Fig. 17.12. The Long Zodiac of Dendera (DL) according to the drawing from the Napoleonic Egyptian album. Part one. Taken from [1100], A. Vol. IV, Pl. 20.
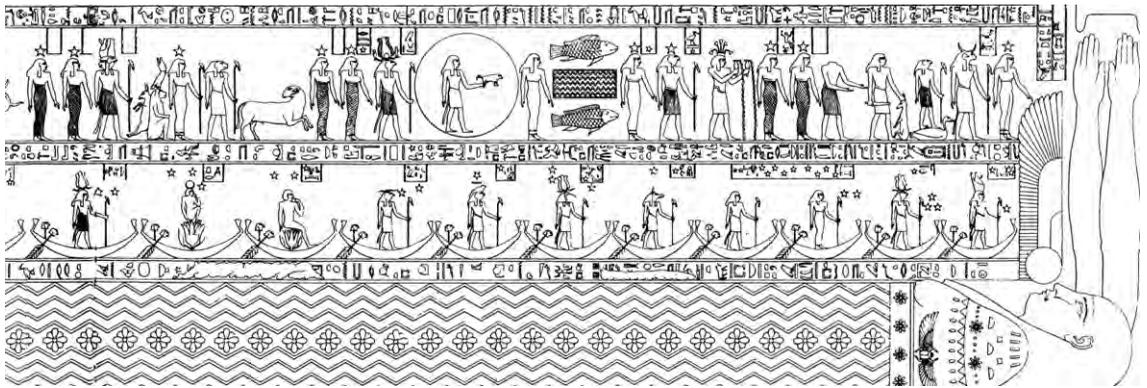

Fig. 17.13. The Long Zodiac of Dendera (DL) according to the drawing from the Napoleonic Egyptian album. Part two. Taken from [1100], A. Vol. IV, Pl. 20.

with a planetary rod found in the zodiac, *apart from the ones that either stand on certain objects or rest their rods upon them.*

As we explained in CHRON3, Chapter 15, planetary figures either standing or resting their rods on other objects bear no relation to the primary horoscope, qv in CHRON3, Chapter 15:6. These figures pertain to either secondary horoscopes or auxiliary symbols, and are as follows in the Long Zodiac:

1) Young woman whose planetary rod rests upon the back of Capricorn's figure.

2) The man with the head of a falcon, holding a planetary rod and standing over the figure of a goose. We see him between the figure of Aquarius and the edge of the zodiacal strip.

3) The man with a planetary rod standing in a boat between the constellation of Gemini and the edge of the zodiac.

4) A pair of women in a boat near the very end of the zodiac, left of Gemini. The one in front is holding a staff whose shape differs from that of a regular planetary rod from elsewhere in the Long Zodiac – it is topped in a different way. Nevertheless, we may have considered this figure as part of the primary horoscope if it hadn't stood in a boat.

In order to avoid confusion, let us point out that the object held that the figure of Virgo (marked with letter *R* for red in the coloured zodiac) is holding an ear of wheat in both hands – not a rod. Virgo was always drawn holding an ear of wheat – in the Egyptian
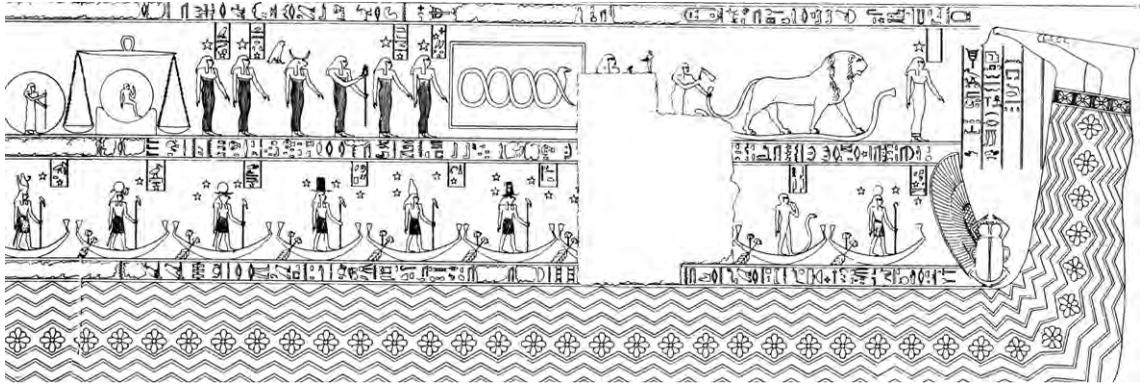
Fig. 17.14. The Long Zodiac of Dendera (DL) according to the drawing from the Napoleonic Egyptian album. Part three. Taken from [1100], A. Vol. IV, Pl. 20.
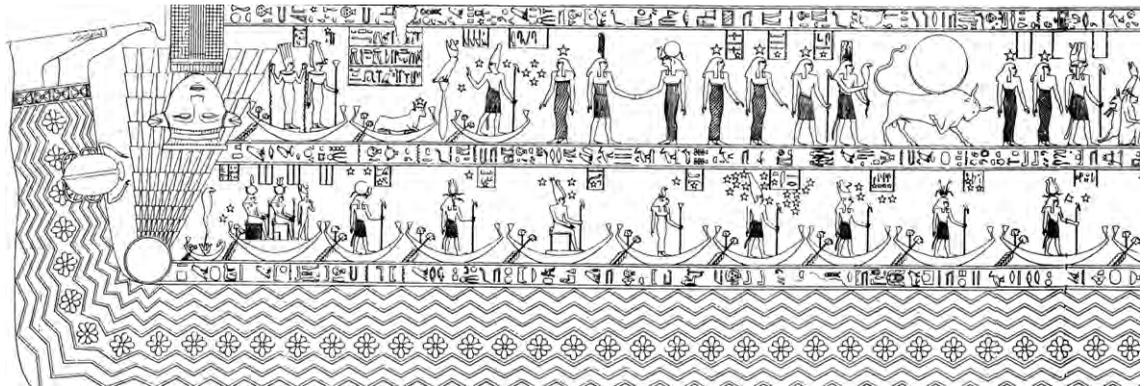

Fig. 17.15. The Long Zodiac of Dendera (DL) according to the drawing from the Napoleonic Egyptian album. Part four. Taken from [1100], A. Vol. IV, Pl. 20.

zodiacs, likewise the ancient European ones, qv in CHRON3, Chapter 15:1.

Let us now turn to the woman holding a long stick in both hands – the one we find inside a circle near Libra. The circle is shaded yellow (letter *J*) in the coloured zodiac, since we have a planetary figure in front of us. Don't forget that circles were used to refer to the Sun and the Moon in the Egyptian zodiacs; however, planetary rods weren't used in their case, qv in CHRON3, Chapter 15:1. The long stick in the hands of this woman isn't an Egyptian planetary rod since it has a different top part, qv in CHRON3, Chapter 15:4.1 where we discuss the shape of planetary rods in Egyptian zodiacs. Also pay attention to the fact that the stick is held in both hands, whereas all the

planetary figures found in the Long Zodiac hold the rod in just one hand.

All the other figures with rods in figs. C1-C4 (apart from the exceptions listed above) are shaded yellow (letter *J*), since they are the planets from the primary horoscope. Let us provide a list.

Saturn – the male wayfarer with a planetary rod in his hand, to the right of Aquarius, near the very edge of the zodiac. He has a crescent or a pair of crescent-shaped horns on his head. See more on just why this figure stands for Saturn in the primary horoscope in CHRON3, Chapter 15:4.2.

Our identification of Saturn in the Long Zodiac coincides with the one made by T. N. Fomenko in her work ([912:3]) and those written by Egyptologists –

see [1062], for instance. N. A. Morozov identified Saturn differently; however, this can be explained by the fact that he had used an imprecise copy of the Long Zodiac. See more details in Chron3, Chapter 15:4.2.

Thus, Saturn in the primary horoscope of the Long Zodiac is either in Aquarius or Capricorn; therefore, the area of allowable positions for Saturn spans the constellations of Aquarius and Capricorn.

The figure of Saturn is separated from Aquarius by five other figures, and can be found at the very edge of the zodiacal strip. The figure we see drawn as walking in front of Saturn, the first one in this strip, marks a ten-degree segment of Capricorn. Therefore, the "best point" (approximate disposition point) for Saturn in the Long Zodiac can be considered to equal the boundary between Aquarius and Capricorn.

Bear in mind that a "best point" is the position of a planet that is the closest to the one found in the zodiac. These points are used in order to determine the planetary order in a given zodiac, as well as calculation of the average planetary location deviation. Average deviations, or discrepancies, are used for the approximate comparison of solution but play no part in their rejection, qv in Chron3, Chapter 16:2.

Let us now consider all the other planets.

Jupiter is the male wayfarer with a planetary rod that we see between Pisces and Aries. We see the inscription saying Hor-Apis-Seta over his head, which stands for "the planet Jupiter", according to Brugsch ([544], Volume 6, page 652.

Our identification of Jupiter in the Long Zodiac coincides with the ones offered by N. A. Morozov ([544], Volume 6), N. S. Kellin and D. V. Denisenko ([376]) and T. N. Fomenko ([912:3]), as well as the one suggested by Egyptologists ([1062]). See more details in Chron3, Chapter 15:4.6.

Thus, Jupiter in the primary horoscope of the Long Zodiac is shown either in Pisces or in Aries. Therefore, the area of Jupiter's possible locations in the astronomical solution is limited to the two abovementioned constellations.

The figure of Jupiter in the Long Zodiac is separated from both Pisces and Aries by a similar amount of figures – two on each side. Therefore, let us consider the boundary between Pisces and Aries to be the "best point" for Jupiter.

Mars is a male wayfarer with a falcon's head and

a planetary rod in his hand seen between Pisces and Aquarius. The inscription near his head says Hor-Teser (Hor-Tos or Hor-Tesher) – "the red planet", according to H. Brugsch's translation, or Mars ([544], Volume 6, page 652).

Our identification of Mars in the Long Zodiac corresponds with the one suggested by N. A. Morozov ([544], Volume 6), N. S. Kellin and D. V. Denisenko ([376]), T. N. Fomenko ([912:3]) as well as the Egyptologists ([1062]). See Chron3, Chapter 15:4.7 for more details.

Thus, Mars in the primary horoscope of the Long Zodiac is shown either in Pisces or Aquarius. The possible astronomical solution area will thus include the constellations of Pisces and Aquarius.

Since Mars in the Long Zodiac is separated from Pisces by the ten-degree female figure and is immediately adjacent to Aquarius, we shall consider the middle of the latter to be the "best point" for Mars.

Venus is represented by the pair of wayfarers holding planetary rods in between Aries and Taurus. The man with the head of a beast (lion?) is in front, followed by a woman with a star over her head, which is the only female planetary figure in the Long Zodiac.

Consequently, Venus in the primary horoscope is shown in either Aries or Taurus; these constellations comprise the possible position area for Venus in the astronomical solution.

Our identification of Venus in the Long Zodiac coincides with that of N. A. Morozov ([544], Volume 6), N. S. Kellin and D. V. Denisenko ([376]) as well as T. N. Fomenko ([912:3]); however, it differs from the identification of the Egyptologists ([1062]). However, insofar as other Egyptian zodiacs are concerned, the Egyptologists de facto agree with Morozov and us ([1291]). See more on the identification of Venus in Chron3, Chapter 15:4.8.

Visibility indicators are very important for both Venus and Mercury, qv in Chron3, Chapter 15:7. The figure of Venus in the Long Zodiac has a star over its head, which implies that Venus was visible.

Venus and the corresponding planets are separated from Taurus by two ten-degree figures of young women and one planet (Mercury, qv below). The procession is immediately adjacent to Aries; therefore, the middle of Aries shall be considered the "best point" for Venus.

Mercury is the double-faced male wayfarer holding a planetary rod in between Aries and Taurus. He has no star over his head – no visibility indicator, in other words. For Mercury this means invisibility in the rays of the Sun, qv in CHRON3, Chapter 15:7. Thus, Mercury was invisible during the days covered by the primary horoscope.

However, Mercury re-appears on the very same horoscope in a visible position.

Pay attention to the pair of male wayfarers between Taurus and Gemini. The one in front has a cobra in his hands, and the one behind him carries a planetary rod and has a visibility indicator (a star over the head).

The second figure looks like a canonical primary horoscope figure, and should therefore refer to some planet. However, all the planets were already listed, excluding the Sun and the Moon which were drawn as circles and not wayfarers, qv in CHRON3, Chapter 15:4.13-15.

This pair of male wayfarers is in close proximity to the already discovered figure of Mercury. They may therefore serve as another representation of Mercury and are unlikely to refer to any other planet, since other planets lie too far away from this location.

The snake in the hands of the wayfarer in front also identifies him as Mercury, qv in CHRON3, Chapter 15:4.10.

Why would Mercury have to be drawn twice?

One can only give a finite answer after analysing the astronomical solution. One may however assume that, since the visibility indicators are lacking from the first figure of Mercury (meaning that Mercury was invisible in the main horoscope's configuration), the artist also wanted to show the position where Mercury first becomes visible or looks the most spectacular.

Another option is to consider one of Mercury's figures part of a respective secondary horoscope. Both of them look vaguely like secondary horoscope figures; indeed, the rod of the two-faced figures is conspicuously hanging over the legs of the neighbouring little animal that stands for the dawn, although without touching it. This case can therefore be considered borderline between the presence and the absence of a transposition sign (rod leaning against another object). As for the pair of male figures following Taurus, both staves would be regular planetary rods if said fig-

ures stood for Mercury in the primary horoscope, as is the case with Venus in the same zodiac. Both Venus and the figure that accompanies it carry planetary rods of the ordinary kind. In case of the "second Mercury" we see the second figure hold a snake rather than a rod. Therefore, what we see in case of the "second Mercury" is another borderline occasion, strictly speaking.

Therefore, in our computation of solutions applicable to the Long Zodiac we considered all of the abovementioned options to be viable. Furthermore, we tried to consider all other possible identifications of this auxiliary planetary figure ("the second Mercury"). However, we came up with no identifications that would make an exhaustive solution of the Long Zodiac feasible.

See more in re Mercury in the Egyptian zodiacs and its two positions in CHRON3, Chapter 15:4.11.

Thus, Mercury in the primary horoscope of the Long Zodiac is drawn either in Aries/Taurus (the two-faced figure), or in Taurus/Gemini (the figure with a star). Therefore, the possible solution area for Mercury in the astronomical solution includes Aries, Taurus and Gemini.

The "best point" for Mercury shall lay at an equal distance from both planetary figures representing Mercury – in between the two. Thus, the "best point" for Mercury falls over the middle of Taurus.

We have covered all the planetary figures of the Long Zodiac that look like wayfarers. There are no other figures with planetary rods. Let us now consider the celestial bodies drawn as circles.

The Sun and the Moon. If the issue with the above-mentioned primary horoscope planets could be solved without any ambiguity whatsoever, the case of the Sun and the Moon is a lot more complex.

In the works of N. A. Morozov, T. N. Fomenko and the Egyptologist Sylvia Cauville ([1062]), the figures of the Sun and the Moon from the Dendera zodiacs were identified perfectly differently. If we are to disregard the details, the reason can be formulated simply: there are four circles in the Long Zodiac; each of them is fit to represent the Sun or the Moon. However, the primary horoscope only requires two circles to represent them.

However, our approach eliminates this problem. Since we are aware of the existence of secondary horoscopes in the Egyptian zodiacs, we shouldn't be wor-

ried about the "extra" circles of the Sun and the Moon. The problem of choosing two circles out of four is solved very simply – we sort through all possible choice options and proceed to analyse all the resulting astronomical solutions as equal. The full solution that we shall end up with finally shall demonstrate which circles should stand for the Sun and the Moon in the primary horoscope. Other circles must pertain to secondary horoscopes, with nothing extraneous present anywhere in the zodiac.

Previous works on the dating of the Long Zodiac didn't account for secondary horoscopes; their authors were forced to make a choice of two circles out of four possibilities to represent the Sun and the Moon. This introduced an aleatory element into the calculations and compromised the integrity of the results, qv in Chron3, Chapter 15:4.13 – 15.

Thus, there are four circles in the Long Zodiac:

1) The circle with an infant sucking on its thumb in Libra.

2) The circle with the figure of a female holding a long stick near Libra.

3) The circle with a man who holds some animal in his hands, with his arms stretched forward as if he were making an offering of this animal near Pisces, on the side of Aries.

4) The circle on the back of Taurus. This circle has no indications; there is a narrow crescent near one of its edges. However, this doesn't necessarily identify the circle as the Moon; such circles could also stand for the Sun in the Egyptian zodiacs, qv in Chron3, Chapter 15:4.13-15. Another option is that the circle represented both the Sun and the Moon simultaneously. We have accounted for this version in our calculations, but came up with no exhaustive solutions.

The most likely candidates for the Sun in the primary horoscope were seen as either the circle on the back of Taurus (N. A. Morozov's version), or the circle near Pisces with the man making an offering (T. N. Fomenko's version). The result revealed the circle over the back of Taurus to stand for the Sun in the primary horoscope, whereas the circle near Pisces stood for the same in the secondary horoscope of spring equinox.

Possible distribution intervals and "best points" for the Sun and the Moon in the Long Zodiac were chosen differently, depending on the interpretation option.

Step 2, qv in Chron3, Chapter 16:7.2. Having defined the planets of the primary horoscope, in the present case including the optional choices for the Sun, the Moon and the auxiliary planet (the second Mercury), we used the Horos software to calculate all the dates when the distribution of planets over the real celestial sphere corresponded with their disposition in the Long Zodiac (according to each of the possible interpretation options).

We would require exact correspondence of planetary order in the solution and the Long Zodiacs. Solutions that failed to satisfy to this condition were rejected, qv in Chron3, Chapter 16:7.

The result was several dozens of preliminary dates chaotically scattered across the entire interval between 500 b.c. and 1900 a.d. where we have searched for solutions, qv in Chron3, Chapter 16:7.

The next step involved testing the dates for compliance to secondary horoscopes and planetary visibility indicators.

3.5. Secondary horoscopes in the DL zodiac

We gave a brief overview of the Long Zodiac's secondary horoscopes above, in Chron3, Chapter 15:8. Here we shall give a more detailed account of the horoscopes' planetary compound. The symbols of the actual solstice and equinox points that mark the positions of the secondary horoscopes in an Egyptian zodiac were described meticulously enough in Chron3, Chapter 14:2-3 and Chron3, Chapter 15:8.

3.5.1. Autumn equinox horoscope in the DL zodiac

The autumn equinox horoscope is always located in Virgo, qv in Chron3, Chapter 15:8. Planetary symbols of this horoscope from the Long Zodiac are as follows (see fig. 17.16).

The second third of Virgo, which is represented by the female figure that follows Virgo immediately, contains auxiliary planetary symbols from the secondary horoscope. The figure of the young woman differs from other ten-degree figures from this zodiac to a great extent (see fig. 17.16). This figure includes the planetary symbols of the secondary autumn equinox horoscope, qv in Chron3, Chapter 15:8.1. Let us study it attentively (fig. 17.16).

Firstly, it has a leonine head. We already know this

Fig. 17.16. The second ten-degree figure of the Virgo constellation from the Long Zodiac of Dendera (DL). It follows Virgo and contains planetary symbols of the secondary autumn equinox horoscope. Fragment of a drawn copy from [1100], A. Vol. IV, Pl. 20.

to symbolise Venus in Egyptian zodiacs – so the planet referred to here is most likely to be Venus. This shouldn't surprise us, since Venus is nearly always present in secondary horoscopes because of its permanent proximity to the sun, qv in CHRON3, Chapter 15:8.

Secondly, we see a crescent over the young woman's leonine head, which means that the Moon was visible near this location on the day of the autumn equinox. The Moon may have been very close to Venus, since their respective symbols, the crescent and the leonine head, are in close conjunction.

Another possible interpretation could be that the crescent in question is a symbol of Saturn. However, in the present case we have to reject this version, since it contradicts the position of Saturn in the primary horoscope, qv in CHRON3, Chapter 15:5.1.

Furthermore, there is a solar bird over the shoulder of the same young woman. As we already pointed out, this bird makes the appearance of "flying" along the entire zodiac, marking the noteworthy places on the ecliptic by "stops", qv in CHRON3, Chapter 15:9.2.

There are no other auxiliary symbols in this segment of the Long Zodiac. In particular, there are no symbols of Mercury anywhere in the vicinity of Virgo. A small part of the zodiac between Leo and Virgo is destroyed, but, according to the rest that remained intact, the only symbol from that area is that of the new year – a woman on a stool with an infant standing on her hand, qv in CHRON3, Chapter 15:8.1.

Since we don't find Mercury here, it is most likely to have been invisible that day. Otherwise, as a planet that is never too far away from the Sun, it would have been part of the secondary horoscope.

We come up with the following interpretation of this primary zodiac as a result:
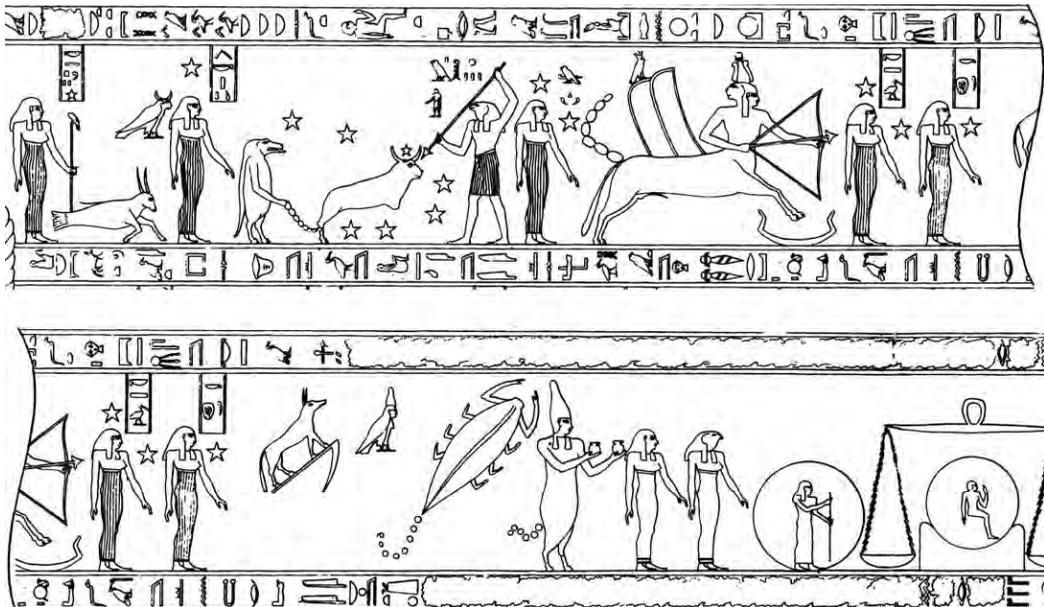

Fig. 17.17. Area of the secondary winter solstice horoscope in the Long Zodiac of Dendera (DL). Fragment of a drawn copy from [1100], A. Vol. IV, Pl. 20.

On the day of autumn equinox, one could see Venus and the Moon in Virgo, close to the Sun. Mercury is most likely to have been invisible. There were no other planets visible in or near Virgo on that day.

3.5.2. Winter solstice horoscope in the DL zodiac

This secondary horoscope from the Long Zodiac proved to be rather rich in content, qv in fig. 17.17.

The figure of Sagittarius, which is the constellation where we find the Sun on the day of winter equinox in every Egyptian zodiac, is drawn as a special "astronomical hieroglyph of winter equinox" in the Long Zodiac. See more in Chron3, Chapter 15:8.2. As we already know, such hieroglyphs integrate the constellation figure (Sagittarius in this case) with the symbols of the Sun, Venus and Mercury. All of the above is fully manifest in the Long Zodiac, qv in fig. 17.17. However, such "astronomical hieroglyphs" are useless for the purposes of dating, since they are standard drawings which we find to be more or less similar from zodiac to zodiac. They carry no specific information that could characterise the astronomical ambience of a given year and are therefore trivial.

However, in the Long Zodiac one finds other drawings of secondary horoscope's planets. This time they provide us with valuable information that facilitates astronomical dating.

Let us first study the part of the Long Zodiac that lies to the left of the "Sagittarius and winter solstice" hieroglyph, qv in fig. 17.17. We shall disregard the symbolic scene with the slaughter of a calf, which also relates to the winter equinox point, qv in Chron3, Chapter 15:9.5. It is followed by the figure of a young woman that symbolises the first ten degrees of Capricorn. See Chron3, Chapter 15:2.1 above for more on the enumeration of ten-degree segments in the Long Zodiac, as well as fig. 15.28.

We see a solar bird with a crescent on its head over the shoulder of this young woman. We already recognize this sign as one that marks the points of the solar itinerary upon the ecliptic that its author considered the most important, secondary horoscopes included. Ergo, we are likely to find planetary symbols related to the secondary horoscope of winter solstice here, since we are still located in the vicinity of this secondary horoscope.

Indeed, immediately after the ten-degree figure of

a young woman, at the very edge of the zodiacal strip, we see a woman with a planetary rod in her hand. She rests it right upon the figure of Capricorn, qv in fig. 17.17.

In Chron3, Chapter 15.21 we already demonstrated that the young woman in question isn't a ten-degree symbol in the Long Zodiac; the fact that we see her hold a planetary rod clearly implies a planetary identity, and the female gender of the figure can only refer to Venus. The figure does not belong in the primary horoscope since it is complemented with a transposition symbol – the rod rests on the constellation figure of Capricorn. See more on transposition symbols in Chron3, Chapter 15:6.

Thus, Venus was in Capricorn on the day of the winter solstice.

The solar bird that "stops" over the figure of Capricorn has horns which look like a crescent. What could they mean? The crescent-shaped horns may be a reference to the Moon in a secondary horoscope; however, in the present case the crescent may also symbolise Saturn. Bear in mind that Saturn was in Capricorn in the primary horoscope, and therefore most likely to have been in the same constellation on the winter equinox day of the same year. Saturn moves very slowly and remains in the same zodiacal constellation for several years in a row.

The implication is that Saturn may have been reflected in the secondary horoscope of winter solstice, being in Capricorn, a constellation adjacent to Sagittarius. However, this is extraneous from the astronomical point of view, since the position of Saturn in the primary horoscope defines the planet's position for the rest of the year as well. However, if Saturn is indicated in the secondary horoscope of winter solstice separately, we just have a single candidate for it – the crescent-shaped horns on the head of the solar bird. Such horns symbolize Saturn in Egyptian horoscopes, as we mentioned above in Chron3, Chapter 15:4.2. Such horns are also an attribute of Saturn in the primary horoscope of the Long zodiac, qv in fig. 15.31.

Now let us study the other part of the Long Zodiac – one that lies to the right of Sagittarius. First we see figures of two young women – the bordering ten-degree segments of Sagittarius and Scorpio. Then we see the scene with a wolf over a scythe and the solar bird nearby. We mentioned this symbol in Chron3, Chap-

ter 15:9.6. It accompanies the winter solstice point in both zodiacs from Dendera, but its meaning remains unknown to us.

Next we see the sign of the Scorpio constellation followed by a fantasy figure of a man with bovine legs and a cup in each hand. We couldn't gather much about its meaning, either. However, we must point out that numerous figures with similar cups in their hands accompany planets in the secondary horoscopes of the Lesser Zodiac of Esna, which we shall cover in detail below. One must therefore be very cautious – it is possible that what we see is a planetary symbol from a secondary horoscope. Indeed, after the perfectly normal figure of a young woman that marks another ten degrees of Scorpio we see another young woman, the last ten-degree figure of Scorpio bordering with Libra, qv in fig. 17.17. This one isn't quite normal – it has the head of a falcon (*ibid*). We already encountered this method of integrating a secondary horoscope's planetary symbol in the figure of a young woman that marks ten degrees of a constellation in the Long Zodiac. We see Venus marked like this in the secondary horoscope of the autumn equinox. Therefore, we must be seeing Mars here, since no other planet is represented by a falcon's head in the primary zodiac, qv in Chron3, Chapter 15:4.7.

The implication is that Mars was in Scorpio on the day of the spring equinox – most likely, in the part of the constellation that borders with Libra. Strictly speaking, this Martian figure may also refer to the secondary horoscope of the autumn equinox, since we see it almost exactly in the middle between Virgo and Sagittarius.

The final version of the secondary winter solstice horoscope from the Long Zodiac is as follows: Venus and Saturn (possibly accompanied by the Moon) are in Capricorn, Mercury is near the Sun, which is in Sagittarius – however, Mercury's position isn't stated explicitly. Mars is in Scorpio, not far away from Libra. There were no other planets near the Sun. Should Mars prove absent, it will manifest in the same position during the autumn equinox.

3.5.3. Horoscope of spring equinox in the DL zodiac

The spring equinox point in Pisces is marked with a rectangular plaque in the Long Zodiac of Dendera. The only candidate for a secondary horoscope planet in the vicinity of Pisces is the large circle containing a man who makes an offering – and that only if the circle in question isn't a figure from the primary horoscope. There are no other possible representations of secondary horoscope planets anywhere in the neighbourhood of Pisces – all other figures are already "called for". They either stand for primary horoscope planets or ten-degree figures in their standard female representation, charged with no additional symbolic meaning.

If the circle near Pisces bears relation to the secondary horoscope, it should naturally represent the Sun, since the latter would be altogether absent from the horoscope in question otherwise. This would render the secondary horoscope of spring equinox non-existent, since the central planet of any secondary horoscope is always the Sun, and it is always drawn in some manner.

As for the male figure making an offering inside the circle, it may stand for some secondary horoscope planet in theory. However, the figure has no characteristics of any kind that would allow us to identify it as a planet without ambiguity; the only obvious thing is the male gender of the figure, which means it can be identified as any planet at all, excepting Venus. It is possible that the planet in question is the one we find the closest to the Sun on the day of the spring equinox, one that "makes an offering" to the Sun then.

This secondary horoscope gives us no further data.

3.5.4. The summer solstice horoscope in the DL zodiac

The summer solstice horoscope that we find in the Long Zodiac of Dendera is rather noteworthy (see fig. 17.18).

The actual sign of Gemini as drawn in the Long Zodiac is an "astronomical hieroglyph" that combines the symbol of Gemini with those of Mercury and Venus – a common occurrence in Egyptian zodiacs, qv in Chron3, Chapter 15:4.8. In other words, it comprises Gemini and a minimal horoscope of summer solstice as explained in fig. 15.67 above. The symbol itself is very remarkable and of paramount importance to the general understanding of the Egyptian zodiacs and their astronomical content. However, it is of no utility for dating, being a standardised symbol which remains the same from zodiac to zodiac.

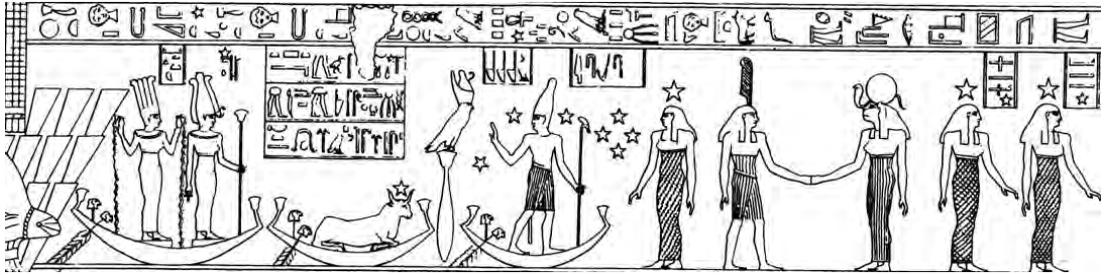If we are to continue to move leftwards from Gem-

Fig. 17.18. Area of the secondary summer solstice horoscope in the Long Zodiac of Dendera (DL). Fragment of a drawn copy from [1100], A. Vol. IV, Pl. 20.

ini, our direction being opposite to that of the procession, we shall see a young woman facing backwards and standing for the first ten-degree segment of Cancer, followed by the already familiar symbols of summer solstice – the man with his hand raised into the air and a solar bird on top of a perch, qv in CHRON3, Chapter 15:8.4.

We need to be attentive here – we cannot afford to miss the fact that the ten-degree female figure in Cancer, the one that follows Gemini immediately, is facing the opposite direction, which is the only such case in the entire Long Zodiac – all other ten-degree female figures face the same direction as the rest of the procession.

The young woman is facing the opposite direction for a good reason. Had she failed to do so, the entire scene that we see to her left would have been behind her back – already in Cancer, that is. However, having made the figure face the opposite direction, the Egyptian artist also got her to face the scene on the left, placing the scene in Gemini ipso facto. Furthermore, as we shall see below, the entire row of figures that we see to the left of this young woman should be read in the direction opposite to the rest of the zodiac. In other words, a correct disposition of figures would require a reversal of their order, complete with the ten-degree figure of a young woman, so that the entire row should become superimposed over Gemini, possibly also crossing the border of Taurus. The ten-degree figure shall be facing the "correct" direction, and the figures on its left shall end up in Gemini and partially Taurus.

The above made clear, let us attentively study the row of figures, starting with the "reversed" ten-de-

gree female figure and ending with the edge of the zodiac (see fig. 17.18). If we are to follow the zodiac from the edge and towards the young woman facing backwards – Taurus to Gemini, that is, considering the reversed order of figures in this segment, we shall first see two women standing in a boat. The one in front is holding a planetary rod, whereas the one in the back has a pitcher in each hand and pours water à la Aquarius.

The meaning of the scene is rather clear in general. The planetary rod held by the first female figure identifies it as a planet, which can only be Venus, since it is represented by a pair of female figures, qv in CHRON3, Chapter 15:4.8. The fact that both women are standing in a boat means that Venus bears no relation to the primary horoscope, having been transposed elsewhere, qv in CHRON3, Chapter 15:6. Furthermore, since we are considering the area that contains the secondary horoscope of summer solstice, this is where Venus should belong as well.

Venus had therefore either been in Taurus or close nearby on the day of summer solstice; possibly in Gemini or in Aries, near the border of Taurus. The pitchers of water in the hand of the second female in the pair that represents Venus might refer to the fact that Venus passed the constellation of Aquarius recently. Indeed, in order to arrive in Taurus, Venus first had to pass the constellations of Aquarius, Pisces and Aries, qv in fig. 16.4 above. It remains unclear why the transition of Venus through Aquarius would be emphasised here.

Let us move on. The pair of women in a boat is followed by yet another boat that carries a calf. We are already familiar with this symbol of summer solstice

as used in Egyptian zodiacs, qv in CHRON3, Chapter 15:4.8.

Next we see the perch with the solar bird on top of it – another symbol of summer solstice, qv in CHRON3, Chapter 15:4.8.

The last symbol in the row looks like a man in a boat with one hand raised high into the air, qv in fig. 17.18. This symbol is also known to us quite well – we encounter it in many Egyptian zodiacs, and it always marks the summer solstice point, qv in CHRON3, Chapter 15:4.8. It is possible that this figure represents the Sun during summer solstice, and so the figure was given a planetary rod. The boat underneath the figure prevents us from confusing it for a planetary figure from the primary horoscope, qv in CHRON3, Chapter 15:6.

We come up with the following interpretation of the summer solstice horoscope in the Long zodiac:

Venus is in Taurus or close nearby; the position of Mercury isn't specified. Or, alternatively, the "second Mercury" relates to this secondary horoscope and its location is indicated between Taurus and Gemini. We see no other planets except for Venus and Mercury, which means that they weren't visible anywhere near the sun that day.

3.6. Validation and rejection of preliminary solutions

Step 3, qv in CHRON3, Chapter 16:7.3. This step involved the verification of all the previously-obtained preliminary solutions. Namely, A. Volynkin's astronomical program by the name of Turbo-Sky was used for verifying the following:

a) Exact correlation between the real (calculated) positions of planets as they are distributed along the zodiacal constellations and the horoscope of the Long Zodiac in the chosen interpretation. See CHRON3, Chapter 16:7 in re the necessity of such verification.

b) Compliance to visibility indicators of Venus and Mercury: Venus must be visible, whereas Mercury is invisible in the position between Taurus and Aries and visible between Taurus and Gemini. These positions must be close to each other temporally (which is possible, due to the fast motion of Mercury).

Planet luminosity at the specified moment and the depth of the Sun's submersion below the horizon

for the moment the planet would rise or set were accounted for, qv in CHRON3, Chapter 16:7.

c) Correspondence to secondary horoscopes as described in the previous section (see also CHRON3, Chapter 15:5-8) and other auxiliary astronomical representations, qv in CHRON3, Chapter 15:9.

One of the necessary requirements was that the symbolic description of every secondary horoscope contained in the Long Zodiac should correspond to the real celestial sphere for the year of the solution under study. We would consider different possibilities for the beginning of a year as well. A general description of the procedure we used for verifying the solutions with the aid of secondary horoscopes and auxiliary symbols can be found in CHRON3, Chapter 16:7.

The resultant exhaustive solution for the Long Zodiac was unique:

22-26 April 1168 A.D.

The discrepancy between this date and the early A.D. epoch when the Egyptologists consider the Temple of Dendera to have been built is greater than a millennium ([1062]). Below we shall see that the second zodiac found in the same temple of Dendera contains a date that is very close to the present one – 1185 A.D. The two dates are separated by a mere 17 years.

There is yet another date that we deciphered from Egyptian zodiacs which belongs to the same epoch of the second half of the XII century. We are referring to the OU zodiac found in one of the royal tombs in the "Valley of the Kings". Its dating is described in the next chapter. The date it contains is 1182 A.D. The dates from the zodiacs of Dendera pertain to the same epoch.

We shall comment on the real meaning of these dates below. For the meantime, let us simply reiterate that all the dates ideally correspond to our general reconstruction of history based upon the New Chronology ([METH1], [METH2], [METH3] and [REC]). According to the New Chronology, the history of Ancient Egypt, likewise other "ancient civilizations" can really be dated to the X-XVI century A.D.

This is where we also find the dates ciphered in the Egyptian zodiacs.

3.7. The exhaustive solution of the Long Zodiac: 22-26 April 1168 A.D.

And so, we have considered a great many possible options of identifying the primary horoscope's planets in the Long Zodiac of Dendera. Bear in mind that the ambiguity that affected the decipherment of the primary horoscope only concerned the figures of the Sun and the Moon.

However, we have found an exhaustive solution for just a single decipherment option applicable to the primary horoscope. It is as follows:

DATA FOR THE HOROS SOFTWARE

Zodiac: Long Zodiac of Dendera (DL).
Interpretation option: The Sun as the circle in Taurus, Moon in Libra.
Interpretation option code: DL2.
Planetary positions of the primary horoscope:
The Sun is the circle on the back of the Taurus figure. Possible range: between the middle of Aries and the middle of Gemini; best point in the middle of Taurus.
The Moon is either the circle in Libra, or the one between Libra and Scorpio. Possible range: Libra or Scorpio; best point in the middle of Libra.
Saturn in either Aquarius or Capricorn. Possible range: Aquarius or Capricorn; best point at the cusp of Aquarius and Capricorn.
Jupiter in Pisces or Aries. Possible range: Pisces or Aries; best point at the cusp of Pisces and Aries.
Mars in either Pisces or Aquarius. Possible range: Pisces or Aquarius, best point in the middle of Aquarius.
Venus in either Aries or Taurus. Possible range: Aries or Taurus, best point at the first third of Aries (close to the middle).
Mercury in either Aries, Taurus or Gemini. Possible range: Aries, Taurus or Gemini. Best point in the middle of Taurus (averaging both options).
All possible range boundaries can be crossed by a distance of 5 arc degrees or less.
The order of planet on the ecliptic, beginning from the autumn equinox point, arranged by longitude (counting from the head of the zodiacal procession):
Moon Saturn Mars Jupiter Venus Mercury <–> Sun. Mercury and the Sun are interchangeable, since we see Mercury on either side of the Sun.

DATA

Sun	Moon	Saturn	Jupiter	Mars	Venus	Mercury
# FROM: — — — — — — — — — — — — — — — — — — #						
0.5	6.0	9.0	11.0	10.0	.0	.0
# TO: — — — — — — — — — — — — — — — — — — — #						
2.5	8.0	11.0	1.0	12.0	2.0	3.0
# BEST POINTS: — — — — — — — — — — — — — — #						
1.5	6.5	10.0	12.0	10.5	.3	1.5

END OF DATA

NB: Planetary positions are given on the planetary scale:

<0> Aries <1> Taur <2> Gemini <3> Cancer <4> Leo <5> Virgo <6> Lib <7> Scorp <8> Sagittarius <9> Capricorn <10> Aquarius <11> Pisces <12=0>

In this interpretation option the Sun is the circle on the back of the Taurus figure, whereas the Moon is the circle in Libra. The narrow crescent in the bottom of the solar circle on the back of Taurus may refer to a new moon in Taurus. The exhaustive solution declared the new moon in Taurus to have been related to the Passover Moon, being the birth of the latter. This may be why it enjoys special attention in the zodiac.

As for the two other circles in the Long Zodiac – according to the full solution, the circle near Libra refers to the Easter full moon, whereas the circle near Pisces stands for the Sun in the secondary horoscope of spring equinox. See more details below.

We found an exhaustive solution for this interpretation version, which also proved unique – 22-26 April 1168 A.D. The best correlation between the solution and the zodiac is reached on 23 April 1168 A.D., on a full moon. This must be the date ciphered in the Long Zodiac of Dendera. However, strictly speaking, any date from the interval between the 22 and 26 April fits the solution perfectly.

The average distance between the planets in this solution and their respective "best points" equalled a mere 12 degrees for 23 April 1168 A.D., which is about 1/3 of a zodiacal constellation's average length on the ecliptic. Let us remind the reader that the "resolution" of the Egyptian zodiacs cannot exceed half of a zodiacal constellation, which roughly equals 15 de-

grees. Therefore, 12 degrees provides us with perfect concurrence for the astronomical solution, qv in CHRON3, Chapter 16:12.

Below we cite calculated planetary positions for the 22, 23 and 26 April 1168 A.D. Apart from the date in a Julian calendar (year/month/day), we also give the Julian day for this date, which is the actual value used in astronomical calculations ([393], page 316). See CHRON3, Chapter 16:4.

Planetary positions are given in degrees on the ecliptic J2000 (first line) and the "constellation scale" (second line). Apart from that, in the third line one finds the name of the constellation that the planet was located in. See more details in CHRON3, Chapter 16:4.

THE EXHAUSTIVE SOLUTION OF THE LONG ZODIAC OF DENDERA (PRIMARY HOROSCOPE)

Julian day (JD) = 2147782.00
Year/month/day = 1168/4/22

Moon	Saturn	Mars	Jupiter	Venus	Mercury	Sun
212.7	327.0	330.8	361.2	39.3	43.2	50.4
5.93	9.91	10.07	11.37	.51	.67	.95
Vir/Lib	Cap/Aqua	Aqua/Cap	Pisces	Aries	Aries	Ari/Tau

Average deviation from "best points" equals 13.7 degrees.

Julian day (JD) = 2147783.00 Full Moon in Libra
Year/month/day = 1168/4/23

Moon	Saturn	Mars	Jupiter	Venus	Mercury	Sun
225.1	327.0	331.5	361.4	38.8	42.7	51.4
6.45	9.91	10.12	11.37	.49	.65	1.01
Libra	Cap/Aqua	Aquarius	Pisces	Aries	Aries	Tau/Ari

Average deviation from "best points" equals 11.7 degrees (local minimum).

Julian day (JD) = 2147786.00
Year/month/day = 1168/4/26

Moon	Saturn	Mars	Jupiter	Venus	Mercury	Sun
261.4	327.0	333.6	362.0	37.5	41.5	54.2
7.83	9.91	10.24	11.39	.44	.60	1.07
Scorpio	Cap/Aqua	Aquarius	Pisces	Aries	Aries	Taurus

Average deviation from "best points" equals 15.8 degrees.

3.8. Verification table for the exhaustive solution of the Long Zodiac

Let us cite the verification results of the above-mentioned exhaustive solution. The verification table can be seen in fig 17.19.

We must remind the reader that the verification table demonstrates the degree of correspondence between one astronomical solution and another, also citing the original data present in the Egyptian zodiac. A complete or exhaustive solution is one where we find a "+" in every column of the verification table, which testifies to ideal correspondence with the Egyptian zodiac with all criteria satisfied, qv in CHRON3, Chapter 16:14. The following abbreviations are used on the reference sheet:

S. S. – the submersion of the Sun under the local horizon in arc degrees in fig. 17.19. For instance, S. S. = 10 means that the Sun set by 10 degrees.

M – magnitude or current luminosity of a planet according to the photometric scale as used in astronomy. For instance, M = –3.2 means that the luminosity of the planet in question equalled –3.2. Planetary luminosity fluctuates considerably over the course of time, qv in CHRON3, Chapter 16:7.3.

The fractional value in parentheses between 0 and 12 is the calculated position of the planet on the "planetary scale", qv in CHRON3, Chapter 16:10. For instance, 2.5 stands for the middle of Gemini or a point with the longitude of 70 degrees on the ecliptic J2000.

The Greek letter delta (Δ) refers to the celestial distance in arc degrees in fig. 17.19.

Let us review the columns of the verification table as seen in fig. 17.19.

The first column stands for the visibility of Mercury. In the days included in our solution Mercury definitely wasn't seen in either Cairo or Luxor. The verification table contains data related to the submersion of the Sun as observed from Cairo. In Luxor this submersion value may be greater by a factor of one degree at best, which won't affect the visibility of Mercury in any way at all. Indeed,

On 22 April 1168, which is the first day covered by the solution, the submersion of the Sun equalled a mere 4 degrees in Cairo when Mercury rose (and 5 degrees maximum in Luxor). The luminosity of Mercury had been very low, namely, +3.3. These condi-

tions make the visibility of Mercury an impossibility. On 26 April 1168, which is the last day covered by the solution, the submersion of sun equalled 6 degrees in Cairo and 7 degrees maximum in Luxor. The luminosity of Mercury remained very low equalling +2.1. These conditions also put the visibility of Mercury out of the question.

We are thus informed of Mercury being invisible on the days covered by the solution. In this case it should be drawn in the zodiac as a two-faced figure between Aries and Taurus. Bear in mind that this particular drawing of Mercury in the Long Zodiac has got no star over its head and is drawn in the invisible position, qv above.

Indeed, Mercury in our solution is located in the very middle of Aries. This corresponds to its position in the Long Zodiac perfectly.

Thus, the second Mercury should either pertain to the secondary horoscope of summer solstice, which is the area where we find it, or come from a separate auxiliary scene. We do find such scenes in the Long Zodiac – Mars approaching Saturn on a goose etc, qv below. At any rate, in our solution the second Mercury cannot be part of the primary horoscope together with the other figure, since, according to our calculations, Mercury remained in Aries on the 22-26 April 1168. However, the second Mercury is drawn in Taurus – on the other side of the Sun, in other words.

The second Mercury should therefore manifest in other columns of the verification table. We put a "plus" sign in the first column, since our solution corresponds to the Long Zodiac precisely insofar as the visibility of Mercury is concerned.

The second column refers to the visibility of Venus. The figure of Venus has a star over its head in the Long Zodiac, which informs us of its visibility. Indeed, Venus was visible perfectly well in our solution, remaining in its morning visibility. The conditions of its observations have been as follows in Cairo (and better still in Luxor):

On 22 April 1168, which was the first day of the solution, the submersion of the Sun equalled 10 degrees when Venus rose in Cairo. The luminosity of Venus had been high, –2.8. Thus, we know a priori that Venus was visible very well throughout this period. On 26 April 1168, which is the last day of the solution, the conditions for its observations were even better in

Cairo – namely, the Sun would set by 12 degrees when Venus rose, and the luminosity of the latter equalled –3.7, which is even higher than on the first day.

Therefore, Venus was visible very well in the morning every day beginning with 22 and ending with 26 April 1168, and so we put another plus sign in the second column.

We must emphasise that in our solution Venus was in the middle of Aries, near Mercury; it was closer to Pisces and further away from Taurus than Mercury. This is exactly how Venus and Mercury are positioned in the Long Zodiac.

The third column relates to the secondary horoscope of autumn equinox.

The September year that spans our solution began in September 1167 a.d. and ended in August 1168. The autumn equinox day took place in the beginning of the year, or September 1167 a.d.

It has to be said that we tried other versions for the beginning of the year for which the autumn equinox that corresponds to our solution took place in 1168 and not 1167 a.d. However, there were no secondary horoscope correspondences in this case. This applies to every other Egyptian zodiac as well, excepting the ones from Athribis, which means that for the absolute majority of Egyptian zodiacs the year began in September. See more on this in Chron3, Chapter 15:12.

We must point out that a precise estimation of equinox and solstice dates had been a serious problem for the ancient astronomy. Therefore, it is possible that the authors of the Egyptian zodiacs only knew these days approximately, give or take a few days. In Chron6, Chapter 19 we demonstrate that the error in estimating the equinox date equalled 6 days in some XIV century books.

Therefore, in our study of secondary horoscopes in Egyptian zodiacs we shall account for possible errors within the range of 6 days that the precise date of the respective solstice or equinox falls into. We must point out that although planetary positions are usually indicated very approximately in secondary horoscopes, the 6-day fluctuation might only be important in case of the Moon and Mercury. It is of little importance inasmuch as other planets are concerned.

Autumn equinox fell on the 11-12 September in 1167, qv in Annex 5. Adding six days from each side,

The Long Zodiac of Dendera (DL). Verification table for the solution of 22-26 April 1168 A. D.

Visibility of Mercury	Visibility of Venus	Autumn equinox	Winter solstice	Spring equinox	Summer solstice	The Passover Full Moon	Additional scenes	Notes
		SEPTEMBER			YEAR			
Mercury rising in Cairo: 22.04.1168 S. S. = 4°, M = +3.3. *Invisible.*	Venus rising in Cairo: 22.04.1168 S. S. = 10°, M = -2.8. *Visible.*	5-18 Sept. 1167 A. D. Sun in Virgo.	5-18 Dec. 1168 A. D. Sun in Sagittarius (8.4).	7-20 March 1168 A. D. Sun in Pisces (11.6).	6-18 June 1168 A. D. Sun in Gemini (2.4).	The Passover Full Moon in Libra. 26 March 1168.	16.04.1168. Mars meeting Saturn in Capricorn. Distance = 40'.	Interpretation code DL2.
26.04.1168. S. S. = 6°, M = +2.1. *Invisible.*	26.04.1168 S. S. = 12°, M = -3.7. *Visible.*	Venus in Virgo (5.9). *Shown.* ⊕	Mercury in Sagittarius (8.9). Shown. ⊕	Jupiter in Pisces is visible in Cairo in the morning. S. S. = 15°. M = -1.5. *Shown.* ⊕	Venus in Taurus (1.1). Shown separately. ⊕	The next full Moon is also in Libra (6.5). 23 March, the primary horoscope date. ⊕	Mars approaches Saturn on a goose, preceding the primary horoscope's date by 6 days. ⊕	The first vernal (Passover) full Moon according to Gaussian formulae: 26 March 1168 A. D.
Corollary: Mercury is the two-faced figure between Aries and Taurus. ⊕	*Corollary:* Venus was visible quite well. ⊕	The new Moon is born near Venus (distance of 30'). 17.09.1167. Shown.	Venus in Capricorn (9.7). Shown. ⊕	Mercury and Venus are in vespertine visibility, close to their positions in the primary horoscope => not shown.	Mercury 6.06.1168 is in Taurus (matutinal visibility in Cairo): S. S. = 8°, M = -0.0. Shown separately. ⊕ The "second Mercury".			The Passover full Moon according to the Paschalia: 27 March 1168.
		Mercury and Mars are too close to the Sun => *invisible* and not shown. ⊕	The new Moon is born in Capricorn. 15.12.1167 OR Saturn (M = +1.0) in Capricorn. *Shown.* ⊕	The morning star making an offering in the solar circle is Jupiter. *Shown.* ⊕	Jupiter and Mars in Pisces, Saturn in Capricorn. Not shown. ⊕			The Christian Easter according to the Paschalia: 31 March 1168.
		Saturn and Jupiter in Capricorn. *Not shown.*	Mars (M = +1.6) on the cusp of Scorpio and Libra. *Shown.* ⊕		The new Moon is born in Cancer. 9.06.1168. ⊕			
			Jupiter in Aquarius. *Not shown.*					

$\Delta_{ref} = 12°$

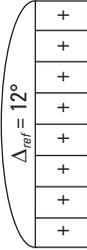| +	+	+	+	+	+	+	+

Fig. 17.19. The verification table for the exhaustive solution of the Long Zodiac (DL) – 22-26 April 1168 A. D. Abbreviations used: S. S. = the solar submersion rate in arc degrees (see CHRON3, Chapter 16:7, Step 3-B); M = planetary luminosity; fraction value between 0 and 12 in parentheses = calculated position of the planet on the "constellation scale", qv in CHRON3, Chapter 16:10. Bottom right – the result of comparison with the zodiac, as well as the average distance between the planets and their best points. See CHRON3, Chapter 16:11 and 16:14.

we shall come up with the interval of 5-18 September 1167.

Let us cite planetary positions for the three-day period between 13 and 15 September 1167 A.D. The length of the interval is chosen deliberately, in order to make the motion of the Moon visible.
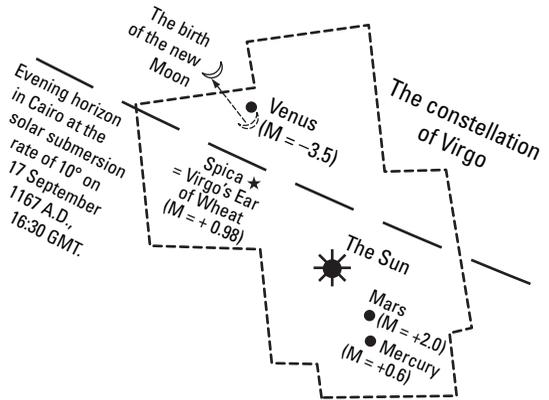

Fig. 17.20. Celestial sphere in the vicinity of the autumn equinox point on 17 September 1167 A. D. Calculated in Turbo-Sky. We see the evening horizon in Cairo at the solar submersion rate of 10 degrees. Venus was very bright that day (M = −3.5) and could be seen at dusk, as well as the crescent of the new Moon, which had made its first appearance right next to it. There were no other visible planets anywhere near. The drawing is approximated.

Julian day (JD) = 2147560.00
Year/month/day = 1167/9/13

Sun	Moon	Saturn	Jupiter	Mars	Venus	Mercury
188.1	168.4	309.3	324.4	178.9	209.3	179.6 (longitude J2000)
5.33	4.80	9.28	9.82	5.10	5.85	5.12 (constellation scale)

Julian day (JD) = 2147561.00
Year/month/day = 1167/9/14

Sun	Moon	Saturn	Jupiter	Mars	Venus	Mercury
189.1	181.2	309.2	324.3	179.5	210.5	178.9 (longitude J2000)
5.36	5.16	9.27	9.81	5.12	5.88	5.11 (constellation scale)

Julian day (JD) = 2147562.00
Year/month/day = 1167/9/15

Sun	Moon	Saturn	Jupiter	Mars	Venus	Mercury
190.1	193.8	309.2	324.3	180.2	211.8	178.4 (longitude J2000)
5.38	5.47	9.27	9.81	5.14	5.91	5.09 (constellation scale)

Turbo-Sky calculations demonstrate that the new moon falls on 17 September 1167 – the moon was near Venus, at the distance of a mere 30 minutes. It became visible in Cairo in the evening of 17 September when it moved away from Venus a little, but still remained rather close to the planet, qv in fig. 17.20.

On the day of the autumn equinox in 1167 the sky in Cairo was looking as follows. Venus was very bright and could be seen shining at dusk, with no other planets anywhere near. On 17 September the crescent of the new moon appeared near Venus. No planets were visible at dawn, since both Mars and Mercury were so close to the Sun from the side of morning visibility that they became completely lost in the light of its rays, qv in fig. 17.20.

This is in perfect concurrence with the secondary horoscope of the autumn equinox from the Long Zodiac. Let us remind the reader of what this horoscope looked like (see CHRON3, Chapter 6:3.4.1 above):

On the day of autumn equinox one could see Venus and the Moon, as well as the nearby Sun in Virgo. Mercury is most likely to have been invisible. One could see no other planets either in Virgo or anywhere near.

The third column also gets a plus sign as a result.

The fourth column refers to the secondary horoscope of winter solstice.

The winter solstice that corresponds to our Sep-

tember year solution falls on December 1167 – namely, 11-12 December, qv in Annex 5. Adding 6 days to either side we shall come up with the interval between 5 and 18 December 1167, which we shall be considering as the "winter solstice days". Let us cite the planetary position for two days falling within this range – 14-15 December 1167 A.D. A two-day interval was chosen for better representation of lunar motion.

Julian day (JD) = 2147652.00
Year/month/day = 1167/12/14

Sun	Moon	Saturn	Jupiter	Mars	Venus	Mercury
280.1	292.8	314.0	331.8	239.8	321.9	297.9 (longitude J2000)
8.41	8.73	9.44	10.13	7.11	9.72	8.90 (constellation scale)

Julian day (JD) = 2147653.00
Year/month/day = 1167/12/15

Sun	Moon	Saturn	Jupiter	Mars	Venus	Mercury
281.8	304.2	314.1	332.0	240.5	323.0	298.0 (longitude J2000)
8.44	9.09	9.45	10.14	7.13	9.77	8.90 (constellation scale)

The celestial sphere as seen in Cairo at dusk and at dawn, which implies proximity to the Sun, is shown in fig. 17.21 (calculated with the aid of Turbo-Sky). The morning and evening horizon of Cairo for 15 December 1167 A.D. with the sun submersed by 10 degrees is highlighted in the picture. One can see that the exceptionally bright Venus (M = –4.1) could be observed in Capricorn at dusk, as well as the relatively bright Saturn (M = +1.6). Right at dawn one could also see Mercury in Sagittarius – also bright (M = +0.4). On 15 December the crescent of a new Moon manifested in Capricorn. One could see no other planets at dusk. The only planet visible at dawn was Mars on the cusp of Scorpio and Libra – quire

bright that day (M = +1.6) and looking rather spectacular, being at a sufficient distance from the Sun.

This corresponds perfectly to the secondary horoscope of winter solstice from the Long Zodiac. Let us remind the reader of the horoscope in question:

Venus and Saturn are in Capricorn, possibly accompanied by the Moon. Mercury is near the Sun, which is in Sagittarius; however, its position isn't stated explicitly. Mars is in Scorpio, near Libra. There were no other planets near the Sun.

Therefore, we should put a plus sign into this column of the verification table as well.

The fifth column relates to the secondary horoscope of spring equinox.

Spring equinox fell on 13 March that year, very close to the days of the actual solution, qv in Annex 5. Extending the interval by six days from both sides, we shall come up with the interval of 7-20 March 1168 for the astronomical observation that this secondary horoscope must reflect.

Let us cite the planetary disposition for 12 March 1168 A.D. It was a spring equinox accompanied by a new moon.

Julian day (JD) = 2147741.00
Year/month/day = 1168/3/12

Sun	Moon	Saturn	Jupiter	Mars	Venus	Mercury
370.4	383.6	324.1	352.3	301.9	48.9	380.8 (longitude J2000)
11.60	11.93	9.80	11.14	9.01	.90	11.86 (constellation scale)

The celestial sphere in Cairo was looking as follows that day. The only planet seen at dawn was Jupiter, whose luminosity had almost been maximal (M = –1.5) – in Pisces, the same constellation as the Sun. Jupiter rose when the Sun was set by 15 degrees, and was very conspicuous. There were no other planets nearby.

Venus was visible at dusk (M = –4.9), likewise Mercury (M = –0.1). The luminosity of both planets was close to maximal. Venus had been in Aries, and Mercury in Pisces, in conjunction with the Sun. Mer-
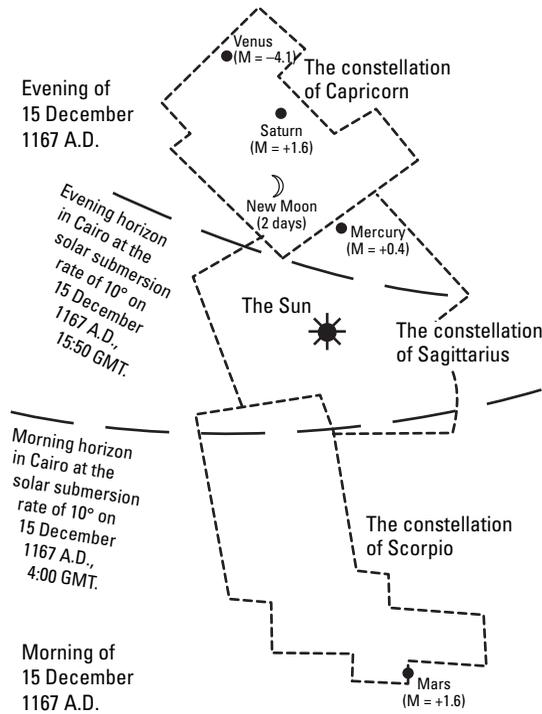
Fig. 17.21. Celestial sphere in the vicinity of the winter solstice point on 17 September 1167 A. D. Calculated in Turbo-Sky. We see the morning and evening horizon in Cairo at the solar submersion rate of 10 degrees. Venus was exceptionally bright at sunset (M = –4.1), and Saturn was rather bright as well (M = +1.6). Both planets were in Capricorn. On 15 the new Moon's crescent appeared nearby. There were no other planets in this area. Mars was the only planet visible at dawn, on the cusp of Scorpio and Libra. Mars had been sufficiently bright (M = +1.6), and visible very well. The drawing is approximated.

cury set in Cairo when the Sun had submersed by 11 degrees, which made the planet perfectly visible at dusk. The distance between Venus and the Sun was approaching its maximum – circa 40 degrees. On the evening of 13 March the crescent of the new Moon appeared at the cusp of Pisces and Aries.

However, the secondary horoscope of the spring equinox from the Long Zodiac contains nothing but the solar circle with a male figure inside it. This is a general trend characteristic for every single Egyptian zodiac known to us – their secondary horoscope of spring equinox is empty as a rule. In the zodiacs of

Dendera it is all but empty – we only see the Sun drawn explicitly, and no other objects. Mark the fact that in both zodiacs from Dendera the solar circle from this particular secondary horoscope contains a human figure that makes an offering. It must be standing for the brightest planet that made a "sacrifice" to the Sun on that day, qv in CHRON3, Chapter 17:4.5.3 (in re the Round Zodiac).

In the Long Zodiac this solar circle is very close to the figure of Jupiter in the primary horoscopes. They almost touch each other. Therefore, the planet that makes the "sacrifice" must be Jupiter as closest to the Sun in its evening visibility. Jupiter and Mercury are "male" planets and therefore correspond to the drawing from the Long Zodiac perfectly well. The offering is made by a male figure; the only planet that couldn't serve in this quality is Venus, but it couldn't be closest to the Sun since it was reaching the point of maximal elongation.

Thus, we see perfect correlation with the Long Zodiac here as well, and put another plus sign in the fifth column.

Sixth column – secondary horoscope of summer solstice.

Summer solstice would normally fall on 12 June in that epoch, qv in Annex 5. Adding 6 days on each side we come up with the interval between 6 and 18 June 1168, which includes the date of summer solstice. The discrepancy of several days between 6 and 18 June only affects the Moon in the present case. Let us provide an example of planetary dislocation on the ecliptic for 14 June 1168 A.D.:

Julian day (JD) = 2147835.00
Year/month/day = 1168/6/14

Sun	Moon	Saturn	Jupiter	Mars	Venus	Mercury
101.1	194.0	327.1	369.0	366.1	55.9	99.5
						(longitude J2000)
2.40	5.47	9.91	11.56	11.49	1.11	2.34
						(constellation scale)

The disposition of planets that are close to the Sun on the celestial sphere as observed from Cairo for
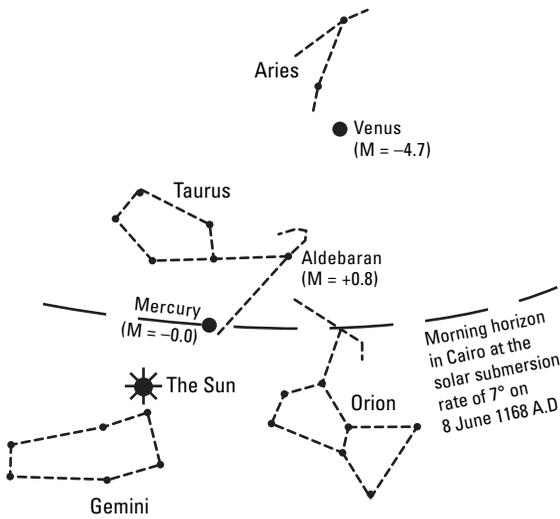
Fig. 17.22. Celestial sphere in the vicinity of the summer solstice point on 8 June 1168 A. D. Calculated in Turbo-Sky. Venus was exceptionally bright (M = –4.7) and therefore visible well at dawn. It had been at the cusp of Taurus and Aries. It is also possible that Mercury was visible in Taurus (M = –0.0). There were no other planets visible on those days, either at dusk or at dawn. All of them had been at a considerable distance – Jupiter and Mars in Pisces, and Saturn in Capricorn. The new Moon was born in Cancer on 9 June, in vespertine visibility. The drawing is approximated.

several days earlier (8 June 1168) is given in fig. 17.22 (drawing made with the aid of the Turbo-Sky software). We see the part of the celestial sphere that one finds in the vicinity of the summer solstice point, as well as the morning horizon of Cairo for 8 June 1168 A.D., with the Sun set by 7 degrees. At dawn one could see an exceptionally bright Venus at the cusp of Taurus and Aries during all of these days; its luminosity was approaching its maximum (M = –4.7).

On 8 June Mercury was very bright, and also could have been visible in Taurus (M = –0.0). Then it disappeared in the light of the Sun. One could see no other planets except for the Moon on any of these days anywhere near the Sun – either in their morning or evening visibility. They were far away – Jupiter and Mars in Pisces and Saturn in Capricorn. The new Moon was born in Cancer on 9 June 1168, and could be seen in the evening.

Let us now recollect the secondary horoscope of summer solstice from the Long Zodiac, qv in Chron3, Chapter 17:3.5.4 above:

Venus is in Taurus or close nearby; the position of Mercury isn't specified. Or, alternatively, the "second Mercury" relates to this secondary horoscope and its location is indicated between Taurus and Gemini. We see no other planets except for Venus and Mercury, which means that they weren't visible anywhere near the sun that day.

Everything fits perfectly. The "second Mercury" wasn't involved in the primary horoscope, and must therefore relate to the secondary horoscope of summer solstice, which is the area where we find it.

Bear in mind that in the Long Zodiac Venus as drawn in this secondary horoscope (two women in a boat near the edge of the zodiac) is at a great distance from Gemini, whereas the "second Mercury" is much closer to this constellation. This corresponds well with our solution where Venus was far enough from the Sun – on the other side of Taurus, whereas Mercury had remained close to the Sun all the time, on the contrary, qv in fig. 17.22. Apart from that, the position of the "second Mercury" in the Long Zodiac (between Taurus and Gemini, closer to Taurus) ideally corresponds to its position on the celestial sphere for 8 June 1168 (see fig. 17.22).

The only objection that might arise could be directed against the fact that one doesn't see the new Moon in this secondary horoscope, although it had been born in Cancer, near Gemini, on 9 June 1168 – right at summer solstice. Strictly speaking, there is no contradiction here, since, as we have witnessed, we don't always find the Moon in secondary horoscopes of the Egyptian zodiacs. Nevertheless, we do find the Moon in another secondary horoscope of the Long Zodiac. This implies another reason for not drawing it in the zodiac. Indeed, a closer study of the Long Zodiac demonstrates that the area of Cancer where we should find the Moon isn't drawn at all. In Chron3, Chapter 17:3.5.4 we already mentioned the fact that the author of the Long Zodiac had used a most amazing method to make the area of Cancer disappear from the zodiac – that of the "extended ten-degree figure". The actual constellation was shifted downwards, towards the knees of "the goddess Nuit". We know no real reason for this; however, the result is that all we see in Gemini is the morning visibility area be-

tween Gemini and Aries where there were no other planets but Venus and Mercury, which are indeed present in the secondary horoscope of Summer Solstice from the Long Zodiac.

Therefore, the correlation between the solution and the Long Zodiac is also very good. We put yet another plus sign in the sixth column of the verification table.

This exhausts all of the secondary horoscopes found in the Long Zodiac. We're left with the auxiliary scenes – the Passover full moon and Mars on a goose near Saturn, qv in Chron3, Chapter 15:9.

The seventh column represents the Passover full moon. We already mentioned the fact that the first vernal full moon (or the Passover full moon, qv in Chron3, Chapter 15:9.1) would be drawn in many Egyptian zodiacs, but not all of them. This shouldn't surprise us, since the "ancient Egypt" had been a Christian country, according to the plentiful evidence that survived the "purge" ([IMP]). We shall come back to this issue in Volumes 5 and 7 of "Chronology".

The first vernal full moon fell on 26 March in 1168. We calculated the date by the Gaussian formulae ([393]), also utilizing the Turbo-Sky software. Calculations demonstrate that the full Moon had been in Libra.

However, Libra is the constellation where we find the last circle in the Long Zodiac that we haven't accounted for as to yet. It is on the left of Libra, very close to the actual constellation figure. Inside the circle we see the drawing of a woman with a long stick, or staff, held in both hands. The symbol fits the concept of the Passover full moon perfectly well. Let us remind the reader that the Passover ritual food was supposed to be ingested standing up and holding a staff. Thus, we see the Passover full moon represented in the Long Zodiac of Dendera in perfect correspondence with the Old Testament tradition as described in the Pentateuch. We must point out that in the zodiacs of Esna whose dates postdate those of the Dendera zodiacs by 200 years, the Passover full moon is drawn more in line with the New Testament tradition, qv in Chron3, Chapter 15:9.1.

The conclusion is that the circle near Libra in the Long Zodiac stands for the Passover full moon that fell on 26 March 1168. It has to be noted that the corresponding new moon was born in Taurus on 12 March 1168 (as calculated with the Turbo-Sky software). This

full moon also appears to be represented in the Long Zodiac – mark the narrow crescent added to the solar circle in the primary horoscope. It is in Taurus – right where the Passover full moon was born, and must stand for the Passover new moon.

We must therefore put another plus sign into the seventh column of the verification table.

The eighth column refers to the additional scenes in the Long Zodiac.

The only auxiliary scene that we haven't considered as to yet is one with Mars standing on a goose to the left of Saturn in primary horoscope. It is as though Mars were approaching Saturn riding a goose, which must stand for Saturn and Mars being in conjunction.

This scene bears no valuable additional information, since the conjunction of Saturn and Mars in this part of the ecliptic is directly implied by the primary horoscope. We must nevertheless point out that in our solution this conjunction is manifest particularly well; indeed, the distance between Saturn and Mars during their conjunction in 1168 equalled a mere 40 arc minutes (Turbo-Sky). Calculations demonstrate that the conjunction took place on 16 April 1168 A.D. in Capricorn. In other words, in 1168 Mars and Saturn approached each other very closely, 6 days before the date of the primary horoscope. This must be the reason why their "meeting" is drawn in the Long Zodiac to complement the primary horoscope.

We have thus covered all eight columns of the verification table compiled for the 1168 solution for the Long Zodiac of Dendera. We see plus signs in every column, qv in fig. 17.19. This solution of the Long Zodiac is therefore exhaustive. We have found no more exhaustive solutions for any other interpretation of the Long Zodiac's primary horoscope.

Corollary:

The Long Zodiac of Dendera was compiled for the date of 22-26 April 1168 A.D.

4.
THE DECIPHERMENT OF THE DATE FROM THE ROUND ZODIAC OF DENDERA (DR)

Let us now consider the date ciphered in the other zodiac from Dendera – the Round one, which was discovered in the same Egyptian temple as the Long Zodiac.