible to study Shang Dynasty documents without understanding it. The system is described here because it pervades the oracle texts and Zhou bronzes we will be discussing, and because it also bears upon the names of the Shang kings.

The Ten Heavenly Stems and the Twelve Earthly Branches were two sets of Chinese characters, each listed in a fixed order as follows:

Heavenly Stems

jia 甲
yi 乙
bing 丙
ding 丁
wu 戊
ji 己
geng 庚
xin 辛
ren 壬
gui 癸

Earthly Branches

zi 子
chou 丑
yin 寅
mao 卯
chen 辰
si 巳
wu 午
wei 未
shen 申
you 酉
xu 戌
hai 亥

These two series are combined in sequence by matching one stem to one branch, beginning with the first stem and the first branch (jia-zi), then the second stem and the second branch (yi-chou), and so forth. After the tenth stem is matched to the tenth branch (gui-you), the stem sequence reverts to the first member of the series, jia, but the branch sequence continues on to its eleventh member, xu. Thus the eleventh term in the stem-branch cycle is jia-xu. This is followed by yi-hai, after which

the branch series must return to its first member, zi, while the stem series moves on to its third member, bing. Bing-zi is thus the thirteenth term of the stem-branch cycle.

If you continue on in this fashion, you will find that the sixtieth term in the stem-branch cycle is gui-hai, combining the last terms of each of the two sets. The following term would thus be jia-zi, which begins the cycle all over again.

In traditional Chinese solar-lunar calendars, every year, month, and day was assigned a stem-branch term (each of these different temporal levels worked independently in this system--the term for the current year, for example, had no relation to the terms assigned to the current months or days). At each level, a cycle of sixty was generated. For example, the year in which I'm writing, 1994 (actually, the part of the year after "Chinese New Year" in February), is a jia-xu year; so was 1934, and 2054 will also be a jia-xu year, as will 2654, if people remain on the planet to note it. I am typing this on September 28, which corresponds to the 23rd day of the eighth month in the traditional Chinese solar-lunar calendar: the eighth month this year is a gui-you month and today is bing-chen (although it's past midnight in China, so it is already a ding-si day there, where it counts).

The use of these two series in traditional China extended in other directions. For example, still in terms of dating, the well known twelve-year animal-cycle of Chinese years is simply a variant on the Earthly Branch cycle. The reason we speak of the "year of the rat" or the "year of the dragon" is because each year is correlated with a sexagenary combination, and the cycle of twelve Earthly Branches is determines which of twelve animals corresponds to each year. (In some forms of Chinese astrology, a person's character is seen to be correlated to the animal sign of the year of their birth, like our Western zodiac signs. For example, I turn out to be an "ox" because I was born in a year designated by the sexagenary combination ji-chou, and all years with chou take the sign of the ox – I'm not sure whether that's an improvement over being a goat, where I'm filed for my daily horoscope in the West, but it's nice to have choices in life.)

Another important use of these terms was in certain forms of naming people. We do not fully understand how this worked, but it will become very important to us in relation to the nature of the Shang kinship and kingship systems.

If you refer back to the list of the Shang kings recorded by the Shi-ji, you will discover that all the "dynastic" kings, and certain of the pre-dynastic kings, were designated by titles that included an element from the Heavenly Stem series. For example, Tang the Successful was more properly called Tian-yi, where "Tian" is the Chinese character for Heaven and yi is the second of the Heavenly Stems. (No such system is recorded for naming kings after the fall of the Shang; they are named posthumously according to some feature of their reigns.) We will explore aspects of significance in this Shang practice in a subsequent section.

The stem-branch system is used to designate days in the Shang oracle texts. The date of each divination is recorded with cyclical terms at the beginning of most inscriptions. In some inscriptions, the month of the inscription appears at the end.