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Series 2: Decoding the Mystery of the Dendera Zodiac— the Shocking Secrets of Ancient Huaxia
Astronomy and Calendar Hidden in the Dendera Zodiac

16th.Dec.2022

Abstract

The “Bing Ding” symbol on the Dendera Zodiac is the key to decoding its astronomical prototype, which marks the position of the summer solstice in the northern ecliptic sky. By accurately reverting the division of the 12 zodiac signs, a vector coordinate star map can be made to precisely mark the distribution of the ecliptic sky zone on the Dendera Zodiac, and thus to obtain the ecliptic longitude values of the celestial objects depicted on it. Finally, the exact time of the astronomical characteristics depicted on the Dendera Zodiac can be identified with the tool of astronomical software.

Keywords

The Dendera Zodiac, 'Bing Ding' symbol, 12 Signs of the zodiac, 28 Mansions, Ancient Egyptian civilization, Huaxia astronomy and calendar, Huaxia civilization

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The Dendera Zodiac has been a hotspot in Egyptology for 200 years, however, no one has come to the correct conclusion so far. Why cannot the international academia decode the mystery of it? There are mainly two reasons: One, the lack of real knowledge of ancient Egyptian astronomy and calendar. Two, no one has realized that Egyptian hieroglyphs are originally ancient Chinese characters. This article is focused on discussing the knowledge of ancient Huaxia astronomy and calendar and how the author

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decoded the mystery of the Dendera Zodiac.



Notes:

Huaxia was referred to as the ancient title of Chinese civilization on the account of ancient Chinese classics and literature.

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The Dendera zodiac is collected in the Louvre Museum, and their official website has a large high-definition picture of it for free download. The author believes the HD picture provides the possibility for those who have interest to do a careful study on it. Reproduction drawings do not help with the study since the reproduction process cannot completely avoid the difference, and any small discrepancy can lead to a great error.

Eric Aubourg, a French astrophysicist, has studied the Dendera Zodiac. In fact, many astronomers and physicists did relevant research in the past 200 years. The French scholar has correctly pointed out the constellations on it, such as Leo, Cancer, Taurus, Aries, Pisces, Capricorn, Sagittarius, Scorpio, Libra, and Virgo, etc. He has even pointed out the distribution of the five planets in the sky zone. (Figure 1, 2)

Figure 1



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BIFAO 95 (1995), p. 1-10

Éric Aubourg

La date de conception du zodiaque du temple d'Hathor à Dendera.

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Figure 2

ÉRIC AUBOURG

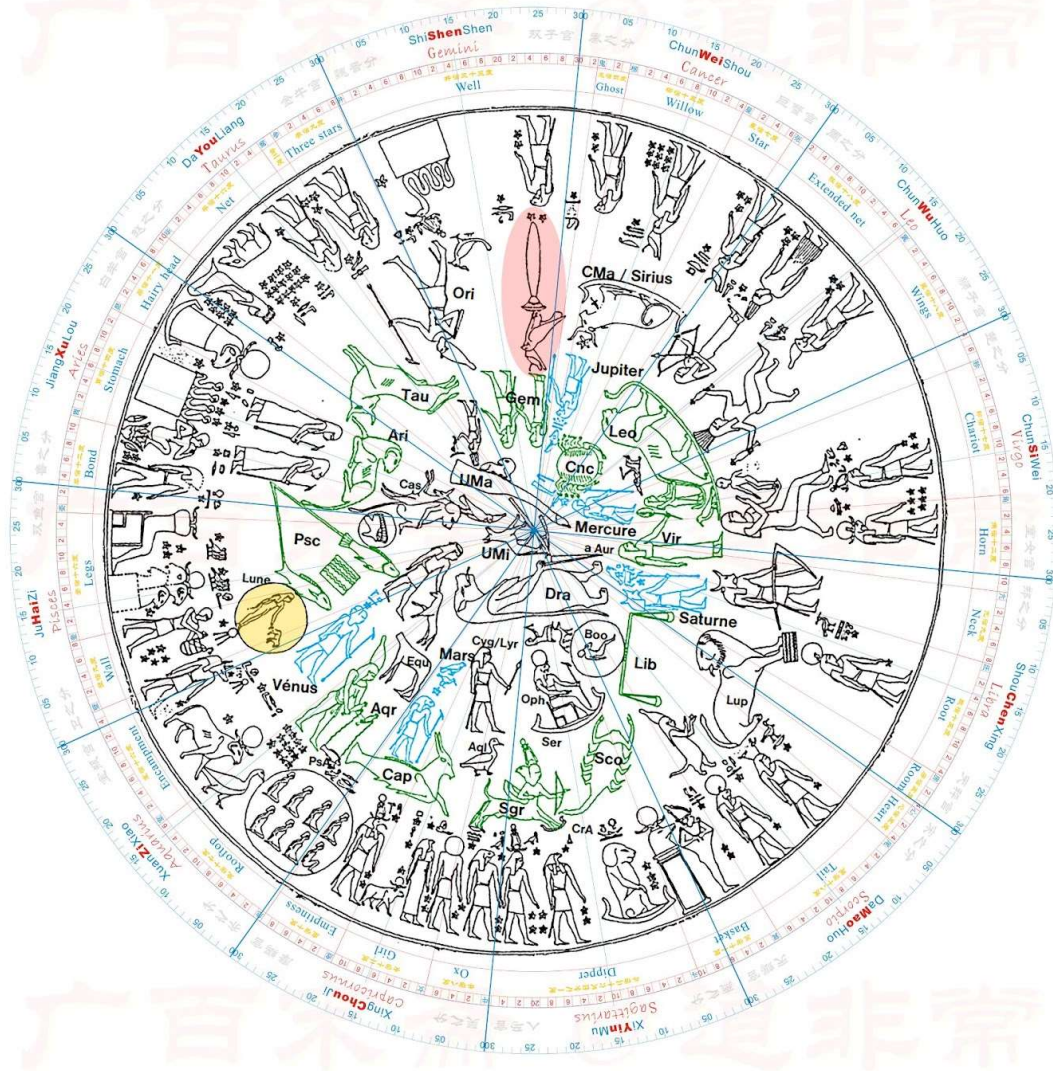


Fig. 2. La partie centrale du zodiaque. Les planètes sont représentées en bleu, et le zodiaque en vert.
D'après un dessin de B. Lenthéric, avec l'aimable autorisation du musée du Louvre. (Voir commentaire ci-contre).

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The author knew the French astrophysicist did not truly find out the secrets hidden in this sky map upon seeing his analysis. For more than 2,500 years, no one has ever known how exactly the 12 Signs of the Zodiac (referred to as the 12 Signs below) are divided and where they start and end in the ecliptic sky. Figure 3 is a distribution map of the 12 Signs in the northern ecliptic sky made by the author based on the French scholar's map (Figure 3).

Figure 3



The key to decoding the mystery lies in a strange “pillar” (as highlighted in Figure 4), on top of which the “owl king” stands. The author learnt that Egyptian hieroglyphs were originally ancient Chinese characters as soon as seeing this symbol.

Figure 4



The highlighted parts in Figure 4 are actually Egyptian hieroglyphs and also related to two Chinese characters “**丙**” (**Bing**) and “**丁**” (**Ding**). The two combine together to be a Chinese words “**丙丁**” (**Bing Ding**), and the “**Bing Ding**” symbol is exactly the key here to decode the mystery.

“丙” (Bing) and “丁” (Ding) both symbolize the stem of the lotus and the handle (“柄”). “丙” (Bing) and “柄” (Bing) are homo-phonetic loan characters. The character “丁” (Ding), meaning a long nail, which is also what King Narmer stabbed into the skull of the rebellious Chiyu on the Narmer Palette (the author will discuss the Narmer Palette in the next article). Moreover, “丙” (Bing) and “丁” (Ding) are two TianGan and of the character of fire. Therefore, the “丙丁” (Bing Ding) symbol also represents “Big Fire” (大火) which symbolizes Summer Solstice. In short, the “丙丁” symbol represents the stem of the lotus, the handle, the nail, Big Fire and Summer Solstice. There are also “two stars” images under the “pillar” in the highlighted part. In fact, the images represent Big Fire as well.

Notes:

TianGan (天干, Heavenly Stems) and DiZhi (地支, Earthly Branches), originated in the ancient Chinese calendrical system which was created to codify the patterns of life and of the universe itself. The 10 TianGan express the Yin or Yang perspective of Five Elements and embody the Way of Heaven. The 12 DiZhi, made manifest in the 12 animals of the Chinese zodiac, hold the root of each Element and embrace the Way of Earth.

Since recognizing the “丙丁” (Bing Ding) symbol in the picture and knowing its representation, the author has learnt that it is in fact the mark of the summer solstice point on the Dendera Zodiac. As we know, on the Summer Solstice, the solar annual apparent motion is at 90° ecliptic longitude.

Theoretically, knowing in which ecliptic sky zone the summer solstice point is located and which stars it corresponds to, with the tool of the professional astronomical software, one can identify the time depicted on the Dendera Zodiac. But, to be able to decode the mystery, one also has to know the precise division of the 12 Signs. Actually, the 12 Signs are equivalent to the “12 Ci” (12次) invented by ancient Huaxia civilization, with Capricorn corresponding to the first Ci (星纪, Xing Ji).

Notes:

The 12 Ci: Ancient Huxia astronomers divided the zodiac sky zone into 12 equal segments from west to east and named in sequence as Xing Ji, Xuan Xiao, Ju Zi, Jiang Lou, Da Liang, Shi Shen, Chun Shou, Chun Huo, Chun Wei, Shou Xing, Da Huo, and Xi Mu. (Figure 5)

Figure 5

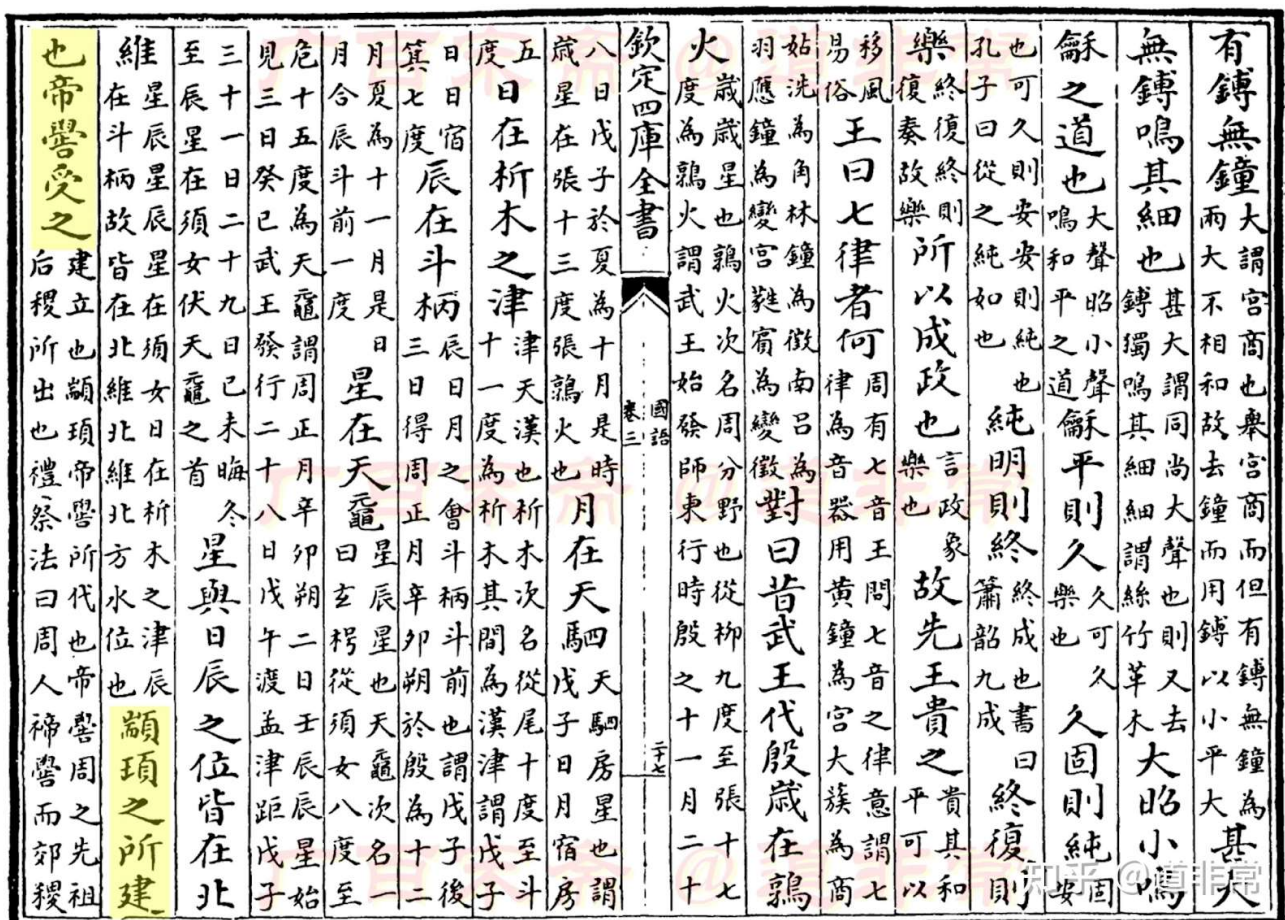
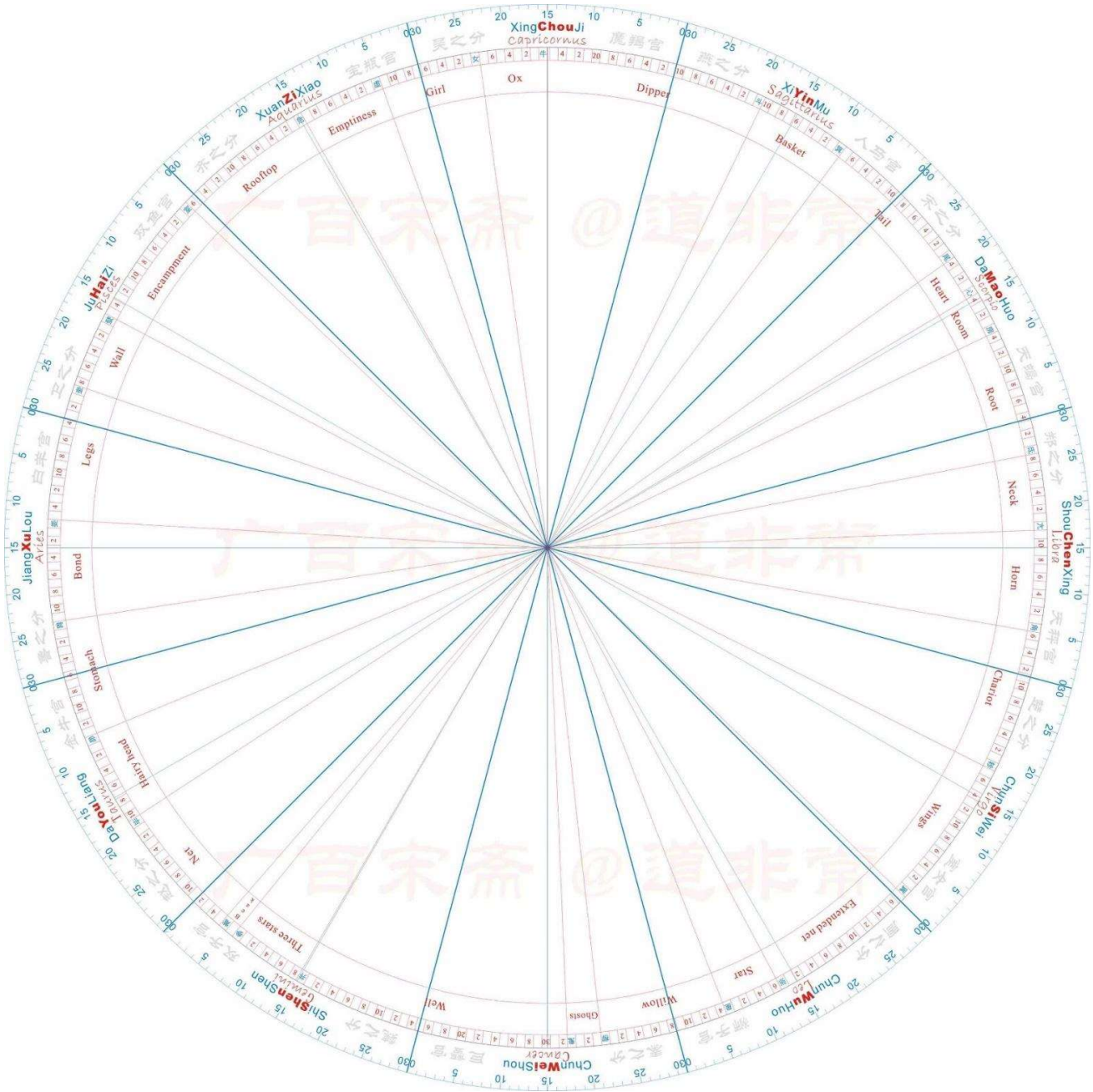


Figure 6, invented by the author, is a combined coordinate star map. The 12 Signs are clearly divided on this map (marked in blue lines in Figure 6). Be aware that the division is actually based on the 28

Mansions (marked in brown lines in Figure 6), which is the unique feature of Huaxia astronomy and calendar. It is impossible to divide the 12 Ci /Signs without the knowledge of the division of the 28 Mansions. The Capricorn of the Zodiac corresponds to Xing Ji, the first Ci of the 12 Ci, which starts at Dipper Mansion 11° and ends at Girl Mansion 7°. Be sure to see it clearly and keep in mind that **the midpoint of Xing Ji** is at **Ox Mansion I / β Capricorni** (the beginning point of Ox Mansion). Note that there are two different divisions of the 12 Ci, the division shown in Figure 6 is the division used by ancient Chinese people. The author will discuss another division later.

Figure 6



Notes:

The 28 Mansions : Ancient Huaxia astronomers divided the ecliptic sky into four regions. Each region contains 7 mansions, a total of 28 mansions. The "degree" of 28 Mansions is only used for the division of the mansions, different from the ecliptic longitude degree and the equatorial longitude degree.

Their names and corresponding major star: 1. Horn Mansion (α Virginis) 2. Neck Mansion (κ Virginis) 3. Root Mansion (α Librae) 4. Room Mansion (π Scorpius) 5. Heart Mansion (σ Scorpius) 6. Tail Mansion (μ Scorpius) 7. Basket Mansion (γ^2 Sagittarii) 8. Dipper Mansion (ϕ Sagittarii) 9. Ox Mansion (β Capricorni) 10. Girl Mansion (ϵ Aquarii) 11. Emptiness Mansion (β Aquarii) 12. Rooftop Mansion (α Aquarii) 13. Encampment Mansion (α Pegasi) 14. Wall Mansion (γ Pegasi) 15. Legs Mansion (η Andromedae) 16. Bond Mansion (β Arietis) 17. Stomach Mansion (35 Arietis) 18. Hairy Head Mansion (17 Tauri) 19. Net Mansion (ϵ Tauri) 20. Turtle Beak Mansion (λ Orionis) 21. Three Stars Mansion (ζ Orionis) 22. Well Mansion (μ Geminorum) 23. Ghost Mansion (θ Cancrion) 24. Willow Mansion (δ Hydrae) 25. Star Mansion (α Hydrae) 26. Extended Net Mansion (ν^1 Hydrae) 27. Wings Mansion (α Crateris) 28. Chariot Mansion (γ Corvi).

First, let us see how the 28 Mansions are divided: If taking a circle around the 360° ecliptic sky, starting from Ox Mansion I (β Capricorni), it will go through each of the 28 Mansions in turn, and return to Ox Mansion I. The total degrees of 28 Mansions are 365.25, which is exactly the "ruler" to measure the change of the solar annual apparent motion. A return year is about 365.25 days, so its displacement rate is one degree per day on average. The solar annual apparent motion changes repeatedly along the 360° ecliptic circle. Therefore, each degree of the 28 Mansions is equivalent to approximate 0.98562628° ecliptic longitude, by which the 28 Mansions can be distributed along the 360° ecliptic sky zone as shown in Figure 6.

Next, let us see how the 12 Ci /12 Signs are precisely divided. The 12 Ci is also a “ruler” to measure the ecliptic sky, **whenever the solar annual apparent motion reaches the starting point of a Ci, it comes a “Solar Term” (节) of the 24 Solar Terms (二十四节气) . And, whenever the solar annual apparent motion reaches the midpoint of a Ci, it comes a “Mid-Solar Term” (中气).**

Notes:

The 24 Solar Terms, based on the sun's position, were created by ancient Huaxia civilization to reflect the changes in climate, nature phenomena, agricultural production, and other aspects of human life. In each month there are two Terms, the first one is called “Solar Term” and the other one “Mid-Solar Term”. They are: 1. Beginning of Spring 2. Rainwater 3. Awakening of Insects 4. Spring Equinox 5. Pure Brightness 6. Grain Rain 7. Beginning of Summer 8. Grain buds 9. Grain in Ear 10. Summer Solstice 11. Minor Heat 12. Major Heat 13. Beginning of Autumn 14. End of Heat 15. White Dew 16. Autumn Equinox 17. Cold Dew 18. Frost's Descent 19. Beginning of Winter 20. Minor Snow 21. Major Snow 22. Winter Solstice 23. Minor Cold 24. Major Cold. Among them, the odd numbers are “Solar Terms”, and the even numbers are “Mid- Solar Terms”.

On the account of Chinese historical documents, there was an important calendar called Zhuanxu calendar which started at “Beginning of Winter (立冬)” (at 225° ecliptic longitude). According to the corresponding relationship between the 12 Ci and the 24 Solar Terms, the beginning point of the first Ci Xing Ji was at the “Beginning of Winter” in the era of Zhuanxu. Following “Beginning of Winter”, was the Mid-term “Minor Snow (小雪)” (at 240° ecliptic longitude). As mentioned above (Figure 6), the midpoint of Xing Ji is at Ox Mansion I (β Capricorni), which means in the era of Zhuanxu, Ox Mansion

I was at Minor Snow point and at 240° ecliptic longitude. Searching by Stellarium (astronomical software) to look for the year with these features.

Notes:

Zhuanxu (颛顼) : Zhuanxu is held by many sources to be one of the Five Emperors in Chinese history. He made contributions to a unified calendar called Zhuanxu calendar. Accordingly, his era started from the initial time of the calendar.

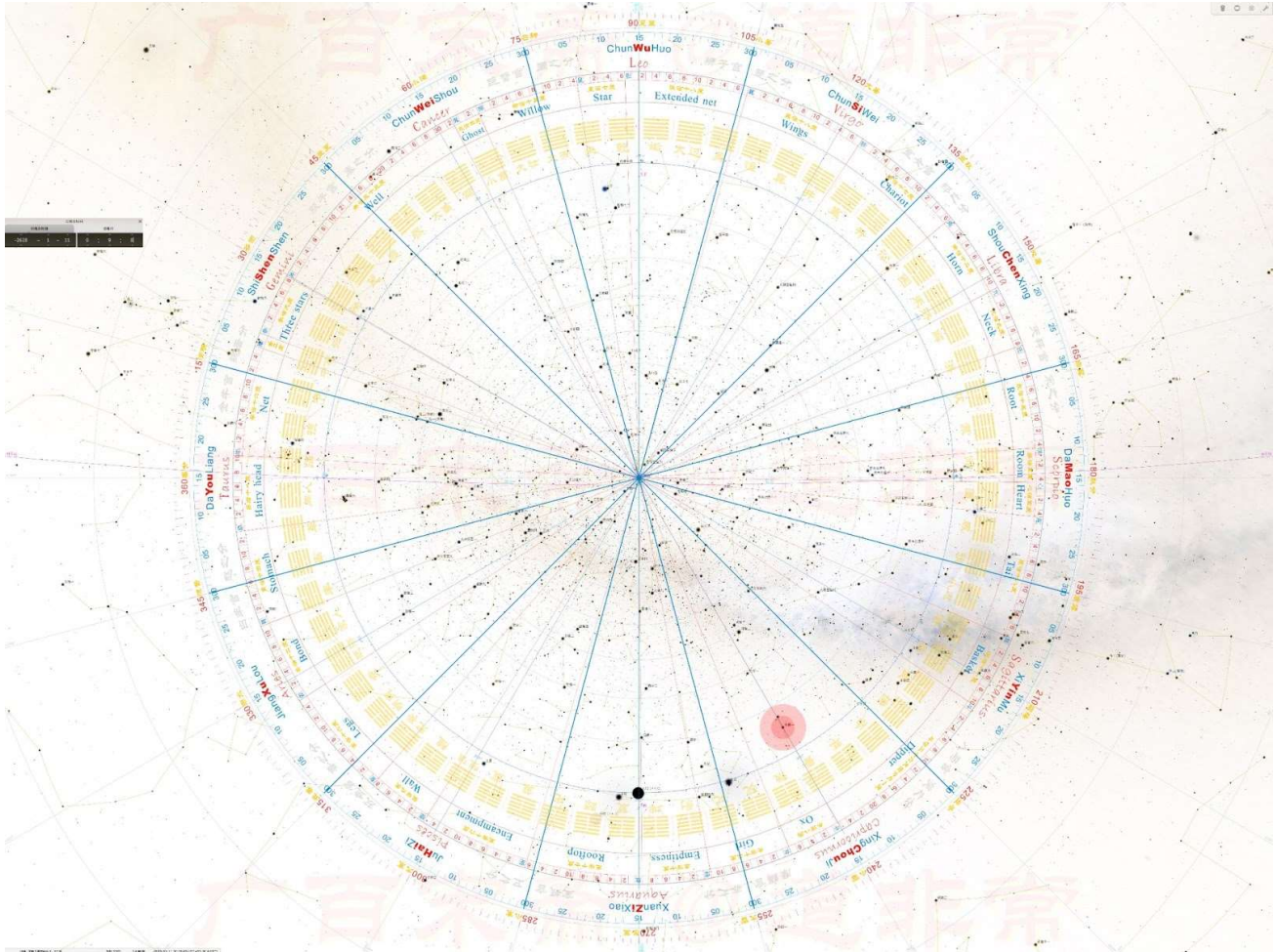
No matter where the observation is located, when Ox Mansion I (β Capricorni) was at Minor Snow point and 240° ecliptic longitude, only the year 2,629 BC (astronomical year -2,628) can be found in alignment with the feature (Figure 7) .

Figure 7



The midpoint of Xing Ji is at Ox Mansion I (β Capricorni) , to be specific, it refers to the particular ecliptic longitude that crosses Ox Mansion I (as marked in red in Figure 8)

Figure 8

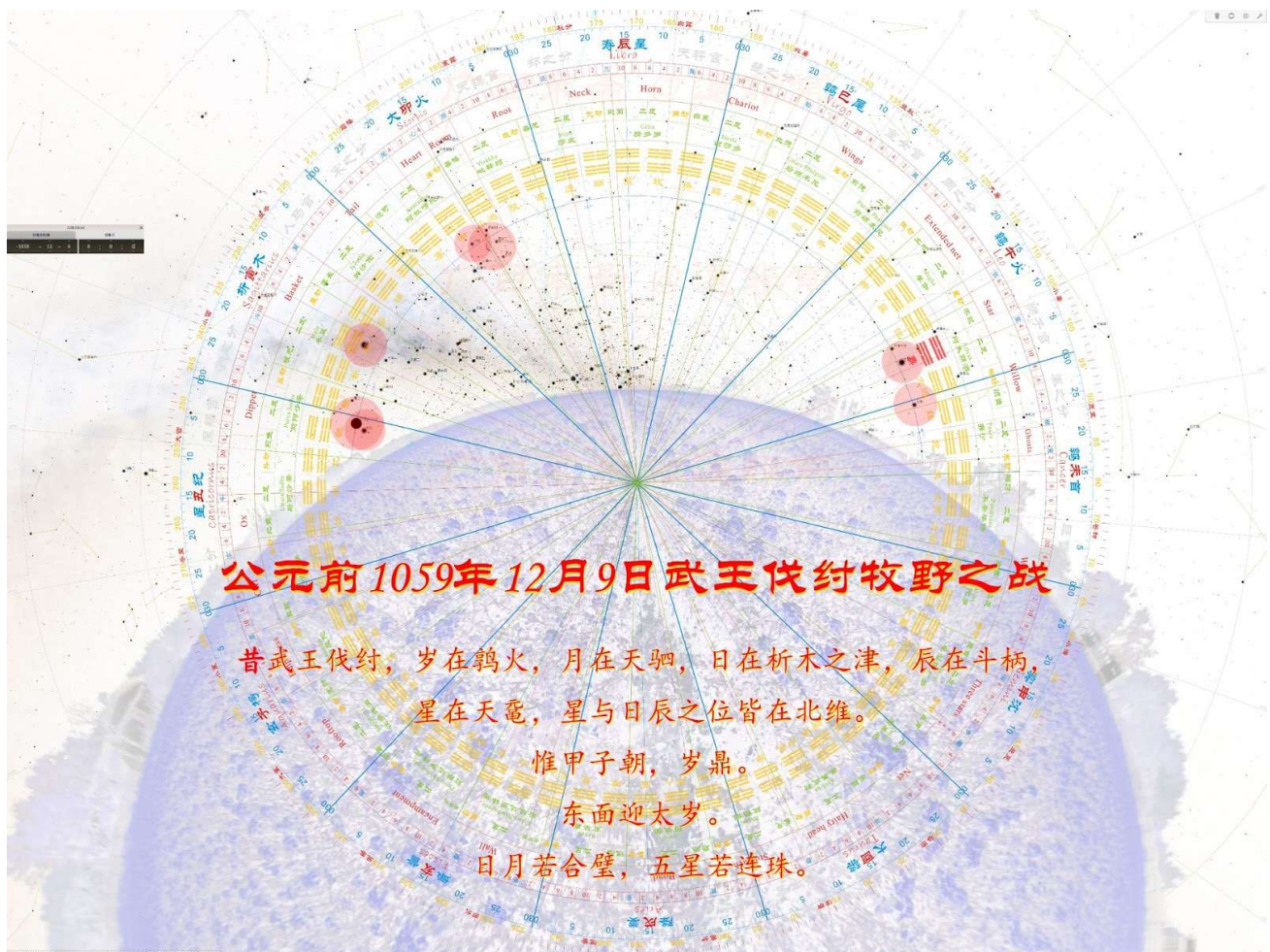


Then, let us look at the artifact of an ancient astronomical map collected by South Korea (Figure 9). It shows clearly that the **midpoint** of Xingji (Capricorn) is exactly at **Ox Mansion I** (β Capricorni) and 240° ecliptic longitude.



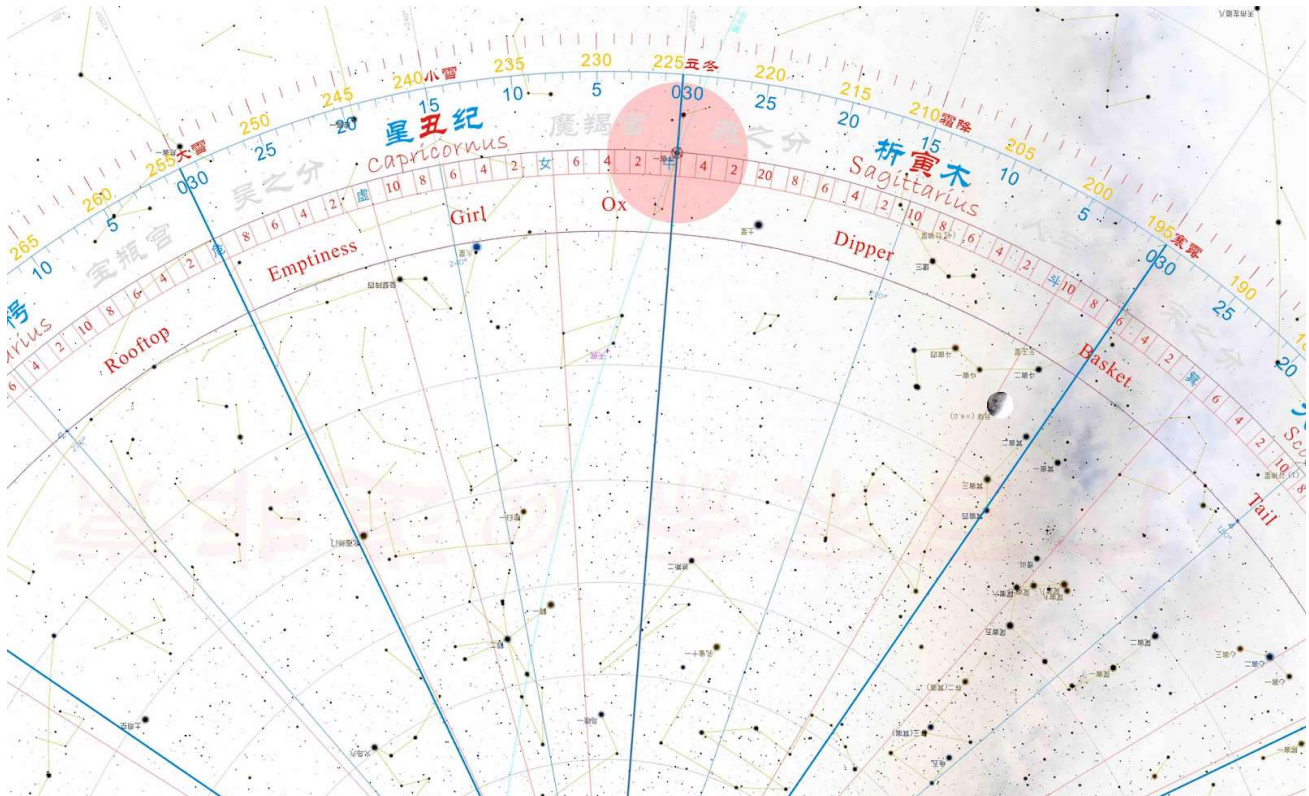
The artifact proves that the 12 Ci are divided based on the 28 Mansions instead of the present ecliptic longitude degree. What needed to pay more attention is: Once Zhuanxu set up the new division of the 12 Ci, it did not change for the direct descendants of Huaxia civilization for thousands of years. Their astronomical officials marked the characteristic astronomical phenomena in major events honestly by this system. For instance, astronomical officials of Western Zhou Dynasty precisely marked the characteristic celestial phenomena on the Jiazi day that King Wu of Zhou defeated King Zhou of Shang, called Battle of Muye.(Figure 10)

Figure 10



However, due to the “Precession” in astronomy, when the 12 Ci were initially created, **Ox Mansion I** / β Capricorni was the beginning point of Xing Ji (as marked in red in Figure 11).

Figure 11



In other words, Ox Mansion I (β Capricornia) initially was the beginning point of the solar calendar (starting on “Beginning of Winter”) and at 225° ecliptic longitude instead of 240° . Searched by the software, 3,725 BC was found only the year with these features (Figure 12).

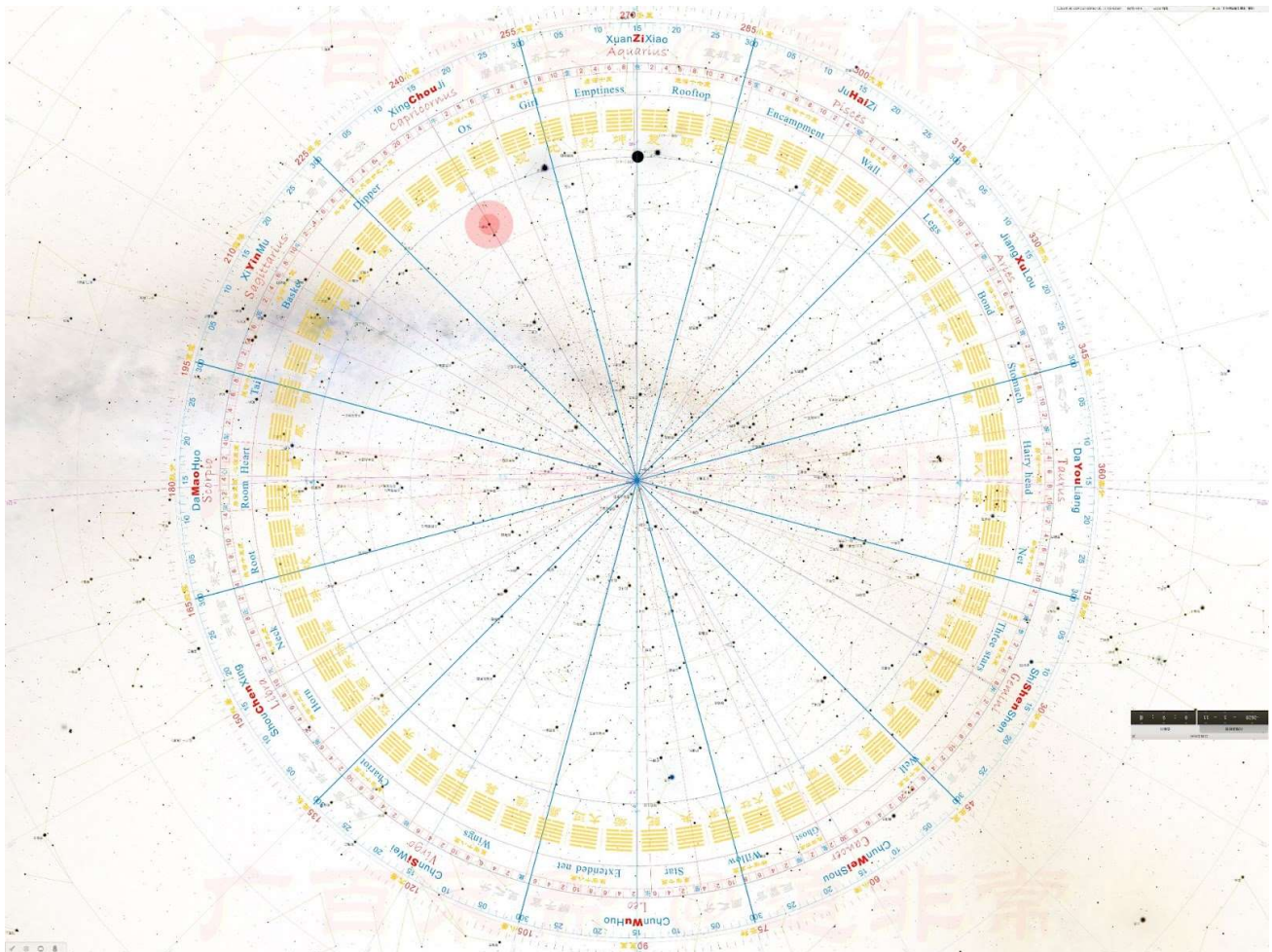
Figure 12



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In the first year of Zhuanxu, Ox Mansion I was at 240° ecliptic longitude instead of 225° , for this reason, he adjusted the division of the 12 Ci. As marked in red in Figure 13, he adjusted the beginning point of Xing Ji from Ox Mansion I to Dipper Mansion 11°.

Figure 13



How many ecliptic longitude degrees are there in total from Dipper Mansion 11° to Ox Mansion I?

The beginning point of Xing Ji starts from Dipper Mansion 11°, and the total degrees of Dipper Mansion are 26.25, and $26.25 - 11 = 15.25$. Each degree of the 28 Mansions is approximately

0.98562628° ecliptic longitude and $0.98562628^\circ \times 15.25 = 15^\circ$, so 15° ecliptic longitude is the difference between two adjacent Solar Terms (节气).

Zhuanxu adjusted the 12 Ci by 15° ecliptic longitude, which is indeed “a huge problem”. After Zhuanxu’s adjustment, the original beginning point of Xing Ji, Ox Mansion I, became the middle point of Xing Ji /Capricorn. The direct descendants of Zhuanxu have been honestly following his new division, but those who stayed in the old territory of Huaxia have been using the previous division, which results in the confusion thereafter. In other words, before and after Zhuanxu and Emperor Ku, ancient Egyptians persistently used the initial division of the 12 Ci / the 12 Signs, that is, still taking Ox mansion I (β Capricornia) as the beginning point of Xing Ji /Capricorn. Without knowing this truth, one can never figure out this long-standing mystery of the Dendera Zodiac, as well as the variety of astronomical records made in later Mesopotamia time.

Next, let us see how the author decodes the mystery of the Dendera Zodiac. Remember, “Xing Ji /Capricorn beginning at Ox Mansion I (β Capricornia)” was used by the ancients who still stuck to the original division.

Knowing the precise divisions of the 12 Signs and the 28 Mansions, and having a combined coordinate diagram, the author can decode the Dendera zodiac, but still have to determine where the northern ecliptic pole is. Since the author already knows where the Summer Solstice point is on the Dendera Zodiac, the ecliptic longitude that crosses the Summer Solstice point and the Winter Solstice point can be determined right away. In this way, the author knows how to position that ecliptic longitude crossing the Spring Equinox point and the Autumn Equinox point. It looks good that the ecliptic longitude is right crossing the intersection of the four gods’ arms. The intersection of the two longitudes is the northern ecliptic pole and also the axis of the 12 Signs and the 28 Mansions. Note that the ecliptic

longitude connecting the Spring Equinox point and the Autumn Equinox point is exactly crossing the middle line of the back foot of the god's chair. (Figure 14)

Figure 14



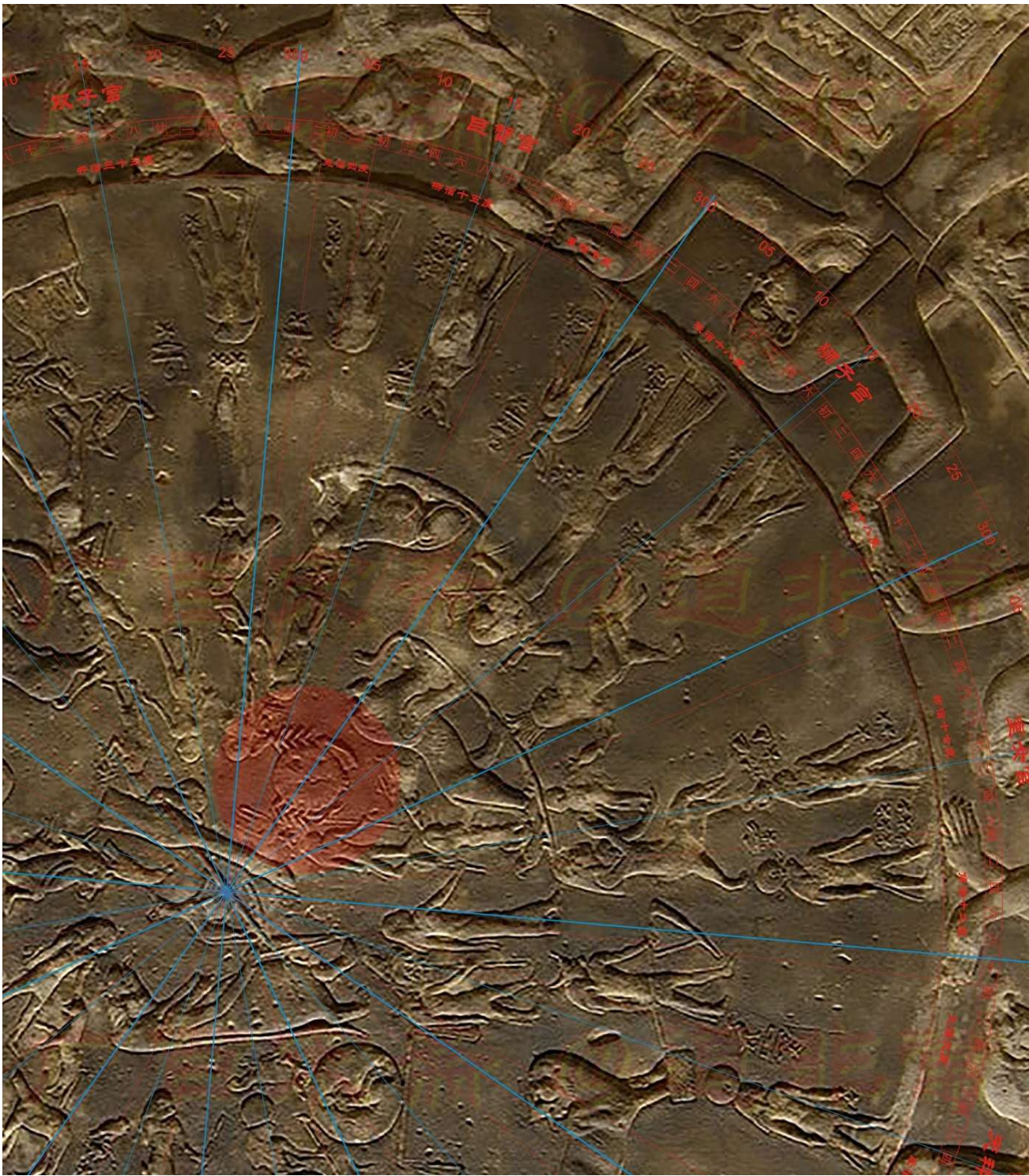
In this way, the author knows there must be positioning marks as shown in Figure 15.

Figure 15



Covering the coordinate diagram of the northern ecliptic sky on the Dendera Zodiac, as shown in Figure 16, the dividing line between Leo and Cancer is right crossing the two dots on the back of Cancer and poking into the lion's eyes. The middle line of Leo is exactly tangent to the round shell of Cancer! There are also many small marks, the author won't talk about every detail here.

Figure 16



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In this way, a vector coordinate diagram that accurately divides the ecliptic sky zone can be made. Not only that, but also the exact corresponding ecliptic longitude value and each degree of each Mansion. (Figure 17, 18, 19).

Then, by knowing the ecliptic longitude value of Ox Mansion I (β Capricornia), the exact time depicted on the Dendera Zodiac can be identified, as detailed to the date, the hour, the minute and even the second.

Figure 17

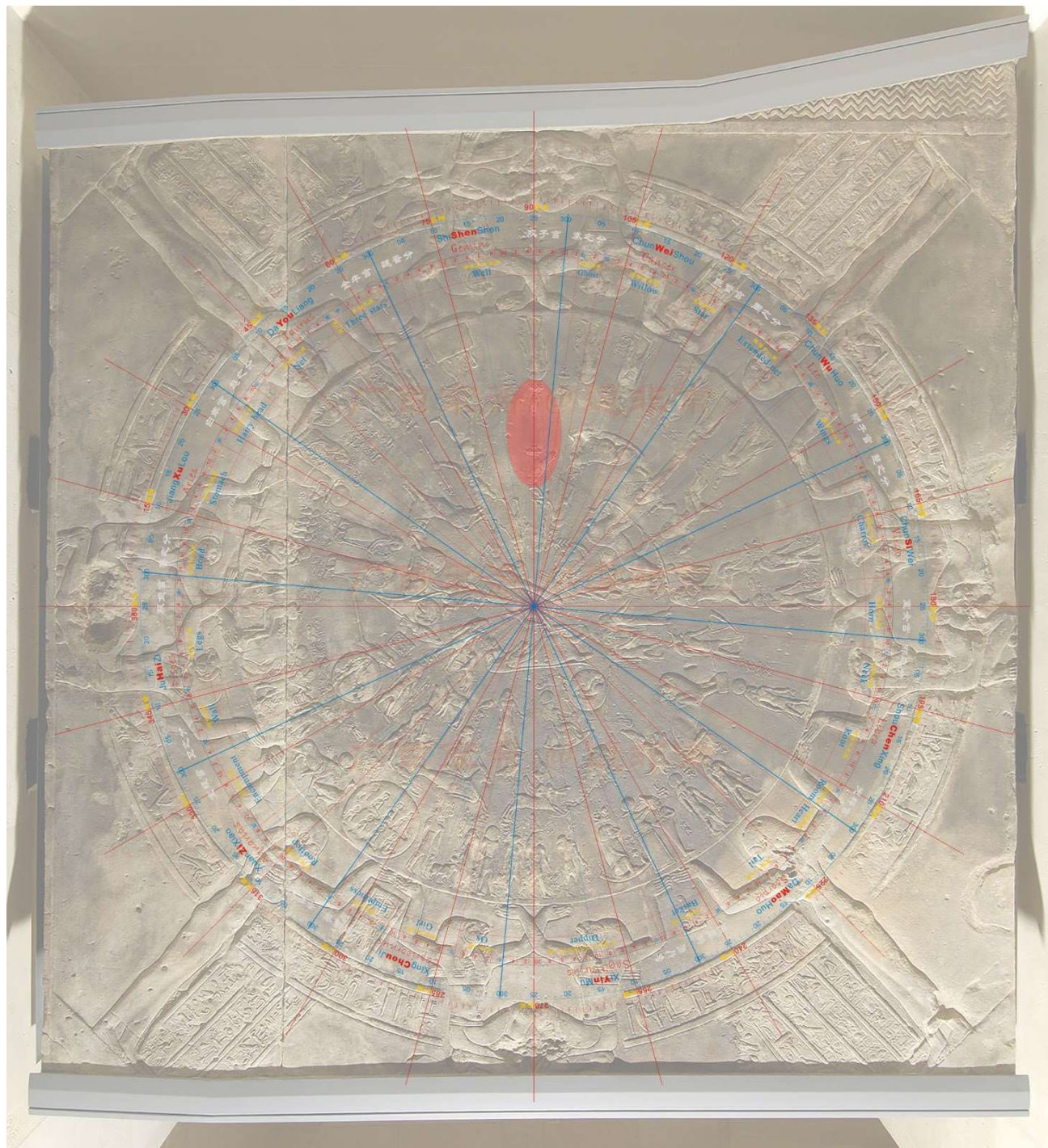


Figure 18

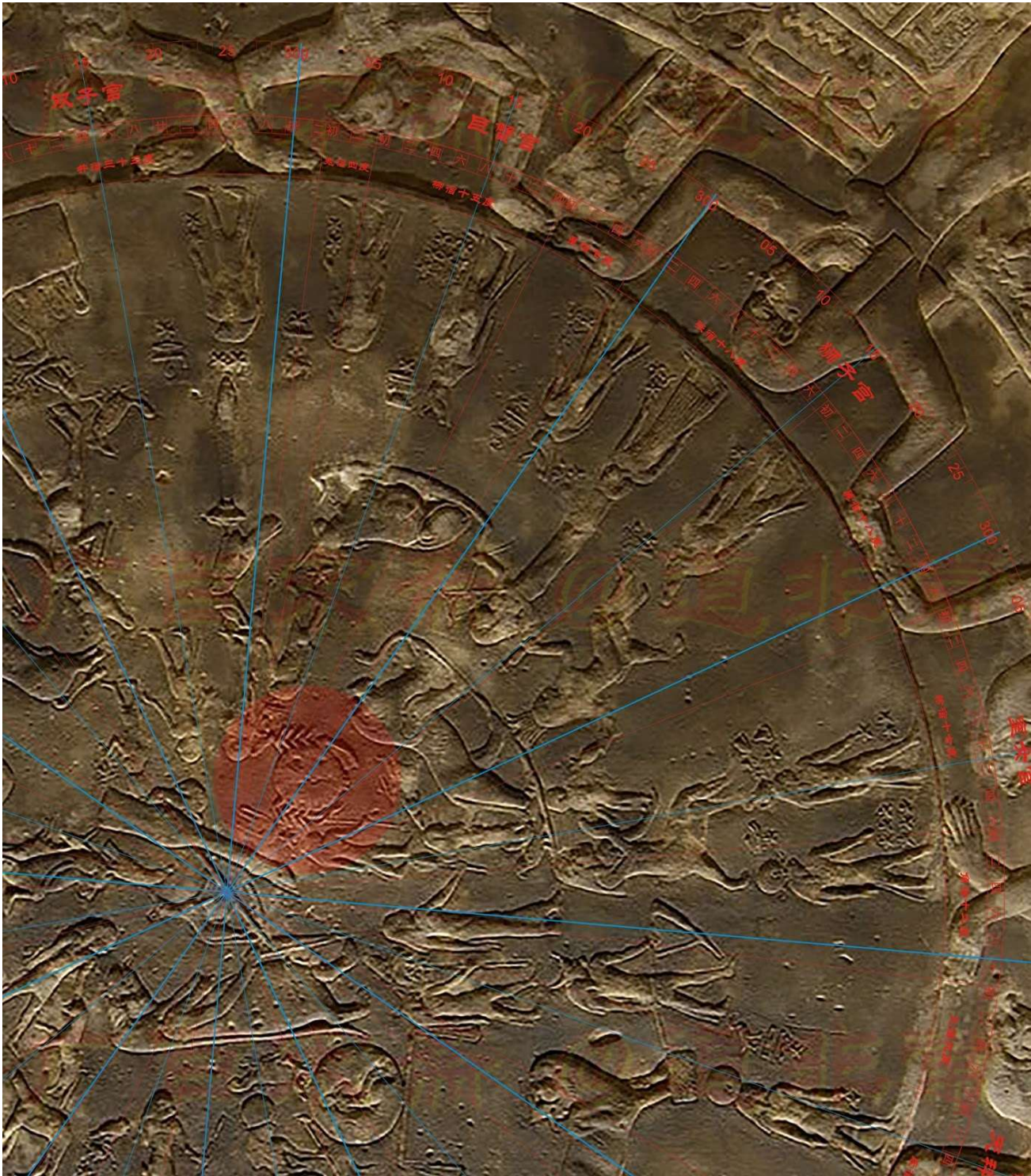


Figure 19

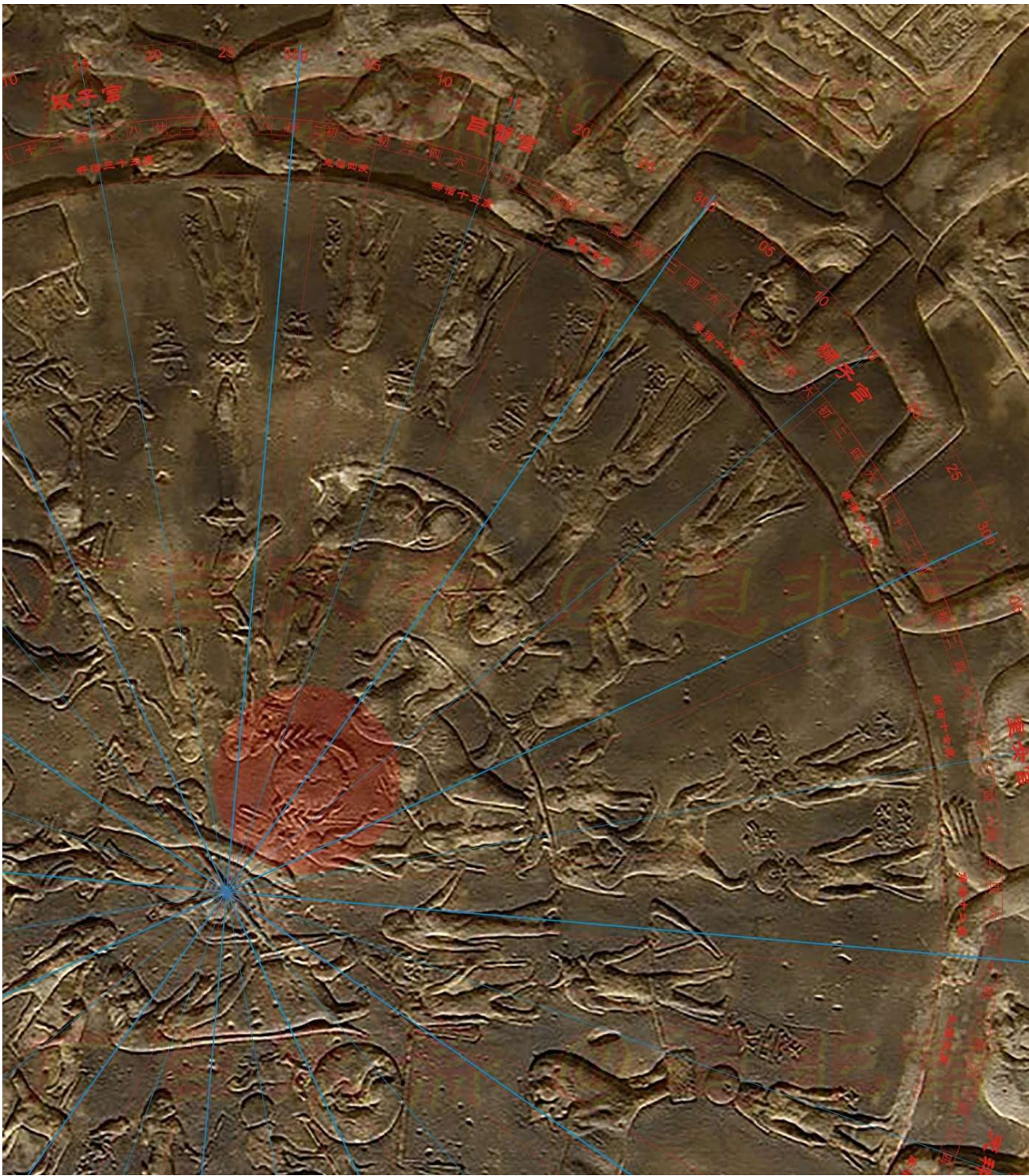


As shown in Figure 20, 21, the moon is at the starting section of Wall Mansion(0°-1°), a little more than 337° ecliptic longitude. Next to the Summer Solstice point, there is a star on the head of the lying cow and the giant crab.

Figure 20



Figure 21



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As shown in Figure 22, 23, the ecliptic longitude value of Ox Mansion I is almost 275° . Searching for the year when Ox Mansion I was at 275° ecliptic longitude and it can be found only the year 89 BC (astronomical year -88) (Figure 24). It is a little less than 275° , indicating that the time should be earlier.

Figure 22

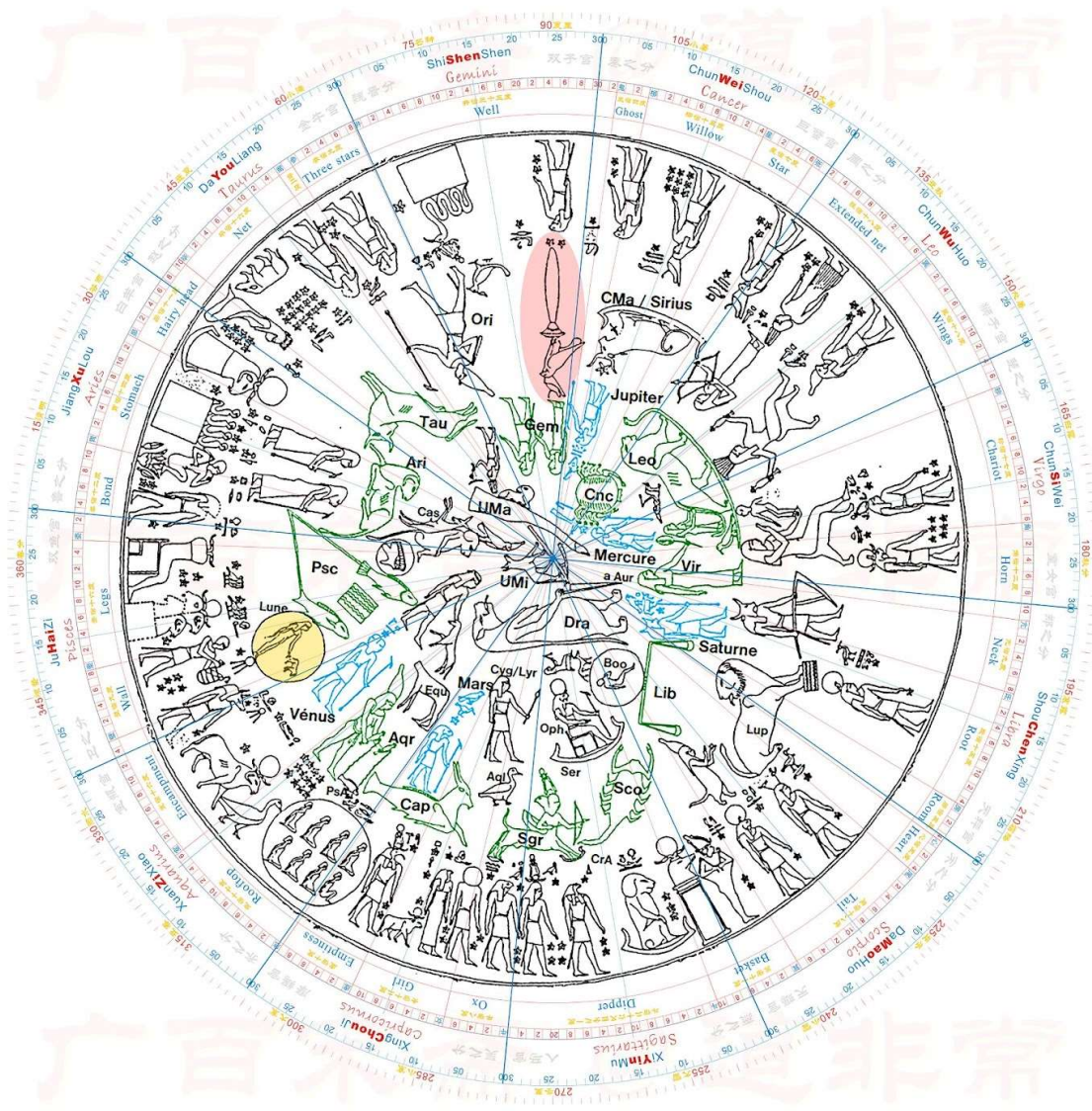
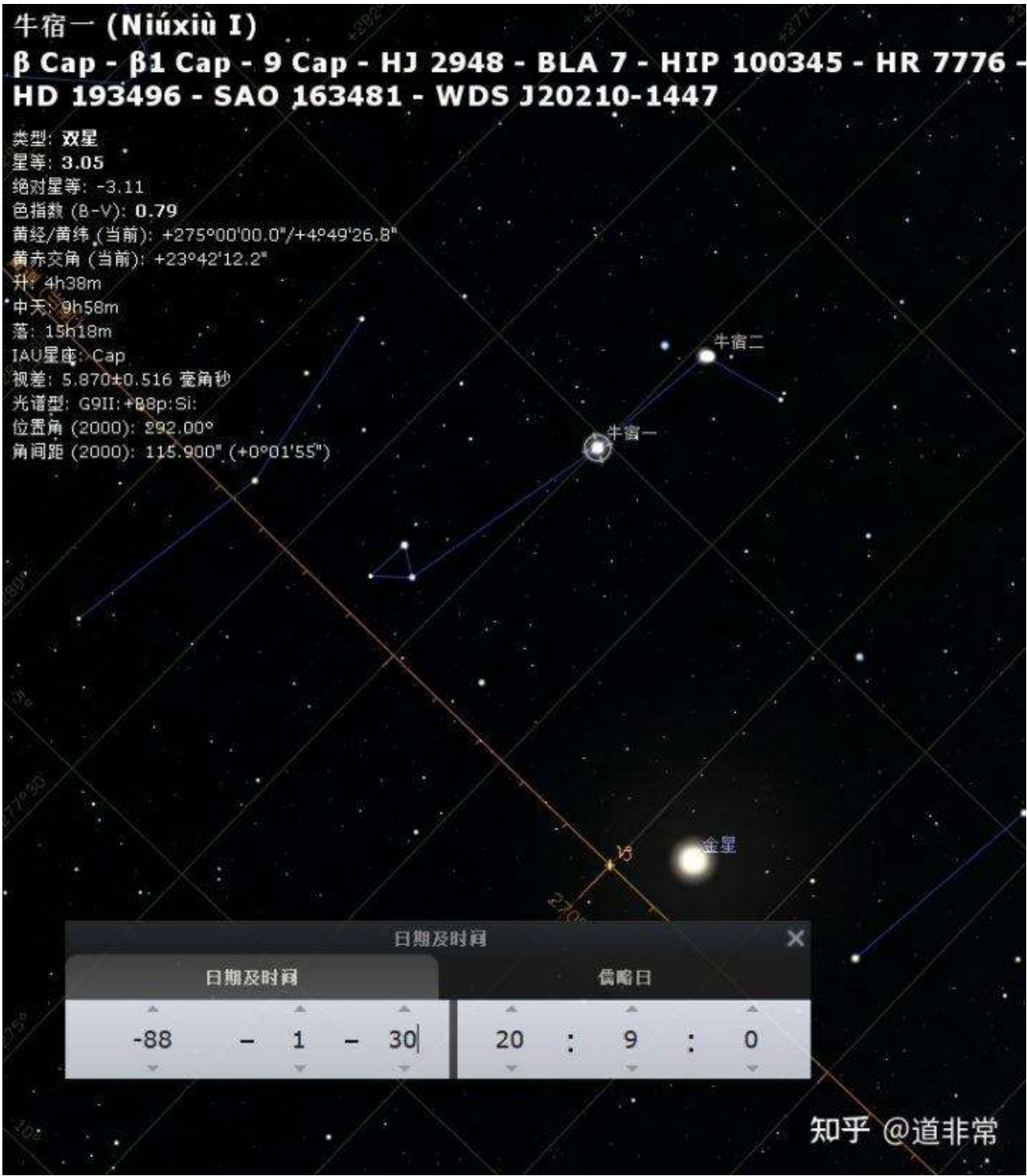


Figure 23

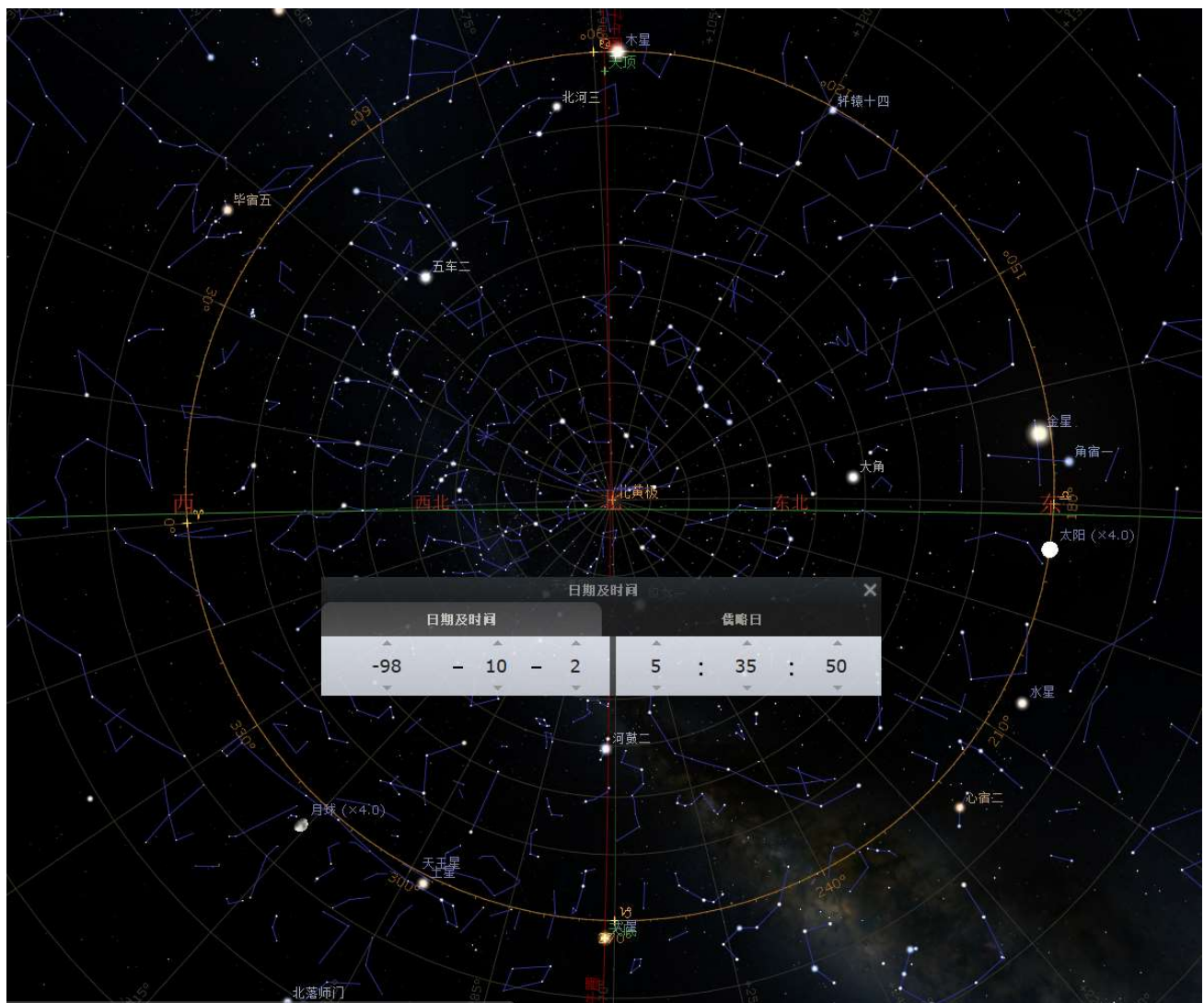


Figure 24



As shown in Figure 25, on October 2, 99 BC, two stars were on the sides of Ox Mansion I, Venus was close to Horn Mansion, and Mercury was in Libra (Figure 25).

Figure 25



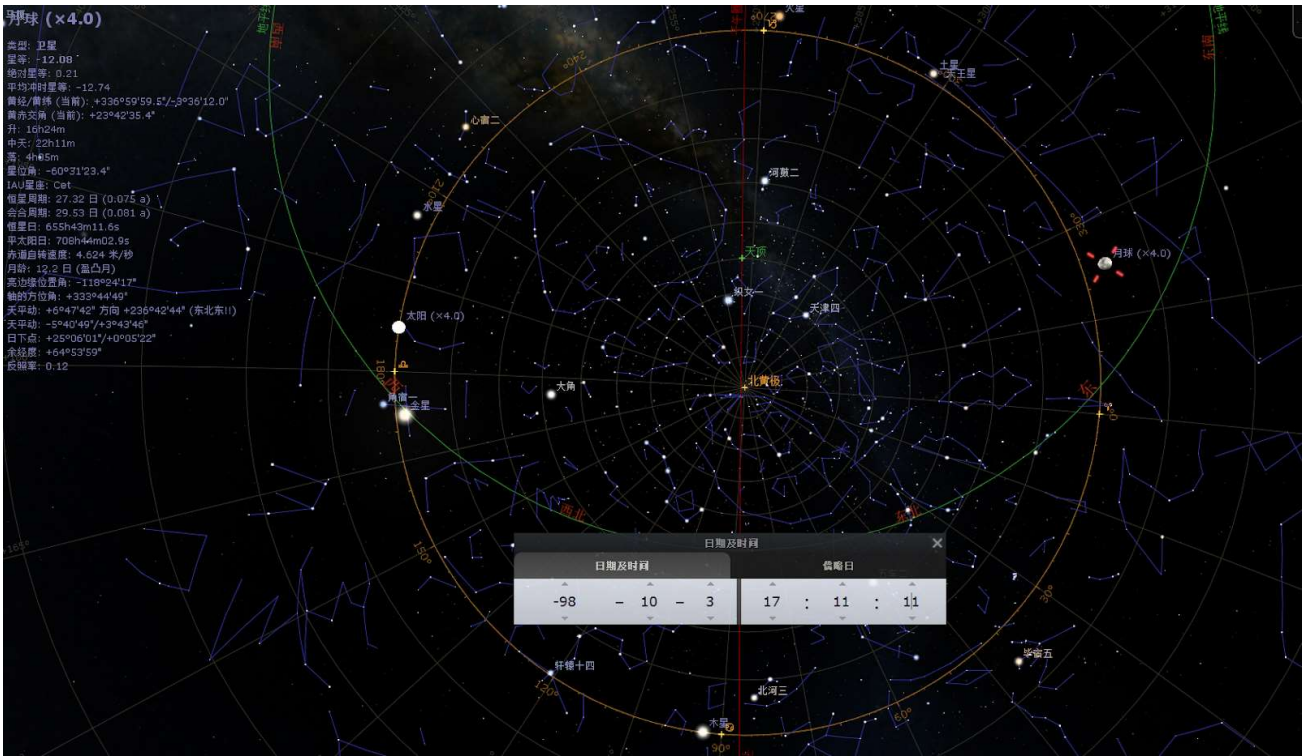
On the Dendera Zodiac, the moon is at the starting section of Wall Mansion(0° - 1°) and a little more than 377° ecliptic longitude (Figure 26). Let us see that around October 3, 99 BC, when the moon was at 377° ecliptic longitude, what time it was. It turns out at 17:11:11, October 3, 99 BC, the moon was at

377° ecliptic longitude and Wall Mansion 1°, Mars and Saturn were separately to the east and west of Ox Mansion I, Jupiter was close to the Summer Solstice point, Venus was close to the Horn Mansion, and Mercury was in Libra (Figure 27).

Figure 26



Figure 27



Positioning the ecliptic longitude connecting the Summer Solstice and Winter Solstice on the Meridian, the author can make two star- maps, the Chinese star map (Figure 28) and the western star map (Figure 29). The position of each planet exactly matches! The Moon is at 337°06'19.4" ecliptic longitude (Figure 30). Ox Mansion I is at ecliptic longitude 274°52'25.2" (Figure 31).

Figure 28

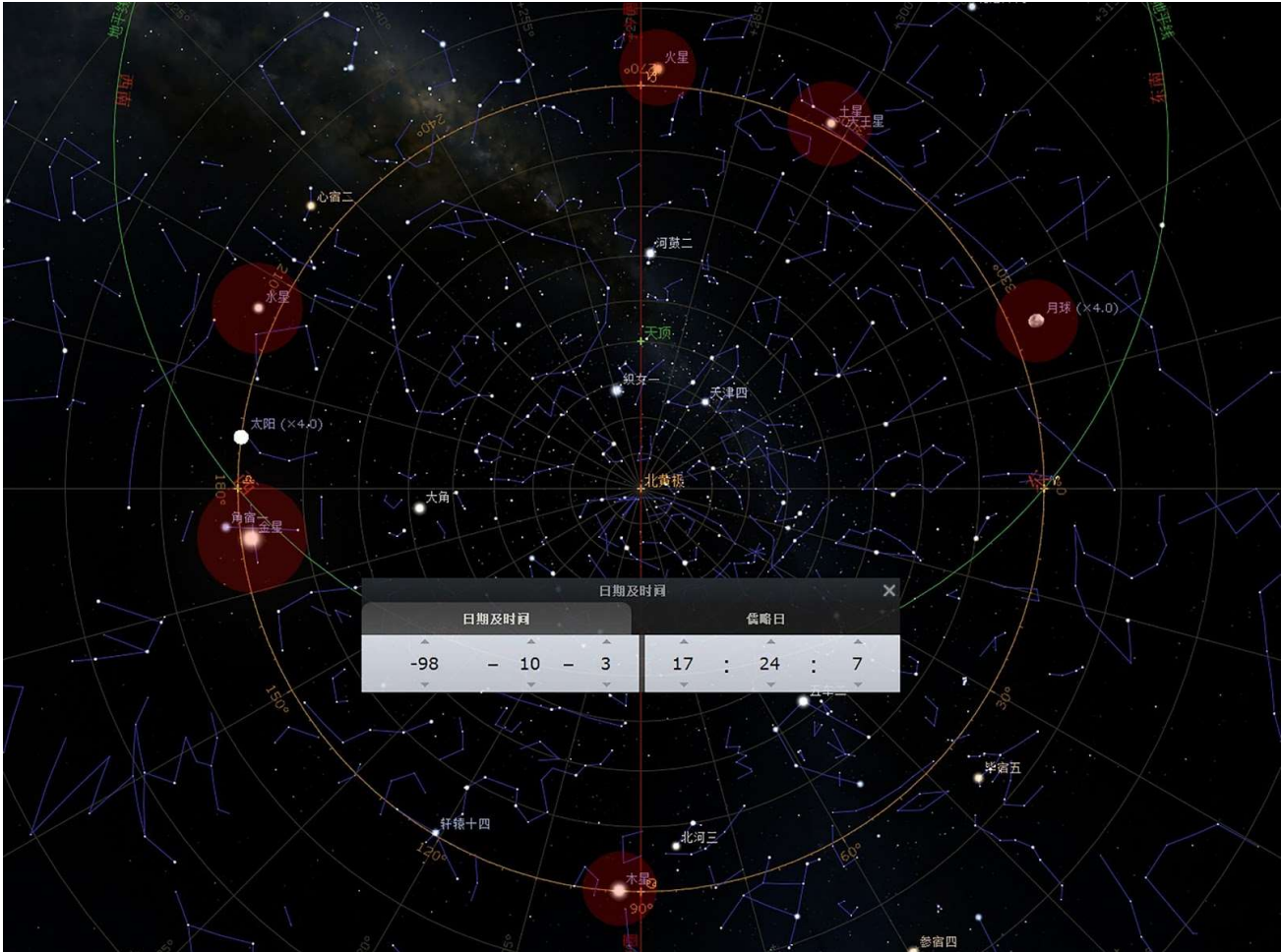


Figure 29

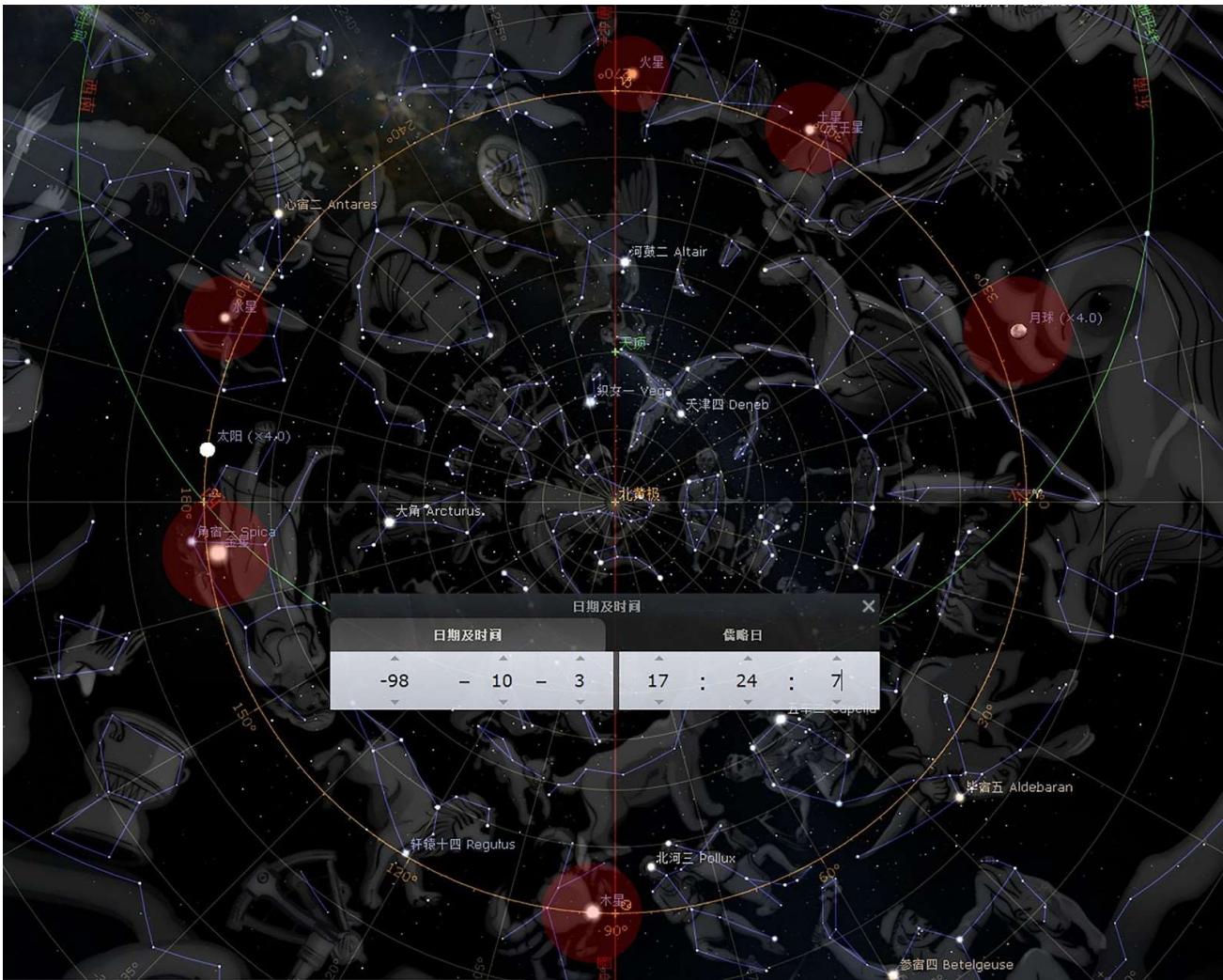


Figure 30

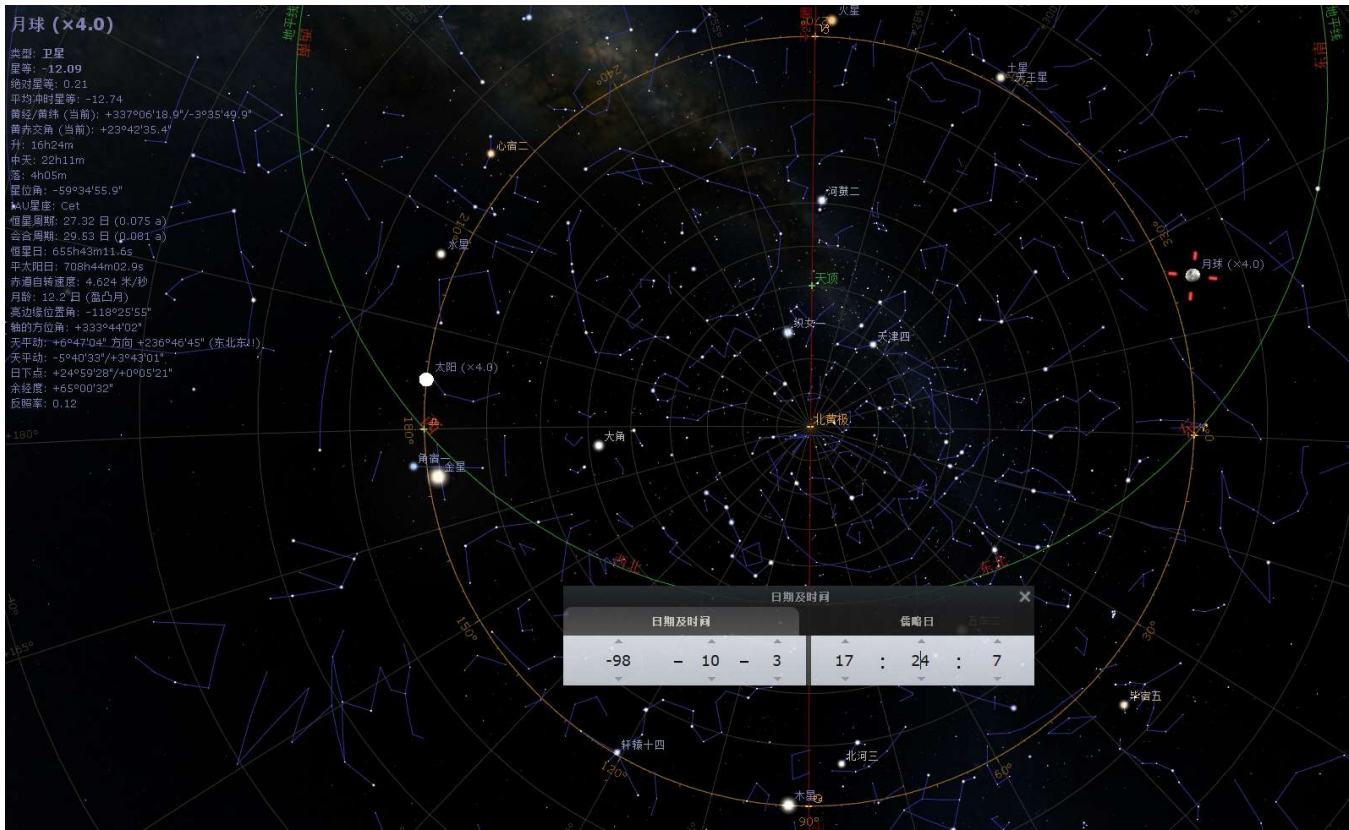
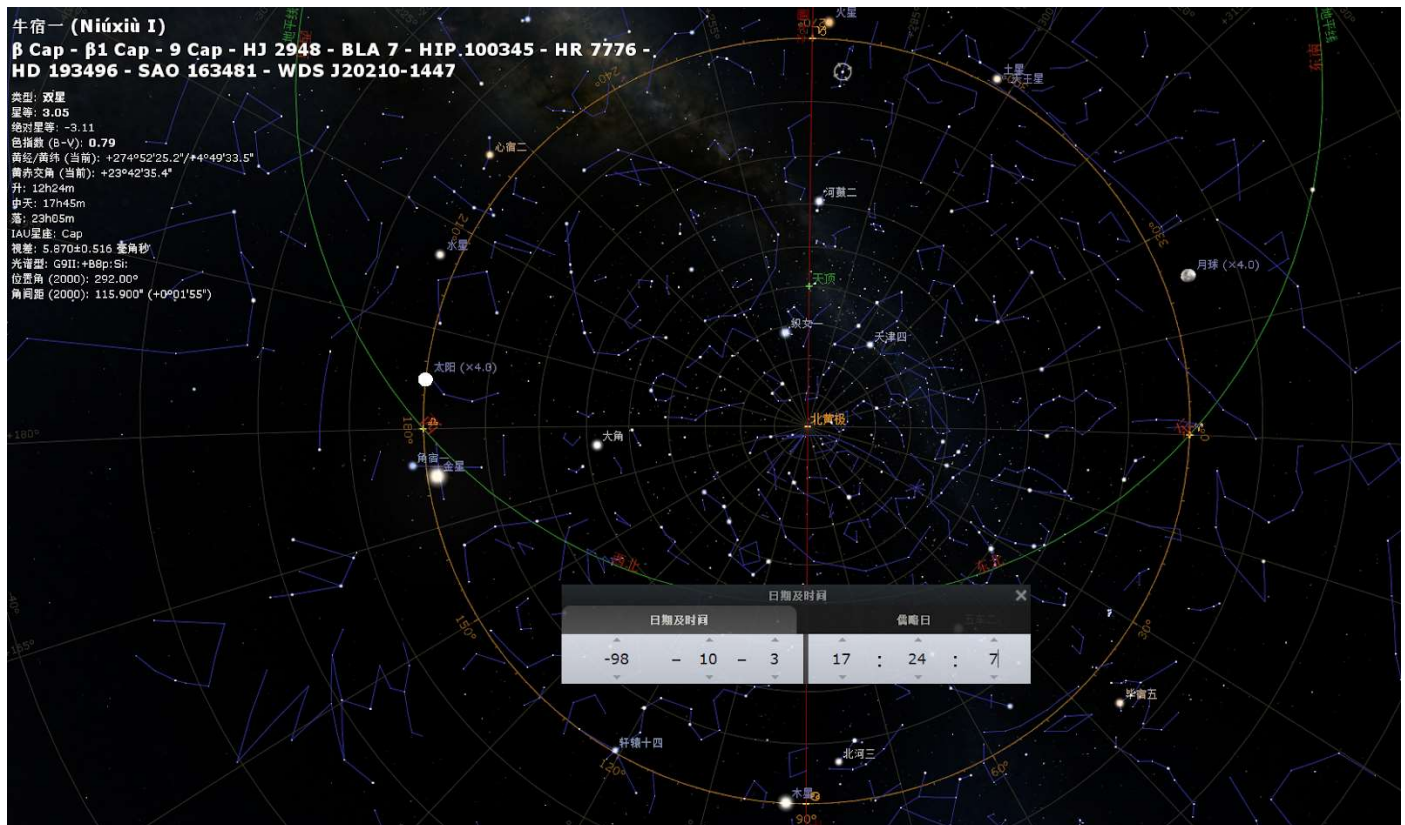


Figure 31



In the end, it is the author's decoding of the relief on the ceiling of the Temple of Hathor: Figure 32, the moon is next to Pisces. What is the character in the middle of Pisces? It is “室” (Shi) in Chinese, meaning room, standing for Encampment Mansion. Figure 33, the Summer Solstice point (the owl standing on a pillar) is between Orion (the man with long hat) and Sirius (the lying cow). Figure 34, Mercury is in Libra. Figure 35, the scene of killing cattle represents the Winter Solstice, which is between Sagittarius and Capricorn. The relief on the ceiling of the temple is in fact the horizontal picture of the Dendera zodiac (Figure 36, 37) !

Figure 32



Figure 33



Figure 34



Figure 35



Figure 36

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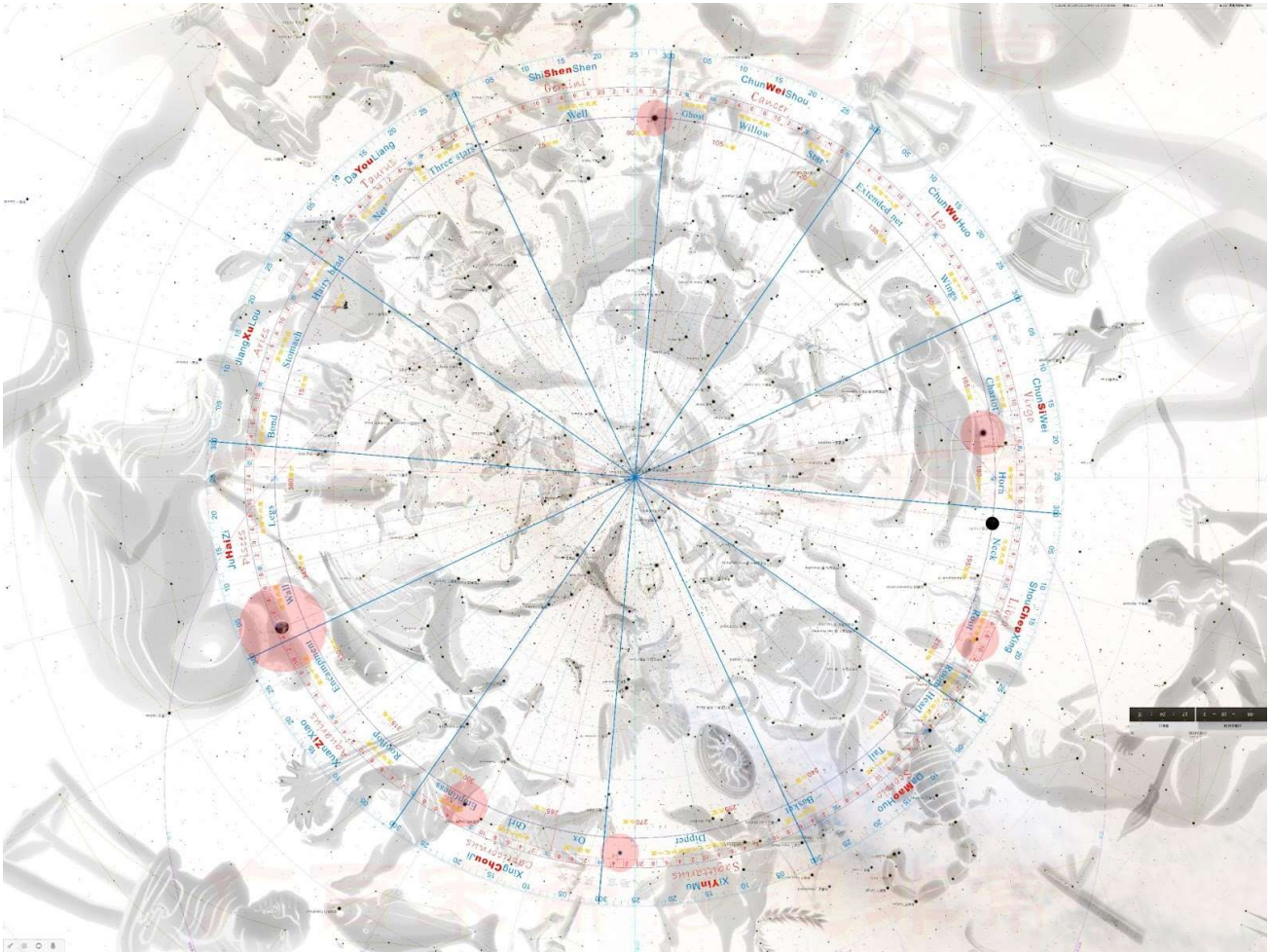


Figure 37

