

# Mysteries of Egyptian Zodiacs and Other Riddles of Ancient History



**A Guide to Dating Ancient Astronomical Data**

by

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How can we be sure that the historical events we learned about in school, from books and movies, really took place? Maybe some of them are simply fairy tales that are considered now to be historical facts. However, the prevailing opinion is that there is no reason to worry about the accuracy of the conventional chronology. Historians claim that their work provides us with clear and comprehensive explanations of every historical epoch and that strictly scientific methods, for example the *carbon-14 dating* and *dendrochronology* support it. However, there are serious problems with usage of physical methods for supporting the conventional chronology. We do not want to discuss this problem here and we refer the interested reader to the books [105] and [117].

The astronomical dating, using contemporary scientific theories, remains in fact the only method that can produce reliable **precise dates** for ancient events. In particular, remains of old Egyptian zodiacs with horoscopes are important material for such dating. Analysis of some of these horoscopes was already attempted in eighteenth and nineteenth centuries but did not lead to any solid date.

Recently it was discovered (see [116]) that Egyptian zodiacs contain much more astronomical information that it was previously believed. This gave us an opportunity to establish dozens of unique dates from the ancient Egyptian history. It appears that it is possible to determine the exact date represented by an Egyptian zodiac with a very high confidence.

In this book we have collected all accessible to us old Egyptian zodiacs, represented by reliefs, carvings in stone or paintings that contain valid astronomical data (horoscopes). We will analyze and date all of them. The obtained dates appear to be much later than it is suggested in the conventional chronology of Egypt.

We are not going to discuss in this book how

serious are the implications of these new dates on ancient history. Our only objective is to present a scientific evidence, which is independent of beliefs in the conventional chronology and without any a priori assumption of its correctness or incorrectness. Being mathematicians, we simply solve the puzzle of the hidden dates that were encoded in ancient Egyptian zodiacs. These dates speak for themselves.

We are using here the results that were obtained by A.T. Fomenko and G.V. Nosovskij, and were published in Russia in 2001 (see [116]). However, it is not a translation of the original Russian book, but it is a different presentation of the same material with many new illustrations and some new results obtained recently. We do not require from a reader any mathematical background or astronomical knowledge. However, an interested reader will find here all the information necessary for a complete understanding of the problem and even for further independent research. All the technicalities are separated from the main text and placed in Appendixes.

A CD containing all the necessary tools for analyzing and dating the Egyptian zodiacs is supplied with this book. A special software for dating of ancient horoscopes, an astronomical software, and high resolution images of the Egyptian zodiacs are included.



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# Chapter 1

## 1.1. Egyptian Zodiacs

*Egyptian zodiacs* are nothing else than symbolic maps representing in a specific “ancient” Egyptian style astronomical objects on the sky. If we look upward at the sky on a clear night we will have an impression that the sky is a great hollow spherical shell with the Earth at the center, which is sometimes called *celestial sphere*. This celestial sphere is gradually and continuously changing its orientation, which is caused by the rotation of the Earth. However, a careful observer can notice that some stars do not rise or set. There seems to be a point in the sky about which the whole celestial sphere appears to turn. A star at this point would appear motionless in the sky. The North Star is within  $1^\circ$  of this pivot point. An observer at the North Pole of the Earth would see the stars appear to circle about the sky parallel to the horizon. It was already known to ancient Babylonians, Egyptians and Greeks that the Sun changes its position on the celestial sphere. Of course it is impossible to see the position of the Sun with respect to the stars in the daylight but nevertheless it is possible to observe the exact position of the Sun among the stars twice per day. The first time, just before the sunrise when the stars are still visible, we can determine the position on the celestial sphere of the point on the horizon where the Sun will appear (expecting that the Sun will rise in the same point as yesterday). Similarly, we can observe the position of the Sun just after the sunset. In the course of one year, the Sun completes a circuit of the celestial sphere. This apparent path of the Sun is called *ecliptic* (because eclipses can occur only when the Moon is on or near it). Of course, the sun’s motion on the ecliptic is an illusion produced by the Earth’s annual revolution about the Sun. It was noted by the ancients that the ecliptic does not lie in a plane perpendicular to the line between the celestial poles, but is inclined at an angle of about  $23\frac{1}{2}^\circ$  to that plane. This angle is called the obliquity of the ecliptic. The individual paths of the Moon and planets in the sky all lie close to the ecliptic, although not exactly on it. The planets and Moon are always found in the sky within a narrow belt  $18^\circ$  wide centred on the ecliptic, called the *zodiac*. This zodiac belt is a celestial highway where the motion of all the planets as well as of Sun and the Moon take place when observed from the Earth. Twelve zodiac constellations are placed along the ecliptic filling the zodiac belt. Their names are *Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricorn, Aquarius, and Pisces*. Each of the twelve zodiac constellations is located in a sector  $30^\circ$  long on average. In modern astrology, instead of zodiac constellations, there is usually used an equal partition

of the zodiac belt into regions of exactly  $30^\circ$  long, called zodiac houses and named after constellations, with the starting point being the spring equinox of the date, i.e. the position of the Sun on the ecliptic when day and night become equal in the spring, which nowadays happens approximately around March 21. Since the spring equinox is moving along the ecliptic with the speed around  $1^\circ$  in 70 years, the zodiac houses do not coincide exactly with the corresponding zodiac constellations and in fact after about 2100 years their positions shift.

The key concept in astrology is a horoscope, which is a chart that shows the positions of the planets in the sky with respect to zodiac constellations. The ancient Egyptians knew about the planets moving within the zodiac belt and attributed great importance to their positions with respect to the zodiac constellations and, unknowingly, were able to encode in the horoscopes specific dates which with today’s technology can be easily deciphered, however not necessarily with a unique result. Contemporary astrology constructs horoscopes based on the position of the planets with respect to the zodiac houses which are calculated, but in ancient times the horoscopes were made according to the actual view of the constellations in the sky. The visual positions of the planets are determined by the light rays from Earth passing through the planets. As we mentioned above, all these rays lie approximately in the same plane, which is the common plane for all planets’ orbits in the solar system. In fact there are some slight differences in planes of orbital movements but they are very close to each other. This means that all the rays from the Earth to the planets and the Sun and Moon meet the celestial sphere somewhere inside the zodiac belt. An Egyptian *horoscope* is nothing else than the position of the planets (including Sun and the Moon) with respect to the zodiac constellations. In ancient times the Sun and Moon were also included in the list of planets because they change their visual positions on the celestial sphere, contrary to the stars. Therefore, the ancient horoscopes contained the total number of seven planets: *the Sun, Moon, Jupiter, Saturn, Mars, Venus and Mercury*.

At any time there are 12 possible zodiac constellations where each of the seven planets may appear. Positions of the Moon, the Sun, Mars, Jupiter and Saturn are independent of each other. However, due to the inner orbits with respect to the Earth’s orbit, the visual angle distance from Mercury and the Sun cannot be larger than  $28^\circ$  and the angle distance from Venus to the Sun must be smaller than  $48^\circ$ . This means that for each fixed position of the Sun in the zodiac there are only 3 possible positions for Mercury and 5 possible positions for Venus. It is not difficult to compute that there are exactly

$$12 \times 12 \times 12 \times 12 \times 12 \times 3 \times 5 = 3,732,480$$



different horoscopes. Since there are about 200 different horoscopes every year, therefore, on average a specific horoscope may reappear only after 18,662 years. However, some horoscopes may reappear after a dozen of years or maybe after 2-3 hundred years and later disappear for more than several thousand of years. One can easily perceive that from the point of view of its universality and accuracy, a horoscope is a perfect tool to record dates, with a precision of one or two days on average, which is independent of any particular dating system. Therefore, if a symbolic representation of the zodiac constellations contains symbols or names of the planets, we have reason to believe that it is not only an artistic object (painting or sculpture) but it should be considered to be a horoscope that can be dated. The Egyptian zodiacs were using specific ancient symbols to illustrate astronomical objects, which today can be analyzed in order to answer the most intriguing question: **When exactly did the ancient Egyptian live and when were the famous ancient Egyptian temples constructed?** In other words, the dating of the horoscopes shown on ancient Egyptian zodiacs provides a suitable, according to the present scientific standards, method for establishing milestone dates for the chronology of the Ancient Egypt. We can reveal that the analysis of all the ancient Egyptian zodiacs leads only to medieval dates with the majority of them located after the twelve century and even later. These results match very well with the *New Chronology* (see [105,107,108,119]), according to which the most ancient events of the documented history took place not earlier than in the eleventh century A.D.



Figure 1.1:

*Modern Egyptian papyrus with a picture of an old zodiac.*

We would like to observe that commemoration of certain dates by horoscopes was very widespread in the ancient Egypt. Even today, imitations of ancient horoscopes are popular in Egypt where tourists can find them without trouble, among other “ancient” Egyptian artifacts, in almost every souvenir store. One of these papyrus drawings, that was purchased in year 2000 in Luksor is illustrated

on Fig. 1.1. In many such stores, a tourist can even order his or her “ancient” Egyptian zodiac with a horoscope to be drawn on a papyrus. Nowadays there is no need to observe the locations of the planets but it is sufficient to have a computer and an astronomical software that can be easily downloaded from the Internet, and the whole task of making an “ancient” Egyptian zodiac is reduced to arranging appropriately into it the “ancient” Egyptian symbols. Therefore, any of would-be ancient Egyptian zodiacs should be studied with great caution because it could be a forgery or simply a zodiac that was made in eighteenth or nineteenth century when this ancient tradition was still alive in Egypt. It will be explained later, with more details, that the zodiacs in Egypt were connected to burial rituals. These burial traditions could be cultivated by Egyptians much longer than usually assumed. Moreover, many fake horoscopes could also be fabricated in nineteenth century when the ancient Egypt became fashionable among reach Europeans. Therefore, when working on a dating of an ancient horoscope, we should be prepared for a possibility that the obtained date could be much later than expected. For example, it is quite possible that the date of an “ancient” Egyptian zodiac could indicate the nineteenth century even if it was discovered in a very “ancient Egyptian tomb”. The problem is related to the present dating methods of archeological findings from the ancient Egypt, which are very imprecise, erroneous, and often leading to wrong conclusions. For example, using these methods a tomb dated as a very ancient burial place could turn out, as it sometimes really happens, to be constructed in the nineteenth century.

Very often, the fact that an Egyptian picture represents a zodiac may not be evident at the first glance. However, there are some definite features which can be used to recognize easily such pictures as zodiacs. For example, on almost every Egyptian zodiac there is a dominating female figure with raised hands, and her body usually shaped in form of an arc symbolizing the sky. This figure is commonly recognized as the “Egyptian goddess Nut” (see Figure 1.2). One can easily identify this symbol on Figure 1.1 .

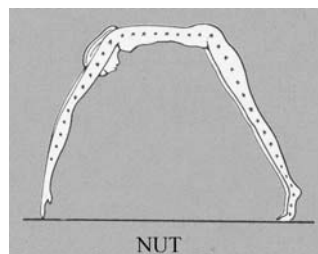


Figure 1.2:  
*“Ancient Egyptian goddess Nut”<sup>1</sup>*

<sup>1</sup> Taken from [7], p.10.

Let us include few additional examples of Egyptian zodiacs. All these zodiacs will be discussed in details later in this book, but for now we would like only to give an idea about various apperances of Egyptian zodiacs. On Figure 1.3 we show an ancient Egyptian zodiac that was found in Kings Valley near Thebes. This picture was made during the Egyptian expedition of Napoleon and published in the Napoleonic edition of the album *La Description de l’Egypte*.

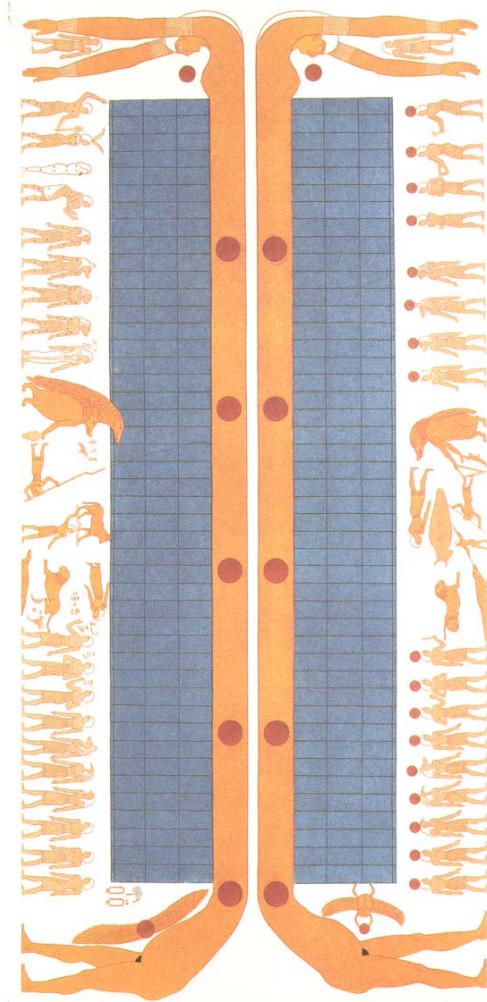


Figure 1.3:  
*Zodiac found in the Kings Valley near Thebes*<sup>2</sup>

On Figure 1.4 we show a part of the low relief depicting a zodiac which was found on the ceiling in ancient Egyptian temple in Denderah. It is big relief of dimensions  $2.55 \times 2.53$  meters that is considered to be the most famous Egyptian zodiac. It is called “*Round Denderah Zodiac*” (because of it’s round form) in order to distinguish it from the “*Long*” or “*Rectangular Denderah Zodiac*” which

<sup>2</sup>Taken from [2] – “Tableau Astronomique peint au plafond du premier tombeau des Rois à l’Ouest”, plate 82.

was discovered in the same temple in Denderah. The Round Denderah zodiac was discovered by Europeans in 1799 during the Napoleonic invasion of Egypt and later removed and taken to Paris. Today the original Round Denderah zodiac is displayed in Louvre museum in Paris while a copy decorates the ceiling of the Denderah temple.



Figure 1.4:  
*Round Denderah Zodiac*<sup>3</sup>

The central part of the Round zodiac is shown on Figure 1.5, where it is possible to see better some of the figures representing zodiac constellations and planets. We will discuss in detail all these symbols later in Chapter 4.

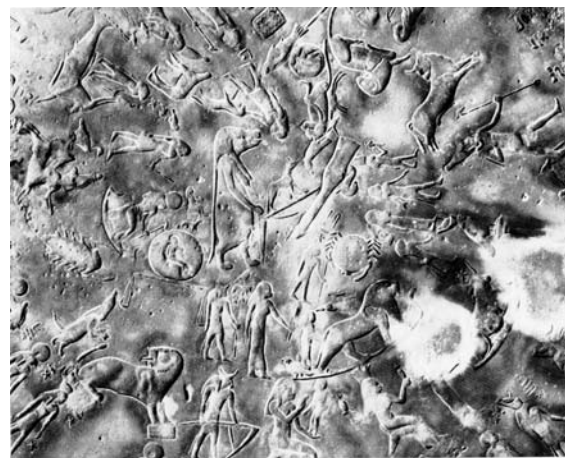


Figure 1.5:  
*Central part of the Round Denderah Zodiac*<sup>4</sup>

<sup>3</sup>Taken from [122], p.115.

<sup>4</sup>Taken from [13], p.255.



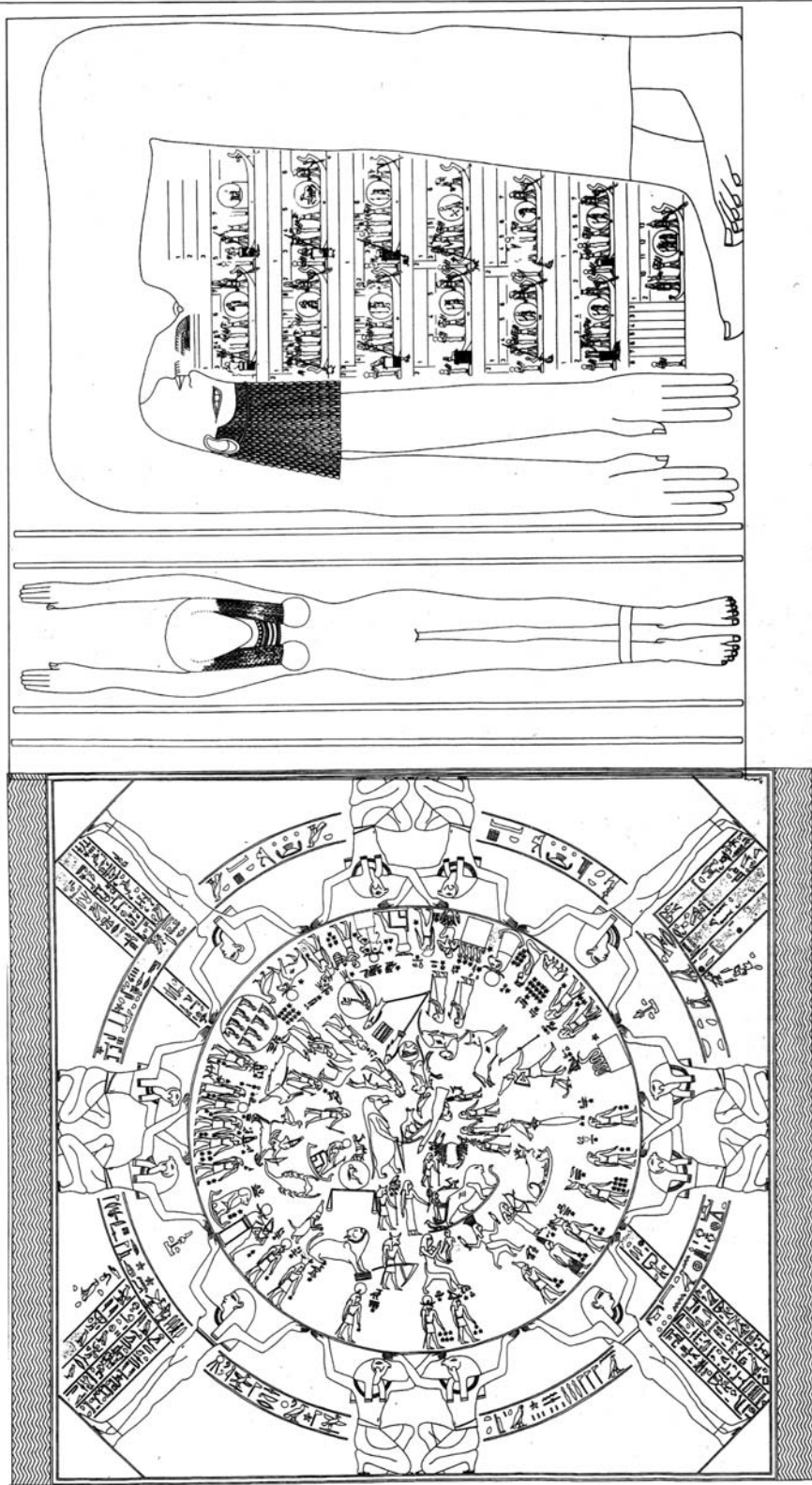


Figure 1.6.  
*Drawing of the whole Round Denderah Zodiac with two Nut Goddesses on its side<sup>5</sup>*

<sup>5</sup>Taken from [10], p.71.

A drawing of the complete Round zodiac is presented on Figure 1.6 and the drawing of the Round zodiac taken from the Napoleonic Album *“La Description de l’Egypte”* is shown on Figure 1.7.

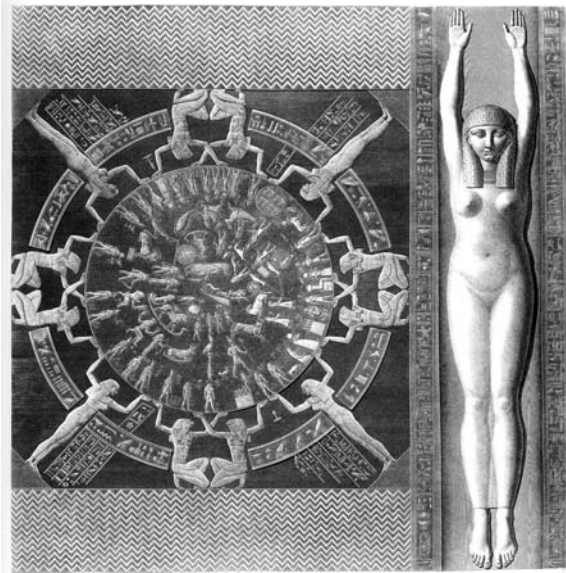


Figure 1.7:

*Round Denderah Zodiac from the Napoleonic Album*<sup>6</sup>

This picture looks very nice and it is clear that the artist tried to be accurate in the smallest detail. However, in the same time, it is easy to notice that its style was modified following the eighteenth century fashion - the original is much more primitive. It is not hard to recognize on the Round zodiac symbols of all twelve zodiac constellations which are placed inside the central circle of the zodiac. It is strange that these symbols appear exactly in the same way as in the European medieval astronomical books. Leo is represented by a figure of lion, Sagittarius by a figure of centaur shooting an arrow, Capricorn by a figure of a fantastic creature with a fish tail and goat head, etc. Nikolai A. Morozov, who thoroughly studied the Round zodiac at the beginning of the twentieth century, wrote: *“Look at ... the symbols of zodiac constellations ... They are drawn in a fine and clear manner outlining the zodiac belt in exactly the same way how it is placed in the real sky. It is not concentric with ... the celestial equator but it is raised radically at the part of summer constellations of Cancer and Gemini and lowered on the opposite side near the winter constellations of Sagittarius and Capricorn. These symbols are not much different from those we can find on Bayer’s astronomical charts or even in nineteenth century astronomical books.”*<sup>7</sup> So, it is evident that the author of the Round zodiac was quite competent in astronomy.

<sup>6</sup> Taken from [2], A. Vol. IV, Plate 21.

<sup>7</sup> See [4], Vol. 6, p. 658.

We will explain later that practically every symbol in the Round zodiac has definite astronomical meaning. As we mentioned earlier, in the same temple in Denderah, beside the Round zodiac, there was also another zodiak, called the Long or Rectangular Denderah zodiac. It was also a low relief on a ceiling of much larger size than the Round zodiac. The Long zodiac consists of two rectangular parts, each of them about 25 m long. The Long zodiac is illustrated on Figure 1.8

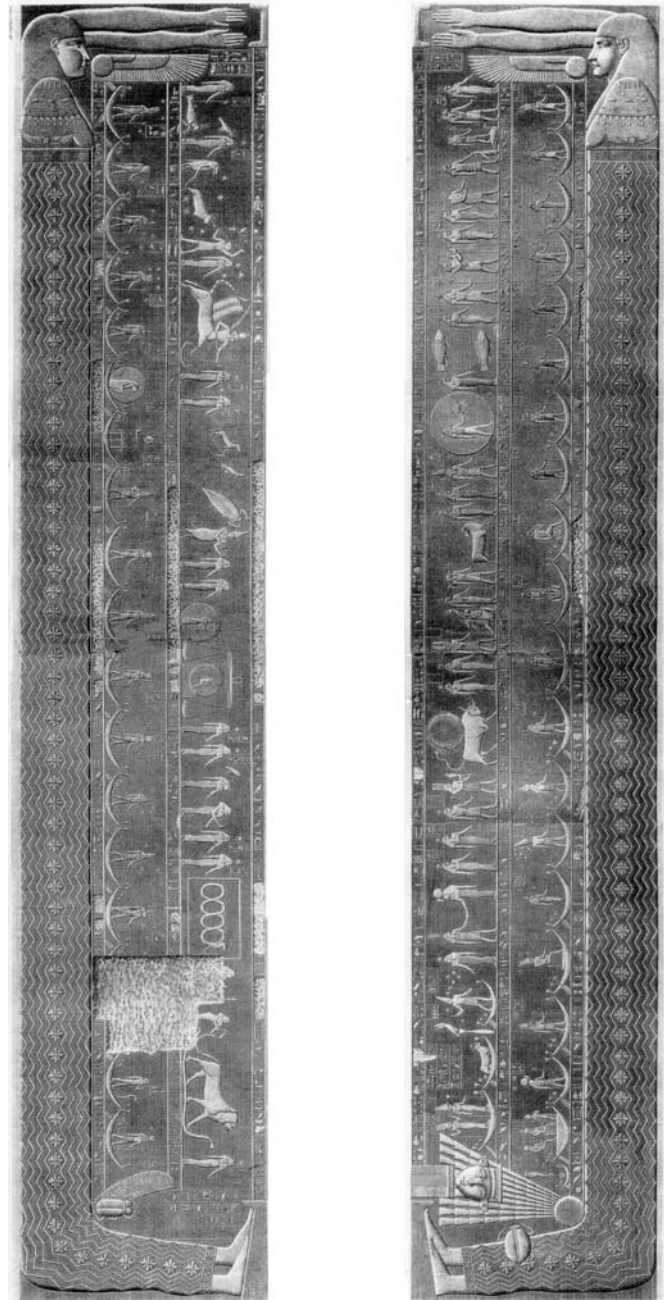


Figure 1.8:

*Long Denderah Zodiac from the Napoleonic Album*<sup>8</sup>

<sup>8</sup> Taken from [2], A. Vol. IV, Plate 20.



These two parts of the Long zodiac are placed on the opposite sides of a large rectangular ceiling of the main hall in the Denderah Temple. All the space between these parts is covered by pictures with astronomical meaning. The size of this impressive ceiling is 25 m  $\times$  42.5 m. The view of the whole ceiling is presented on Figure 1.10. The Long zodiac depicts all twelve zodiac constellations in their correct order as they appear on the sky. Among the symbols of the constellations there are also shown other symbols. We will prove in the subsequent chapters that all these symbols have a precise astronomical meaning associated with the definite and unique date. Some details of the Long zodiac are illustrated on Figure 1.9.

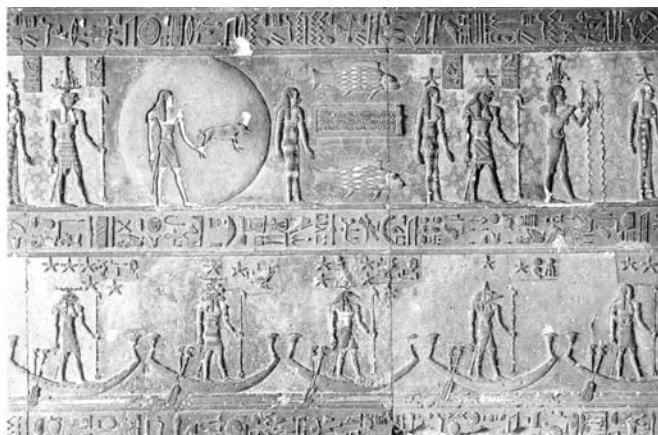


Figure 1.9:

*Photograph of a fragment of the Long Denderah zodiac*<sup>9</sup>

The two Denderah zodiacs were object of interest of many scientists who were trying to interpret and date them. Several famous mathematicians and astronomers of nineteenth century, such as Ch. Dupuis, P. Laplace, J. Fourier, A. Letronne, K. Helm, J. Biot, etc., attempted to decode the horoscopes in these zodiacs and date them. They made calculations for the possible dates from very ancient times to the year 300 A.D. but could not find any satisfactory solution. In spite of the fact that the horoscopes had all the attributes of a genuine astronomical picture, they stopped the calculations and reluctantly made a conclusion that these two horoscopes are not depicting a real astronomical data from any time and are the product of pure fantasy. This was a gross mistake, because in fact, if they had continued their efforts they would have obtained some satisfactory solutions for the both zodiacs. In fact several reasonable solutions were found in twentieth century by N.A. Morozov<sup>10</sup>, N.S. Kellin and D.V. Denisenko<sup>11</sup>, and T.N. Fomenko<sup>12</sup> Strangely, all these solutions refer to the medieval dates which were not earlier than sixth century

A.D. We will argue that there is more astronomical information contained in the Denderah zodiacs which was not recognized by the previous investigators. With the use of the full astronomical information the solution turn out to be unique (see Chapter 6).

One can ask the question what was the reason for these astronomers to halt all further computations after reaching the year 300 A.D. This is an interesting story. The first Egyptologist who analyzed the archeological site of the temple, dated its approximate construction to be 15,000 B.C. However, later, during the eighteenth century this date was changed to 3,000 B.C. and finally to the first century A.D. In such circumstances the astronomers did not see the reason to look for the date after third century A.D. As we already mentioned, at that time, when everything had to be done by hand, these calculations were extremely long and tedious. We must say that the dating of the Denderah temple was a questionable process from its beginning to the end. An inscription inside the temple indicated that this temple was built by the famous pharaoh Khufu himself from the IV dynasty (reigning around the year 3000 B.C. accordingly to Egyptologists), who was the same pharaoh who constructed the great pyramid. However, from the character of the sculptures and some other inscriptions in the temple it was clear that this temple could not have been built before the time of Sulla or Julius Caesar. These two sets of evidence contradict each other, if we believe the chronology of ancient Egypt, with the difference between them of about 3,000 years. Without revising the chronology, the Egyptologist assumed that all the Egyptian temples which were built and decorated by Romans in the beginning of our era, were constructed on sites of more ancient Egyptian temples. They suggested that Romans copied with great care, but without any understanding, some of the old inscriptions that they found on the walls of the remains of the ancient temples. This was the only way that allowed them to explain these contradictions without modifying the whole ancient Egyptian chronology. Of course unraveling these horoscopes was crucial for solving this controversy and that's why there were so many attempts made to find an astronomical solution that was acceptable to Egyptologists. In fact the presence of two different but clear horoscopes in the same temple was extremely promising that a correct astronomical solution could be found. Furthermore, in case a mistake was made, or that these two horoscopes were simply products of a sculptor's fantasy, the probability of finding two astronomical solutions close one to another in a reasonable interval of the last several thousand years, would be practically zero. Unfortunately, the whole excitement and fascination with ancient Egyptian horoscopes was slowly forgotten and an opinion that there was no real astronomical meaning hidden in these horoscopes prevailed among

<sup>9</sup> Taken from [10], page 37.

<sup>10</sup> See [4], Vol. 6, p.655-672.

<sup>11</sup> See [15].

<sup>12</sup> See [1].

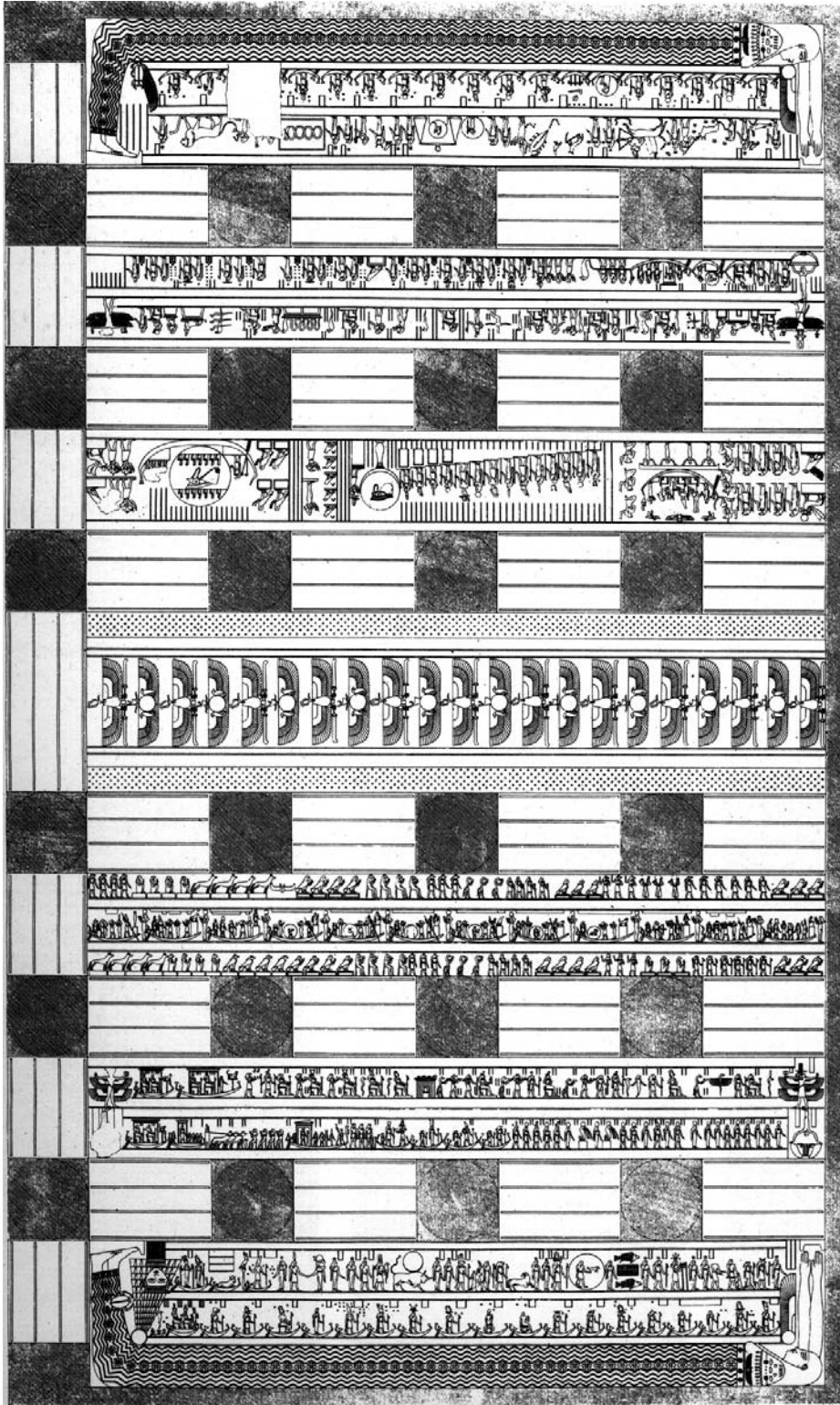


Figure 1.10.  
*The view of the whole ceiling with the Long Denderah Zodiac*<sup>10</sup>

<sup>10</sup> Taken from [2], A. Vol. IV, Plate 18.



historians and all the other attempts to date these horoscopes were abandoned.

The entrance to the famous Denderah temple is shown on Figure 1.11.

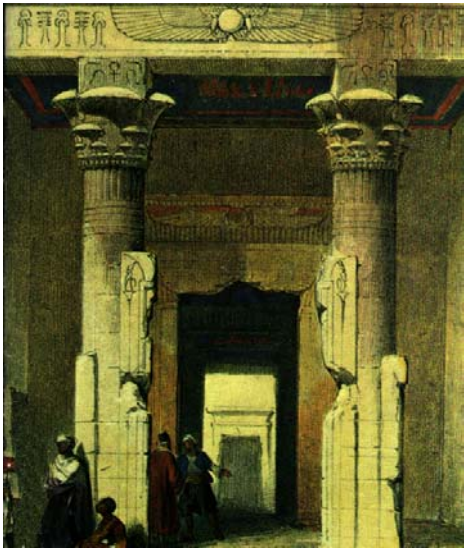


Figure 1.11:  
*Entrance to the Denderah Temple*<sup>14</sup>

The full view of the Denderah temple, like it was seen by the members of Napoleonic expedition to Egypt in 1799, is shown on Figure 1.12.



Figure 1.12:  
*The Denderah Temple*<sup>15</sup>

Another example of an Egyptian zodiac is presented on Figure 1.13. This zodiac was painted on the interior of the cover of a wooden sarcophagus, which was discovered and published by the famous German Egyptologist of the nineteenth century, Henry Brugsch. On this zodiac the figure of the “Goddess Nut” is in the center of the picture and the zodiac constellations, which are again very

easy to identify, are painted on her both sides. On the left, under her arm, we see the symbols of Cancer, Leo, Virgo, Libra, Scorpio and Saggiarius, and symmetrically on the right are placed the symbols of Capricorn (with head painted in black), Aquarius, Pisces, Aries, Taurus (painted black) and Gemini. The order of these constellations is correct, exactly like it appears on the real sky. Brugsch noticed some ancient Demotic writings near the constellation symbols on the left. He translated all of them and found out that they were the names of planets, so a complete horoscope could be identified. As on this horoscope all the planets are marked by annotations, which are clearly appended later, we will call it *Annotated Horoscope*. Careful study of this zodiac will show that there are other original horoscopes contained in this zodiac, which were not noticed by Brugsch neither by Morozov.

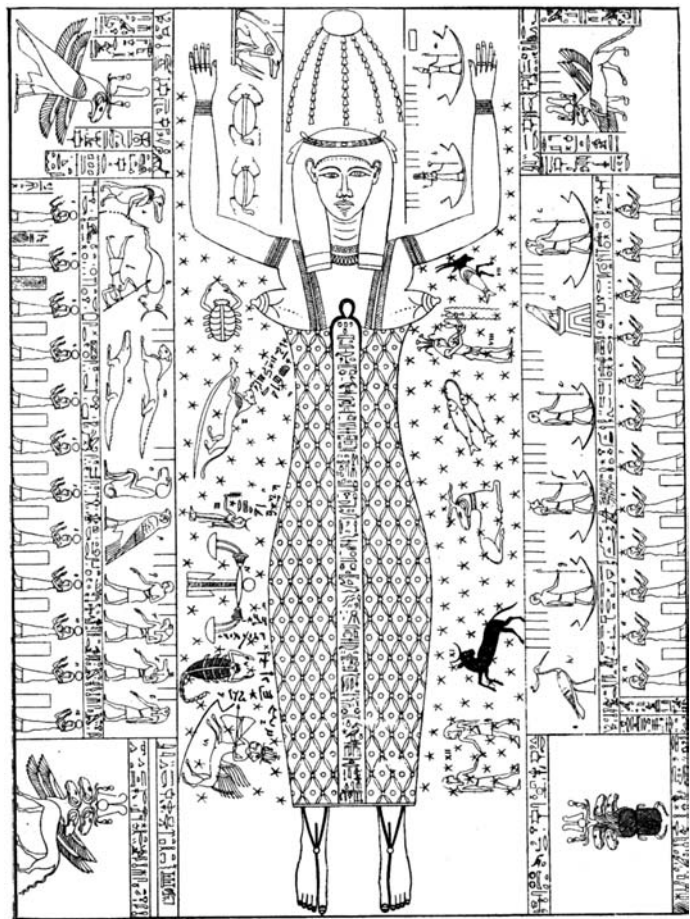


Figure 1.13:  
*Zodiac painted on wooden cover of of an Egyptian sarcophagus discovered by Brugsch in 1857 and published in 1862*<sup>16</sup>

The first dating of the Annotated Horoscope was done by N.A. Morozov, who obtained a very unusual result indicat-

<sup>14</sup>Drawing taken from the book “The Temple of Dendur” by Cyril Aldred, The Metropolitan Museum of Art)

<sup>15</sup>Drawing taken from the Napoleonic Album [2], A. Vol. IV, Plate 7

<sup>16</sup>Taken from [14].

ing that the year 1682. In fact Morozov proved that there are only two possible solutions for this horoscope – the another one was October 18, 1861, but he rejected it as an impossible solution. Indeed, the picture with the zodiac was already published in 1862, so it seemed to make no sense to assume that the date of the Annotated Horoscope was 1861.

Our next example of an Egyptian zodiac is from the Napoleonic Album. This zodiac was found during the Napoleonic expedition, not far from Denderah, in a huge temple in an ancient city of Esna located on a bank of the river Nile. A drawing of the main hall in this Esna temple, which was made by Napoleonic artists, is presented on Figure 1.14. On this picture one can clearly distinguish this zodiac on front part of the ceiling. The detailed drawing of this Esna zodiac, which we will simply call Big Esna Zodiac, is shown on Figure 1.15.

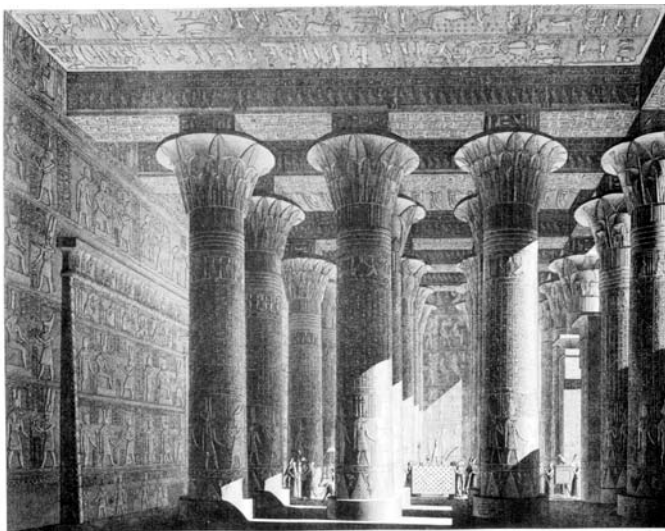


Figure 1.14:  
*The Hall in the main Esna Temple*<sup>17</sup>

Again the zodiac constellations are clearly indicated and can be easily recognized. Not surprisingly, the Big Esna zodiac also contains a horoscope as well as some additional astronomical information, which can be interpreted and used to find the precise date depicted on it. We will discuss in detail all the symbols on the Big Esna zodiac later, but right now, we would like to indicate that their meaning appears to be pure astronomical. Of course, at first glance one can have an impression that there could be a mystical denotation behind this picture. Actually, it is a common belief among Egyptologists that Egyptian zodiacs have mostly religious meaning inspired by astronomical phenomena. We will argue that it is not so.

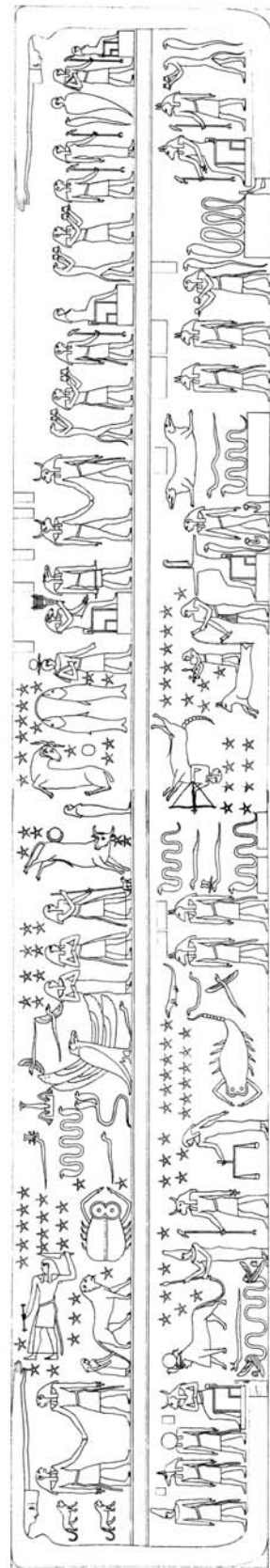


Figure 1.15:  
*Drawing from the Napoleonic Album showing the zodiac from the main Temple in Egyptian town Esna*<sup>18</sup>

<sup>17</sup> Taken from [2], A. Vol. I, Plate 83.

<sup>18</sup> Taken from [2], A. Vol. I, Plate 79.



In the same city Esna, there was found by the Napoleonic army another temple with a zodiac (see Figure 1.16). The size of this temple was much smaller and it was badly damaged. Fortunately the condition of the zodiac was rather good except for a missing part around the constellations of Scorpio and Virgo. In order to avoid misunderstandings related to the fact that there are two Esna zodiacs, we will call the second one the Small Esna zodiac but this name has nothing to do with its real size.



Figure 1.16:  
*The “Small Esna Temple”*<sup>19</sup>

The intriguing features of the Small zodiac will be discussed later in this book but we can reveal now that its symbols also represent real astronomical events with the unique purpose of recording a certain date. A view of the Small Zodiac is presented on Figure 1.17 and Figure 1.18.

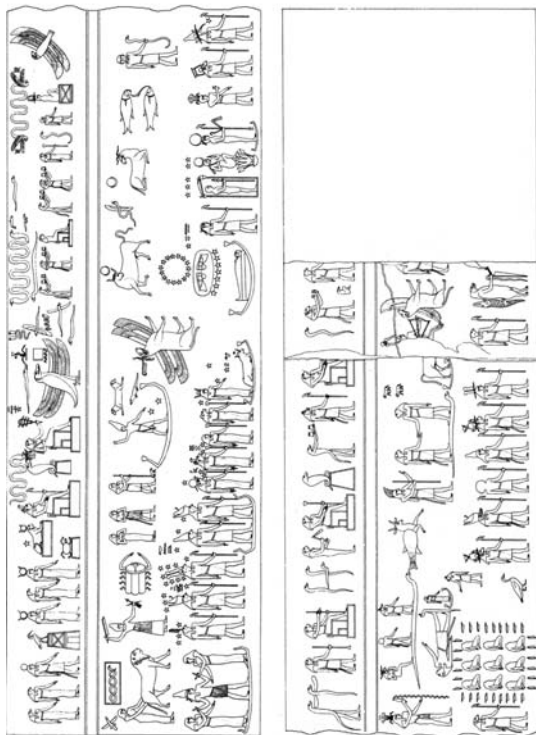


Figure 1.17:  
*Drawing of the Small Esna zodiac*<sup>20</sup>

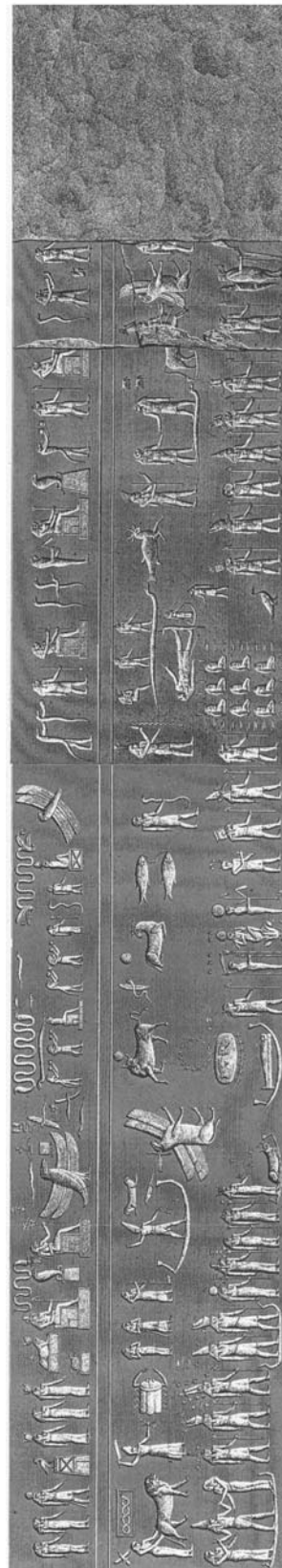


Figure 1.18:  
*Another drawing of the Small Esna zodiac  
from the Napoleonic Album*<sup>21</sup>

<sup>19</sup>Taken from [2], A. Vol. I, Plate 85.

<sup>20</sup>Taken from [2], A. Vol. I, Plate 87.

On Figure 1.19, we present a drawing of two zodiacs which were discovered in 1901 in the city Athribis in Upper Egypt near Sohag, by the well-known Egyptologist W. Flinders Petrie. The zodiacs were located on a ceiling of an ancient Egyptian burial cave and probably indicated the dates related to this interment. These Athribis zodiacs were analyzed for the purpose of astronomical dating by renowned English astronomer A.B. Khnobel and later by M.A. Vil'ev and N.A. Morozov (see [4], Vol. 6, p. 728-752). However, their decodings of the zodiacs appear to be wrong, what we will prove later. We will also explain their reasons of misinterpretation of the symbols on zodiacs, which resulted in wrong dating. Our computations show that there exists an excellent solution for this pair of zodiacs which perfectly agree with all their symbols, so a unique and definite dating can be achieved.



Figure 1.19:  
*Drawing of the Athribis zodiacs*<sup>21</sup>

Up to the recent times, the computations related to the dating of the Athribis zodiacs were practically beyond human capacity. Only with the use of computers it is possible to carry on the calculations for all possible variants of their decodings. The previous researchers, who worked

<sup>21</sup> Taken from [24].

during the first half of the twentieth century, were forced to introduce additional assumptions in order to reduce the amount of computations (which were done by hand). Nowadays, we can realize that these additional restrictions were incorrect and consequently the solutions obtained by Khnobel and Morozov were wrong. The reader will find an extended discussion of the symbols of the Athribis zodiacs and their correct dating in the subsequent chapters. Two more examples of an Egyptian zodiacs, on which the constellations are shown using the same typical symbols, however, the planets are symbolized by bust portraits (what is quite unusual for Egyptian zodiacs in general) are shown on Figures 1.20 and 1.21. These zodiacs were discovered in the middle of the twentieth century in supposedly an ancient Egyptian sepulchre in Petosiris. There were painted on the ceilings of the inner and outer rooms of the tomb.

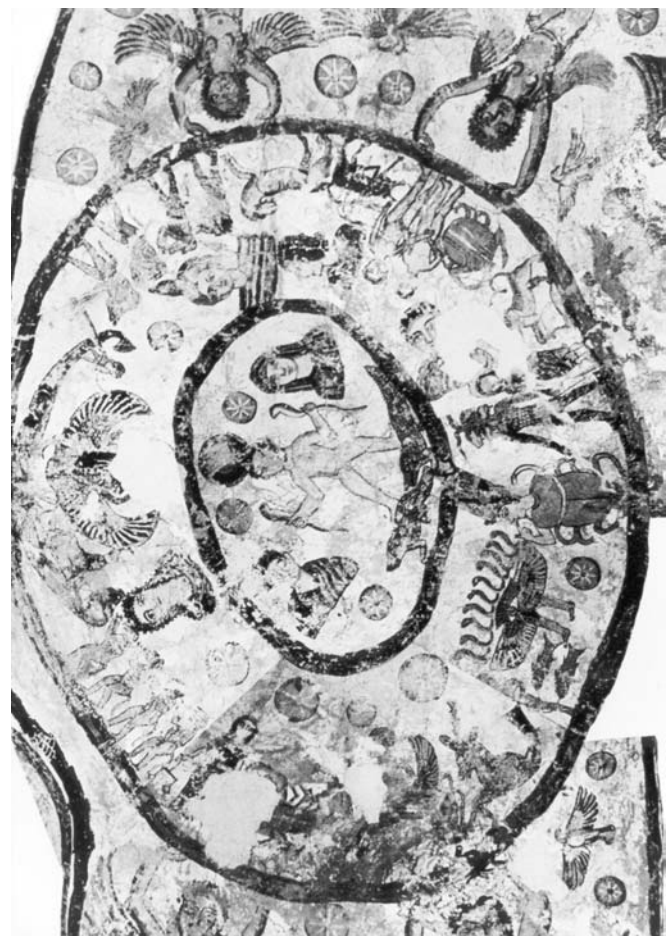


Figure 1.20:  
*Photograph of the zodiac from the inner room of the Petosiris tomb*<sup>22</sup>

The dimensions of the whole picture with the zodiac located in the inner room is 2.12 m × 2.62 m.

<sup>22</sup> Taken from [5], Tafel 40.





Figure 1.21:  
*Photograph of the zodiac from  
 the outer room of the Petosiris tomb*<sup>23</sup>

Both of the Petosiris zodiacs were studied in the paper by O. Neugebauer, R.A. Parker and D. Pingree, in which the authors do not even make one attempt to understand this data as an astronomical record but assume that the only meaning of these zodiacs is related to Mithraism, an ancient religion. They indicate that the symbols of these zodiacs represent natural forces, physical desire, rationality, intelligence and also metaphysical concepts. The positions of the planets, according to these authors are determined by some symbolic meaning of planets and constellations in Mithraism without any connection to astronomy. We will dispute this point of view and argue that there is a precise astronomical meaning in both zodiacs. Each of them indicates a certain date. The complete analysis of the astronomical data contained in these zodiacs and their dating will be presented later in this book.

Let us point out that not all Egyptian zodiacs contain a horoscope. Some of them just show the zodiac constellations without any planet. Of course precise astronomical

is dating of such zodiacs makes no sense, since there no sufficient data available. However, in this situation an approximate zodiac's age can be estimated by comparing this zodiac with other similar zodiacs for which precise astronomical dating can be done. As an example we present in Figure 1.22 a picture of such a zodiac without horoscope.

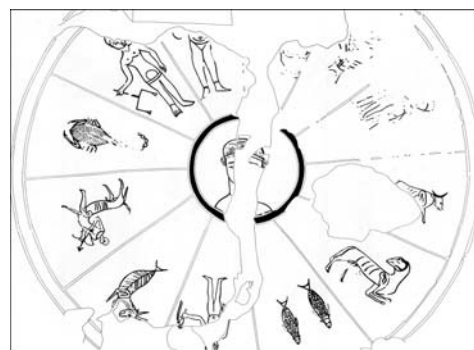


Figure 1.22:

*Egyptian Zodiac found in a tomb of Petubastis*<sup>24</sup>

<sup>23</sup>Taken from [5], Tafel ??.

<sup>24</sup>Taken from [5], Tafel 37.

There are also some examples of old Egyptian zodiac showing less than twelve zodiac constellations, some of which are symbolized by unusual figures. For example, on some old Egyptian zodiacs there was a figure of Raven among the zodiac constellations, what may indicate that different type of division of the ecliptic into zodiac constellations was used in earlier times. Notice, that there is a constellation called Raven neighboring the zodiac Virgo constellation. One of such untypical zodiacs is illustrated on Figure 1.23. This old Egyptian zodiac, which was made of schist, is called “Lybian Palette.”



Figure 1.23:  
*The Lybian Palette, which is probably an older type of an Egyptian zodiac with unusual constellations*<sup>25</sup>

There is a little doubt that this palette indeed represents a zodiac in spite of its untypical appearance. All the constellations are shown as towns surrounded by walls with constellation symbols placed above them. For instance, one can easily distinguish there Leo and Scorpio. Notice that each of the constellation symbols is holding an astronomical instrument resembling a primitive sextant. A very similar instrument is placed in the right hand of Ptolemy on old drawing shown on Figure 1.24. As we already mentioned, these older zodiacs could be made at the time when the division of the ecliptic into zodiac constellations was not yet in its final stage with less than twelve constellations distinguished on the zodiac belt.



Figure 1.24:  
*Old portrait of Ptolemy with simple astronomical instrument in his hand similar to the instruments shown on the Lybian Palette*<sup>26</sup>

## 1.2. Problem of Astronomical Dating of Egyptian Zodiacs: Why Egyptologists Avoid Astronomical Dating of Egyptian Zodiacs

We have already explained that if on an old zodiac there are shown planets among the zodiac constellations, or in other words, if there is a horoscope contained in the zodiac, then there is a sufficient evidence to consider this zodiac as an astronomical recording of a certain date. Today with help of modern astronomy and computers, we are able to decipher these dates or at least suggest a few possible variants for such a date. This is, in general the basic idea of the astronomical dating of old zodiacs. This idea is not new. On the turn of the eighteenth century, when European scientists, following the Napoleonic invasion of Egypt, gained for the first time an access to Egypt, they discovered a number of ancient zodiacs. When these zodiacs became known in Europe, they immediately attracted a lot of attention by European historians and astronomers, who recognized their definite astronomical character. The scientists realized that this was a unique opportunity to calculate some of the exact dates from ancient Egyptian history. For this purpose there was undertaken an effort to decode the exact astronomical meaning of the zodiacs and calculate their dates. However, all these attempts were conducted under the assumption that the hidden in the zodiacs dates should be restricted to the time interval imposed by the conventional chronology of ancient Egypt. It

<sup>25</sup> Taken from [122], p. 69.

<sup>26</sup> Taken from [21], page 8.



seems that the belief in the conventional chronology was stronger than the objectivity expected from a proper scientific investigation and the results which did not satisfy the expectations of historians were not even considered as an option. Unfortunately, all work done did not produce any result. **There was not even one date which was satisfactory from the astronomical point of view and at the same time agreed with the conventional chronology of ancient Egypt!**

Let us dwell on this subject. First of all, the Egyptian zodiacs displaying typical zodiac constellations, according to prevailing opinion historians, are related to time of the Roman influence in Egypt, i.e. the epoch around the first century A.D. Nevertheless, the egyptologists attempted even to date these zodiacs in much earlier times. For example, the Denderah zodiacs were initially claimed to be made around the year 15,000 B.C.<sup>27</sup>. However, there were too many evident contradictions resulting from such dating. It was incomprehensible why the symbols of the zodiac constellations on ancient Egyptian zodiacs are exactly the same as in medieval European book. The European astrology is considered to have Roman, not Egyptian, origin! The Roman influence expressed in Egyptian zodiacs could not be ignored and forced historians to shift the epoch of probable creation of these zodiacs to the time not earlier than the first century B.C. On the other hand, as the zodiacs were associated with ancient Egyptian remains, historians could not accept their dates later than the third century without revising the whole chronology of the ancient Egypt. Consequently, dates of the ancient Egyptian zodiacs that were acceptable to historians turned out to be limited to a relatively small interval of few hundred years. Any significant deviation their dates from this interval would create a serious contradiction with the whole concept of the ancient Egyptian chronology and history. Unfortunately for historians, the obtained dates of zodiacs did fall into this interval. It is very difficult to “stretch” possible interpretation of a zodiac in order to “adjust” the result in such a way that it would fit such small interval. The problem is related to the fact that the same horoscope repeats itself usually very rarely – one or two times in thousand years. Many horoscopes repeat only after several thousands of years. Nobody before Morozov had the idea that this interval may have been placed in the wrong time. An accurate dating of ancient Egyptian zodiacs is definitely a method to find such an interval. Indeed, our computations suggest that the dates of ancient Egyptian horoscopes appear consistently in a specific epoch.

Dissatisfied with the “negative” results of the astronomical dating, Egyptologists practically abandoned the idea of their further dating and declared that these zodiacs were

simply astronomical fantasies of ancient artists. Often, they did not even make a simple attempt to decode such zodiacs and find their dates. A striking example of such an approach can be found in the already mentioned paper of O. Neugebauer, R.A. Parker and D. Pingree, where the authors write in about the Petosiris zodiacs: “*The position of the planets seems to be inspired by Mithraism*”<sup>28</sup>. As another example we should mention the book by S. Cauville<sup>29</sup>, where the astronomical dating of the Denderah Round zodiac is made in an absolutely unacceptable way, from the point of view of scientific standards, with the sole purpose to fabricate appearances of scientific justification for made up by historian dates. We leave a detailed discussion of this book for later.

Not every arbitrary configuration of the planets on a horoscope represents a real horoscope. Planet configurations on the sky are restricted by some laws. For example, Mercury and Venus are always located not too far from the Sun and consequently in proximity of each other. Clearly an artist creating an imaginary horoscope would most likely violate some of these rules. Some knowledge of astronomy is required to design a “realistic” horoscope, but even in such a case, an artist fantast would most probably produce a horoscope, with the date belonging to a very distant past or future. But the Egyptian zodiacs always contain the flawless horoscopes for which solutions exist in a reasonable period of time. So, it is strange that the authors of [5] instead of analyzing the astronomical content of the Egyptian zodiacs indulge into obscure analysis of would-be mystic meaning of their symbols. Maybe, they realized that there are no astronomical solutions complying with the conventional chronology. Indeed, such solutions for the Petosiris zodiacs as well as for all other Egyptian zodiacs do not exist!

As another example, let us examine what is written about the astronomical dating of ancient Egyptian zodiacs in the guide to the Egyptian collection of the British Museum<sup>30</sup>. It appears that there is nothing written about it! When speaking about the dates of the ancient sarcophagy the authors strangely ignore anything related to the astronomical dating of zodiacs painted on these sarcophagy, as it was something no importance. In all these cases the dating of the Egyptian relics was made without any relation to the astronomical information available for these relics. For instance, when describing an ancient Egyptian sarcophagus the authors write: “*.. the face resembles the face of the ordinary stone Sidonian sarcophagus, of which those of Tabnith and Eshmunazar, King of Sidon, B.C. 360 ... are typical examples, and for this reason the date of the coffin is supposed to lie between B.C. 500 and B.C.*

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<sup>28</sup> See [5], p. 100.

<sup>29</sup> See [10].

<sup>30</sup> See [18,19,20]

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<sup>27</sup> See [4], Vol. 6, p. 651.

350<sup>31</sup>.” However, a few sentences further on, the authors state that: “... numerous astronomical texts and pictures ... Here we have figures of the gods of the constellations, and of the planets, Signs of the Zodiac<sup>32</sup>.”, so it is clear that they are talking here about a zodiac (*gods of the constellations*) with a horoscope (*gods of ... the planets*), but the question the astronomical dating of this horoscope is completely ignored. Moreover, the picture of the zodiac is not shown what is typical for this guide. None of the Egyptian zodiacs referred to in [18–20] was dated astronomically and wasn’t displayed in the guide either.



Figure 1.25:

*Russian Academician N.A. Morozov (1854–1946)*

Concerning the Denderah zodiac, N.A. Morozov wrote: “If all these is only a fantasy of an artist, then it’s hard to explain why on the both zodiacs Mercury and Venus were located in a near proximity of the Sun, as they should be, and not in some other place which was more convenient for the artist but not possible for a real horoscope. What possibly would be a purpose for such a fantasy? No, it is not a fantasy but a horoscope.<sup>33</sup> Morozov was the first who suggested to date the Egyptian zodiacs according to their astronomical meaning without restrictions dictated by the conventional chronology. Before Morozov all the investigators of the Egyptian zodiacs were struggling to obtain the solutions belonging to the time interval around the first century postulated by historians. Of course the obtained results couldn’t satisfy the expectations of historians and even with drastic “adjustments” it still was impossible to use these zodiacs to support the conventional chronology. Strangely, all the honest attempts of Egyptologists to use

the astronomical methods to date the Egyptian zodiacs faded after works of Morozov were published during the years 1915–1935, when it became clear that the astronomical dates of these zodiacs do not give any date supporting the conventional chronology of Egypt! It seems that the direct impact of the Morozov’s work was the change of the attitude of Egyptologists concerning Egyptian zodiacs who now try to overlook the astronomical information while discussing their meaning. Instead, they carry the discussion away to the safe for the conventional chronology ground of ancient Egyptian religions. They try to convince us that if there is a connection between Egyptian zodiacs and astronomy, then it is rather naive and imaginary<sup>34</sup>

The research of N.A. Morozov, and more recently of A.T. Fomenko<sup>35</sup>, prove that the conventional chronology does not have solid foundations and that there are serious problems and contradictions in it. It is not the purpose of this book to investigate the conventional chronology. We refer the interested readers to the existing literature on subject, in particular to [105–108]. However, we do not feel any bond to be restricted by this chronology. Being ourselves researchers, we strongly feel that the scientific objectivity oblige us to abandon any pre-conceived ideas related to expected in this area results.

In our approach we extend the time interval, from 500 B.C. till 1800 AD, for possible dates indicated on Egyptian zodiacs, what however, leads to a new serious problem. By considering such a long time interval we allow many of the horoscopes to repeat. Consequently, even in the case of an unquestionable decoding of a horoscope we will in general have to deal with its several possible dates. Which of these dates is correct and what are the criteria for choosing the right solution? In fact, decoding of Egyptian horoscopes can be tricky because of the ambiguities related to the positions of some planets. For example, an unusual symbol may be used to indicate a planet or its position may not be completely clear from the picture. Sometimes, parts of zodiac are lost, damaged or are in very poor condition. For some zodiacs with extremely complicated design or multiple unusual symbols, it is necessary to consider all possible variants of planet identifications and consequently dozens of possible horoscopes should be investigated. In such cases the number of obtained dates may reach hundred. Even in the case of clear and definite zodiacs there appear two or even more variants of horoscopes. Therefore, it is important to look for additional astronomical information in the zodiac and use it to select the correct date. Fortunately, such information is available and will be discussed in this book. We should emphasize that none of the previous investigators realized the existence of this information, so their results can not be treated as final.

<sup>31</sup>See [18], p.133

<sup>32</sup>See [18], p.133.

<sup>33</sup>See [4], Vo. 6, p. 653.

<sup>34</sup>See [5,9].

<sup>35</sup>See [105]

### 1.3. Our New Approach to Dating Egyptian Zodiacs

Described in the previous section difficulties can be removed by using our new method of decoding and dating ancient Egyptian zodiacs. Namely, we adopt a formal routine to decode not only horoscopes contained in Egyptian zodiacs but also additional astronomical information frequently included in these zodiacs. Let us point out that usually there is enough of additional information to eliminate all untrue solutions and determine the date of the zodiac uniquely.

When dealing with zodiacs there is always some uncertainty in decoding which leads to several variants of admissible horoscopes. But even in such ambivalent situations we are still able to establish the true unique solution. Of course, in a case when some errors were made in decoding of a horoscope, the calculated solutions could not agree with the additional astronomical information, what would result in elimination of all these solutions. In fact, the amount of all the astronomical information contained in many Egyptian zodiacs is so large that it makes improbable that it would randomly represent any real astronomical situation.

The novelty of this method lies in the fact that we can consider simultaneously all the possible decoding variants for a zodiac. This was not possible in previous attempts because the multitude of the obtained results could not be reduced as the additional astronomical information was properly understood. Consequently, the previous researchers were forced to choose only one variant of a decoded horoscope to work with it. However, this new idea did not come without a price. With each additional variant of a horoscope the amount of necessary computations increases sharply and the number of possible solutions can be very large, sometimes more than hundred. Every solution should be inspected and compared with the additional information on the zodiac. This procedure could not be completed without computers and appropriate astronomical software. In our case, we had to develop a special astronomical program called “*Horos*” which finds for a particular configuration of planets among the zodiac constellations, i.e. for each horoscope, all possible dates when such an arrangement of planets really appeared on the sky. This program has also ability to verify the order of the planets and compare it with their order in the horoscope. If there is uncertainty related to the exact positions or the order of some planets, the program “*Horos*” is still able to process such a data. The description and examples on how to use the program are presented in the Appendix. We have also used the program “*Turbo Sky*” developed by Russian astronomer A. Volynkin, from the

Astronomical Institute of Moscow State University. With its help we were able to determine the brightness of specific planets and other conditions, which are important to establish their visibility at a given date and location in Egypt. This information is important for the verification of possible solutions for Egyptian zodiacs. Let us explain that brightness of a planet varies depending on its distance from the Sun and its position with respect to the Sun and the Earth.

To give a reader a chance to conduct his/her own investigation of Egyptian zodiacs, the program “*Horos*” is supplied with this book.

### 1.4. Pictures of Egyptian Zodiacs used for Dating in this Book

Investigation of an Egyptian zodiac for the purpose of astronomical decoding requires the most careful analysis of its smallest details. Our study of Egyptian zodiacs shows that some of the details, which at the first glance seem to be unimportant, in fact are crucial for the correct decoding of the astronomical meaning. Therefore, the astronomical dating should be done based on the most accurate and detailed pictures of the zodiacs.



Figure 1.26:

*Photo of an Egyptian zodiac painted on a cover of a coffin. Planets are not visible.*<sup>36</sup>

The most valuable are the large and detailed color pho-

<sup>36</sup>Taken from [122], page 117.



tographs, but unfortunately we are not able to find many of them. It turned out that acquiring good photographs of some, even very famous Egyptian zodiacs, was an extremely difficult task. On one hand Egyptologist profess that all these zodiacs are nothing else than pure fantasies and on the other hand there are only very few detailed images of these zodiacs published which are good for astronomical dating. In many cases, when such photographs are available, they are either of a very low quality or show only a part of a zodiac making decoding impossible. There are some exceptions but they are very exceptional. See for example Figure 1.26, where there are visible only the symbols of the constellations while the planets are hidden in shadow. It is difficult to avoid an impression that the specialists in Egyptian history seek to hide these evidence which could contradict their version of the Egyptian chronology. Up to the beginning of the twentieth century, when it was still unclear what are the dates behind Egyptian zodiacs, there were many publications containing high quality and detailed images of such zodiacs. For example, the Napoleonic Album (see [2]) contains several large beautiful pictures of Egyptian zodiacs<sup>37</sup>. As the reader can find out from this book, most of the pictures of Egyptian zodiacs, which are usable for the astronomical dating, were taken from old publications. For our purposes we also used several photographs of the Round Denderah zodiac, which were taken in 2000 in the Louvre museum by Prof. Y.V. Tatarinov. These photos were very helpful in our work and we are grateful for it to Prof. Tatarinov.

Regarding the drawings of Egyptian zodiacs included in the Napoleonic Album [2] we have to make few remarks. Notice that the artists who prepared this album took a lot of care to produce a very high quality and exact in every detail pictures of almost photographic accuracy. We have to admit that in most cases they were able to achieve this goal, however, in the same time they tried to improve the figures by making them more beautiful than the originals in style of the eighteenth century art. Therefore, we should not trust these pictures and treat them equally to photographs. In particular, these pictures do not reveal the real spirit of the Egyptian art. After comparing them with the actual photographs we discover that the originals are more crude and plain than these drawing. On Figure 1.27 we present compare two images of the “Goddess Nut” from the Round Denderah zodiac, one from the Napoleonic Album, another a recent photo. It is evident that in the Napoleonic drawing this female figure is looking much like an eighteenth century beauty, but in the same time, her pose and position are displayed very accurately. Let us notice that on the original relief the “Goddess Nut” is naked while on the Napoleonic drawing she appears dressed in transparent attire, which however

was made to be imperceptible as much as possible. Nevertheless, her face is most probably a pure fantasy of the artist who made this drawing. On the original there is only a contour of a completely unrecognizable face.

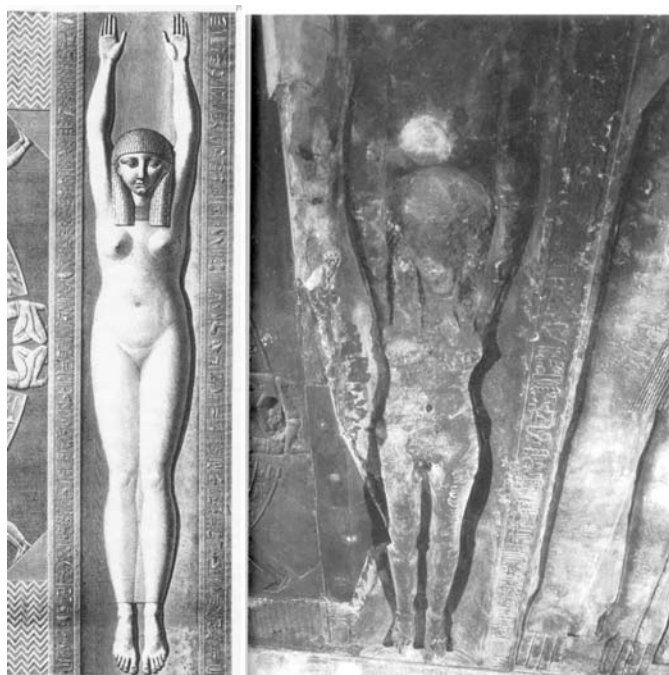


Figure 1.27:  
*“Goddess Nut” in the Napoleonic Album  
and on an actual photo.*

On Figure 1.28 we compare the same fragment of the Round Denderah zodiac on a modern photograph and on a drawing in the Napoleonic Album. Notice that the drawing is highly precise, nonetheless the figures on the drawing are clearly improved. For example, the faces of the figures on the drawing exhibit more details than they really have on the original. No doubt that they were made more beautiful.

We would like to point out that there are some errors in the Napoleonic Album, which at the first glance may seem to be inessential but in fact can be crucial for the correct decoding of the zodiac. On Figure 1.29 we present a fragment of the Round Denderah Zodiac on three different pictures. On the left, there is a precise modern drawing, made based on a photograph, followed by two pictures of the same fragment from the Napoleonic Album. Notice that the male figure with a walking stick in the center of the picture should touch with his feet the top of the spike held in the hand of Virgo. This detail is very important for the exact understanding of the astronomical meaning of the whole composition.

<sup>37</sup>See also [24] and [14].



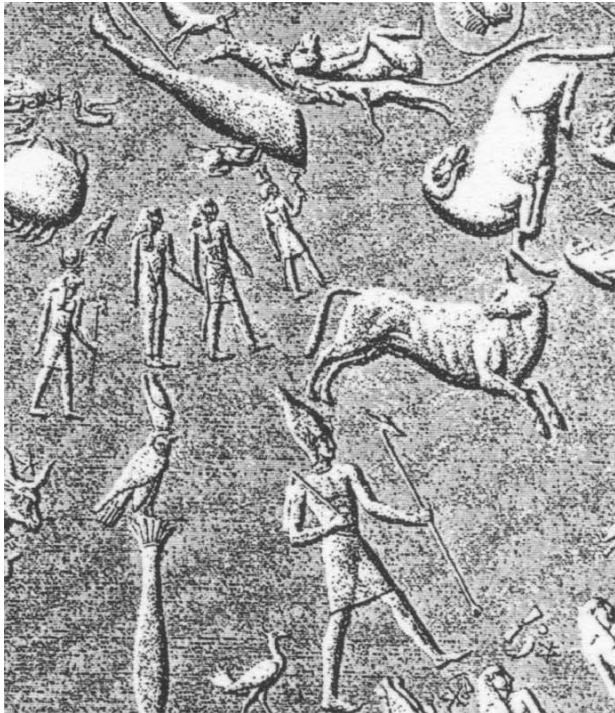


Figure 1.28:  
*The same fragment of the Round zodiac  
 in the Napoleonic Album and on a photo.*



Figure 1.29:  
*Example of some exceptional mistakes  
 in the Napoleonic picture of the Round Denderah zodiac.  
 On the left modern drawing based on a photograph,  
 in the middle and on the right two drawings from  
 the Napoleonic Album*

On Figure 1.30, we present a photograph of the same fragment from which one can see the exact its appearance on the Round Denderah zodiac. The modern drawing<sup>38</sup>, on the left in Figure 1.29, seems to be very precise, therefore we decided to conduct our analysis based mostly on this drawing. However, we also verified all the details on the photographs made by Prof. Y.V. Tatarinov.



Figure 1.30:  
*Photograph of a fragment of the Round Denderah zodiac<sup>39</sup>.*

There is another important detail which was altered in the Napoleonic Album. Look at Figure 1.31 showing a part of the same fragment as in Figure 1.29 taken from the Napoleonic Album. The figure in the center with a walking stick represents a planet. Over it's head there is star and above it there is a curved snake.



Figure 1.31:  
*Fragment of the Round zodiac from the Napoleonic Album.*

However, on the original zodiac in that place there is no symbol of a snake but instead there are three hieroglyphs (see Figure 1.32).



Figure 1.32:  
*Fragment of the Round zodiac<sup>40</sup>*

The meaning of three hieroglyphs<sup>41</sup> is in fact the name “SBK” which stands for “Sebek”, which according to Brugsch is the Egyptian name of Mercury<sup>42</sup>. Notice that in ancient Egyptian hieroglyphical writing there were no vowels<sup>41</sup>.

We didn't have access to many modern photos of other Egyptian zodiacs, but fortunately their composition is less complicated than the Round zodiac and we trust that the Napoleonic pictures are reliable copies. For example, the Long Zodiac on the Napoleonic picture seems to be very precise, however, some minuscule differences still can be identified. On Figure 1.33, we compare a fragment of the Long zodiac with its representations on taken from the Napoleonic Album. From this figure we can conclude that in general the Napoleonic picture of the Long zodiac is highly precise. Nevertheless, it's possible to list several minor differences:

- Over the head of the first female figure standing on the right from the sign of PISCES there is a rectangular frame. Inside this frame of the original there is a falcon head which is missing in the Napoleonic picture.
- Over the head of the female figure standing on the left from PISCES there is a symbol of star. This symbol which is not so noticable was omitted on the Napoleonic picture. Maybe tha artist was not able to recognize this symbol.

<sup>38</sup> Taken from [10], p. 71.

<sup>39</sup> Taken from [9], p.165.

<sup>40</sup> Taken from [10], p. 29.

<sup>41</sup> See [109]

<sup>42</sup> See [4], Vol. 6, p. 697.



- The the rectangular frame above the head of the male figure with a walking stick (on the right from PISCES) there is a symbol of falcon, but on the Napoleonic picture there is a bird definitely different than falcon.
- The same male figure is holding in its right hand an Egyptian cross with handle. This cross is also omitted on the Napoleonic picture.

mind that these drawing are not originals but only copies which are excellent but still not flawless. As we indicated, some small and hardly noticable details may be altered or omitted on these copies but clearly the artist did not contribute new symbols out of his own imagination.

## 1.5. Our Abbreviations for Egyptian Zodiacs

Sometimes, it will be convinient for us to use short abbreviations when referring to the Egyptian zodiacs analysed in this book. In particular, we will use these abbreviations to make clear at the first glance fragment of what zodiac is displayed in a figure. The following is the list of these abbreviations:

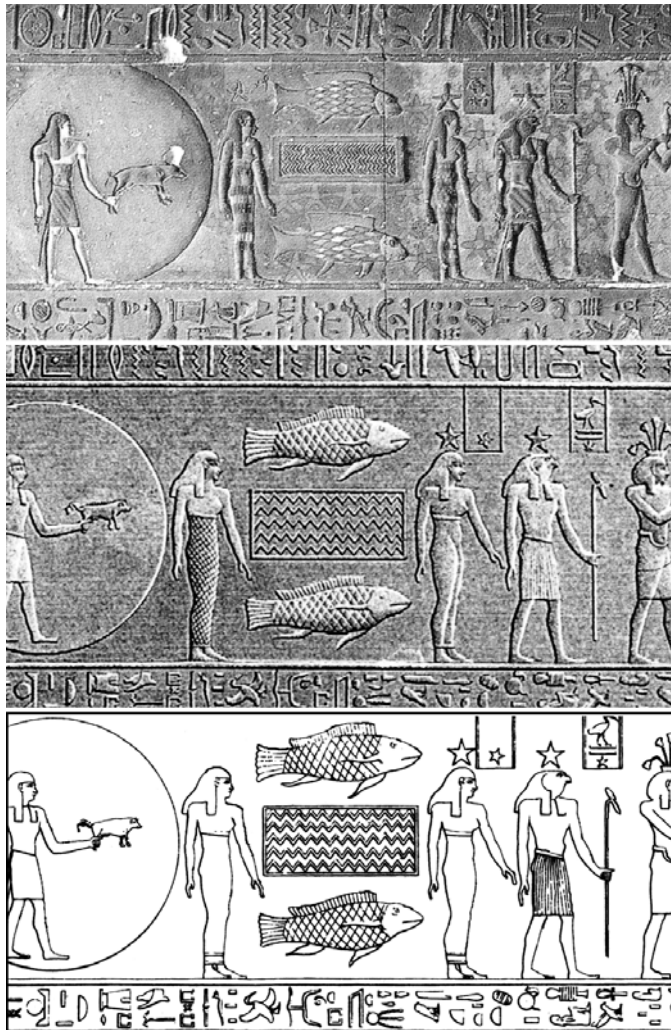


Figure 1.33

*A fragment of the Long Denderah zodiac on a modern photo<sup>43</sup> and the picture from the Napoleonic Album<sup>44</sup>*

In summary, let us reiterate that in principle the Napoleonic pictures are sufficiently precise for our purpose of astronomical dating. Of course one should keep in

- (DL) – the Long Denderah zodiac (Fig. 1.8)
- (DR) – the Round Denderah zodiac (Fig. 1.6)
- (EB) – the Big Esna Zodiac (Fig. 1.15)
- (EM) – the Small Esna zodiac (Fig. 1.17-1.18)
- (AV) – the upper Athribis zodiac (Fig. 1.19, top one)
- (AN) – the lower Athribis zodiac (Fig. 1.19 - bottom one)
- (OU) – the painted zodiac from the King's Valley (Fig. 1.3)
- (P1) – the zodiac from Petosiris tomb from the outer room (Fig. 1.21)
- (P2) – the zodiac from Petosiris tomb from the inner room (Fig. 1.20)
- (BR) – the Brugsch's zodiac (Fig. 1.13)
- (LZ) – the zodiac from papyrus (Fig. 1.1)
- (RM) – the zodiac from the tomb of Ramses VI (Fig. 1.34)

<sup>43</sup>Taken from [10], p.37.

<sup>44</sup>Taken from [2], A. Vol. IV, Plate 20.



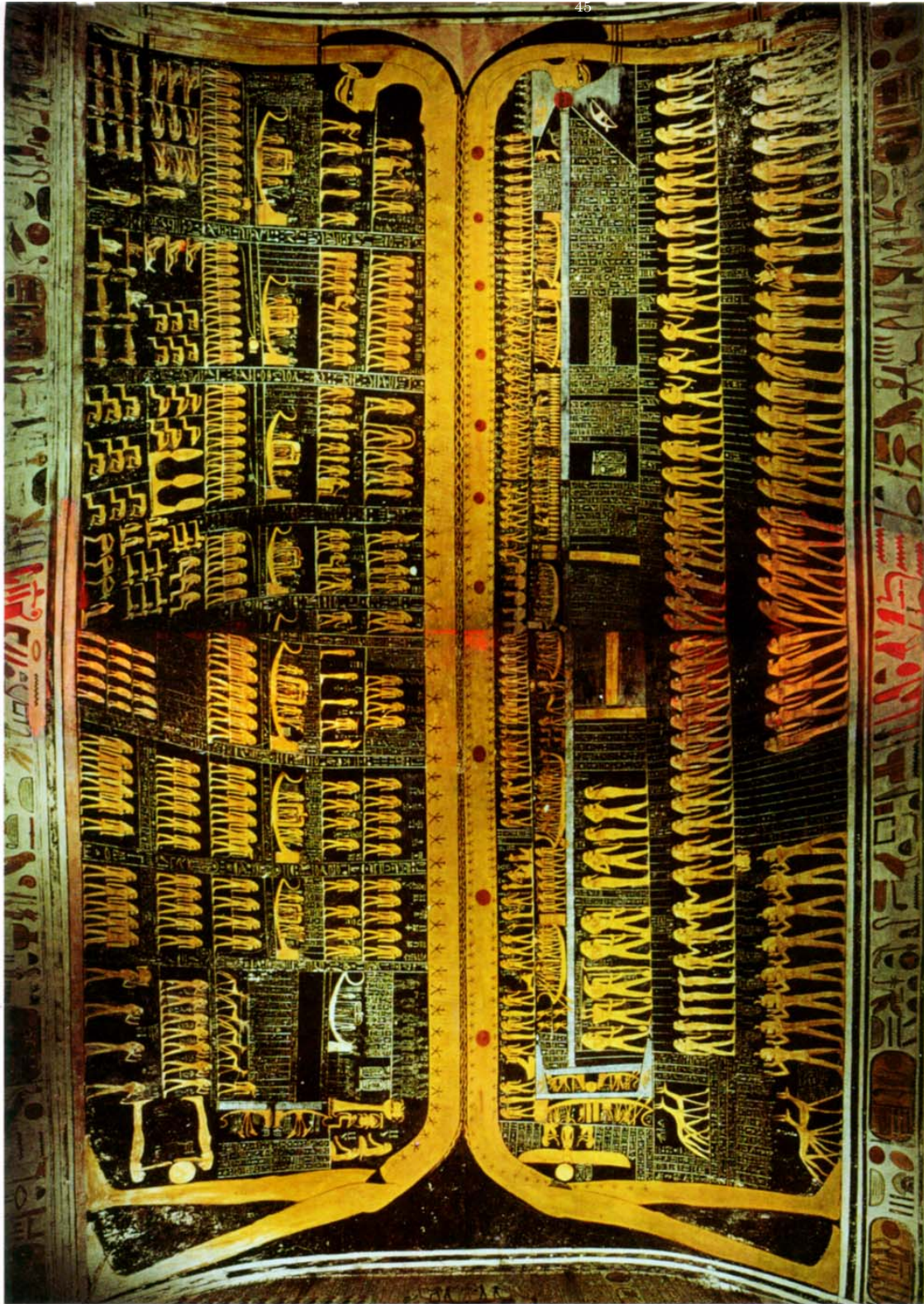


Figure 1.34.  
*A photograph of a zodiac from the tomb of Ramzes VI in King's Valley in Egypt*<sup>45</sup>

<sup>45</sup> Taken from [32], p. 128-129.



# Chapter 2

## 2.1. History of Dating of the Denderah Zodiacs

The first attempts to astronomically date the Round and Long Denderah zodiacs took place in the nineteenth century following their publications in Europe. Some variants of their decoding were suggested by Egyptologists of that time, in particular by famous German Egyptologist Henry Brugsch. His decoding was based on the interpretation of the figures and his translations of the inscriptions which were written over some of the figures denoting planets. It was quickly observed that on the Denderah zodiacs, as well as on other Egyptian zodiacs, all the planets, except the Sun and Moon (which in the ancient astronomy were considered as planets), were usually shown as travellers with walking sticks. In ancient astronomy planets were regarded as “moving stars<sup>46</sup>.” Let us notice that even in English the word *planet* originated from the Greek word *planetes* which means *wanderer* or *traveller*, so it is not surprising that the planets on Egyptian zodiacs were also symbolized by figures representing travellers. On the other hand the Sun and the Moon were represented on many Egyptian zodiacs in form of circles, sometimes with figures inside<sup>47</sup>, and this was exactly the way they appear on the Denderah zodiacs. This initial decoding of Egyptian zodiacs was later improved by N.A. Morozov<sup>48</sup>, who among the other things, corrected mistake of Brugsch in identification of Venus what we will discuss in details below. As we’ve already mentioned in Chapter 1, on the basis of the initial decoding suggested by Brugsch and other Egyptologists, many renowned astronomers of the nineteenth century struggled to date these two zodiacs. The result of their computations did not yield any acceptable date for the Denderah zodiacs from the very ancient times till the third century A.D.<sup>49</sup> The computations for the later epochs were not carried on until N.A. Morozov began his investigations of the Denderah zodiacs in 1920s.

N.A. Morozov, who was a prominent expert in the ancient and medieval astronomical symbolism, once more checked thoroughly the decoding of the Denderah zodiacs which was suggested by the Egyptologists. In several instances he found and corrected some mistakes but in general he confirmed the accuracy of their decoding. We are going to discuss in detail all these decodings of the Denderah zodiacs. In principle, Morozov followed the same approach to study the Egyptian zodiacs as his predecessors, what resulted in their incomplete decoding. Our

research proves that N.A. Morozov didn’t realize, overlooked or misunderstood a significant amount of astronomical information usually included in the Egyptian zodiacs aside of the main horoscopes. He, like his predecessors, was absolutely sure that the all astronomical contents of an Egyptian zodiac is entirely limited to only one horoscope. It was a mistake.

After verifying and improving the decoding of the Denderah zodiacs, Morozov undertook the task of computing their dates. Contrary to his predecessors, he was sceptical about the conventional Egyptian chronology, and extended his calculation to cover the middle ages as well. His efforts paid back. He found a beautiful pair of solutions for the Denderah zodiacs which, unlike all the previously obtained results, really agreed with these zodiacs. His solutions were:

The Long Denderah zodiac: **May 6, 540 A.D.**  
 The Round Denderah zodiac: **March 15, 568 A.D.**  
 (N.A. Morozov<sup>50</sup>)

Let us point out that at that time all the computations had to be done by hand, so there was a great deal of risk that some mistakes were done which led to the wrong results. The renowned astronomer N.E. Edelson carried on a detailed verification of Morozov’s calculations and in result obtained the planetary positions which very close to the positions determined by Morozov. Today, we do not have anymore troubles with elaborated calculations because with the use of computers we get the results just in seconds.

Дата 568 г. 15 марта, координаты 1900 г.	
Сатурн . . . . .	198°1 (Дева, ближе к Весам, как и показано двумя фигурами, одна под Девой, а другая зади Девы, впереди Весов).
Юпитер . . . . .	135°0 (Рак, ближе ко Льву, вполне удовлетворительно: одна фигура под Раком, а другая над Раком, ближе ко Льву).
Марс . . . . .	302°3 (Козерог, как показано двумя фигурами над головой и на спине Рака).
Венера . . . . .	36°1 (Овен, около середины, как и показано парочкой женских путниц под Овном).
Меркурий . . . . .	5°0 (Рыбы, около середины Рыб, но благодаря тому, что середина уже замещена Солнцем, Луной и знаком равноденствия, Меркурий поставлен по неволе впереди, ближе к Водолею, как и было).
Солнце . . . . .	16°44 (Рыбы, около середины, как и показано кружком над Рыбой, с глазом посредине его).
Луна . . . . .	Рыбы, как и показано.

Figure 2.1  
*The original table with Morozov’s decoding for the Long zodiac and Edelson’s computations of the planet positions for March 15, 568 A.D.*<sup>51</sup>

<sup>46</sup> See [27], p. 40  
<sup>47</sup> See [4], V. 6, p. 652-655.  
<sup>48</sup> See [4], Vol. 6, p. 651-672.  
<sup>49</sup> See [4], Vol. 6, p. 651.

<sup>50</sup> See [4], Vol. 6, p. 689-691.  
<sup>51</sup> Taken from [4], Vol. 6, p. 669

With the use of the astronomical software *Turbo Sky* we can verify that the Morozov computations were indeed correct (see Figures 2.1-2.2).

Совр. долготы.	
Сатурн . . . . .	212°0 (Дева у Весов)
Юпитер . . . . .	23°1 (Рыбы у Овна)
Марс . . . . .	18°8 (Рыбы)
Венера . . . . .	33°7 (Овен)
Меркурий . . . . .	90°6 (Между Тельцом и Близнецами)
Солнце . . . . .	76°3 (Телец у Близнецов)
Луна . . . . .	в Весах.

Figure 2.2

*The original table with Morozov’s decoding for the Round zodiac and Edelson’s computations of the planet positions for May 6, 540 A.D.*<sup>52</sup>

We will return to these results later when we will conduct a decoding of the Denderah zodiacs.

The Morozov’s result was the first satisfactory solution from the astronomical point of view for the dating of the Denderah zodiacs. Let us emphasize that his computations were done only for the one decoding that was suggested by Morozov, and there was no other solution in the time interval from 964 B.C. to 1303 A.D. For obvious reasons N.A. Morozov was forced to restrict his calculation to the time interval that seemed to him reasonable. However, Morozov’s solution wasn’t perfect. There were few discrepancies between his solution and the data contained in the Denderah zodiacs:

- The figure representing Venus on the Long zodiac, according to Morozov’s decoding, was placed between Aries and Taurus. But in his solution Venus appears to be between Aries and Pisces, so it is on the opposite side from Aries. Still, one can explain such discrepancy by assuming that planet positions on the Long zodiac were presented with certain liberty. Of course, when dealing with an ancient Egyptian zodiac it is evident that there must be some limit for its accuracy so we can expect in advance some imperfections, which are only clear after obtaining some acceptable solutions. Nevertheless, based on our results, we are convinced that the accuracy of the Egyptian zodiacs is much higher than it was assumed by Morozov.
- According to Morozov’s decoding of the Long Denderah zodiac, Mercury was located on the West from the Sun between Aries and Taurus. However, in his solution Mercury is on the East from the Sun, between Taurus and Gemini. Consequently, the order

of the planets on the zodiac and in the solution are not the same.

- On the Long zodiac, there is no star sign placed over the head of the figure representing Mercury, what Morozov himself interpreted<sup>53</sup> as an indication that Mercury was not visible due to its proximity to the Sun. However, Mercury in his solution was definitely visible. This matter was discussed by two Russian physicists N.S. Kellin and D.V. Denisenko:

*“ It is difficult to explain why Mercury that on May 6, 540 A.D.. was 15° – 17° to the East from the Sun, is located on the Long zodiac to the West from the Sun, so close that it couldn’t be visible because of the sunlight, what was confirmed by the absence of a star sign over its head. But, 15° from the Sun makes Mercury visible even at the latitude of Moscow, not to mention that it would be even more visible in Egypt, where the ecliptic is less inclined to the horizon”*<sup>54</sup>.

- On the Round zodiac, Mercury has star sign over his head that indicates its visibility. But in Morozov’s solution Mercury was invisible. Let us explain that for visibility of a planet or star (except Venus) the submersion of the Sun with respect to the horizon must be at least 9° – 10°. In the Morozov’s solution, the submersion of the Sun on March 15, 568 A.D. in Egypt, at the moment Mercury was rising above the horizon, was only 4° – 6° (further to the North of Egypt, smaller the submersion). Brightness of Mercury at that time was +0.4, according to the standard brightness scale, what can be compared with the brightness of some stronger stars. All the above indicates that on March 15, 568 A.D. Mercury was definitely invisible<sup>55</sup>.

All the above imperfections of the Morozov’s solution convinced N.S. Kellin and D.V. Denisenko to write the following comment:

*“The solution obtained by N.A. Morozov for the Long zodiac contains several flaws and therefore should be called conditional”*<sup>56</sup>

In 1990s, Kellin and Denisenko extended the Morozov’s computations for the Denderah zodiacs beyond the year 1303. They adopted the Morozov’s decoding fully trusting him in this respect. This time computers were used for the calculations which were done for all dates till the recent times. They found that there is one more solution for the Denderah zodiacs:

<sup>53</sup> See [4], Vol. 6, pp. 675, 678-679.

<sup>54</sup> See [15], p. 315

<sup>55</sup> The calculations were done using the program *Turbo Sky*

<sup>56</sup> See [15], p. 323

<sup>52</sup> Taken from [4], Vol. 6, p.687



The Long Denderah zodiac: **May 12, 1394 A.D.**  
 The Round Denderah zodiac: **March 22, 1422 A.D.**  
 (N.S. Kellin and D.V. Denisenko<sup>57</sup>)

The solution obtained by N.S. Kellin and D.V. Denisenko appears to be better than the Morozov's solution for the both Denderah zodiacs<sup>58</sup>. However, for the Long zodiac this new solution still wasn't flawless what the authors were well aware of. They made the following comment:

*"We have to admit that our solution for the Long zodiac should also be considered as blue conditional even if it is more satisfactory than the one found by Morozov<sup>59</sup>."*

Consequently, it is clear that there is no ideal solution for the Morozov's original decoding of the Denderah zodiacs. In the year 1999-2000, the problem of astronomical dating of Egyptian zodiacs, including the Denderah zodiacs, was studied by Tatiana Fomenko, who analyzed the decoding proposed by Morozov and suggested some modifications. In particular, she discovered that the drawing of the Long zodiac taken from the book *Uranographia* by Bode, which was used by N.A. Morozov, contained several mistakes<sup>60</sup>. This drawing was originally published in the second volume of the D.V. Denon's book [111]. In 1798, he accompanied Napoleon Bonaparte on his expedition to Egypt and there made numerous sketches of the ancient monuments. By comparing this drawing with the picture of the Long zodiac published in the Napoleonic album, T. Fomenko noticed that their differences significant enough to change the astronomical meaning of the Long zodiac. Clearly, Morozov was not aware of these mistakes which resulted in decoding of an erroneous horoscope. We show on Figure 2.3 the drawing of the Long zodiac from Bode's "Uranographia". T. Fomenko wrote:

*"N.A. Morozov with full trust in the Denon's picture decoded the Long zodiac. ... Let us look carefully at the Denon's picture. It is easy to notice that the figure representing Saturn somehow doesn't have a walking stick, which is present on the original. ... On the contrary, Denon supplied a figure standing between Libra and Virgo with a walking stick. ... On the Napoleonic drawing this figure has no stick. Morozov, deceived by the Denon's picture, recognized this figure as Saturn, what was a mistake<sup>61</sup>."*

On Figure 2.4, we compare the discussed by T. Fomenko fragment of the Denon's drawing of the Long zodiac with the same fragment of the Napoleonic picture. Notice that

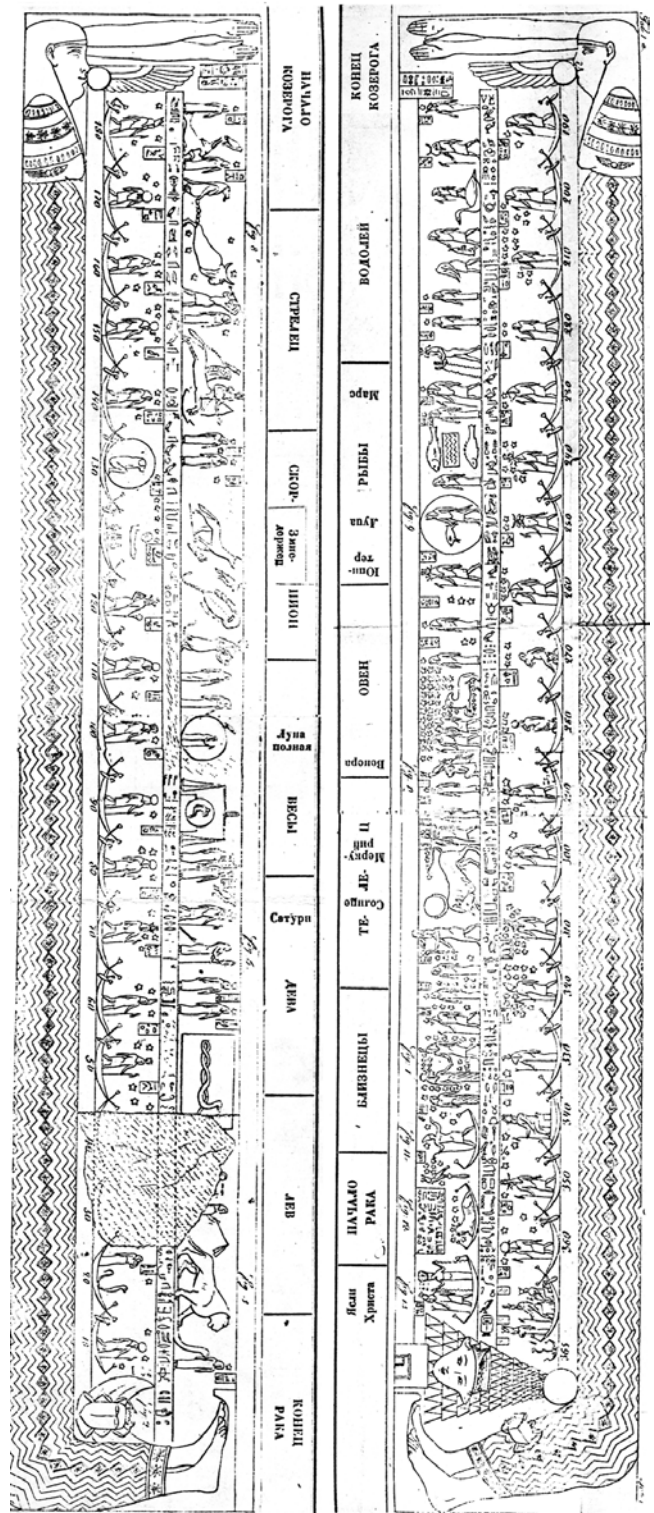


Figure 2.3  
*The drawing of the Long zodiac used by N.A. Morozov, which was reproduced from the Bode's "Uranographia"*<sup>62</sup>

<sup>57</sup> See [15], pp. 315-329.

<sup>58</sup> See [15], pp. 321-325.

<sup>59</sup> See [15], p. 325.

<sup>60</sup> See [1], p. 746-748.

<sup>61</sup> See [1], p. 737.

<sup>62</sup> See [4], Vol. 6, p. 671-672. The annotations on the drawing were made by Morozov.

on the Bode's drawing the female figure, which on the Napoleonic picture has a crescent over her head (second from the right), was changed into a male figure and in addition equipped with a walking stick. This transformation resulted in "creation" of a planet figure that shouldn't be there.

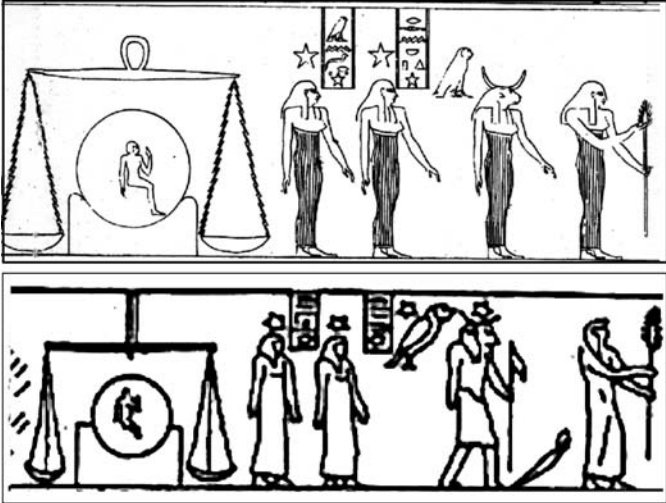


Figure 2.4

*Comparison of the Napoleonic picture of the Long zodiac and the Denon's drawing: the fragment between Libra and Virgo*

As the picture of the Long zodiac, published in [4], Volume 6, was not of a high quality, in Figure 2.5 we show another reproduction of the Denon's picture of the Long zodiac, which was taken from [112]<sup>63</sup>. T. Fomenko corrected these mistakes in the Morozov's decoding and modified it accordingly. For a detailed explanation related to her decoding we refer to [1].

In her work, T. Fomenko stated more strict and rigorous requirements for astronomical solutions of Egyptian zodiacs, which are:

- The positions of all the planets on a solution should correspond exactly to their positions on the zodiac without any distinguishable adjustment.
- The order of the planets on the ecliptic in a solution must be exactly the same as on the zodiac. This requirement was introduced for the first time in her work was not respected by previous researchers.

These requirements imposed in many aspects the new higher standards on acceptable astronomical solutions of Egyptian zodiacs. Contrary to Morozov, Kellin and Denisenko, T. Fomenko did not allow any conditional solution and always searched for the exact solutions. Based on these principles and according to her decoding, T.N.

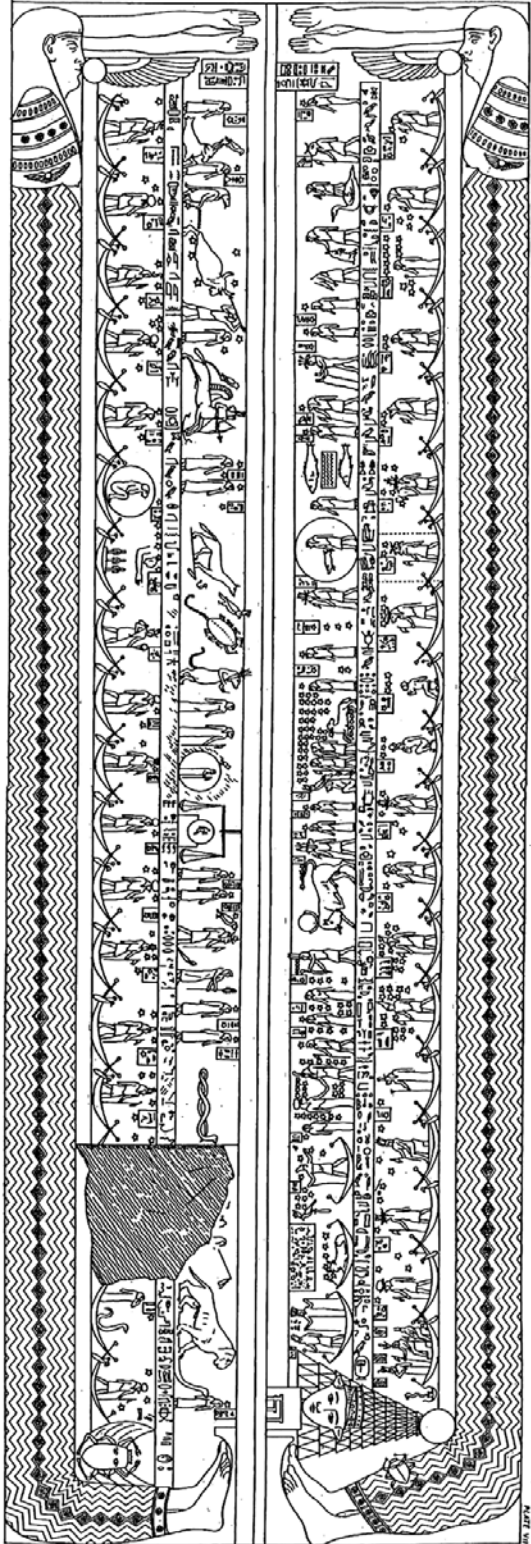


Figure 2.5

*The D.V. Denon's drawing of the Long zodiac.*

<sup>63</sup>See [112], p. 251-252, Plate VII



Fomenko found only one solution for the Long Denderah zodiac and two solutions for the Round Denderah zodiacs, which were the same as previously found by N.A. Morozov and by N.S. Kellin and D.V. Denisenko.

The Long Denderah zodiac: **April 7-8, 1727 A.D.**  
 The Round Denderah zodiac: **March 15, 568 A.D.**  
 or: **March 22, 1422 A.D.**  
 (T.N. Fomenko<sup>64</sup>)

We will follow this approach even in more rigorous way and obtain the exact solutions for the all analysed in our book Egyptian zodiacs. For example, we will also take into account the symbols indicating the visibility or invisibility of the planets portrayed on Egyptian zodiacs, what was not analyzed by T. Fomenko in [1].

More precisely, our strategy for the astronomical dating of the ancient Egyptian zodiacs will be following principles:

- We will consider only those astronomical solutions which meet all the requirements stated by T.N. Fomenko in [1], which were listed above.]
- We will also require that all the admissible solutions satisfy the conditions of the visibility/invisibility indicated on the zodiac according to the symbolism discovered by N.A. Morozov<sup>65</sup>.
- In addition we will require that any admissible astronomical solution should fully agree with all the additional astronomical information contained in the zodiac.

However, contrary to the previous researchers, in our approach we will treat equally all the possible decodings of the Egyptian zodiacs without selecting in advance any apparently the best candidate for the horoscope contained in the zodiac. By the way, a justification for our requirements resides in the fact that all the studied by this method zodiacs admit precise solutions.

Our investigation of the Denderah zodiacs showed that beside the main horoscopes they also contain sufficiently detailed partial horoscopes which we will explain later in this book. With such a large amount of the additional astronomical information expected from an acceptable solution, the probability of finding by chance a date satisfying all the imposed requirements is practically null. In order to give an idea how much of a meaningful astronomical information is contained in the Denderah zodiacs, we indicate on Figures 2.6 and 2.7 all the symbols with astronomi-

cal meaning which do not belong to the main horoscopes. Clearly, there is a large variety of such symbols.



Figure 2.6  
*Additional astronomical symbols  
 on the Round Denderah zodiac (marked in blue)*

All the details of our analysis, decoding and dating of the Denderah zodiacs will be presented in the subsequent chapters. We have obtained the following solution for the Denderah zodiacs, which appears to be unique on the whole historical interval from 500 BC to our times:

The Long Denderah zodiac:  
**April 22-26, 1168 A.D.**  
 The Round Denderah zodiac:  
**March 13 – April 9, 1185 A.D.**

## 2.2. Two Esna Zodiacs

Esna lies 53 kilometres south of Luxor on the west bank of the Nile river, exactly at the place where Nile begins a big semicircle meander around a stony hills area. This was the burial place for Pharaohs and there is also located the famous Valley of the Kings. It is surrounded by many ancient Egyptian temples, structures and monuments. Denderah is located on the north side of this semicircular area not so far from Esna. Let us point out that most of the

<sup>64</sup>See [1], pp. 689,714.

<sup>65</sup>See [4], Vol. 6, p.675,678 and 679.

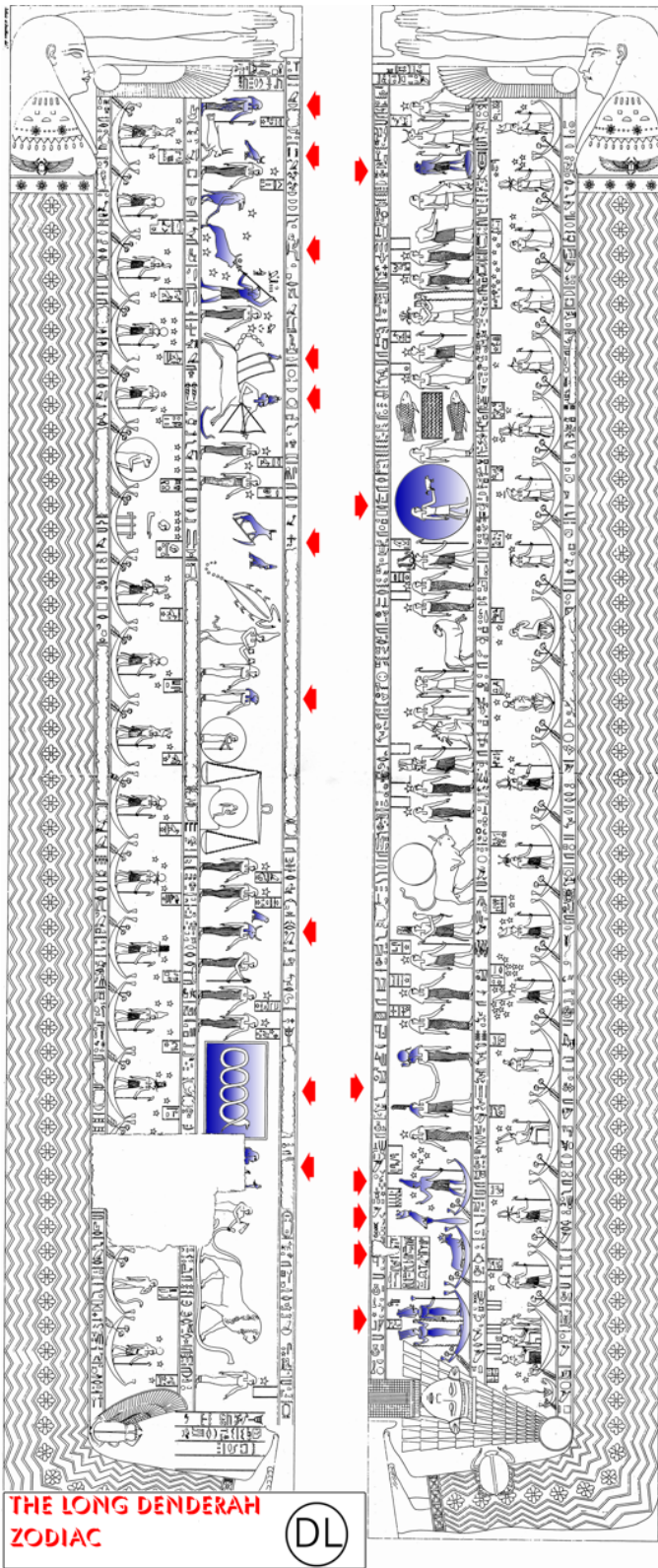


Figure 2.7:  
*Additional astronomical symbols  
 on the Long Denderah zodiac (marked in blue)*

ancient Egyptian zodiacs come from this region what may indicate their close relationship with the tombs (see the map of the river Nile in Egypt on Figure 2.8). As we already mentioned, in Esna there are two temples with zodiacs reliefs on their ceilings. Symbols on these zodiacs are in many aspects very similar to the symbols on the Denderah zodiacs, but there are some clear differences as well. Drawings of the both Esne zodiacs were included in the Napoleonic Album and, as we are not able to find other pictures or photographs of these zodiacs, we were forced to use only them for the analysis and decoding of the Esna zodiacs. However, based on our experience with other drawings from the Napoleonic Album, we can say that these pictures are accurate enough for our purposes.

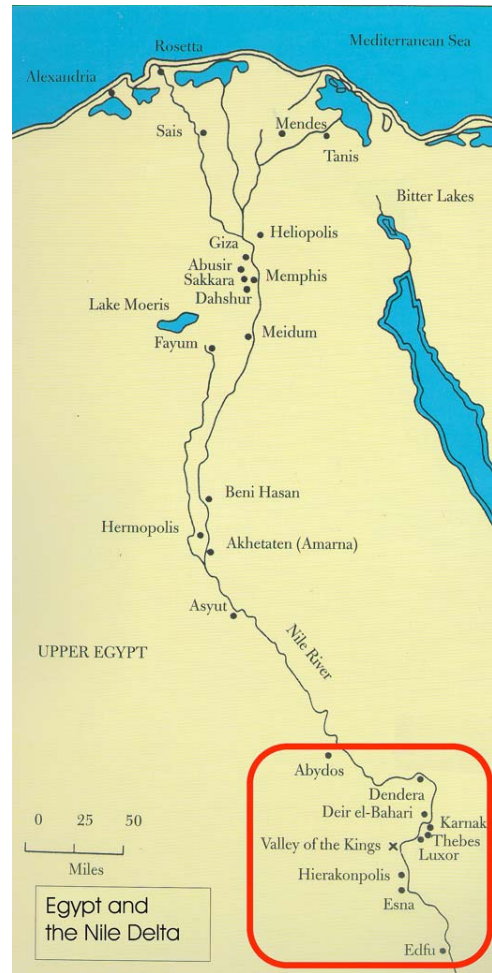


Figure 2.8:  
*A modern map of Egypt  
 with the Middle Nile Valley indicated*

As far as we know, the first and the only attempt to decode and date the Esne zodiacs, using the astronomical methods, was undertaken by T.N. Fomenko in [1]. She proposed a decoding of these zodiacs and calculated the



dates based on it. It appears that this decoding leads to the following unique solution on the whole historical interval:

The Big Esna zodiac: **May 1-2, 1641 A.D.**  
 The Small Esna zodiac: **May 2-3, 1570 A.D.**  
 (T.N. Fomenko<sup>66</sup>)

Our analysis of the Esna zodiacs showed that there are several admissible variants of decodings but the additional astronomical information contained in these zodiacs allows to eliminate all the false solutions which appear to be incompatible with this data. Our detailed analysis of the Esna zodiacs will be presented in subsequent chapters, but at this moment we would like to announce our final result:

The Big Esna zodiac:  
**March 31 – April 3, 1394 A.D.**  
 The Small Esna zodiac:  
**May 6-8, 1404 A.D.**

This solution appears to be unique on the time interval from 500 BC till nowadays. We should mention that our final decoding, which led to the above solution, is different from the one suggested by T.N. Fomenko in [1], so the answer is also different.

### 2.3. Athribis Zodiacs Discovered by Flinders Petrie

The two Athribis zodiacs which we've already mentioned in section 1.1 (see Figures 1.19 and 2.9), were investigated by N.A. Morozov<sup>67</sup>. He described these zodiacs and the previous attempts of their dating by the following words:

*“In 1902 the British Egyptology School in London published the work of the egyptologist W.M. Flinders Petrie under the title “Athribis”. This book was devoted to the description of findings made by Petrie in 1901 in the Upper Egypt near Sohag. Athribis was called in the antiquity Hat-Repit (i.e. Repit Citadel) and is located to the south from Dekr-Amba-Shenude (i.e. White Monastery), where there traces of a monastery cell were found. This cell was dated by egyptologists to be of the forth century A.D. To the south from this place, near Horgaze, where the surrounding rocks like stairs descend to the Nile valley, there*

*were excavated historical remains which were associated by the researchers with the Old Kingdom. Erlier, in Athribis there were discovered two temples, one was estimated to be built in the time of reign of Ptolemy IX ... and construction of another was “initiated by Ptolemy XIII Auletes ... and finished by Claudius and Hadrian.” Athribis is located on the perimeter of the desert and it was covered by sand ... The second temple was similar to the Denderah temple or the temple in Edfu. Its surrounding columns exhibit the Greek influence and sculpture decorations of the both temples point to the “Roman culture.” ... Not far from the excavation site of these two temples ... Flinders Petrie discovered a manmade burial cave with walls covered by paintings and inscriptions. On the ceiling there were painted in color two horoscopes joined into one composition. Evidently, they were painted by the same artist, which means that the lower horoscope was painted after the upper one not more than thirty years later, but most probably, it was much earlier than this upper bound<sup>68</sup>”.*



Figure 2.9:  
*Two fragments of the Athribis zodiacs<sup>69</sup>*

The above assumption, made by N.A. Morozov, about the thirty years upper bound for the difference between the dates of the two Athribis zodiacs, appears to be a mistake which led Morozov to the wrong result. Further, Morozov writes:

<sup>66</sup>See [1], pp. 774,798.

<sup>67</sup>See [4], Vol. 6, pp.728-752

<sup>68</sup>See [4], Vol. 6, p. 731.

<sup>69</sup>Taken from [114], p. 22

“Figures on the zodiacs are of Hellenistic type but have show some purely Egyptian features. For example, the Orion constellation below (look at the lower part of the Figure) is represented by a man with his right arm rose inviting souls of Meri-Hor and his father Ab-Ne-Mani, whose names were written in hieroglyphes near the symbols of their souls, to come to the heaven. Their souls were accompanied by their sins symbolized by snakes and jackals on the left side of the painting. The both souls are shown as birds with human heads. The upper horoscope probably belongs to the father and the lower of his Sun. The both horoscopes possibly indicate not their births but the time of their going to heaven. Only in such a case it is appropriate to show them as birds<sup>68</sup>”.

We intentionally included this long passage from the Morozov book, describing his interpretation of the additional symbols on the Athribis zodiacs, to indicate his erroneous approach based on common understanding of the Egyptian zodiacs as mystic or religious pictures. Morozov hasty declared those symbols that seemed to him unrelated to the main horoscope, as having no astronomical meaning. For example, on the Athribis zodiacs he misunderstood an important astronomical information, namely the symbols of the partial horoscopes of the summer solstice (see Figure 2.10), which he categorized as Orion in a mystical entourage.



Figure 2.10:

*A fragment of the lower Athribis zodiac with the partial horoscope symbols of the summer solstice<sup>70</sup>*

Morozov mistaken the figures of the partial horoscopes for the souls “father” and “son,” what wasn’t unimportant for the final result. By the way, Morozov himself stressed out that on the Athribis zodiac the planets are represented by birds, but strangely he didn’t realize the astronomical meaning of this configuration of figures. Consequently, he lost some essential astronomical data directly related to the dating problem. Moreover, this mistake reassured him that the difference between the dates for the both

Athribis zodiacs, which he believed belonged to a father and son, should be not more than thirty years. In fact it was wrong to make this presumption. We will show that that the difference between the dates for these two zodiacs is ninety eight years, so they could be realted to the birth and death of the same person or to the deaths of two realtives.

Let as look on what Morozov writes further:

*The dating of this tomb, similarly as it was in the case of the Denderah zodiacs, is paricularly reliable due to the fact that we are dealing simultaneously with two horoscopes for which their dates are not too distant. In the summer 1919, Professor B.A. Turaev provided me the forth volume of the “British School of Archeology in Egypt” with these horoscopes for the purpose to determine more accurately their dates by astronomical methods. In the beginning I just repeated the calculations of E.B. Knobel from this book. Knobel together with egyptologists identified the bird with a snakelike tail as Jupiter throwing snakelike thunders, the bird with a bull-head as Saturn, the falcon distanced from the Sun as Mars, the two-faced Janus and the bird without any specific feature, near the Sun, as Mercury and Venus. My verification showed that Jupiter, in the both horoscopes, appears much too far to the left than it was calculated by Knobel. The same was with Mars. On the other hand, Saturn’s position on the lower horoscope was too much the right than it is shown on the Athribis zodiac. The result was even worst than presented by Knobel<sup>71</sup>.”*

We should say that it seems that Knobel himself wasn’t satisfied with his result for the astronomical dating of the Athribis zodiacs, which was 52 and 58 A.D. On Figure 2.11 we present the original table with the Knobel’s computations which was reproduced by N.A. Morozov in his book [4], Vol. 6. One can easily see that Knobel didn’t even try to conduct an independent astronomical dating of the zodiacs and simply attempted to find the most satisfactory dates in the postulated by egyptologists time interval. Of course, it is always possible to choose the best date for a horoscope in a given time interval, but is it going to be acceptable as an astronomical solution? Knobel’s solution turned out to be very bad and with such low accuracy it would be possible to date these horoscopes practically in any epoch. Knobel realized this problem what could be seen from his own explanation:

*“The horoscope positions are probably taken from tables and not from observations, and the positions are in signs and not in constellations. The year A.D. 59, January, suits well for Moon, Mars, Jupiter and Saturn, but is discordant for Venus. No attempt has been made to reconcile Mercury. Jupiter and Saturn would be in similar relative*

<sup>70</sup>Taken from [113], Plate 10.

<sup>71</sup>See [4], Vol. 6, p. 731



positions about every 58 or 59 years. In the epochs -118, -60, -1, 59, 117, the only year that suits the three superior planets is A.D. 59, but the position of Venus is quite wrong for that year<sup>72</sup>”

We show in Figure 2.12 the Morozov’s computations for the Athribis zodiacs.

**The Dating of the Horoscopes**  
By E. B. Knobel.

**Second Horoscope.**

	Geocentric Longitude.	Epoch, A. D. 52.
Sun in Taurus . . . . .	31° — 60°	May
Moon in Gemini . . . . .	61° — 90°	May 20 (New Moon, May 17)
Mercury in forepart of Taurus.	31° — 45°	?
Venus in hindpart of Taurus.	45° — 60°	25° Longitude greater than Sun
Mars in Cancer . . . . .	91° — 120°	92°
Jupiter between Capricornus and Aquarius . . . . .	300°	306°
Saturn in Pisces . . . . .	331° — 360°	358°

The year A. D. 52, May 20, suits well for Moon, Venus, Mars, Jupiter and Saturne:

**First Horoscope.**

	Geocentric Longitude.	Epoch, A. D. 59.
Sun between Capricornus and Aquarius . . . . .	300°	January 20
Moon in Sagittarius . . . . .	241° — 270°	About Last Quarter, January 25
Mercury in forepart of Capricornus . . . . .	271° — 285°	?
Venus in Pisces . . . . .	331° — 360°	250°
Mars in Aquarius . . . . .	301° — 330°	327°
Jupiter in Leo . . . . .	121° — 150°	148°
Saturn in Gemini . . . . .	61° — 90°	58°

Figure 2.11: *Dating of the Athribis zodiac by E.B. Knobel*

Let us quote what Morozov writes about this issue:

“In order ... to look for a better solution, I’ve instructed my former assistant from the Astronomical Department of the Lesgaft Institute for Natural Sciences<sup>73</sup>, late M.A. Vil’ev, to conduct a special investigation of this ancient artifact. He carried complete computations over the interval from 500 B.C. to 600 A.D. ... It turned out that Vil’ev had not obtained any satisfactory result<sup>74</sup>.”

As Morozov was unable to obtain a satisfactory solution, he was forced to revise and modify his decoding of the horoscopes from the Athribis zodiacs. Namely, he interchanged Jupiter and Saturn. With this new decoding he was able to find the following solution:

The Upper Athribis zodiac: **May 6, 1049 A.D.**  
The Lower Athribis zodiac: **February 9, 1065 A.D.**  
(N.A. Morozov<sup>75</sup>)

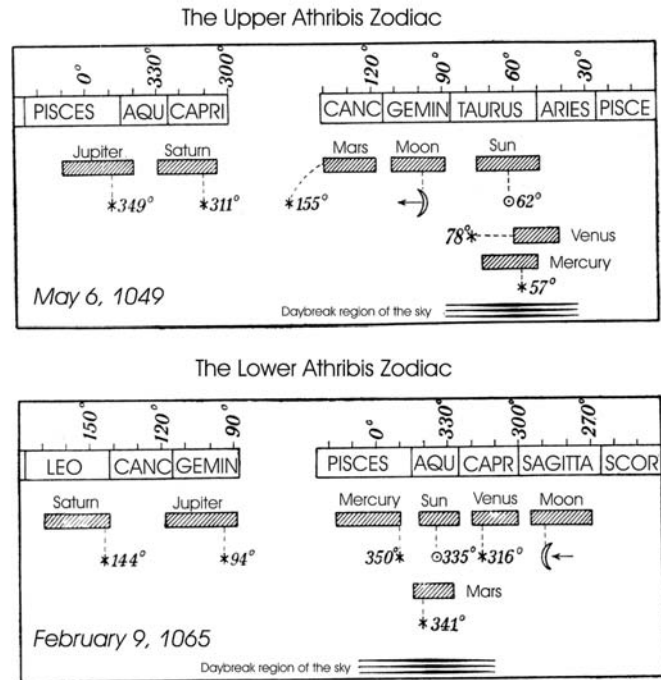


Figure 2.12: *Dating of the Athribis zodiac by N.A. Morozov<sup>76</sup>*

However, as it is clear from Figure 2.11, the Morozov solution wasn’t perfect. For example, he was forced to assume that only the lower zodiac was based on observations while the upper one was calculated with high inaccuracy. It was his explanation for the fact that Mars on the upper zodiac wasn’t located in the place specified on the zodiac (see Figure 2.12). Moreover, the order of the planets in the Morozov’s solution is different from the order on the zodiacs. For instance, the order of the planets in the surroundings of the Sun on the lower zodiac, according to the Morozov’s decoding, is as follows: Mercury, Venus, Sun and Mars (see Figure 1.19). However, in the Morozov solution the order is: Mercury, Mars, Sun and Venus (see Figure 2.12), so it is inappropriate to consider the Morozov’s solution for the lower zodiac as perfect. In fact this solution has several flaws, the most important of which we will discuss below. N.A. Morozov commented his modified decoding as follows:

“First of all, a question arises if the interpretation, by the British Egyptologist School of the bird with snakelike tail as Jupiter and the bird with bull-head as Saturn is correct? Flinders Petrie in his book didn’t say even one

<sup>72</sup>See [115] or [4], Vol. 6, p. 732.

<sup>73</sup>N.A. Morozov was a director of this Institute.

<sup>74</sup>See [4], Vol. 6, pp. 731-733

<sup>75</sup>See [4], Vol.6, p. 746.

<sup>76</sup>Translated from [4], Vol.6, p.746, Fig. 150.














<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"> <span style="font-size: 24px; font-weight: bold;">AV</span> </div>		THE UPPER ATHRIBIS ZODIAC					Morozov's Knobel's
		 <span style="color: green; font-weight: bold;">Sun</span> <span style="color: brown; font-weight: bold;">Sun</span>	 <span style="color: green; font-weight: bold;">Moon</span> <span style="color: brown; font-weight: bold;">Moon</span>	 <span style="color: green; font-weight: bold;">Saturn</span> <span style="color: brown; font-weight: bold;">Jupiter</span>	 <span style="color: green; font-weight: bold;">Jupiter</span> <span style="color: brown; font-weight: bold;">Saturn</span>	 <span style="color: green; font-weight: bold;">Mars</span> <span style="color: brown; font-weight: bold;">Mars</span>	 <span style="color: green; font-weight: bold;">Venus</span> <span style="color: brown; font-weight: bold;">Mercury</span>
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"> <span style="font-size: 24px; font-weight: bold;">AN</span> </div>	 <span style="color: green; font-weight: bold;">Sun</span> <span style="color: brown; font-weight: bold;">Sun</span>	 <span style="color: green; font-weight: bold;">Moon</span> <span style="color: brown; font-weight: bold;">Moon</span>	 <span style="color: green; font-weight: bold;">Mars</span> <span style="color: brown; font-weight: bold;">Mercury</span>	 <span style="color: green; font-weight: bold;">Jupiter</span> <span style="color: brown; font-weight: bold;">Saturn</span>	 <span style="color: green; font-weight: bold;">Venus</span> <span style="color: brown; font-weight: bold;">Mars</span>	 <span style="color: green; font-weight: bold;">Saturn</span> <span style="color: brown; font-weight: bold;">Jupiter</span>	 <span style="color: green; font-weight: bold;">Mercury</span> <span style="color: brown; font-weight: bold;">Venus</span>
		THE LOWER ATHRIBIS ZODIAC					Morozov's Knobel's

Figure 2.13:  
*Planetary Symbols of the Athribis zodiacs and  
their identification by Morozov and Knobel*

word why it is so<sup>77</sup>.”

After that, Morozov proposes to exchange the places of Jupiter and Saturn. He explains:

*“Jupiter, as it is well known, was turning himself into a bull, but not Saturn. Saturn was considered as an ominous planet ... so the snakelike tail agrees well with his nature but not with the blissful nature of Jupiter<sup>78</sup>.”*

It is hard to accept these arguments of N.A. Morozov as conclusive. We shouldn't forget that he proposed this conjecture only after unsuccessful attempts to date the Athribis zodiacs trusting the previous decoding. Concerning his objection to identify Saturn and the bird with bull-head, as it was suggested by egyptologists, it is possible to support this claim with maybe even more convincing arguments. In fact, on the Denderah zodiacs the symbol of Saturn is often accompanied by a figure of bull. Therefore, the problem of the identification of Saturn and Jupiter on the Athribis zodiacs should be kept open, the more so because even with the new decoding Morozov was unable to find an ideal solution.

But, there is even more. Our analysis of the previous two decodings of the Athribis zodiacs, which were used by Knobel and Morozov, uncovered extremely strong flaw in them. Namely, the same birds on the upper and lower zodiacs were somehow identified with different planets. On Figure 2.13 we show the complete set of planetary symbols on the Athribis zodiacs together with their identifications according to Morozov and egyptologists. On this figure one can notice that the fundamental requirement that the same symbols on the both zodiacs should be associated with the same planets is not fulfilled neither by Knobel's nor by Morozov's decoding. It's clear that by allowing such inconsistent identifications we open a door for various manipulations and practically any kind of dates may result out of it without any real connection to these zodiacs.

Let us explain Figure 2.13. In the top row, there are presented the planetary symbols from the Upper Athribis zodiac and in the bottom row, from the Lower zodiac. All the planets are symbolized by figures of birds with exception of Mercury which is shown in the same way as on the Denderach zodiacs, i.e. as a two-faced male figure with a walking stick. The annotations in green indicate Morozov's and in brown Knobel's decodings. We placed the

<sup>77</sup>See [4], Vol. 6, p. 738.

<sup>78</sup>See [4], Vol. 6, p. 739



similar corresponding on two zodiacs symbols in the same columns. It is easy to see that these sets are matching each other. Notice that, there are two birds with horns on each of the zodiacs, but their horns are of clearly of different shape so it is easy to match them with the corresponding birds on another zodiac. But it is exactly what we would expect, the planetary symbols on two zodiacs that are parts of the same composition should be the same!

The reasons behind the mistakes in Knobel’s and Morozov’s decodings are maybe related to their erroneous assumption that the difference between the dates encoded in the Athribis zodiacs is no more than thirty years. In our analysis of these zodiacs we consider all possible variants of uniform and consistent identification of the planetary symbols with specific planets. Moreover, we also use the additional astronomical information contained in the zodiacs. We postpone a detailed presentation till Chapter 7, but now we would like to announce our final result, which indicate that there is the following unique solution for the Athribis zodiacs on the historical time interval from 500 BC till the present time under the condition that the difference between these two dates is not more than 150 years:

The Upper Athribis zodiac:

**May 15–16, 1230 A.D.**

The Lower Athribis zodiac:

**February 9–10, 1268 A.D.**

## 2.4. Brugsch’s Zodiac

The Thebes zodiac found by H. Brugsch was discussed in detail in [4], Vol. 6, pp. 695-728. A drawing of the complete zodiac is shown on Figure 1.13 and the part containing a horoscope, which was discovered by H. Brugsch and dated by N.A. Morozov, is presented on Figure 2.14. Regarding this zodiac, Morozov wrote:

*“In 1913, N.V. Rumancev, who was still at that time a student at the Philological Institute ... brought to me ... a book by Henri Brugsch: “Recueil de Monuments Egyptiens, dessines sur lieux”, in which among other things was described a coffin in a perfect condition, so good that someone could say it was made not long ago. This coffin ... can be found now in the collection of Monier. Brugsch discovered it, according to his own account, in 1857 but published its description only in 1868.*

*Inside the coffin there was a mummy of the same type as traditional Egyptian mummies ... On the side of its cover,*

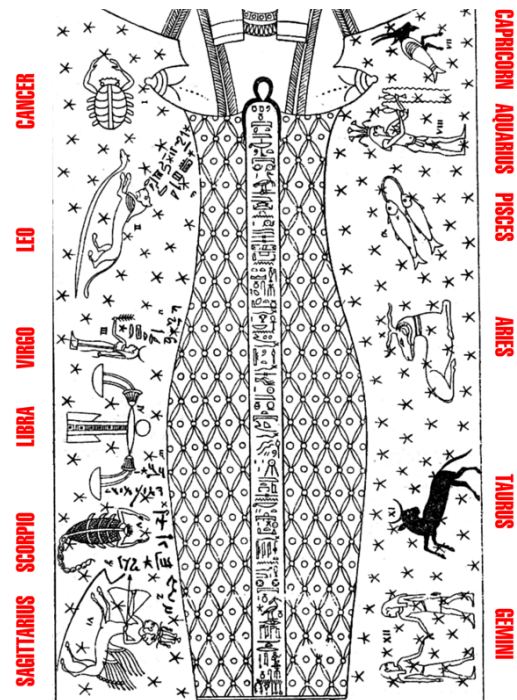


Figure 2.14:

*Fragment of the Brugsch’s zodiac with constellation symbols and names of planets*<sup>79</sup>

*which symbolizes the sky ... there were painted twelve constellations of zodiacs just in the same manner as they are usually shown in astronomical books of the epoch of humanism ... The only important feature here are the Demotic inscriptions written in irregular curved lines on the left side ... among which especially striking are the two lines between Cancer and Leo aiming at the Leo’s head. In the first line it is written “Hor-pe-Seta” and in the other “Hor-pe-Ka”, i.e. the planets Saturn and Jupiter<sup>80</sup>. Since these two lines were placed very close one to another, while in the surrounding there was plenty of free space, it indicates that Jupiter and Saturn were near by. ... Near Virgo there, from the side of Leo, there is Demotic inscription “Hor-Tezer” meaning the planet Mars. Between Scorpio and Sagittarius, bending to head of Sagittarius, is written in Demotic “Pe-Neter-Tau,” which means “lightner of the morning” or Venus .... and finally, between Scorpio and Libra, there is written “Sebek”, which means Mercury<sup>81</sup>.”*

Concerning the positions of the Sun and Moon on the zodiac, Morozov wrote:

*“The figure of Scorpion ... is painted in a way indicating that it is submerged in the sunlight, what takes place in*

<sup>79</sup> Taken from [14].

<sup>80</sup> Morozov took all the translations of the inscriptions on this zodiac from the book [14] of H. Brugsch.

<sup>81</sup> See [4], Vol. 6, pp. 697-698.

November, and the figure of Taurus, which is opposite to Scorpio, is black, what indicates that it could be seen all the night (i.e. it culminated at the midnight). A crescent is shown on the head of Virgo what correspond exactly to the appearance of the Moon when the Sun is in Scorpio<sup>82</sup>.”

In the above passage it is indicated that the Sun on the zodiac is shown in Scorpio and the Moon in Virgo.

“Demotic script was first deciphered by J.D. Akerblad in 1802, twenty years before Jean-François Champollion decoded the hieroglyphic writing. It is considered to be later than hieroglyphs ... Brugsch dated this coffin from the times of the Roman reign in Egypt, i.e. not later than the first century A.D. It is understandable how I was excited to work on dating of such a remarkable artifact .... but I couldn't believe my eyes when I've obtained a shocking result indicating the unique solution on November 17, 1682 A.D.<sup>83</sup>”

However, further in his book, N.A. Morozov admits that there was another perfect solution, which is even better than the first one, because the order of Mercury and the Sun, contrary to the first solution, is exactly the same as on the zodiac. However, the location of Jupiter and Saturn was in the tail of Leo, instead of the Leo's head. This solution was November 18, 1861, but Morozov rejected it as impossible because of the date of the zodiac's discovery.

We've verified all the Morozov's calculations and confirmed their accuracy. There are indeed only two solutions for this Demotic horoscope and they are exactly as it was described by Morozov. Let us point out that the planetary positions inside a particular constellation were never accurately indicated on Egyptian zodiacs, even in such cases when the presentation of a zodiac allowed it in principle (we will illustrate it later in this book). So, there is no foundation to assume that Jupiter and Saturn met exactly at the Leo's head, but we should be satisfied with any close position of these two planets inside the Leo constellation. On the other hand, the order of the planets on Egyptian zodiacs is usually correct. From this point of view the first solution is a little bit worse than the second one. Nevertheless, at first, for the same reasons as Morozov we'd also considered the solution 1861 as impossible. Later, we have discovered on the Brugsch's zodiacs two more complete horoscopes, which contrary to the Demotic horoscope, were integral parts of the original picture. It is quite obvious that the Demotic horoscope was appended to the zodiac later and it wasn't a part of the original design, and previous investigators, including N.A. Morozov, knew about it<sup>84</sup>.

One of these newly found horoscopes is located on the left side of the picture and the another one on the right. We show these horoscopes on Figure 2.15. We will call the horoscope on the right the *horoscope in Boats* because all its planetary symbols are shown standing in boats. On the other hand, the left-hand side horoscope has all its planetary symbols represented by figures without walking sticks, probably in order to avoid confusion with the horoscope in Boats. We will call it the *horoscope without Walking Sticks*.

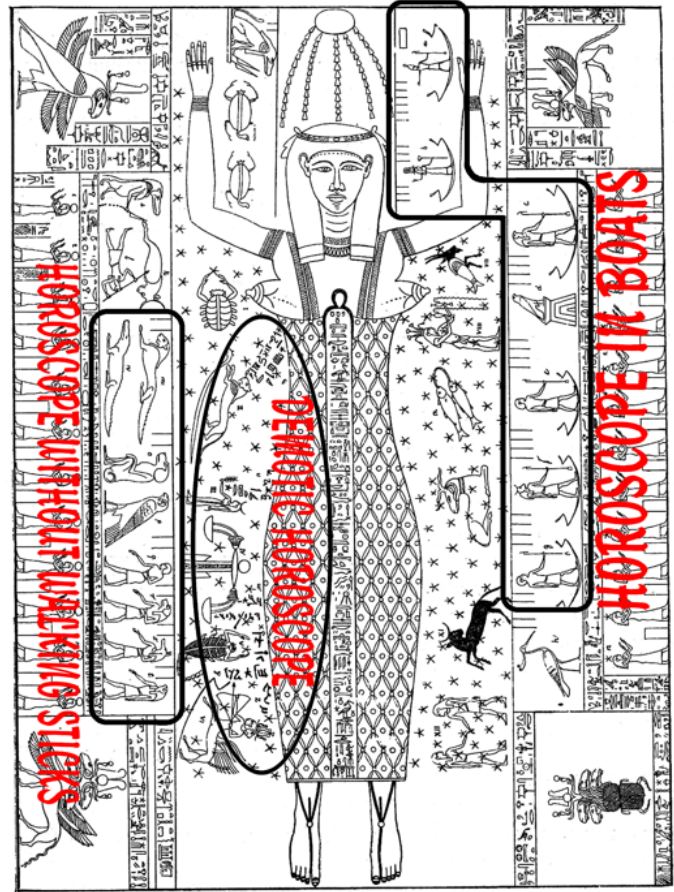


Figure 1.15:  
*The Brugsch's zodiac with the three horoscopes indicated.*

The detailed analysis of the Brugsch's zodiac will be done in Chapter 7. The horoscopes in Boats and without walking sticks have very few solutions in the historical time interval, but there is a pair of reasonable close solutions, which are the years 1841 and 1853. Probably, these two dates indicate the birth and the death of a young person for which this coffin was made. But this would indicate that the date of the Demotic horoscope is also from the nineteenth century (1861), so the second Morozov solution would be right. Maybe our computations can be considered as an evidence that H. Brugsch was fooled

<sup>82</sup>See [4], Vol. 6, pp. 695-696.

<sup>83</sup>See [4], Vol. 6, pp. 697-698, 727.

<sup>84</sup>See [4], Vol. 6, p.797.



by somebody who supplied him this not so old coffin and, as a joke, annotated the zodiac using Demotic script to indicate this strange date 1861. At that time it wasn't a problem to create horoscopes for future dates simply using astronomical books. The story of the Brugsch's zodiac definitely deserves some more investigation.

In conclusion, let us summarize all the results obtained for this zodiac. We begin with the Morozov's solution:

The horoscope in Boats:

**Not investigated**

The horoscope without walking sticks:

**Not investigated**

The Demotic horoscope:

**November 17, 1682 A.D.**

(Solution November 18, 1861 A.D. was rejected)

(N.A. Morozov<sup>84</sup>)

Our solution for the Brugsch's zodiac<sup>86</sup>:

The horoscope in Boats:

**February 15, 1853 A.D.**

The horoscope without walking sticks:

**October 6-7, 1841 A.D.**

The Demotic horoscope:

**November 18, 1861 A.D.**

## 2.5. Astronomical Dating of Zodiacs by Egyptologists

Let us discuss briefly the astronomical dating that can be found in the books written by egyptologists. We are not going to investigate all the details of this approach mainly because their dating is profoundly based on the conventional chronology of Egypt and therefore can be considered independent. As our main goal is to present an unbiased and independent from any pre-assumption approach to the astronomical dating of Egyptian zodiacs, it is not our con-

cern to look for methodological errors in their method. In this section we only would like to illustrate on one example of the Round Denderah zodiac, how egyptologists do it.

In 1970s a French egyptologist Sylvie Cauville published a five volume monograph "*Dendara. Les chapelles osiriennes*"<sup>87</sup> about the reliefs in the Denderah Temple. In another book entitled "*Le zodiaque d'Osisris*"<sup>88</sup>, which was based on the monograph, Cauville completely devoted to the Round Denderah zodiac. In the chapter entitled "*Dating of the zodiac*" she presents an attempt to astronomical dating of the Round zodiac. Right in the beginning she refers to the conventional egyptian chronology and states that Ptolemy Auletes – th King of Egypt in the first century B.C., renovated the Denderah Temple for the last time<sup>89</sup>. Even before starting the astronomical analysis, she makes a final claim that the date of the Round zodiac must be between 51 B.C. and 47 B.C.<sup>90</sup> and reduces the role of the astronomical analysis to a secondary verification of the date that seems to be already well-known to the author:

*"Partant de cette donnée assurée, É. Aubourg a cherché si, dans se laps de temps (51-43 av. J.-C.), la place des planètes parmi les constellations du zodiaque était astronomiquement possible"*<sup>91</sup>. Which means: "*Starting from this conclusive data, É. Aubourg was checking if in this period of time (51 B.C. - 43 B.C.) the planetary positions among the constellations on the zodiac were possible.*"

Based on the Aubourg's computations, S. Cauville confirms that the configuration of the planets on the zodiac was indeed possible in the required period of time. However, a little further she provides an explanation that can hardly support such a claim. In fact, already on the next page<sup>92</sup> it becomes clear that the planetary position shown on the Round zodiac according to Cauville's decoding never appeared on the sky in the specified by her time interval. Her solution is simply based on a manipulation with different dates for different planets so the planetary positions can be compared with the zodiac. Moreover, she does it only for two planets: Mars and Mercury. It is absolutely evident that this type of "confirmation" can be applied to any arbitrarily given period of time with the same positive result. More precisely, S. Cauville dates the Mars position on the Round zodiac by June 16, 50 B.C. and Mercury by August 12, 50 B.C.<sup>93</sup>. The difference between these two dates is about two months, what is rel-

<sup>87</sup>See [11].

<sup>88</sup>See [10].

<sup>89</sup>See [10], p. 11.

<sup>90</sup>See [10], p. 11.

<sup>91</sup>See [10], p. 11.

<sup>92</sup>See [10], p. 12.

<sup>93</sup>See [10], p. 12.

<sup>85</sup>See [4], Vol. 6, pp. 694-728.

<sup>86</sup>See details in Chapter 7

atively long time taking into account fast motion of Mars and even faster motion of Mercury, which during this time can travel through two full zodiac constellations. However, Cauville “cleverly” neglects to discuss the positions of all the other planets from the zodiac, which by chance are different for the indicated dates. Let us indicate that the decoding which was used for this dating places Venus and Mercury on the opposite sides of the zodiacs, what is astronomically impossible. In addition, the symbols of the Sun and the Moon are interpreted, for some unknown reason, as the signs of solar and lunar eclipses<sup>94</sup>. Assume for a second that these two symbols indeed were correctly recognized as eclipses and consider their implications on the dating of the zodiac. In her book, she suggested two candidates for the date of the lunar eclipse: April 1, 52 B.C. (maximal phase at 21:21 GTM) and September 25, 52 B.C. (maximal phase 22:56 GTM)<sup>95</sup>. But, these two elipses are not full and in fact similar eclipses are quite common and happen almost every year, so it is not surprising that S. Cauville found not only one but two such eclipses. Notice, that there is no connection between the dates for Mars and Mercury and for the lunar eclipses. Regarding the solar eclipse, she found the eclipse on March 7, 50 B.C. at 11:10 GTM, which was supposed to be almost full in Denderah. With the help of the astronomical software *Turbo Sky* we found that this eclipse in the Nile region was only partial and didn’t cause significant darkening of the sky. The trace of the maximal phase of this eclipse was 100 km to the West from Nile and therefore from Denderah. Again, there is no connection with the dates of lunar eclipses. The few year proximity of all the suggested dates can not be considered as any kind of a proof for any approximate date. Taking into account that the both eclipses were not full, the found cluster of dates is not an exceptional astronomical event. In fact it is possible to find such a cluster in any arbitrary epoch. But we should not forget that there was no foundation for interpretation of any symbol on the Round zodiac as an eclipse sign.

It is not possible to discuss all the mistakes and flaws related to the astronomical analysis of the Round zodiac contained in [10]. For example, the same symbols are sometimes considered as planets and another time as non-zodiac constellations<sup>96</sup>. The Brugsch’s mistaken identification of Venus on the Round zodiac, which was discovered and corrected by N.A. Morozov<sup>97</sup> is repeated again.

There can be only one occlusion, that the whole analysis presented in this book confirms again, that in the pre-assumed by egyptologists time interval there is no solution

for the Round zodiac. We refer all the interested readers to the books [10] and [11] for more information on this subject.



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<sup>94</sup> See [10], pp. 19-22.

<sup>95</sup> See [10], p. 20.

<sup>96</sup> See [10], p. 9.

<sup>97</sup> See [4], Vol. 6, pp. 652-653.



# Chapter 3

## 3.1. New Approach to Decoding of Egyptian Zodiacs

In this section we will describe in general terms our approach to the decoding and dating of Egyptian zodiacs. Before undertaking the task of dating any particular zodiac, first we analyzed ancient Egyptian zodiacs with the purpose of comparing their symbols. Let us emphasize that this analysis was based not only on one, two or even few similar zodiacs, but we considered the collection of all accessible to us Egyptian zodiacs. It turned out, and it was not at all evident, that the astronomical symbolism on all these zodiacs was practically the same. This observation was crucial for a better and deeper understanding of the symbolic language of Egyptian zodiacs. Recall that all the previous researchers attempted the analysis of particular zodiacs without a systematic comparative analysis of their symbols on all zodiacs.

Let us be more specific. **Is it possible to decode the symbols on Egyptian zodiacs in such a way that the same symbols would have the same meaning on all the zodiacs?** Of course we have to require that the obtained in this way astronomical pictures were meaningful in all cases and their solutions belong to a historical time interval. From the statistical point of view, the last requirement, if it is satisfied, would give us a high confidence that the obtained results are not products of pure chance but reflect the real contents of the Egyptian zodiacs. **Yes, it is possible** and we will provide the reader with sufficient proofs! What is the most significant, practically all the obtained dates appear to be **unique** in the historical interval and indicate a single historical epoch starting in twelve century A.D. Let us underline that the existence of a uniform symbolic language on Egyptian zodiacs is not clear at all, and in principle, it could be that the Egyptian artists used astronomical symbols in somehow chaotic manner. For example, the symbols on different zodiacs could have different astronomical meaning. However, if it was the case, we'd couldn't achieve such uniform and meaningful result as we indeed got. With the wrong general approach it would obtain in some cases that our decoded planetary position were either astronomically impossible or produced some chaotic dates.

With the results in our hands, it is impossible to agree with the popular among egyptologists opinion that Egyptian zodiacs are mostly a product of fantasy of ancient Egyptian artists and that their astronomical content is completely secondary. In what follows we'll show that the astronomical contents of the Egyptian zodiacs is sur-

prisingly reach and astronomically precise what couldn't emerge from a pure imagination only.

It turns out that behind the usage of astronomical symbols on Egyptian zodiacs there are definite and systematic rules. For example, the same astronomical symbols or their combinations, in a similar context, always have the same meaning. However, identical astronomical notions could be represented in different ways, exactly as in the hieroglyphic writing.

## 3.2. Equinox and Solstice Points on Egyptian Zodiacs

In this section we will discuss briefly the background behind our new unified interpretation of the symbols of Egyptian zodiacs, which were not given precise astronomical by previous researchers and, consequently, were not considered in the astronomical dating.

Let us notice that on many Egyptian zodiacs one can find the same or similar symbols. Sometimes, these symbols are almost identical or just slightly modified. Moreover, there are repetitions not only of individual symbols but even of larger groups. An attentive observer will notice that many of such groups or single symbols always appear at the same positions on the ecliptic, i.e. near the same zodiac constellations. Clearly, these symbols can not be associated with planets, which constantly change their positions on the ecliptic moving from one zodiac constellation to another. Therefore, it becomes evident that these symbols represent something different from planets but, as their positions are fixed on the ecliptic, it is undisputable that they have some astronomical meaning as well. This observation leads us to an important conclusions which will allow us to decipher more completely the symbolic language of the Egyptian zodiacs including the planetary symbols.

Let us give an example. We consider the following group of symbols:

- (1) A pillar, sometimes with a bird on the top of it or in between two bending poles (see Figures 3.1, 3.2 and 3.3);
- (2) A man with a raised hand (see Figures 3.4 and 3.5). If in another hand he holds a walking stick, which is a planetary symbol, than necessarily he is shown standing on a boat.
- (3) A laying bull, sometimes with a women standing behind and shooting an arrow over the bull (see Figure 3.1, 3.2, 3.4 and 3.5). On some zodiacs, the figures of the bull and woman are shown on the same or sep-

arate boats. On the Round zodiac only the bull is laying on the boat.

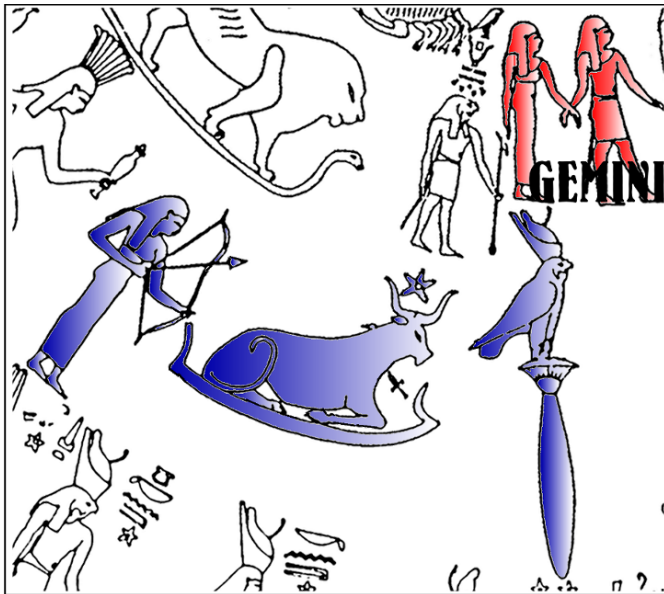


Figure 3.1:  
*Fragment of the Round Denderah Zodiac.*  
 Marked in blue: “Laying Bull”,  
 “Woman shootnig an Arrow” and “Pillar”

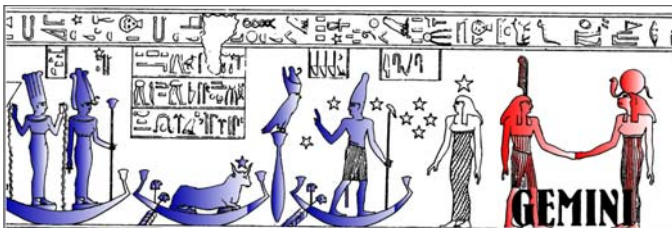


Figure 3.2:  
*Fragment of the Long Denderah Zodiac.*  
 Marked in blue: “Man with Raised Hand”,  
 “Laying Bull” and “Pillar”



Figure 3.3:  
*Fragment of the Big Esna Zodiac.*  
 Marked in blue: “Pillar” with two bended ppls



Figure 3.4:  
*Fragment of the Athribis Zodiac.*  
 Marked in blue: “Man with Raised Hand”  
 and “Laying Bull”.

Notice on Figure 3.4, that the imaginary line on which the “Man with the Raised Hand” is standing passes exactly throught the Gemini sign and we can think about it as indication that he stands in Gemini.

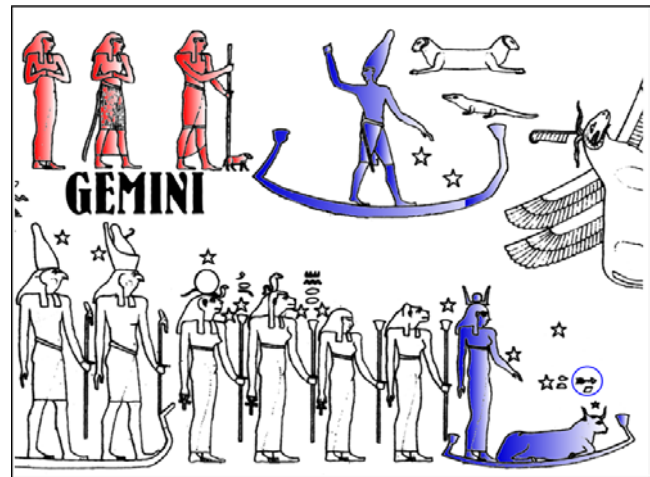


Figure 3.5:  
*Fragment of the Small Esa Zodiac.*  
 Marked in blue: “Man with Raised Hand”,  
 “Laying Bull”, “Woman” and “Arroaw”.

Notice on Figure 3.5, that the Arrow is “moving” about the head of the Laying Bull and it seems that it comes from the Woman standing behind the Bull. This group shows lots of similarities with the Round zodiac (see Figure 3.1).

We would like to point out that the listed above symbols are located on Egyptian zodiacs only in close proximity to Gemeni, and never appear in other parts of these zodiacs. Clearly, there is some reason that connets this group with



Gemini or something inside it. A natural question arises what makes Gemini so special among other constellations that these group of symbols is always surrounding it? Let us try to look for some indication that may be related to the role of these symbols. First of all, the character of these symbols (bird sitting on a top of a pillar, man with rised hand pinting up, or a pillar pointing up with two bended pillars on its sides) may indicate an idea of something “high”, for example the highest point being a form of a local maximum of something. But this is already a good lead to explain why these symbols always appear near Gemini. The summer solstice, the northernmost point reached by the Sun (i.e. which is the highest point for an observer in the Northern Hemisphere) in its annual apparent journey among the stars, lies in Gemini. The term solstice also is used in reference to either of the two points of greatest deviation of the ecliptic (the sun’s apparent annual path) from the celestial equator. In fact the summer solstice point is one of the four important astronomical points on the zodiac belt, namely there are the summer and winter solstices and the spring and autumn equinoxes. These points divide the ecliptic in four almost equal parts. We will show that all these four points on Egyptian zodiacs were emphasized by special symbolizm.

Nowadays, the summer solstice takes place on June 21-22, according to the modern (Gregorian) calendar. On this day the Sun is located in Gemini very close to the border with Taurus. However, this was not always the case. It is well known astronomical fact that the point the summer solstice, as well as all three other equinox and solstice points, slowlyly changes its position with respect to stars. During 72 years it moves about  $1^\circ$  in the direction opposite to the sun’s movment on the ecliptic, so it makes a revolution of  $30^\circ$  in about 2000 years. In particular, that means that during the last 2000 years the Sun at the summer solstice was always located in Gemini. In the beginning of our era it was located near to the border

with Cancer and presently it moved to the other side of Gemini, near the border with Taurus. We illustrate the solstice and equinox points motion on Figure 3.6.

Let us remark, that during the last 2000 years, the summer solstice was always in June, the autumn equinox was always in September, the winter solstice in December and the spring equinox in March according to Julian calendar. In Julian calendar the equinox and solstice dates are moving approximately one day per 128 years. But now we use Gregorian calendar, created in 1582, in which the equinox and solstice dates were made invariable calendar dates. However, it was done at the price that one average Gregorian year is too short for the Sun to complete a full revolution around ecliptic.

From the astronomical point of view there are two natural choices for the lenght of a year. The first is the time of the full Earth revolution around the Sun, which is sometimes called *sidereal year* (365 days 6 hours 9 minutes 10 seconds). Another one is the time period between two consequent spring equinoxes, which is called *tropical year* (365 days 5 hours 48 minutes 46 seconds). The average length of a year in Julian calendar is 365 days and 6 hours, which is approximately the average of these two lengths, while in Gregorian calendar it is almost the same as the lenght of tropical year. Consequently, the difference between the sidereal and Gregorian years is twice larger than the difference between the siderial and Julian years. In order to avoid complications resulting from the change of calendars that took place in 1582, Julian calendar is still used for astronomical calculations. In fact it has other advantages for astronomy, for example a century in Julian calendar is composed of 36525 days, while in Gregorian calendar this number is 36524.2199, which is not an integer.

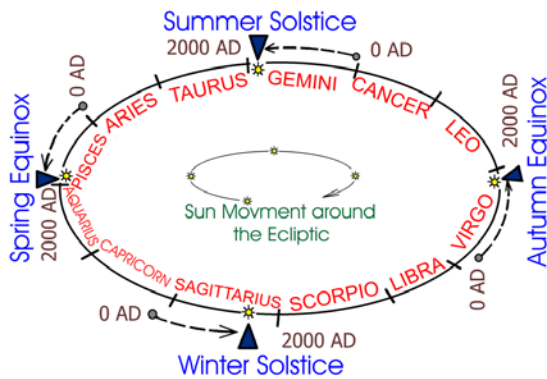


Figure 3.6

Movement of the solstice and equinox points during the last 2000 years.

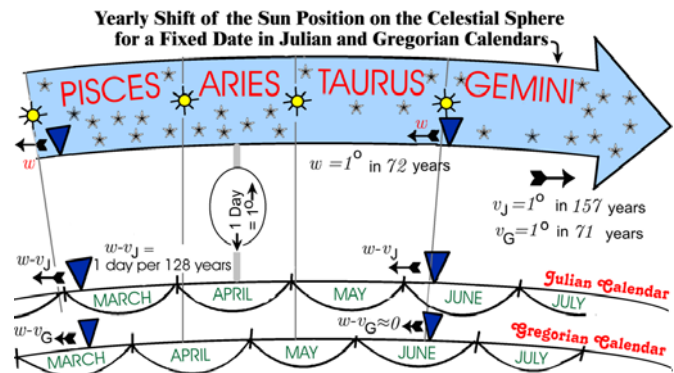


Figure 3.7

Movement of the Sun position on the celestial sphere and the equinox and solstice dates in Julian and Gregorian calendars.

We should remember that as the Gregorian calendar is used only for the dates after 1582, we will need very often

to refer to Julian calendar. On Figure 3.7, we illustrate the astronomical implications resulting from the use of Julian and Gregorian calendars.

There is another example we would like to discuss. On the Big Esna zodiac EB one can distinguish two practically the same symbols of “meeting and handshaking” (see Figure 3.8). In order to identify what kind of a “meeting” it is, we look at their position on the ecliptic shown on the zodiac. We notice that one of these symbols is located between Virgo and Leo, while the another one between Pisces and Aquarius. These are exactly the opposite points on the ecliptic corresponding to the two equinox points: the spring and autumn equinoxes. There is no need for much imagination in order to realize that the meeting taking place at these two points is between the night and the day, which have the same length exactly twice per year on these dates. Consequently, we can guess that on Egyptian zodiacs the equinox points were marked by some special symbols. Of course, in order to support this claim we need to analyze other Egyptian zodiacs as well, what is one of our goals in next chapter.

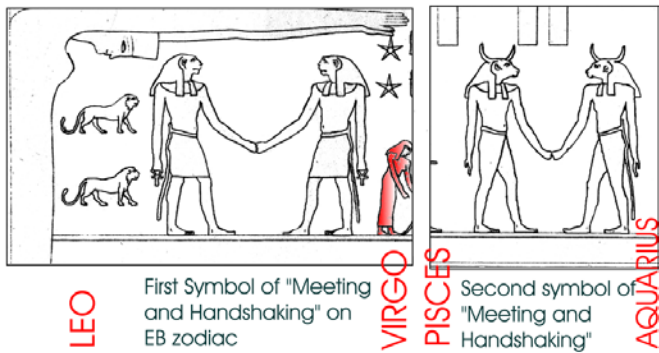


Figure 3.8

*Two symbols of “meeting and handshaking” on the Big Esna Zodiac placed at the equinox points.*

Let us present one more example where the winter solstice is clearly indicated. The winter solstice is the day when the rise of the Sun above the horizon is the lowest in the Northern hemisphere. During the last 2000 years the winter solstice was in Sagittarius (see Figure 3.6). If we look at the sign of Sagittarius on the Big Esna zodiac, we find out that it is the only constellation figure which is placed upside-down, what can be read as an indication of the lowest Sun position. This is not the case with other Egyptian zodiacs, but there are always some special symbols accompanying Sagittarius on these zodiacs (see Figure 3.9).

We have studied from this point of view all the accessible to us Egyptian zodiacs and concluded that practically on all Egyptian zodiacs the four tropical points (i.e. the solstice and equinox points) are always marked by addi-

tional symbols located in proximity of the following constellations:

- Pisces — which, since the second century A.D., contains the spring equinox point;
- Gemini — which, from the beginning of our era, contains the summer solstice point;
- Virgo — which, since first centuries B.C., contains the autumn equinox point;
- Sagittarius — which, from beginning of our era, contains the winter solstice point.



Figure 3.9

*The upside-down Sagittarius indicates the winter solstice on the Big Esna Zodiac.*

We should stress out that in the beginning of our era when, according to the conventional chronology, the ancient Egyptian zodiacs were created, the spring equinox was not yet located in the Pisces constellation in which it is shown on these zodiacs. It entered Pisces only in the second century A.D., which already contradicts the conventional chronology version of the Egyptian history!

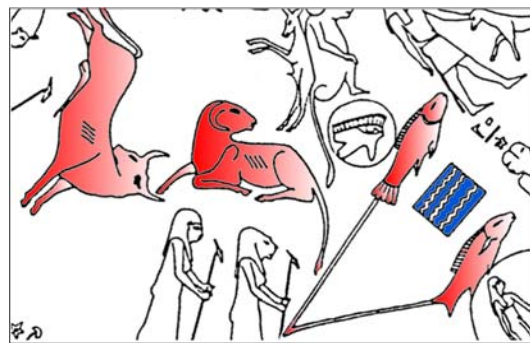


Figure 3.10

*The sign of the spring equinox (marked in blue) on the Round Denderah zodiac.*



This contradiction was already pointed out by Morozov<sup>98</sup> who recognized on the Denderah zodiacs some of the symbols of the spring and autumn equinoxes (see Figure 3.10). The signs of the equinoxes on the Denderah zodiacs are rectangular palettes with wavy lines inside. One can easily recognize on Figure 3.10 that this sign is located exactly in Pisces and not in Aries, where it should be placed if the zodiac was made in the first century B.C. or A.D.

From the astronomical dating point of view, it is important to notice that often the symbols of these four points were accompanying by some planetary signs. These signs appear to represent the planets which on this particular day of the equinox or solstice were close to the Sun. Remember, Mercury and Venus are always close to the Sun, but occasionally some other planets could also appear closely to the Sun on these four special days of the year. In this way, the configuration of the planets shown at such a point becomes a meaningful partial horoscope involving few planets, and consequently provides important additional information for dating. It is clear that more information we have there are better chances to obtain fewer admissible dates and if the amount of the available information is sufficiently large then such a dating may lead to a unique and reliable answer. A planet which is can give particularly valuable information is Mars. Contrary to the planets Jupiter and Saturn which move relatively slowly and during the whole year their positions do not change much, Mars is moving comparatively fast and its location on main horoscope can be very different from its location during on the solstice and equinox days. It makes Mars very a important planet with significant impact on the astronomical dating.

One can ask how it was possible for the Egyptian astronomers and artists to avoid confusion between the planetary symbols of the main horoscope, that means the horoscope encoding the date for which the whole zodiac was created, and partial horoscopes associated with the solstice and equinox points. In this book we will provide the answer supported by many examples. In fact, the zodiacs were indeed designed very carefully to separate the symbols from the main horoscope from partial horoscopes. Of course one can wonder why all these facts about partial horoscopes on Egyptian zodiacs were not discovered earlier. For example, why even N.A. Morozov with his deep expertise in the ancient astronomy was not able to recognize their existence. There is more here than just having an idea. In fact all possible ideas and variants should be verified based on the whole information available and only after conducting elaborated computations a choice can be made. Without massive astronomical calculations it is almost impossible, just by looking at the zodiac, to

understand their underlying structure. Only since recent years we enjoy a wildspread availability of computational technology that make these task possible. In Morozov's time, the amount of computations needed even just for one decoding variant for a zodiac required several months of hard work. We must acknowledge that N.A. Morozov was aware of some elements of partial horoscopes but he didn't give them a serious consideration, so the whole picture of a zodiac structure remained concealed for him<sup>99</sup>.

### 3.3. Egyptian Zodiacs as Astronomical Pictures of the Whole Year Containing the Main Date

As it was explained in the beginning, an Egyptian zodiacs is a recording of a particular date, which we call the *main date* of the zodiac. Based on our research we claim that an Egyptian zodiacs is in general an astronomical description of the whole calendar year during which the main date occurred. While the *main horoscope* encodes the main date, the *partial horoscopes* describe the four solstice and equinox days during that year. Sometimes, other symbolic scenes of particular astronomical meanings, are also included in a zodiac, but they always refer to the same year. The structure of Egyptian zodiacs is illustrated on Figure 3.6, where one axis shows the time during one calendar year measured in months and another axis corresponds to the ecliptic divided into twelve zodiac constellations. The month September is considered here as the first month of the year, like it is indicated on most of Egyptian zodiacs. The curves show the planetary positions on the ecliptic through the year. For example, in order to find the position of Mars in December, we look where on the trajectory of Mars is the point corresponding to December and find out that the same point corresponds to Scorpio on the another axis. That means Mars in December of that year was in Scorpio. The trajectory of the Sun is marked by a yellow straight line placed across the picture. Of course, for different years the trajectories of the planets (except Sun) are different. As the motion of the Moon is very fast, for the reason of simplicity, we did not include it in this diagram. Suppose that we would like to create an Egyptian horoscope for February 10th for that year. This will be our main date which we marked by yellow triangle. The planetary positions on the main date are indicated on a gray pole (with a question mark on its top). Notice that the same positions are shown on the main horoscope which is located at the very top of the picture. As we already mentioned, the Egyptian astronomers and artists,

<sup>98</sup>See [4], p. 658.

<sup>99</sup>See [116], for more details

# EGYPTIAN ZODIAC

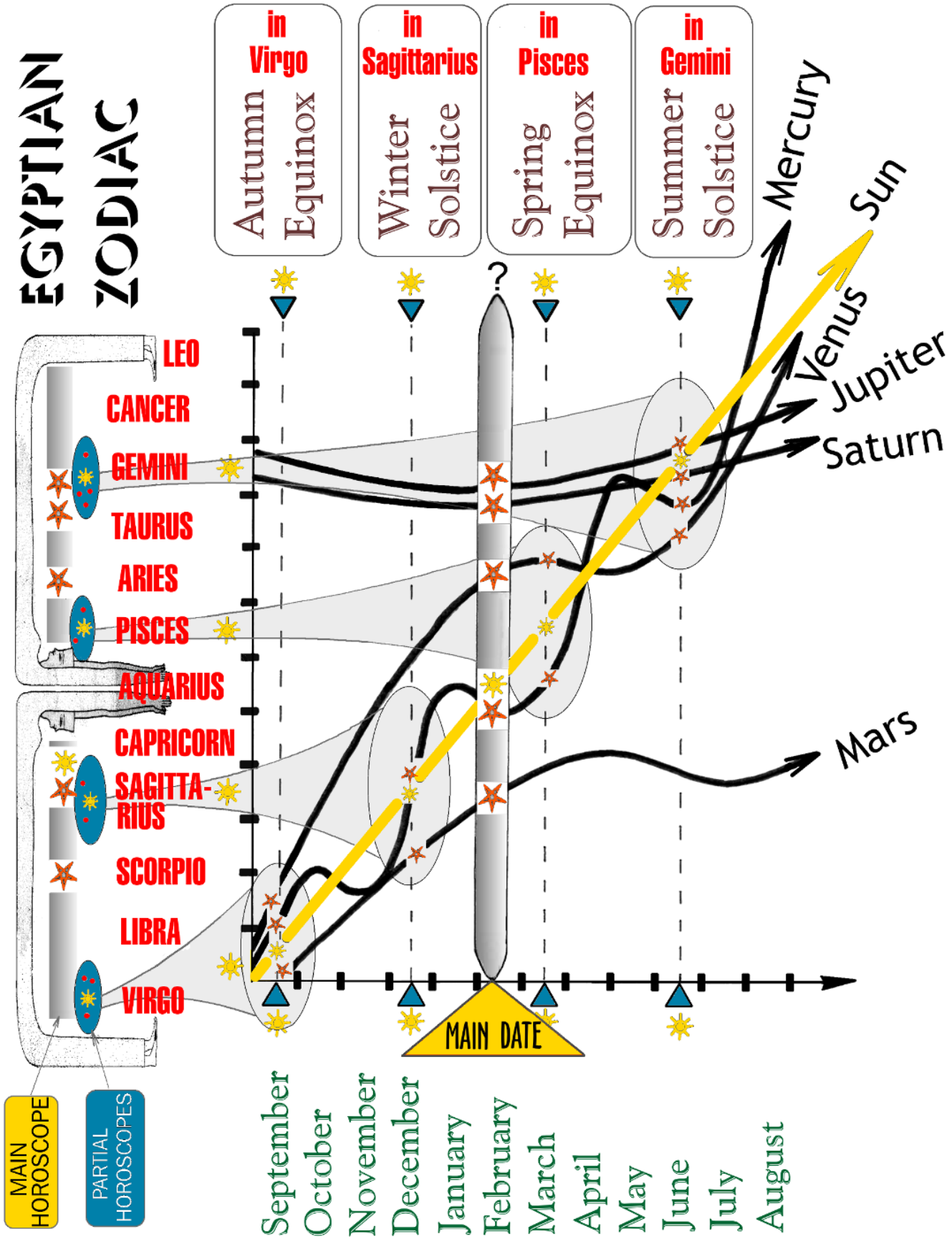


Figure 3.11  
Principal structure of an Egyptian zodiac



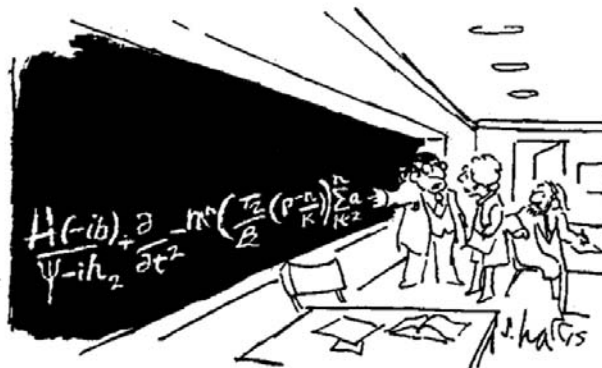
when making a zodiac, didn't limit themselves to the main horoscope only. They also supplied additional information beside the main horoscope which was related to the planetary positions near the Sun on the four equinox and solstice points. We encircled the vicinity of the Sun on these four dates and the planets included inside these ovals make up the four partial horoscopes for that year, which are symbolized by blue ovals under the main horoscope. We should point out that this is only a schematic picture illustrating the main features of an Egyptian zodiac. In real zodiacs the main and partial horoscopes usually share the same space. As our purpose is to find the main date of an Egyptian horoscope, we placed a question mark above the pole indicating the main horoscope.

### 3.4. Dating of Egyptian Zodiacs with Equal Treatment of all Admissible Decodings

With discovery of partial horoscopes the dating of Egyptian zodiacs took a new dimension. The amount of the astronomical information now available is sufficient not only to find a unique date for a zodiac, but in fact to verify the correctness of the used decoding. In earlier attempts, based on the preliminary analysis a decoding was chosen and only then used for the calculation of the dates. Now, we do not select the "best" decodings but instead, we calculate the dates for all admissible decodings, and next compared them with the additional information. In this way, the correctness of a decoding is a result of calculations. This method became possible due to the fact that there is now enough of astronomical information to exclude, for most of zodiacs, random dates resulting from incorrect decodings. It is statistically impossible to have a date in the historical time interval, which corresponds to incorrect decoding and in the same time satisfies all the conditions uncovered from the zodiac. Let us point out that for the success of this method of dating it is not really necessary for an Egyptian zodiac to contain all the four partial horoscopes, however if there are two or even one partial horoscope available with astronomically significant information, it is already enough to select the right decoding and find the main date uniquely. Of course, in each particular case we must use all the accessible astronomical information in order do assure that the obtained result is correct.

To be more specific, we should clarify that not every decoding is admissible. It is possible to create imaginary decodings, just by arbitrarily assigning astronomical meaning to the symbols of a zodiac, but still the same rules should be applied to all studied zodiacs with no exception. That means that the same type of a symbol in a

similar context, but on different zodiacs, has to have the same meaning. In this way, it is possible to eliminate many unrealistic decodings. By applying the rule that the same symbol on different zodiacs should be treated exactly in the same maner, we are able to significantly reduce the total number of possible variants of admissible decodings for the analyzed zodiacs. Still, in case of many zodiacs there are dozens of variants, which should be analyzed and calculated.



This is the simplified version for the general public ...

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# Chapter 4

## 4.1. Symbols of Constellations on Egyptian Zodiacs

In general, the figures denoting constellations on ancient Egyptian zodiacs are very similar to their medieval European representations, so there is no problem with the recognition of their symbols. Nevertheless, some of the Egyptian symbols of constellations possess unique features which are not present in medieval European manuscripts. These features, which were not recognized by previous researchers, are important for understanding the symbolic language of Egyptian zodiacs. More precisely, certain planetary symbols were sometimes integrated into a constellation symbol, what resulted in appearance of a complex “astronomical hieroglyph.” We will discuss such “astronomical hieroglyphs” later in the section devoted to partial horoscopes. However, this section will be devoted mostly to the symbolism of constellations and we will only briefly examine the planetary aspects of complex symbols.

Below we will analyze the Egyptian symbols of all the twelve zodiac constellations.

### 4.1.1. Aries

On Figure 4.1 we show the figures representing Aries on different Egyptian zodiacs. For comparison, we also include there a picture of Aries supposedly made by A. Dürer<sup>100</sup> in 1515 (see Figure 4.2). It is not hard to see that the symbols of Aries on all the Egyptian zodiacs shown on Figure 4.1 are similar to the Dürer’s drawing from the sixteenth century. We should remember that according to the conventional chronology, there is more than fifteen hundred years of difference between them.

### 4.1.2. Taurus

Next constellation after Aries is Taurus. On Figure 4.3 we show the symbols representing Taurus on the Egyptian zodiacs and compare them with the Dürer’s drawing. Again, there is no problem with recognizing this constellation and there is also a clear resemblance with the Dürer’s drawing. Note that all the symbols have the same type of crescent-like horns. We would like to point out that on Egyptian zodiacs there may be many figures, in particular symbolizing planets, with different shapes of horns. The shape of horns seems to be important in Egyptian astronomical symbolism. For example we will see that Saturn will often have horn like Taurus and Jupiter sometimes will have horns of different type, similar to the horns of Aries.

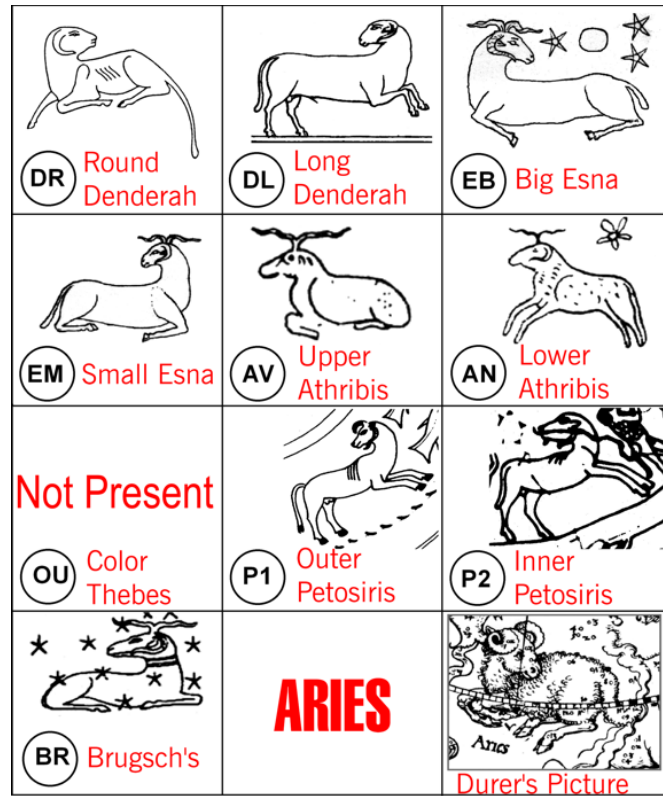


Figure 4.1  
*Representations of Aries on different Egyptian zodiacs and in the European astronomy.*



Figure 4.2  
*The Dürer’s star map of the Northern hemisphere and the Zodiac (color is added).*

<sup>100</sup>See [29], p.8.



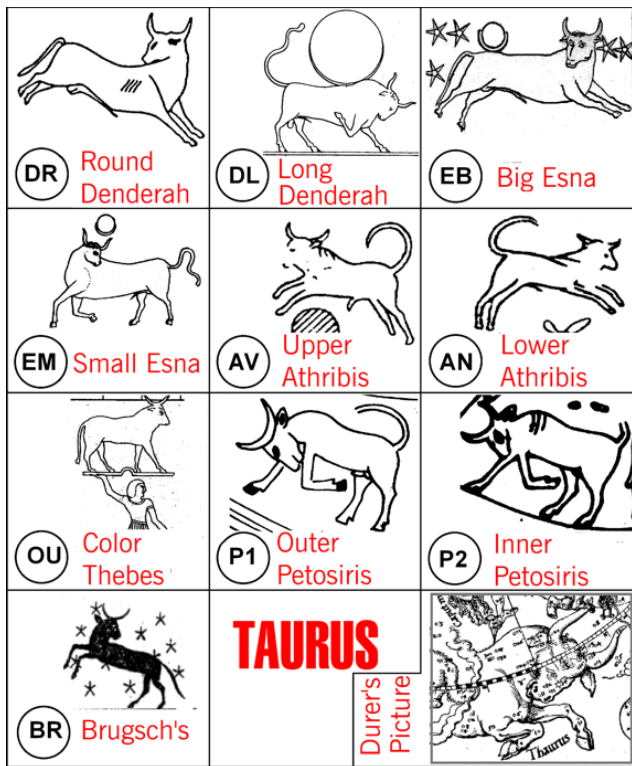


Figure 4.3

*Representations of Taurus on different Egyptian zodiacs and in the European astronomy.*

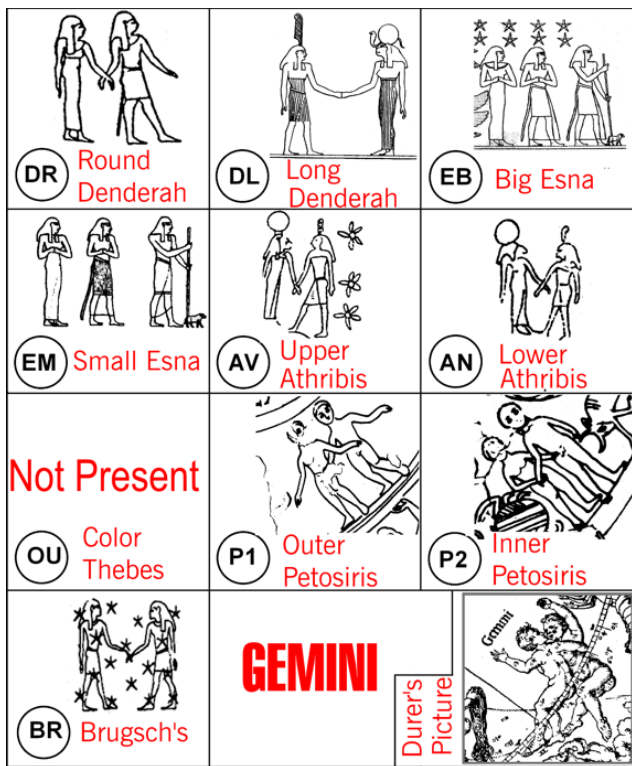


Figure 4.4

*Representations of Gemini on different Egyptian zodiacs and in the European astronomy.*

### 4.1.3. Gemini

The next constellation on the ecliptic is Gemini. On Figure 4.4, we show the representations of Gemini on the zodiacs and compare them again with the picture of A. Dürer. On Figure 4.5, we also show a photograph of the symbol of Gemini supposedly on the Long Denderah zodiac.

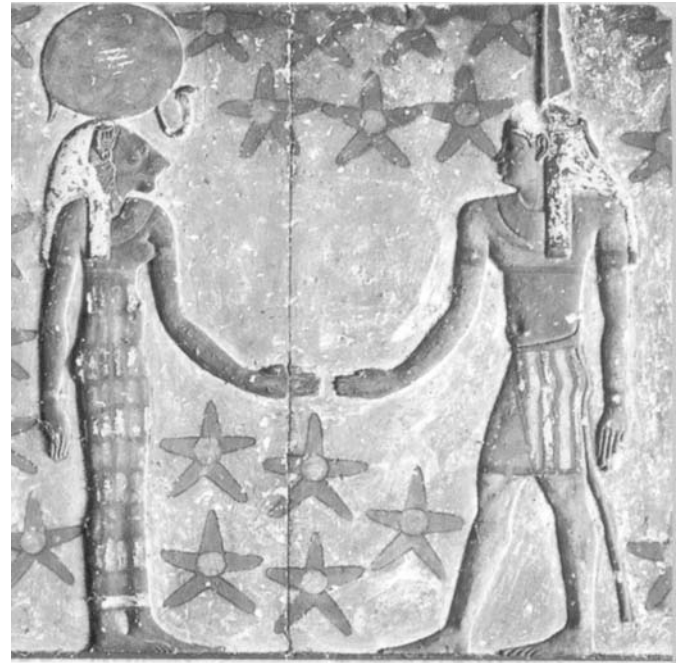


Figure 4.5

*Gemini on the Long Denderah zodiac*<sup>101</sup>

On Dürer's picture Gemini is shown as a couple of children hugging each other and it is similar only to the Gemini symbols on the Petosiris zodiacs. On all other zodiacs it is depicted in different ways. In fact, there are two distinct patterns among these symbols. The first shows Gemini as a couple, a male and female figures holding hands. The female may have a lion's head with a circle on the top of it, while the male figure has a feather on the top of its head (see DL, AV and AN). Another pattern is characterised by three figures, a male and a female figures with hands crossed on the chest, and another male figure in front of them with a long stick (notice that this stick is different from a planetary "walking stick", which always has a handle on its top). We should mention that there is a simple way to distinguish male and female figures on Egyptian zodiacs. It is a step-size which is always small for females and much bigger for males. We will discuss later more details and present a proof for this claim.

<sup>101</sup> Taken from [10]

#### 4.1.4. Cancer

The constellation of Cancer follows Gemini on the ecliptic. On Figure 4.6 we show Cancer on the Egyptian zodiacs and compare it again with the Dürer's picture.



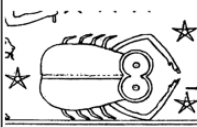






 <b>DR</b> Round Denderah	 <b>DL</b> Long Denderah	 <b>EB</b> Big Esna
 <b>EM</b> Small Esna	 <b>AV</b> Upper Athribis	 <b>AN</b> Lower Athribis
<b>Not Present</b> <b>OU</b> Color Thebes	<b>Destroyed</b> <b>P1</b> Outer Petosiris	 <b>P2</b> Inner Petosiris
 <b>BR</b> Brugsch's	<b>CANCER</b>	 <b>Durer's Picture</b>

Figure 4.6

*Representations of Cancer on different Egyptian zodiacs and in the European astronomy.*

Let us notice that the position of Cancer on the Round Denderah zodiac is taken out of the line of other constellations, so it sticks out of the “zodiac circle” (see Figures 4.7 and 4.8).

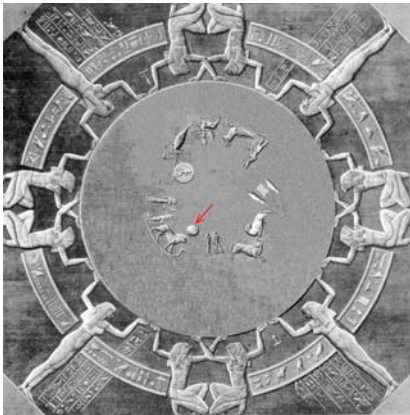


Figure 4.7

*Position of Cancer on the Round Denderah zodiac. All non-constellation symbols inside the zodiac are removed for better clarity*

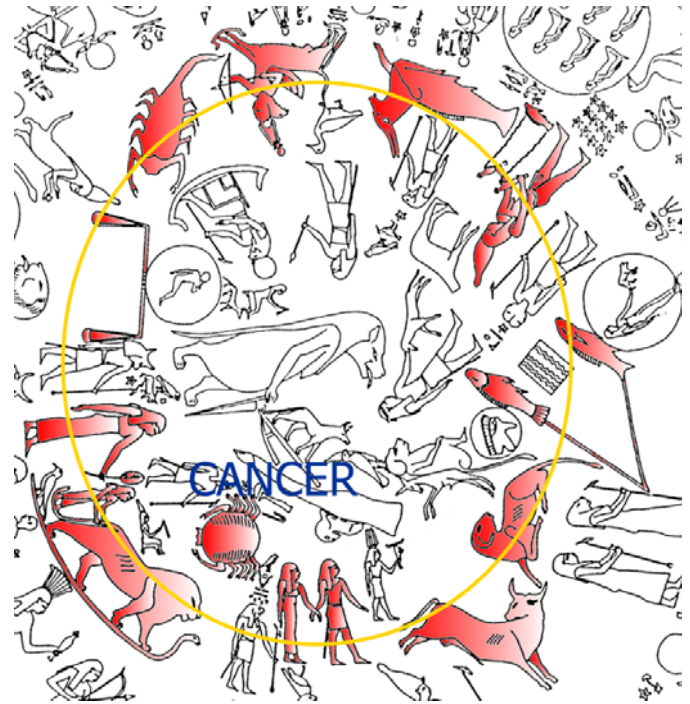


Figure 4.8

*Position of Cancer on the Round Denderah zodiac*

At the first glance one can think that the Egyptian artist didn't plan well the arrangement of the constellations, so there was not enough space left for the symbol of Cancer, and he simply moved Cancer aside. For example, N.A. Morozov and other investigators of Egyptian zodiacs believed in such explanation of this displacement of Cancer. By admitting such a speculation we also have to acknowledge that the astronomical accuracy of an Egyptian zodiac could be distorted in the process of designing it by an artist. But, we claim that this is not the case. For example, if we look at the position of Cancer on the Long Denderah zodiac, then it is also displaced but here it is clear that it was done intentionally (see Figure 4.9). In this book we assume that all the astronomical contents of Egyptian zodiacs is accurate and we will look for exact solutions. That means we will not excuse ourselves to accept any flaw resulting from non-astronomical justification. This strict approach is also supported by the fact that we have obtained the exact and unique solutions to all studied Egyptian zodiacs.

#### 4.1.5. Leo

The constellation of Cancer is followed by Leo. We again show on Figure 4.10 how this constellation is represented on the Egyptian zodiacs and compare it with the Dürer drawing. It is clear that Leo can be easily distinguished on all the Egyptian zodiacs. However, we would like to point out two important features present in Leo's portrayal of different zodiacs. On several zodiacs, there is a female figure usually standing on its tail or sometimes holding it



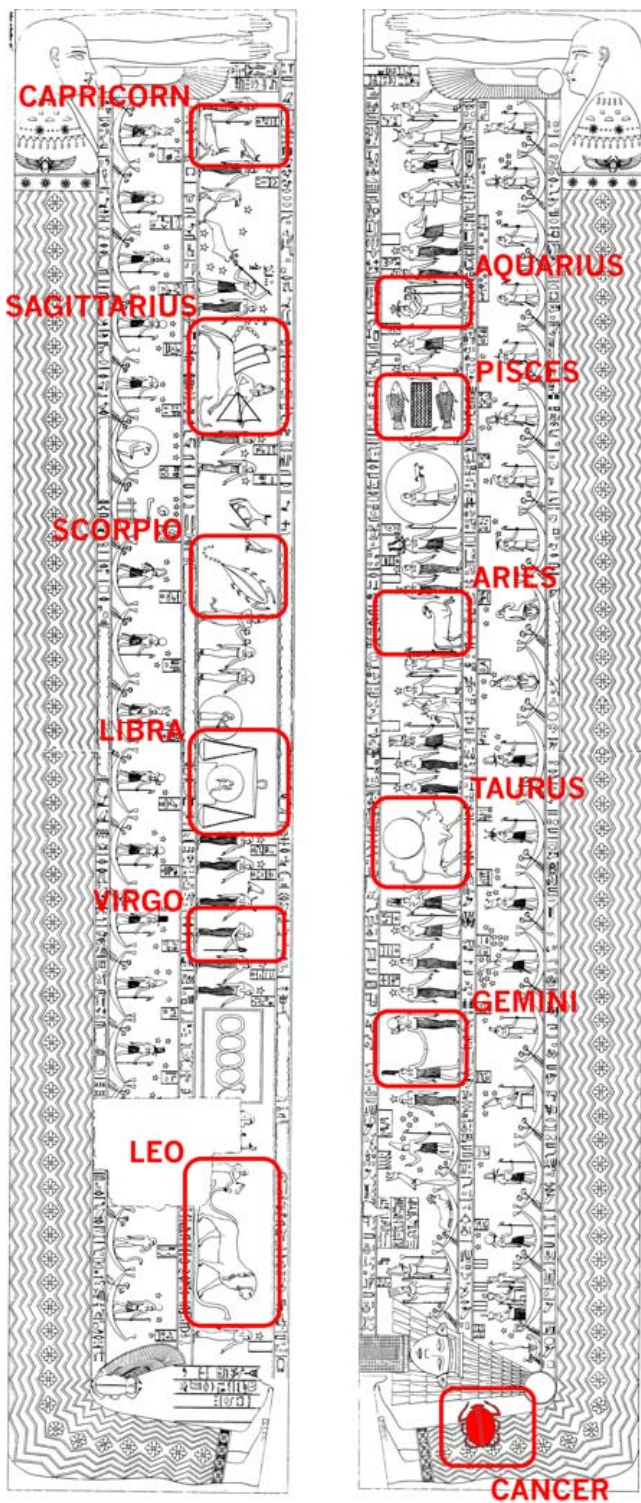


Figure 4.9

*Displacement of Cancer on the Long Denderah zodiac*

in her hand. This female figure could be considered at the first glance as the symbol of the next constellation of Virgo, but in almost all cases it is not exactly so, because there is another figure representing Virgo. The only

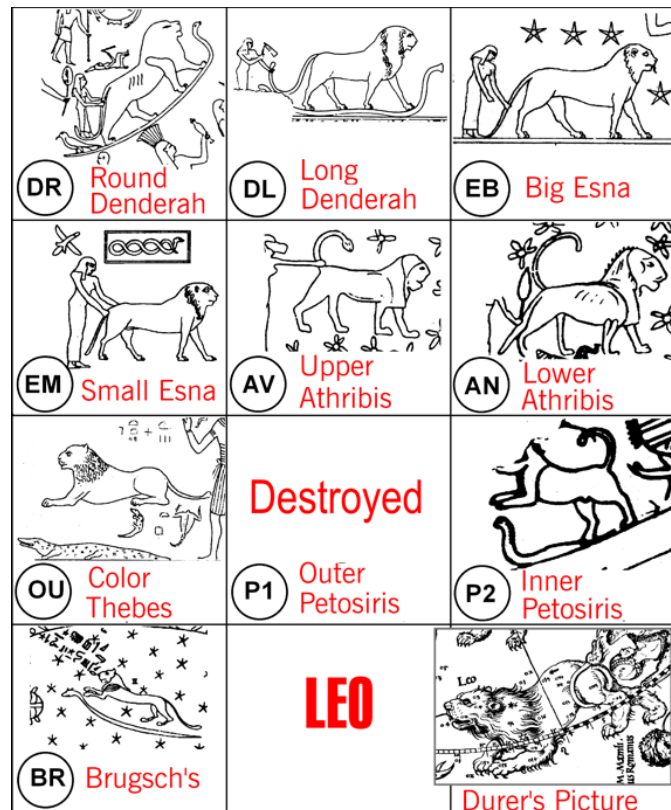


Figure 4.10

*Representations of Leo on different Egyptian zodiacs and in the European astronomy.*

exception the Upper Athribis zodiac, where the female figure holding Leo by the tail is Virgo. On the other hand it seems that this female figure is related to Virgo, so we will take the liberty to call it *secondary Virgo*. As a matter of fact, Virgo is represented by a standing female figure occupying much smaller space than Leo, whose body on a zodiac usually spreads horizontally over much larger area, but this is not the case on the real sky. Among all the zodiac constellations Virgo occupies the largest part of the ecliptic, while Leo occupies smaller area. This disproportion causes some difficulty in picturing Virgo on zodiacs or star maps. For example, on medieval European star maps Virgo is shown in a laying position, what allows it to occupy larger space. But on Egyptian zodiacs there was another way to expand Virgo over larger area on ecliptic. The little secondary Virgo standing on the tail of Leo indicates that this place belongs to Virgo. Notice also that Leo often is standing on a snake. This is an important detail in Egyptian astronomical symbolism. We will present later many examples of symbols standing on snakes or boats. We claim, and will justify it, that it always means that the symbols using such attributes were shifted or expanded to another place on ecliptic or to the time different from the main date of the zodiac. For example, the Leo's figure is often placed on a snake to indicate that it ex-

pands “illegally” over the neighbouring Virgo, what is in addition implied by the presence of the secondary Virgo.

### 4.1.6. Virgo

Now, we move the next constellation of Virgo. On Figure 4.11, we show the representations of Virgo on the Egyptian zodiacs and on the A. Dürer’s picture.

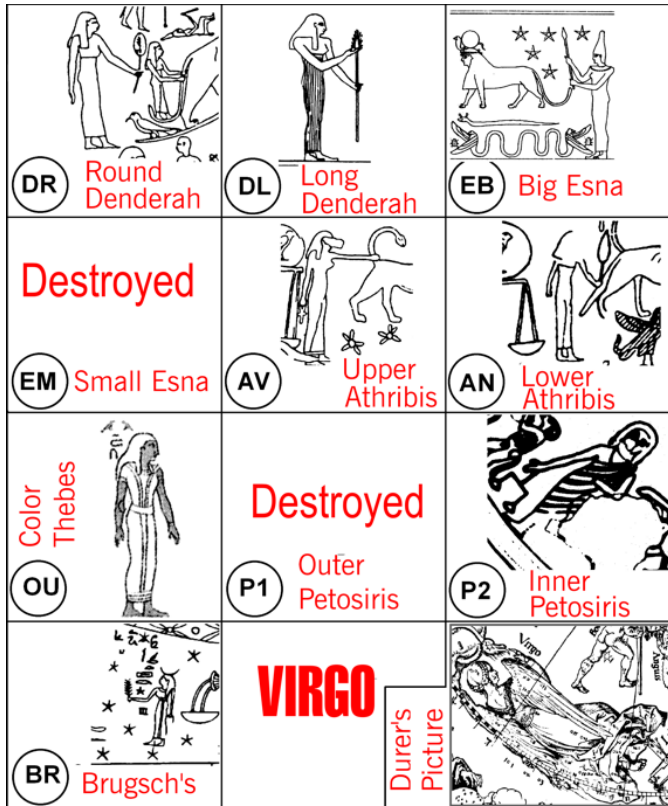


Figure 4.11

*Representations of Virgo on different Egyptian zodiacs and in the European astronomy.*

There is no problem with recognizing Virgo on Egyptian zodiacs. It is almost always represented by a female figure holding a spike in her hand. The only exceptions are the inner room Perosiris zodiac P1, where Virgo is symbolized by a woman, which instead of spike, is holding in her hand a scale, and the zodiac from Thebes, where Virgo holds nothing. The spike in Virgo’s hand is not just a decoration, but it symbolizes one of the most bright and famous in ancient astronomy star called today  $\alpha$ -Virgo. This star in ancient astronomy was called *Spike of Virgo* or *Spica* in Latin. On the Upper Athribis zodiac Virgo holds, instead of a spike, the Leo’s tail with a tuft on the tail tip. If we look at the Dürer’s picture, we will find a similar idea of showing the star Spica at the Leo’s tail tip, which Virgo touches with her finger tip (see Figure 4.12).

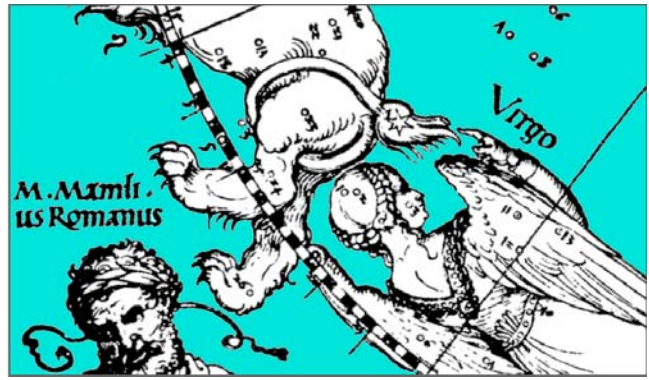


Figure 4.12

*Representations of Virgo and the star Spika at the tip of Leo’s tail on the Dürer’s drawing*

### 4.1.7. Libra

We show on Figure 4.13 the various representations of Libra on the Egyptian zodiacs and the Dürer’s picture. On all zodiacs Libra is symbolized by a figure of a balance with two pans hung from bearings.

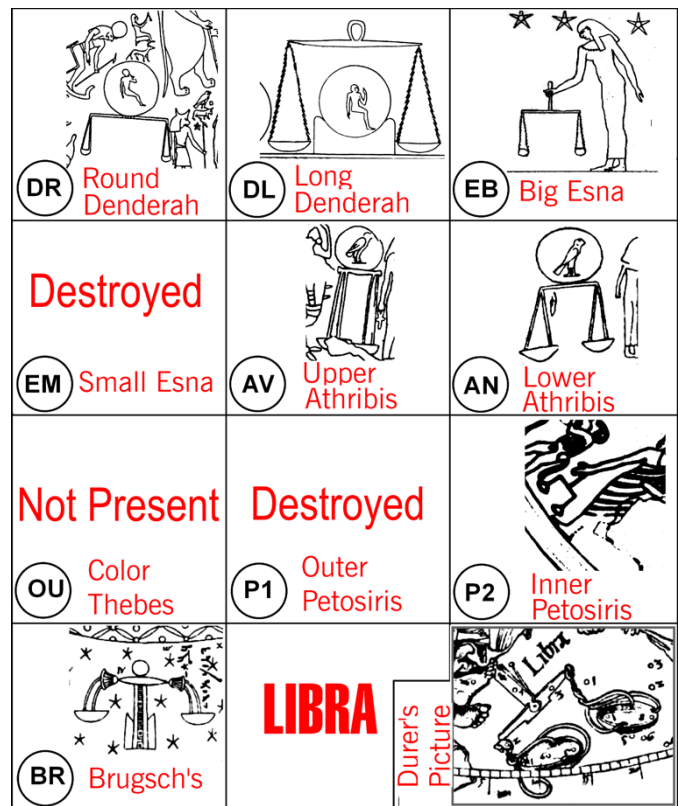


Figure 4.13

*Representations of Libra on different Egyptian zodiacs and in the European astronomy.*

Notice a circle with a figure inside it, which is placed on the several zodiacs together with the balance. This circle is not a part of the Libra symbol but it simply indicates



the Moon in Libra. A discussion of these details we leave for later. On the Big Esna zodiac, the balance is placed in a hand of a woman. Again, this woman is not a part of the Libra symbol nor it is a Virgo symbol. Indeed, the Virgo's position on this zodiac is on the other side of Libra, where it is represented by another female symbol having all attributes of Virgo (see Figure 4.11). We will prove that this woman figure stands for Venus shown in Virgo on the partial horoscope of the winter solstice. However, on the Inner Petosiris zodiac, a very similar female figure holding the balance in her hand is the symbol of Virgo. Here, contrary to the previous case, this woman is placed in a position of the Virgo constellation, according to the orientation of the constellations on this zodiac, and it is the only possible Virgo figure here.

#### 4.1.8. Scorpio

On Figure 4.14 we show how Socorpio is represented on the Egyptian zodiacs. It is easy to recognized this symbol because of its elongated body and a curved tail tipped with a stinger.

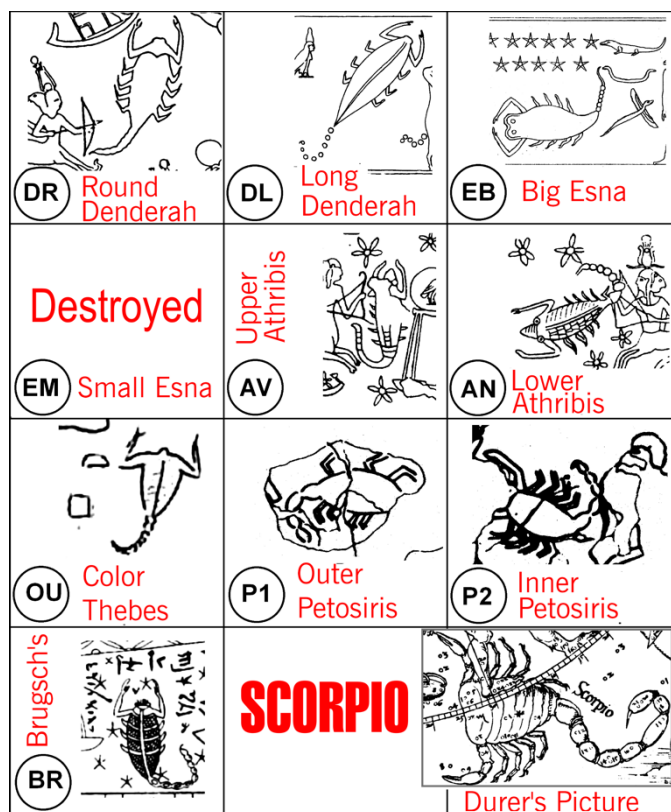


Figure 4.14

*Representations of Scorpio on different Egyptian zodiacs and in the European astronomy.*

Notice that Scorpio on the Dürer's picture is strikingly similar to the representation of Scorpio on the all Egyptian zodiacs.

#### 4.1.9. Sagittarius

Now we move to the constellation of Sagittarius. The representations of Sagittarius on the Egyptian zodiacs and the Dürer's picture are shown on Figure 4.15.

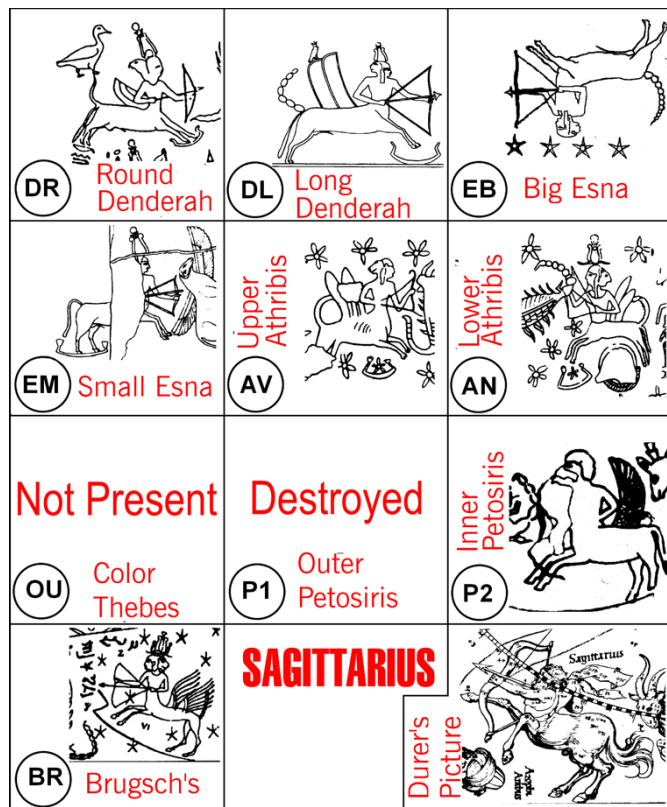


Figure 4.15

*Representations of Sagittarius on different Egyptian zodiacs and in the European astronomy.*

On the all zodiacs Sagittarius is represented by a figure of centaur - an imaginary creature which is part horse and part man, aiming an arrow at Scorpio. Notice, that most of the centaurs shown on Figure 4.15 have wings and even the Dürer's centaur has also something floating above its back resembling wings. As we already mentioned it in Chapter 3, the winter solstice during the last 2000 years takes place in Sagittarius, therefore the figure of Sagittarius on Egyptian zodiacs has usually accompanied additional symbolism. Practically all the centaurs on the Egyptian zodiacs have double-faced heads with one face of human and another one of lion. Particularly it is clearly visible on the zodiacs DL, EB and EV (see Figure 4.15). Let us point out that double face on Egyptian zodiacs is a feature associated with Mercury and lion's head with Venus, which are the two planets always accompanying the Sun. Another attribute pointing to the fact that there must be here some "displaced" symbols is the presence of a boat under Sagittarius on most the Egyptian

zodiacs shown in Figure 4.15. On Athribis zodiacs there is a star inside the boat indicating that we are probably dealing here with “displaced” planets (remember that according to the ancient astronomy planets were considered as “moving stars”). There is also another detail point to the Sun. Namely, some of centaurs wear a crown with a small circle on its top. All together, these symbols convey a message that the Sun, Mercury and Venus are shown in this “displaced” from the main horoscope position in order to indicate their presence at vicinity of the winter solstice point.

#### 4.1.10. Capricorn

Now, we proceed with the next constellation of Capricorn. On Figure 4.15 we show the representations of Capricorn on all the studied here Egyptian zodiacs, together with the Dürer’s drawing of Capricorn.

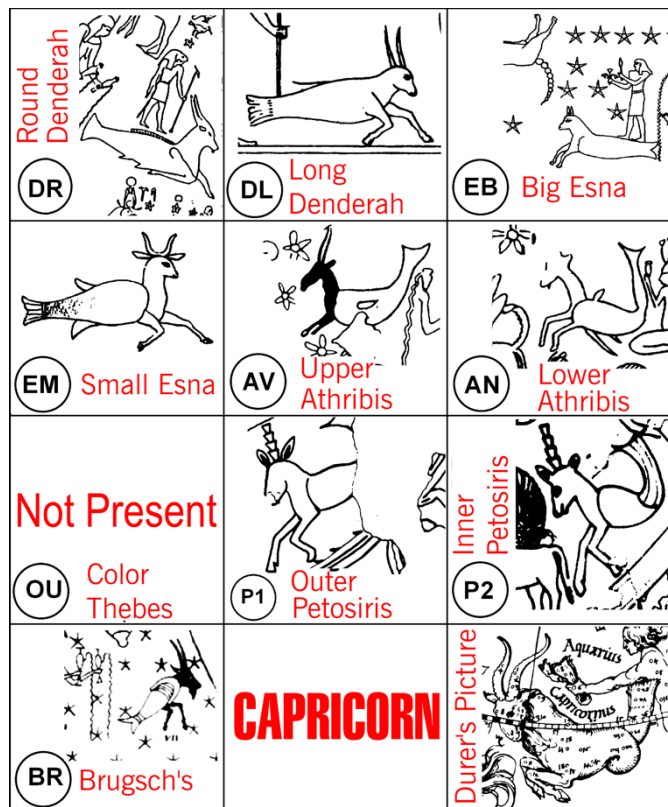


Figure 4.16

*Representations of Capricorn on different Egyptian zodiacs and in the European astronomy.*

The symbol of Capricorn, which is represented by a fantastic animal – a goat with a fishtail, can be easily recognized on the Egyptian zodiacs. We would like to point out a strange male figure standing on Capricorn on the Big Esna zodiac (see Figure 4.17). The fact that this figure is standing on Capricorn means that it is “displaced” and the presence of the small summer solstice attributes in

his hands (see Figures 3.1, 3.2 and 3.3) probably indicates the beginning of the sun’s path to the summer solstice. In other words, the Sun which just passed in Sagittarius its lowest point now in Capricorn begins its cycle in the direction to the highest position, i.e. the summer solstice. So, there is no ground for speculating that this figure stands for a planet in a partial horoscope (notice that it could not belong to the main horoscope because it is standing on something and has no walking stick in his hand).

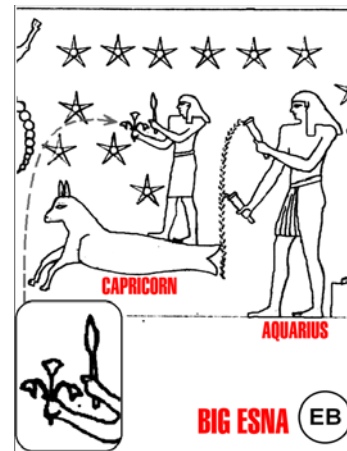


Figure 4.17

*Figure with tiny summer solstice attributes standing on Capricorn in the Big Esna zodiac.*

#### 4.1.11. Aquarius

We move now the symbol of Aquarius. On Figure 4.18 we show the representations of Aquarius on the Egyptian zodiacs and in the European medieval tradition. On the Egyptian zodiacs Aquarius is shown as a male figure pouring water from two jars in his hands.

On the Round Denderah zodiac we can see that Aquarius pours the water over a fish. It is worthy to mention that in the Old Christian tradition the fish was a symbol of Christ<sup>102</sup>, so the symbol of Aquarius pouring water over a fish strangely reminds us a picture of John The Baptist baptizing Christ. This remark was made by N.A. Morozov<sup>103</sup> This parallel between John The Baptist and the Egyptian symbols of Aquarius is supported by additional elements surrounding Aquarius. On the zodiacs DR, DL and EM, Aquarius is accompanied by a sequence of figures suggesting beheading, which is another parallel with the story of John The Baptist. We may think that it is very strange to find Christian symbols on ancient zodiacs, but we will show later that there are in fact even more Christian symbols present on Egyptian zodiacs, what becomes less surprising when we realize the dates decoded in these zodiacs.

<sup>102</sup>See [30] or Encyclopædia Britannica.

<sup>103</sup>See [4], Vol. 6, p.679.



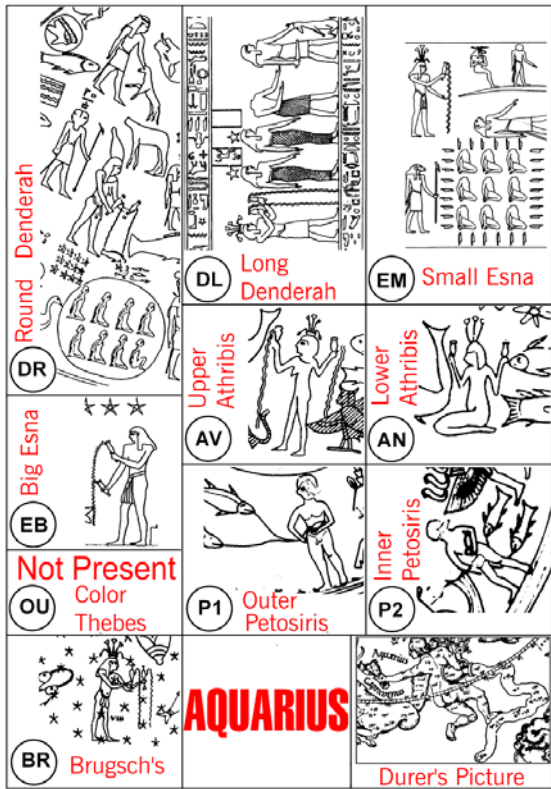


Figure 4.18

*Representations of Aquarius on different Egyptian zodiacs and in the European astronomy.*

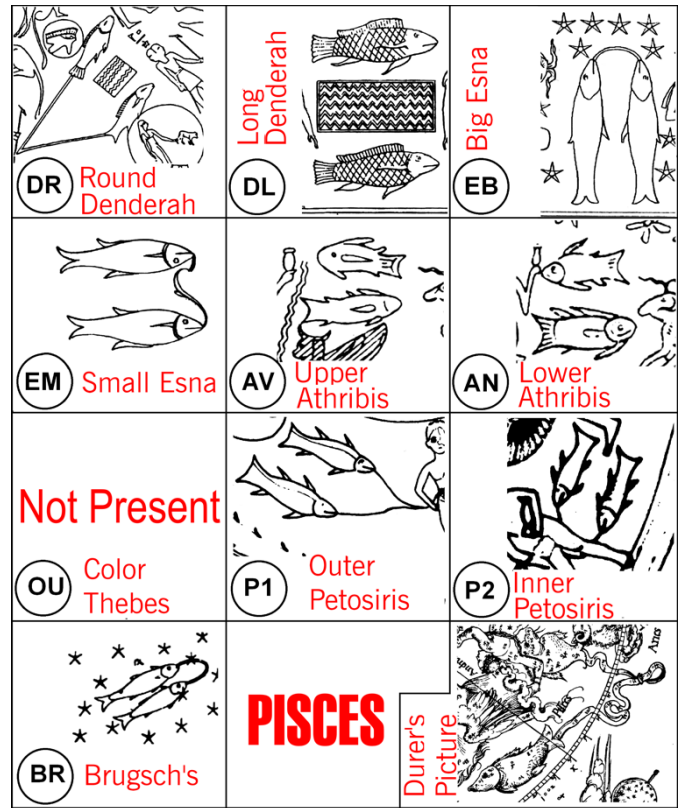


Figure 4.19

*Representations of Pisces on different Egyptian zodiacs and in the European astronomy.*

#### 4.1.12. Pisces

The last zodiac constellation is Pisces. On Figure 1.19 we show the representations of Pisces on the Egyptian zodiacs and compare them with the European symbol of Pisces depicted on the Dürer's drawing. It is always symbolized by a pair of fish, which are often connected by a thread. As long as there is a figure representing Pisces, there is no difficulty in recognizing it, or any other zodiac constellation, on Egyptian zodiacs. However, this is not always the case. On some Egyptian zodiacs there no constellation figure present or sometimes only few of them are indicated by the usual figures. We will call them the *Thebes type zodiacs*, because they mostly come from Luxor that is located at the place of ancient Thebes. On the Thebes type zodiacs the zodiac belt was probably divided into several parts. It is unknown to us how these parts are related to the constellations or where they are located on the ecliptic (see Figures 1.36, 1.1 and its enlarged fragment on Figure 4.20). However, it is possible to recognize there the symbols of planets, what definitely means that there is a horoscope encoded in such a zodiac and consequently there is also a particular date hidden in it. Still, it is sometimes possible to date such zodiacs, if there are at least some constellations indicated on such zodiacs.



Figure 4.20

*Enlarged fragment of the Thebes zodiac from Figure 1.1. There are no constellations signs and the ecliptic is divided into 36 parts.*

On Figure 4.20, the ecliptic is divided into 36 parts by small marking above the figures in both, upper and lower part of the zodiacs. There are 18 parts in the lower part and 18 parts in the upper one.

Let us consider the Color Thebes zodiac, which we denote by letter OU. It is also a zodiac of Thebes type but it contains few symbols of constellations, namely, it shows only these zodiac constellations in which there were planets present on the main date. These constellations are displayed together in the center of the zodiac (see Figure 4.21) and the planetary symbols are placed around them.

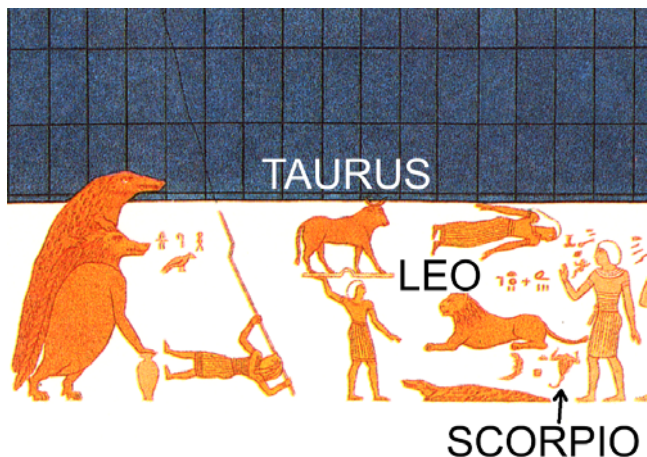


Figure 4.21

*The zodiac constellations on the Color Thebes zodiac OU.*

## 4.2. Symbols of Decans and Principal Scale on Egyptian Zodiacs

### 4.2.1. Decans on the Long Denderah Zodiac

We have already mentioned that on some Egyptian zodiacs, in particular on the zodiacs of Thebes type, instead of the constellations the ecliptic is divided into 36 parts, each of them representing a sector  $10^\circ$  long in average. The time needed for Sun to travel across such a sector is approximately 10 days in average. For these reasons we will call these sectors *decans*. For each of the twelve zodiac constellations correspond in average three decans. It is quite probable that on the Thebes type zodiacs the constellations are present in a form of triples of decans. This idea is supported by the structure of the Long Denderah zodiac. It was already noticed by N.A. Morozov<sup>104</sup>, that for each zodiac constellation is accompanied by two additional figures of girls, often with stars over their heads. All these girls are alike, except few of them, which are en-

dowed with supplementary astronomical information that we will explain later in this chapter. These 24 figures and 12 zodiac constellations represent 36 figures dividing the ecliptic into 36 sectors. For each constellation corresponds three decans symbolized by these three figures, one of them being the constellation symbol itself. Following these ideas we can analyze all the figures on the Long zodiac and verify if it is possible to divide them into 12 subsequent triples, each of them composed of two female figures and one zodiac symbol. It turns out that it is feasible and in fact there is only one way to do it! This partition into subsequent triples is shown on Figure 4.22, where we used the numbers 1, 2 and 3 to indicate the figures belonging to the same triple. We used different colors for different triples. For each triple, one of the numbers 1, 2 or 3 is encircled to indicate the figure of the constellation. We colored all the constellations in red and other decans symbols in brown.

Let us show that indeed it is the only way the decans can be divided into triples. Notice that there is only one decans symbol between Aquarius and Pisces, so there are only two possibilities: it belongs to Pisces or Aquarius. For each of these two options we can try to extend this partition (in a unique way) over the whole zodiacs. If we assume that this decans symbol belongs to Aquarius, we will obtain a partition with one triple containing no zodiac symbol. On the contrary, if this symbol belongs to Pisces, the partition into triples extends in a unique way over the whole zodiac and there is exactly one zodiac figure in each triple.

### 4.2.2. Principal Scale on Egyptian Zodiacs

The presence of decans on an Egyptian zodiac gives us a hope that the positions of the planets in main horoscope are specified here more precisely. For example, a creator of the Long zodiac could indicate the location of a planet, by placing it in between appropriate decans, with accuracy up to  $20^\circ$  in average. Unfortunately, this is not the case. If we look again on the Long Denderah zodiac, we will find out that all the planetary figures from the main horoscope, except the Sun and Moon, are placed exactly in between the constellation triples (look for the symbols with the walking sticks on Figure 4.22). All the figures with walking sticks inside the triples stand either on a boat or hold the walking sticks over another symbol. This indicates that these figures are not parts of the main horoscope, but belong to partial horoscopes. By taking advantage of the decans, the position of these partial horoscope symbols on the Long zodiac can be specified more accurately. We will show that in the final solution for the Long zodiac these partial horoscope positions are exactly as on the Long zodiac. But, as we explained, the main horoscope is not so accurately presented on the Long zodiac.

<sup>104</sup>See [4], Vol. 6, p 675.





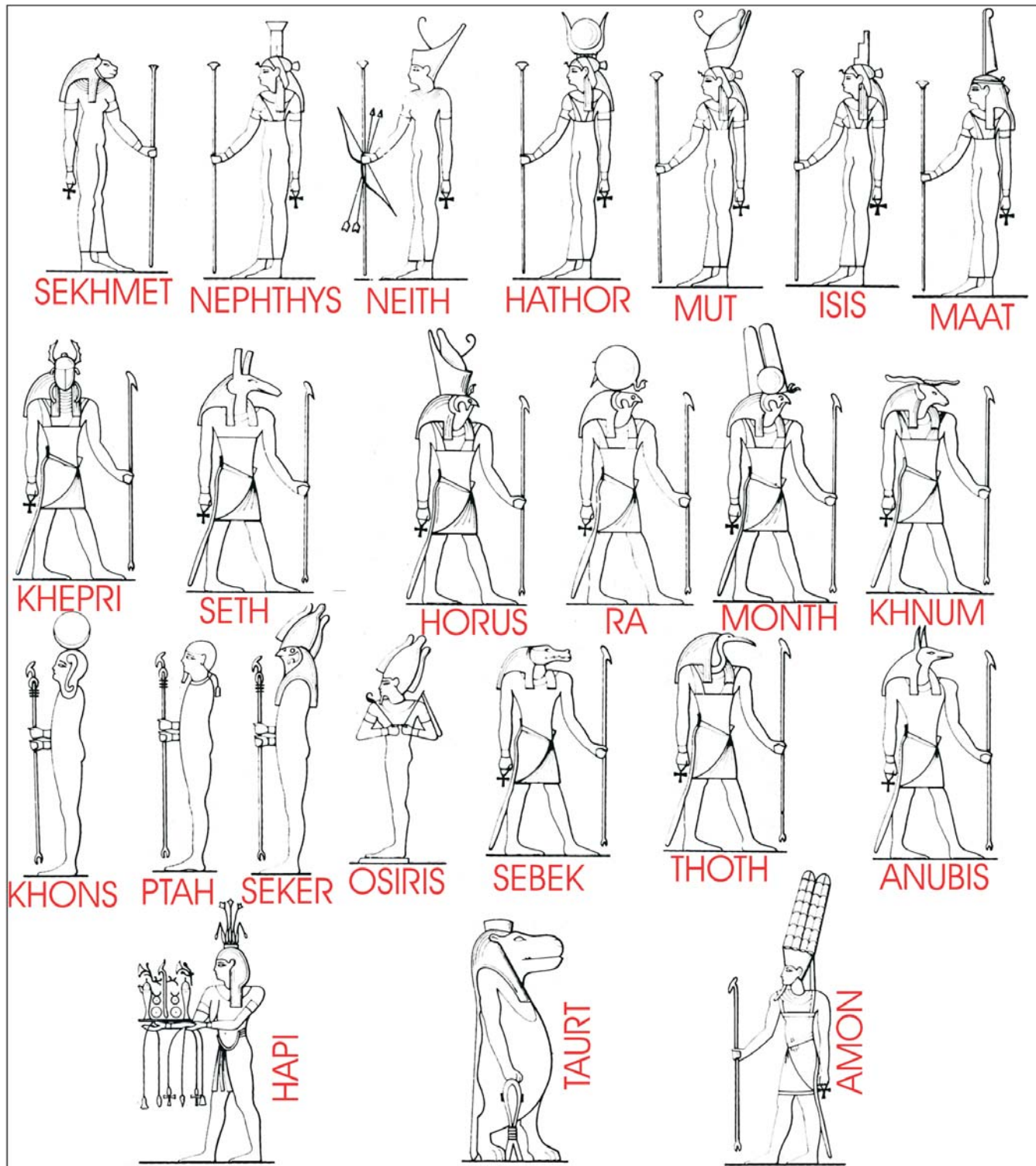


Figure 4.23  
*Collection of Egyptian "gods" and "goddesses"  
 most of which are planetary symbols*



Notice that among all the decans represented by the brown females on Figure 4.22, all of them look in one direction, which is the direction of the whole procession along the zodiac, except one of them. This figure is located between Cancer and Gemini, and it belongs to the Cancer triple. One can ask the question: what this change in direction could mean? In order to suggest an answer, we should look at the set of figures between Cancer and this decan. There are three boats and a pole with a bird on the top of it. We already discussed them as symbols of the summer solstice which occurs Gemini. As they are following the first decan of Cancer, we could think that their place is in Cancer, and indeed it would happen if the first decan was oriented in the same direction as the whole procession. However, this is not a case here, because the way the first decan is represented on the Long zodiac shows that the summer solstice figures stand in front of her (and not behind), what clearly indicates that she is following these summer solstice symbols. By this example we would like to point out how careful should be the analysis of the Egyptian symbols in order to find the correct decoding. Even the smallest details may contain some important information. Let us stress out that an Egyptian zodiac is often a very complex astronomical picture showing a large amount of the astronomical information, and because of, it

its structure and symbolic language could be also rather complicated. Nevertheless, we will show that these zodiacs are practically flawless regarding their astronomical contents and their accuracy can be fully trusted. But, this is not a common attitude in studying Egyptian astronomy and zodiacs. Researchers easily assume that the astronomical contents of the Egyptian zodiacs is not very precise and could be corrupted for artistic or other reasons. We would like to use our research against this attitude that we consider to be wrong.

### 4.3. Male and Female Figures on Egyptian Zodiacs

In order to understand how it is possible to distinguish male and female figures on Egyptian zodiacs, even in the case the quality of a picture is very low, we need to look first some of the examples. On Figure 4.23 we reproduce a collection of Egyptian symbols from [7]. We claim that most of symbols on Figure 4.23, equipped with walking sticks, represent some planets which can be found on Egyptian zodiacs.

Let us discuss symbols on Figure 4.23. They show important features of Egyptian symbolism. For example, we can notice that the length of a step for female figures is much shorter than such length for male figures, so it is possible to easily distinguish on Egyptian zodiacs which

figures are male or female, even if the picture with a zodiac is unclear or damaged. Of course this distinction is very important for a correct decoding of an Egyptian zodiac. In the case we are dealing with such a female figure, it could only represent planets Venus or Moon, while the other planets are always represented by male figures. There are also some figures to which this rule can not be applied, because they look like standing, showing only one leg in profile. On Figure 4.23, there are four such symbols shown in the second row from the bottom. There is some resemblance

between these figures and mummified bodies or bodies in Egyptian anthropomorphic sarcophagy (see Figure 4.24). They represent deads.



Figure 4.24  
*Painting of a dead person  
and a wooden sarcophagy*<sup>105</sup>

## 4.4. Planetary Symbols of the Main Horoscope

### 4.4.1. Planetary Walking Stick

It was already noticed in by the nineteenth century in-

<sup>105</sup> Taken from [118], pp. 152 and 161.

investigators that there is a rule that in the most cases the planetary symbols on Egyptian zodiacs hold walking sticks in a hand. Moreover, this *planetary walking stick* is not just a simple rod but it must be equipped with a handle on its top (see Figure 4.23). The most often the handle has a hooked T-shape (see Figure 4.25) but it can also be bulb-shaped.



Figure 4.25  
*Planetary walking stick  
hold by a sitting figure with  
falcon's head*<sup>106</sup>

N.A. Morozov in his investigation of Egyptian zodiacs illustrated the planetary symbols on a picture which we reproduce on Figure 4.26.

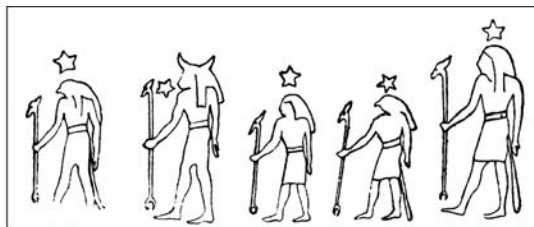


Figure 4.26  
*Typical planetary symbols on Egyptian zodiacs  
recognized by N.A. Morozov*<sup>107</sup>

Let us recall that a walking stick in medieval symbolism was used to indicate a traveler. Probably, for the same reason in the Egyptian astronomy a walking stick was chosen as an attribute of a planet. In the old times the planets were considered to be the *traveling stars*. Indeed, for an observer, who at that time had no telescope, the planets looked exactly as stars with the only noticeable difference that they were changing their positions with respect to the fixed stars. The real stars practically do not change their positions with respect to each other and the same configurations of stars were observed through years and centuries. This spherical picture could be imagined as a *sphere of fixed stars* on which the planets move around the big circle, which is the ecliptic, following the same general direction. However the motion of some planets is not uniform and it is changing all the time. Sometimes they stop, move backward, turn back and move forward again in common for all planets direction (see Figure 4.27).

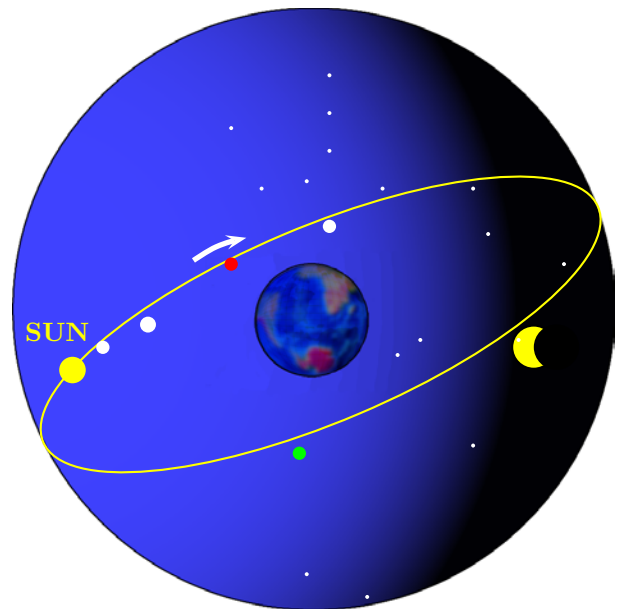


Figure 4.27  
*Sphere of fixed stars and the motion of the planets  
along the ecliptic.*

In old chronicles planets were described as *wandering stars*<sup>108</sup> and today's modern world *planet* originated from the Greek word *planetes*, which means *wanderer*. We've already explained that in ancient astronomy the Sun and Moon were also considered as planets, because they are moving around the ecliptic in the same common planetary direction. In this book we will also sometimes refer to the Sun and Moon as planets. Of course, from the point of view of the modern astronomy it is not correct, but this convention is helpful to simplify the discussion of the

<sup>106</sup>Taken from [118], p. 177.

<sup>107</sup>Taken from [4], Vol. 6, p. 956.

<sup>108</sup>See [25], p. 195.



old astronomical symbolism. The fact that a walking stick was used on Egyptian zodiacs as a planetary attribute was well-known to researchers already in the nineteenth century. This rule was already used by N.A. Morozov, as well as by Egyptologists, to recognize planets on Egyptian zodiacs. For example, in the modern work by French Egyptologists S. Cauville<sup>109</sup> all the recognized by her planetary figures on the Round Denderah zodiac are equipped with walking sticks of exactly the same shape as on Figures 4.25 and 4.26.

However, if we look at an Egyptian zodiac there may be more figures with the planetary walking sticks than required. With a naked eye one can only distinguish five planets without counting the Sun and Moon, namely: Saturn, Mars, Jupiter, Mercury and Venus. Notice that on the Long Denderah zodiac there are ten figures holding planetary walking sticks and on the Round Denderah zodiac there are nine such figures. Certainly, on Egyptian zodiac some planets could be represented by several symbols with walking sticks arranged in a procession, but the number of such procession still could exceed required number five. The reasons for such large number of planetary symbols was already explained briefly in Chapter 3. In fact, there are usually additional partial horoscopes present in a zodiac, what can increase the number of planetary symbols. The previous researchers, who didn't realize the existence of partial horoscopes, were forced to explained the additional planetary symbols in a conjectural way. For example, N.A. Morozov postulated that some of these symbols represent comets, what in any way can not be checked by calculations. Comets that can visible from the Earth are not classified and astronomers may not be even aware about these comets that appeared near the Earth in the distant past. Still, appearances of comets is relatively rare so such a conjecture has small probability to be true. In our work we do not need to make any uncheckable conjecture. We will follow the principle that every figure with a walking stick or a procession of such figures symbolizes a planet, maybe in the main or partial horoscope and we will explain later how to distinguish between them. However, if a figure holds a simple stick, without the characteristic for a planetary stick handle at the top, it is not a planet of the main horoscope, but, as the symbolizm of partial horoscopes is much less formal, such figure still could represent a planet belonging to a partial horoscope.

There are also Egyptian zodiacs, on which planets are represented in a completely different way, not as travelers. For example, on the Athribis zodiacs, all the planets (except the Sun, Moon and Mercury) are shown as birds. On the Petosiris zodiacs, planets are symbolized by busts with hands not shown. In such cases there could not be

planetary walking sticks. These zodiacs in some sense are exceptions.

Let us emphasize that the identification of planets on an Egyptian zodiac is the crucial moment of the astronomical dating. The obtained by astronomical calculations date would be wrong if the planetary identification on the zodiac was incorrect. However, there may be more than one possible variant for identification of some planets. The decision, which of these variants is the right one, can only be made after all the calculations are completed. Let us explain how it is done. Suppose that on a zodiac there are several possible identifications some of the planets and there is no reliable *a priori* indication which one of them is true. Can we in such a situation, which turns out to be quite common, find a correct identification? It turns out that it is possible for most of the Egyptian zodiacs, mainly due to abundance of the additional information provided by the partial horoscopes that were discovered by us (see [116]).

We proceed as follows:

- At the first stage, all the possible identifications and obtained for them astronomical solutions for the main horoscope, which belong to the historical time-interval from 500 B.C. till nowadays, we consider as equal.
- Next, we will compare these solutions with the additional information provided by the partial horoscopes. If there is any discrepancy we will dismiss such a solution. It appears that in almost all cases there is always left a unique solution, even if there were dozens of solutions at the first stage.
- Finally, we return to problem of identification. We consider the variant resulting in the final unique solution as the correct identification. It appears that the final identification for all the Egyptian zodiacs contains no contradictions among the symbols and their meanings. Accually, the same symbolic rules can be applied to all Egyptian zodiacs.

According to our procedure, we can classify all the planetary symbols into two categories:

- The symbols that can be reliably identified before carrying on the calculations. Most of such symbols were already analyzed and identified by our predecesors, including Egyptologists – H. Brugsch, F. Petrie, astronomers – Ch. Dupuis, P. Laplace, J. Fourier, A. Letronne, K. Helm, J. Biot, E.B. Knobel, M.A. Vil'ev. The summary of their huge work was made by N.A. Morozov<sup>110</sup>, who made also some improvements and corrections.

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<sup>109</sup>See [10].

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<sup>110</sup>See [4], Vol. 6.

- The symbols for which we do not have a definite at the first stage. Usually, there are not so many figures of this type, typically there no more than one or two, but sometimes almost all figures fell into this category. We should keep in mind that for astronomical dating a change of even one planet can result in a drastic change of date. Therefore, in the case of any doubt, the identification should be based on analysis of all possible variants.

The whole procedure of identification of planets will be presented in Chapters 6 and 7. For each zodiac, we will discuss our calculations, the results and their compatibility with the additional data, and finally we will produce the final identification. In this section we present only the final identification of all the planets on all the investigated zodiacs. We will display this identification in the sequence of seven tables, one for each planet (including the Sun and Moon) separately. These tables will allow a convenient comparison of the planetary symbols on all the Egyptian zodiacs studied in this book.

In order to distinguish a planetary symbol from the first (“recognizable”) category from a symbol belonging to the second (“calculated”) category, we will use two different forms of the zodiac labels. We will use the labels with shaded background inside the circle to indicated the second category.

#### 4.4.2. Saturn in the Main Horoscope

On Figure 4.28, we show the representation of Saturn on different Egyptian zodiacs, where the zodiacs DR, DL, EB and BR, Saturn was recognized (before calculations), and on the others (with the shaded labels EM, AV, AN and OU) it was calculated. Saturn on the Petosiris zodiacs is not shown on Figure 4.28, because it represented there in a different, non-typical for Egyptian zodiac, and a comparison in this case would be unproductive. We will analyze Saturn on the Petosiris zodiacs separately. Concerning the Brugsch’s zodiac we should explain why there are three different representations of Saturn shown on Figure 4.28(BR). This is related to the fact that on this zodiac instead of one there are three main horoscopes. The one of them, which was dated by N.A. Morozov, has Saturn indicated by a Demotic inscription. In the two other horoscopes, which were found by us, Saturn is shown in a symbolic way. These horoscopes were already discussed in section 2.4 (see Figure 1.15), where we also assigned to them the names *Demotic Horoscope*, *Horoscope without Walking Sticks* and *Horoscope in Boats*, which will be used throughout this book.

The symbol of Saturn can be sometimes easily recognized by some of its characteristic features. The most

distinctive feature is the presence of a crescent on head of a male planetary figure. Another attribute of Saturn is the hieroglyph in a shape of a bull (see Figure 4.28 (DR) and (DL)). In a case, when these features are available, all researchers agree with the identification of Saturn<sup>111</sup>. In other cases, we have to consider many possible variants in order to compute the right identification. Such cases on Figure 4.28 are marked with shaded labels. We will discuss them later in detail in Chapters 6 and 7. In this section we will only analyze the cases when these characteristic features of Saturn are present, i.e. the “recognizable” cases (with un-shaded labels).

We begin with the “recognizable” representations of Saturn on the zodiacs from the Egyptian temples. There are exactly three such cases shown on Figure 4.28, namely DR, DL and EB. On all these zodiacs we see the same planetary symbol, which is a male figure with animal’s face, crescent on the head and standard planetary walking stick in his hand. Of course, the crescent present on this figure’s head could very well be the bull’s horns (notice that the figure’s face resemble bull’s head), but still we will call it *crescent*. This terminology is completely unimportant for the astronomical dating, but we have our reasons for calling it crescent<sup>112</sup>.

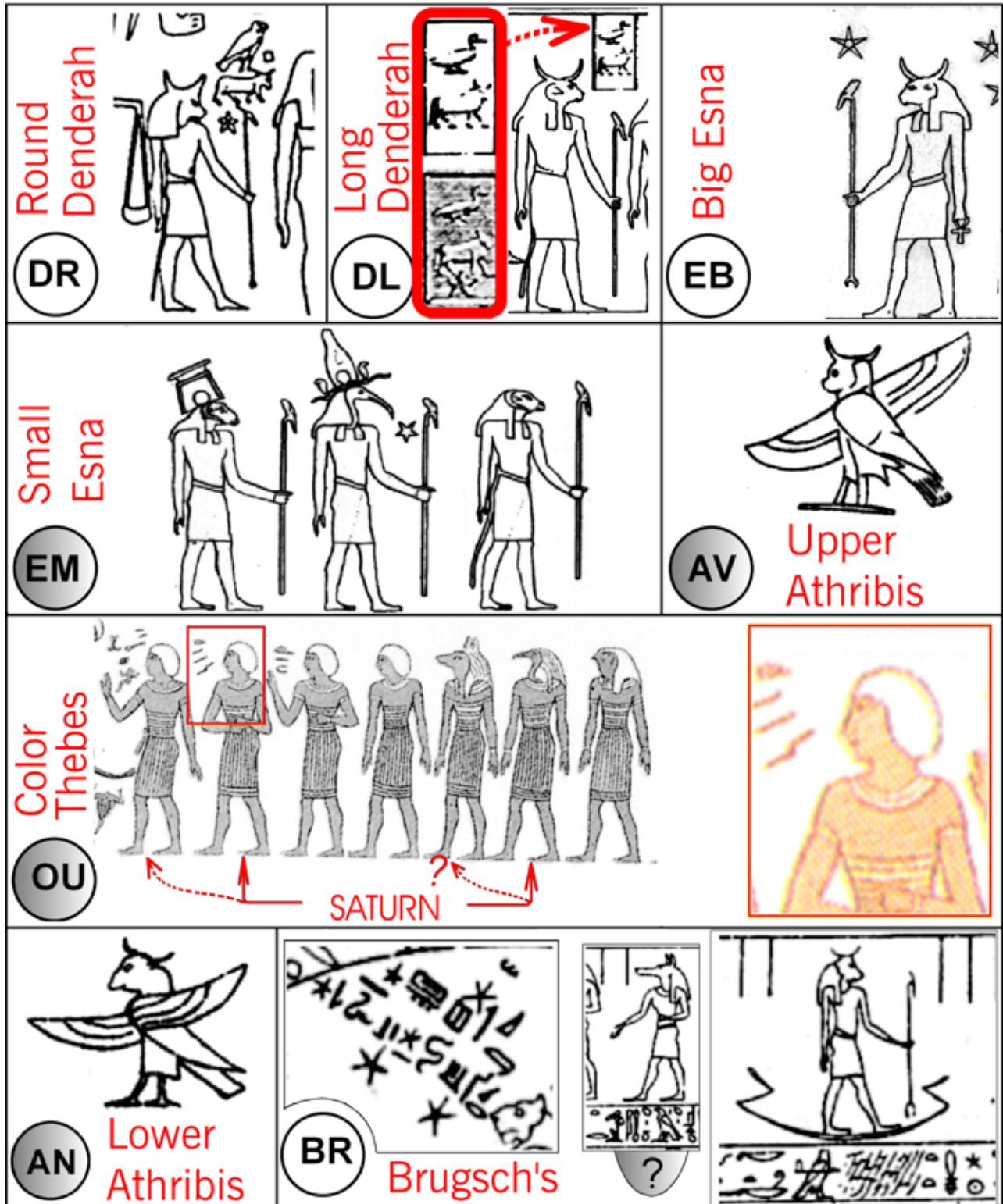
On the both Denderah zodiacs, the planetary male figure with crescent is accompanied by the same hieroglyphical inscription. The translation of this inscription, given in [10], reads: “Horus le Taureau” which means “*Horus the Bull*”. The exact translation of this inscription is not important for us, because we will not rely on it. What’s significant here is that the same inscription stands by the same planetary figure on the both Denderah zodiacs. This clearly indicates the same planet. What is this planet? The answer is provided in the previous works devoted to the Egyptian zodiacs. It is indeed Saturn<sup>113</sup>. In order to explain this answer, let us point out that on the Round zodiac, just under this figure, there is another similar figure with a crescent on the head holding a scythe instead of a walking stick (see Figure 4.29). That figure is a part of the partial horoscope for the autumn equinox, so the planetary walking stick is not a requirement in this case. Except for the object in their hands, these two figures are completely identical, so they definitely indicate the same planet. Just from this connection one can deduct that this planet is probably Saturn, because it moves so slowly that during the whole year its position usually stays inside the same zodiac constellation. Consequently, the positions of Saturn in the main and the partial horoscopes coincide. However, we can definitely recognize Saturn in this figure, because well-known that the scythe was an attribute

<sup>111</sup>See for example [4], Vol. 6, [10] and [11]

<sup>112</sup>See [107].

<sup>113</sup>See [4], Vol. 6, [1], [10] and [11].





# SATURN in Main Horoscope

Figure 4.28  
 Representations of Saturn in the main horoscope  
 on different Egyptian zodiacs

of Saturn in old astronomy. For example, there are many pictures in medieval astronomy books showing Saturn with a scythe (see Figure 4.30).



Figure 4.29

*Two figures of Saturn on the Round Denderah zodiac: one (marked in yellow) in the main horoscope, another (marked in blue) in the partial horoscope of the autumn equinox (surrounded by a blue contour)*



Figure 4.30

*Saturn shown with a scythe on an old drawing taken from a medieval astronomical book<sup>114</sup>*

Consequently, this male figure with a crescent on the head should be considered as Saturn, what is noting new, because this identification was used by all the previous investigators of the Egyptian zodiacs. But, based on our analysis and the fact that with this identification a complete solution is obtained, we can confirm its correctness.

Notice that on the Athribis zodiacs Saturn is shown as a bird with a crescent on its head (see Figure 4.28 (AN) and (AB)), but coincidence is a result of our computations and not an *a priori* choice based on similarities. This identification appears to be the same as it was suggested

by Flinders Petrie, but is different from the one chosen by N.A. Morozov<sup>115</sup>. There is one more “recognizable” case of Saturn on Figure 4.28 (BR). Here Saturn can also be identified prior to the computations. As we’ve already mentioned, there are three main horoscopes on this zodiac: Demotic Horoscope, Horoscope without Walking Sticks and Horoscope in Boats, and all three representations of Saturn are shown on Figure 4.28 (BR). In the Demotic Horoscope, the name of Saturn is written together with the name of Jupiter in two lines located near Leo’s head. H. Brugsch translated this inscription as “*Hor-pe-seta*” and “*Hor-pe-ka*”, which means “Saturn” and “Jupiter”. As the name of Saturn is simply inscribed in this horoscope, there is no problem with its identification.

Regarding the Horoscope in Boats, it is not difficult here to recognize Saturn, because it is represented exactly by the same symbol as on the Denderah zodiacs: a male figure with an animal/bull-like head and a crescent on the top of it holding a planetary walking stick in his hand (see Figure 4.28 (BR)). The third horoscope on the Brugsch’s zodiac is the Horoscope without Walking Sticks (see Figure 1.15). On this horoscope the situation with Saturn is more complicated, therefore, on Figure 4.28 (BR) there is a question mark placed under the presumed figure of Saturn. As a matter of fact, it is unclear which of the four figures standing together in this horoscope symbolizes Saturn: the man, monkey, jackal or falcon (see Figure 4.31).



Figure 4.31

*Fragment of the Brugsch’s zodiac containing the Horoscope without Walking Sticks*

The situation here is rather complicated. However, we are quite lucky here, because all the four figures are male and located together, which indicates that Saturn, Jupiter, Mercury and Mars are shown here together. As Venus is never symbolized by a male figure and the Sun and Moon usually on the Egyptian zodiacs are not shown as humans, the other three planets couldn’t be represented by these

<sup>114</sup>Taken from [33].

<sup>115</sup>See [4], Vol. 6, pp. 731-738.



figures. So, from the point of view of astronomical dating it is not so important to know exactly which one among these four figures is Saturn. Nevertheless, at the end of astronomical computations we were able to determine the correct order of these planes and obtained that the figure with jackal head is Saturn. We will discuss these computations and the results in Chapter 7.

The fact that the Horoscope without Walking Sticks escaped the attention of the previous researchers wasn't without a reason. The four symbols representing the "male" planets on this horoscope were very common in the Egyptian mummification process. On Figure 4.32 we show four so called Canopic jars decorated with heads of a man, baboon, falcon and jackal. This type of jars were always found near the coffins inside the Egyptian graves<sup>116</sup>.



Figure 4.32  
*Four Canopic jars*<sup>117</sup>

The Egyptologists explain the presence of the Canopic jars as follows:

*Near the coffins in the graves there are always other containers to be found, mostly wooden boxes, in which four vessels were kept, . . . The Egyptians called them Canopic*

*jars . . . They were used to hold the internal organs taken from the body and, because the body was incomplete without them, these were always placed together. . . . The precious internal organs were entrusted to divine protection, to the four sons of Horus, whose heads usually adorn the stoppers of the Canopic vessels. The human-headed Amset, . . . Hapi, with the head of a baboon, . . . Duamutef looks like a dog . . . and Qebehsenuf, with the head of a falcon, . . .*<sup>118</sup>

Unsurprisingly, previous investigators of the Brugsch's zodiac, including H. Brugsch himself, associated these four figures with the mummification ritual only and didn't realize that they could in the same time represent planetary symbols. There is no contradiction in this double meaning of these figures. In fact, according to some researchers the souls of pharaohs were believed to become stars after their death, which quite well agree with some old Bizantine chronicles, according to which the names of the first kings of Assyria and Egypt were simply the names of planets<sup>119</sup>. We should also mention that modern Egyptologists, following the opinion of Parker and Neugebauer, are convinced that this ancient Egyptian believe is related not to the planets but to the stars of the Orion constellation<sup>120</sup>. However, as we will show it in this book, this is a mistake resulting from the misunderstanding of the Egyptian symbol of the summer solstice, represented by a figure of a man with a raised hand (see Figures 3.4 and 3.5), as a symbol of the Orion constellation<sup>121</sup>.

#### 4.4.3. Seth, Anubis and Thoth as Egyptian Symbols of Saturn and Mercury

The identification of Saturn with the jackal-headed figure turns out to correspond well with the ancient Egyptian mythology. It is accepted that the jackal-headed figure on ancient Egyptian drawings represents the god Anubis<sup>122</sup> (see Figure 4.33), which is, according to the *Pyramid Texts*, the main god of the dead<sup>123</sup>. On the other hand, Saturn was also considered to be a god of the dead<sup>124</sup>, what was also stressed on the medieval representations of Saturn by the presence of a scythe as its attribute (see for example Figure 4.30). Moreover, it is believed that Anubis was sometimes identified with the Greek god Hermes, who was the conductor of the dead to Hades. But Hermes was often identified with the Roman Mercury<sup>125</sup>. Therefore, Anubis on Egyptian zodiacs could symbolize Saturn as well as Mercury, and these two possibilities should al-

<sup>118</sup> See [114], p. 154.

<sup>119</sup> See [25], p. 195, [34], p. 40, [35], p. 8.

<sup>120</sup> [37], p. 96.

<sup>121</sup> See [36], Vol. 1, pp. 24-25.

<sup>122</sup> See [120], p. 19.

<sup>123</sup> See [26], p. 49.

<sup>124</sup> See [26], p. 488.

<sup>125</sup> See [26], pp. 50, 151.

<sup>116</sup> See for example [118], p.114, or [114], p. 143.

<sup>117</sup> Taken from [118], p. 115.

ways be considered. It follows from our calculations that indeed the jackal head on Egyptian zodiacs usually represents Saturn but sometimes it may also represent Mercury. For example, on the Big Esna zodiac, it is Mercury symbolized by a figure with a jackal head. It is possible that on the Color Thebes zodiac Mercury also has a jackal head, while Saturn has an ibis head. Since, in the astronomical solution obtained for this zodiac Saturn and Mercury were very close one to another, the other combination can not be dismissed (see Figure 4.28 (OU)).

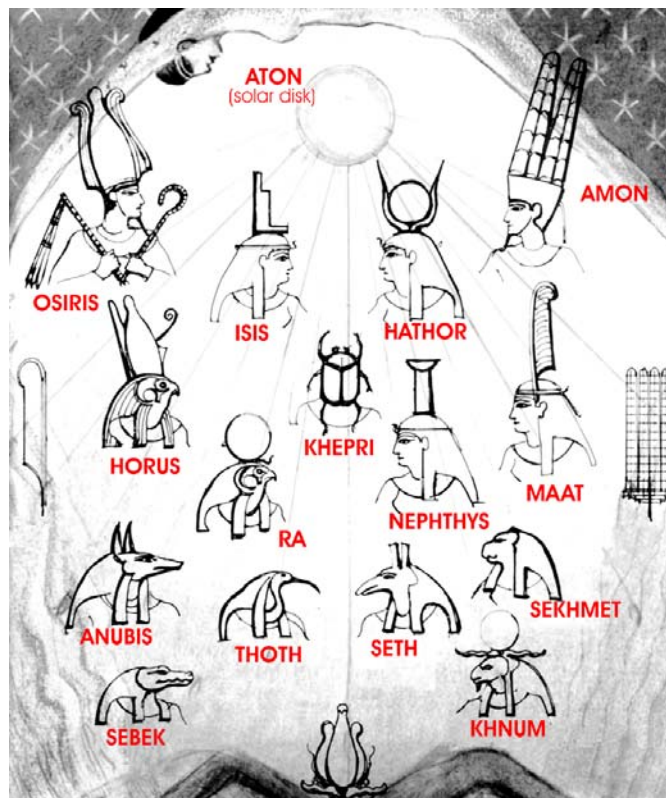


Figure 4.33  
*Egyptian “gods” – representations of planets  
 on Egyptian zodiacs*<sup>126</sup>

N.A. Morozov believed that the Egyptian god Anubis was a symbol of Saturn<sup>127</sup>.

It is clearly a situation where two possible meanings could be associated with the same jackal-headed figure, so Saturn and Mercury could be confused. There is some explanation for it. If we look at Figure 4.33, we notice that there is another god called Seth, with almost identical appearance as Anubis. Although the head of Seth is described by Egyptologists as an imaginary (composite) animal’s head, it is difficult not to see striking similarities

to the head of Anubis. In opinion these two figures have jackal heads. Seth is considered to be the god of destruction, or in other words, the embodiment of the necessary and creative element of violence and disorder within the ordered world. This description and the name Seth match well the characterization of Saturn.

Therefore, jackal head had a dual meaning on Egyptian zodiacs. It could represent Saturn or Mercury. But, there is another symbol to which we can assign the same dual meaning. It is the head of ibis. The sacred ibis (*Threskiornis aethiopica*), of southern Arabia and Africa south of the Sahara, was a sacred bird to the ancient Egyptians. On Figure 4.34 we show a photo of ibis.



Figure 4.34  
*A photo of ibis*

The ancient Egyptian god with head of ibis is called Thoth (see Figure 4.33 and 4.23). It is believed that the Greeks identified Thoth with their god Hermes:

*The Greeks had adopted the Egyptian god Thoth into their panteon under the name of Hermes. According to Clemens Alexandrinus, Thoth wrote forty two books, ... only very small parts of these works remain in the writings of Stobaeus and others of that time. These ... have been claimed by some authorities as post-Christian, because of their similarity to the works of Neo-platonic writers.*<sup>128</sup>

As we’ve already explained, Hermes was identified by Romans with Mercury. We will see that on Egyptian zodiacs Thoth sometimes symbolized Saturn. For example, Saturn on the Small Esna zodiac is shown as a procession of three male figures, one of them with the ibis head (see Figure 2.28 (EM)). As we already mentioned, probably Saturn has also the ibis head on the Color Thebes zodiac, but this figure could also be Mercury. Some researchers believe that Thoth and Seth were the names of the same ancient Egyptian “god”<sup>129</sup>

This duality involving Saturn and Mercury certainly should cause in some cases confusion in old astronomi-

<sup>126</sup> Taken from [9], p. 15.

<sup>127</sup> See [4], Vol. 6, pp. 653, 658, 678.

<sup>128</sup> See [120], p. 67.

<sup>129</sup> See [40] or [38], II, pp. 78-80.



cal symbolism. It was already noticed by N.A. Morozov, who wrote:

*Egyptologist refer to Seth as the oldest son of Osiris – a murderer of his father. He is the King of Darkness. Astrologically ... he is symbolized by Mercury, ... who always hides behind the Sun to ambush his father Moon – Osiris, when he approaches the Sun ... Later, when the evil connotations were transferred on Saturn, Seth became mixed up with Saturn.*<sup>130</sup>



Figure 4.35  
Egyptian “gods” Anubis and Thoth<sup>131</sup>

#### 4.4.4. Jupiter in the Main Horoscope

On Figure 4.36, we show the representation of Jupiter in the main horoscope on different Egyptian zodiacs. We use the same convention as in the case of Saturn, namely, we mark with shaded labels those zodiacs where it was not possible to identify the symbol of Jupiter during the first stage (prior to calculations) and the identification was obtained only after the calculations. For the same reason as for Saturn, on Figure 4.36 the symbols representing Jupiter on the Petosiris zodiacs are not included. As they are of different type, we will discuss them later in this chapter.

Let us remind that there are three main horoscopes on

<sup>130</sup>See [4], Vol. 6, p. 787.

<sup>131</sup>Taken from [114], p. 137.

the Brugsch’s zodiac, so there are also three representations of Jupiter indicated for the zodiac (BR) of Figure 4.36.

Let us first discuss the representation of Jupiter on the Denderah zodiacs. Above the figure of Jupiter, on the both zodiacs, there is exactly the same hieroglyphic inscription (see Figure 4.36 (DR) and (DL)). These hieroglyphs include a bird and horns. Henry Brugsch, based on this inscription, which reads *Hor-apis-seta*, identified this figure as Jupiter<sup>132</sup>. N.A. Morozov had no objection to this identification<sup>133</sup>. In the works written by contemporary Egyptologists we can also see the same identification of Jupiter on the Denderah zodiacs<sup>134</sup>. That means that all the researchers accepted on the Denderah zodiacs the figures indicated by Brugsch as Jupiter. We also accept the Brugsch’s choice as Jupiter. Let us add that the modern Egyptologist S. Cauville translates the hieroglyphic inscription above the Jupiter’s head differently. In fact she suggested two variants: “*Horus qui eclaire le pays*” (in French) or “*Horus qui devile le mystere*” (in French), what simply means “*Horus who enlightens the country*” and “*Horus who reveals the mistery*”, but still she confirmed these symbols as Jupiter. This identification of Jupiter was finally reconfirmed by the results of our computations, which led to full solutions for all the studied zodiacs.

We’ve already explained in the previous section that on the Brugsch’s zodiac the name of Jupiter in the Demotic Horoscope was inscribed together with the name of Saturn near the Leo’s head. This Demotic inscription was translated by H. Brugsch and we trust his accuracy. Brugsch was a prominent expert in the Demotic writing and an author of the well-known Demotic grammar<sup>135</sup>. We should add, that by following the Brugsch’s translation we have arrived to a meaningful solution, which is well consistent with the solutions of the two other horoscopes on this zodiac. Based on our computations we can reconfirm the correctness of the Brugsch’s identification, otherwise it would be highly improbable that faulty data could give us coinciding answers.

In the Horoscope without Walking Sticks, Jupiter is shown in a group of fthe our “male” planets placed together (see Figure 4.31) and our computations indicated that it is has to be the figure with baboon’s head (see Figure 4.36 (BR)). In the Horoscope in Boats, Jupiter can be recognized by ellimination process (see Chapter 7 for more details).

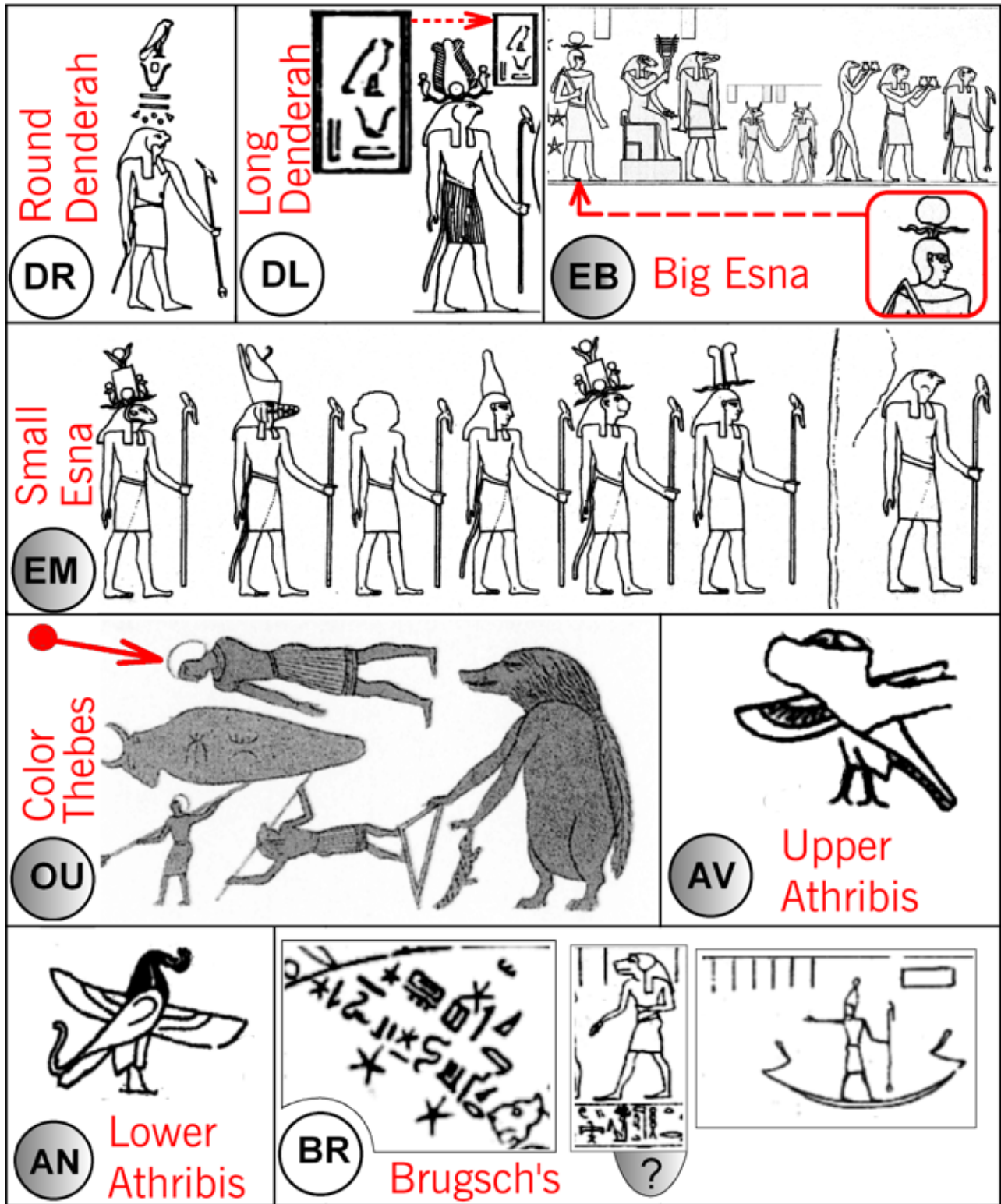
On the Athribis zodiacs, Jupiter is represented by a bird

<sup>132</sup>See [4], Vol. 6, p. 652.

<sup>133</sup>See [4], Vol. 6, p. 652.

<sup>134</sup>See [10], p. 31.

<sup>135</sup>See [120], p. 47.



# JUPITER in Main Horoscope

Figure 4.36  
 Representations of Jupiter in the main horoscope  
 on different Egyptian zodiacs



with snake-like tail and head. This detail can be clearly distinguish on the Lower Athribis zodiac (see Figure 4.36 (AN)), but this detail on the Upper Athribis zodiac is damaged (see Figures 2.13 and 4.36 (AN) and (AB)). This identification of Jupiter on the Athribis zodiacs agrees with the Flinders Petrie explanation that snaky birds must symbolize Jupiter. According to the ancient mythology, Jupiter was throwing lightnings, which are snake-shaped, from the heaven at the Earth. We didn't use the Flinders Petrie idea, however, we obtained the same identification as a result of our computations.

We would like to point out that on Figure 4.36 (EB) the symbol of the spring equinox, which is placed right in the middle of the Jupiter procession, is shown in a smaller size. By doing so we wanted to emphasize only the symbols directly related to Jupiter. The original (undistorted) look of this fragment of the Big Esna zodiac is shown on Figure 4.37.

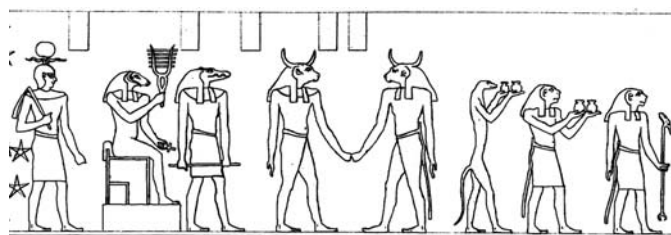


Figure 4.37

*The fragment of the Big Esna zodiac showing the Jupiter procession broken by the spring equinox sign.*

#### 4.4.5. Mars in the Main Horoscope

On Figure 4.39, we show the representation of Mars in the main horoscope on different Egyptian zodiacs. Again we use the same convention in which we mark with shaded labels those zodiacs where it was not possible to identify the symbol of Mars during the first stage and the identification was obtained only after the calculations. On Figure 4.39 we skipped the symbols representing Mars on the Petosiris zodiacs. They are of different type and we will discuss them later in this chapter.

For the Brugsch zodiac, there are three representations of Mars shown of Figure 4.39 (BR). In the Demotic Horoscope, Mars is indicated by an inscription, which was translated from Demotic by H. Brugsch as “*Hor-Teser*”, what according to his claim means Mars<sup>136</sup>.

On majority of the other horoscopes, except the Big Esna and the Athribis zodiacs, Mars is shown as a male figure with a falcon head. On the Big Esna zodiac, there

is no figure with a falcon head present at all. The identification of Mars with a falcon-headed male figure was first suggested by Henry Brugsch in the case of the Denderah zodiacs. H. Brugsch translated a hieroglyphic inscription placed near the head of this figure (see Figure 4.39 (DL)) as “*Hor-Tos*”, what means “*Red Planet*”<sup>137</sup>. Let us point out that only Mars is called the Red Planet because of its redish appearance. This identification of Mars on the Long Denderah zodiac was adopted by Morozov and all other investigators of the Denderah zodiacs. On the Round Denderah zodiac, there is also the same figure of Mars (see Figures 4.39 (DR) and 4.38) placed over Capricorn with a hieroglyphic inscription near its head. This inscription, according to the translation of modern Egyptologist S. Cauville, means also “*Red Planet*”, i.e. Mars<sup>138</sup>.



Figure 4.38

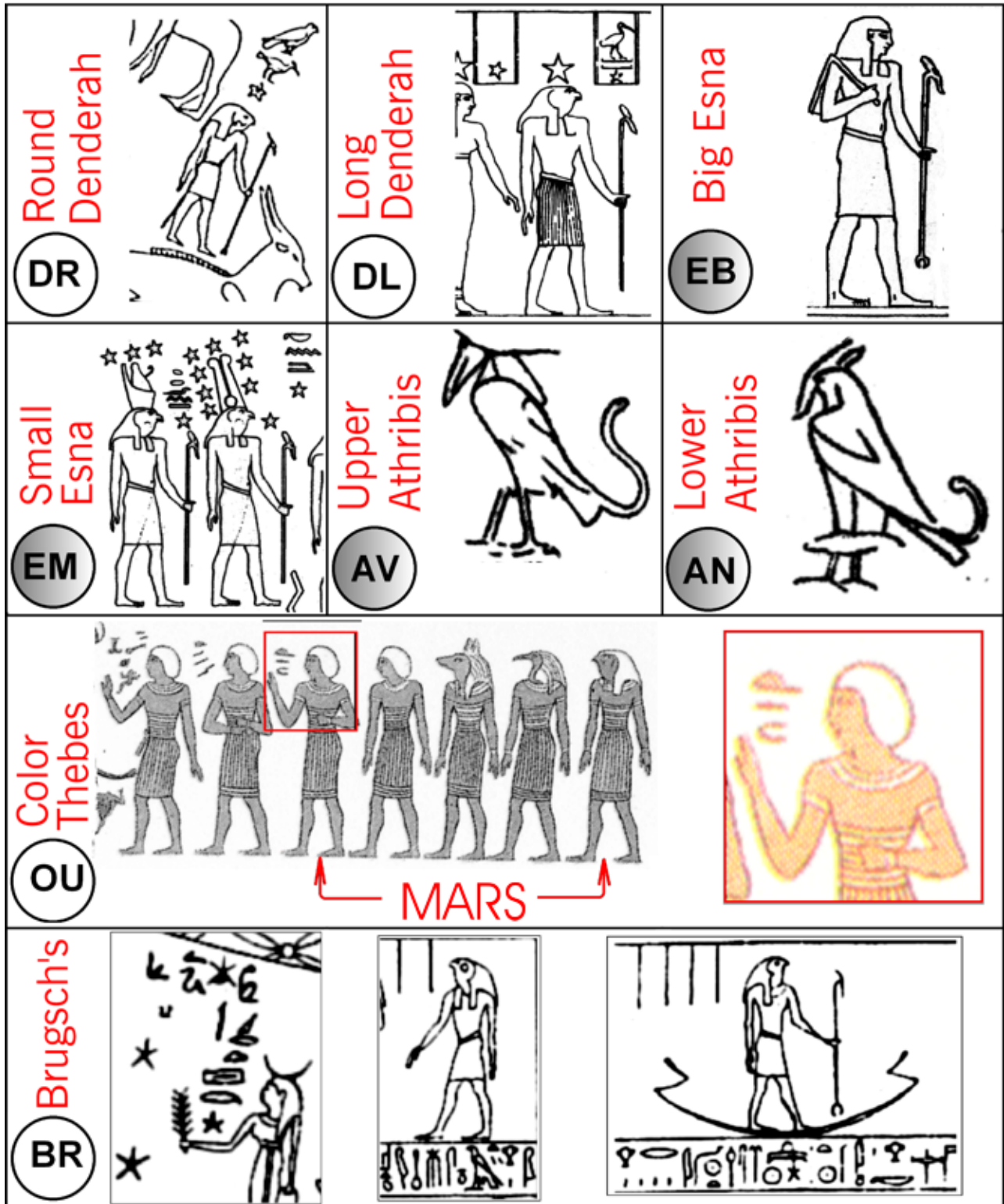
*The fragment of the Round Denderah zodiac showing the symbol of Mars (a falcon-headed figure) with a hieroglyphic inscription above its head.*

We also used the same identifications of Mars on the Denderah zodiacs, as well as on the Color Thebes and Brugsch's zodiacs, where there is only one planet with such an appearance. However, on the Big Esna zodiac there is no falcon-headed figure and on the Small Esna zodiacs there are many such figures present. We used our

<sup>136</sup>See [4], Vol. 6, p.697.

<sup>137</sup>See [4], Vol. 6, p. 652.

<sup>138</sup>See [10], p. 30.



# MARS in Main Horoscope

Figure 4.39  
 Representations of Mars in the main horoscope  
 on different Egyptian zodiacs



calculations to determine where is located Mars on each of the two Esna zodiacs (see Chapter 6 for details). It is remarkable that on the Small Esna zodiac falcon-headed figures appear in few planetary procession, but there is only one procession composed entirely of falcon-headed figures, and exactly this procession turns out to symbolize Mars.

#### 4.4.6. Venus in the Main Horoscope

On Figure 4.42, we show the representation of Venus on the Egyptian zodiacs. As before, Venus on the Petosiris zodiacs is not shown on Figure 4.42 and this case will be discussed later.

Concerning the Brugsch's zodiac, there are three different representations of Venus shown on Figure 4.42 (BR). An inscription in the Demotic Horoscope, which was translated by H. Brugsch, clearly identifies Venus. N.A. Morozov, who adopted Brugsch's identification of all planets in this horoscope, writes the following: *"In between Scorpio and Sagittarius, there is a Demotic inscription bending towards Sagittarius' head, which reads "Pe-Neter-Tau" (i.e. Mornig Planet) – Venus."*<sup>139</sup> On the other horoscopes in the Brugsch's zodiac, Venus is shown by figures. In the case of the Horoscope in Boats, Venus is easy to recognize as the only female figure on a boat. But, in the Horoscope without Walking Sticks, the representation of Venus, as a lioness, is more complicated, but still agrees with the convention used in the Egyptian symbolism. We will discuss this symbol in more details later in this section.

On Figure 4.40, we show a fragment of the Big Esna zodiac with Venus represented by two figures with walking sticks – a female accompanied by a lion-headed male. On right side of the same picture, we can also see Mars holding a walking stick and a whip.

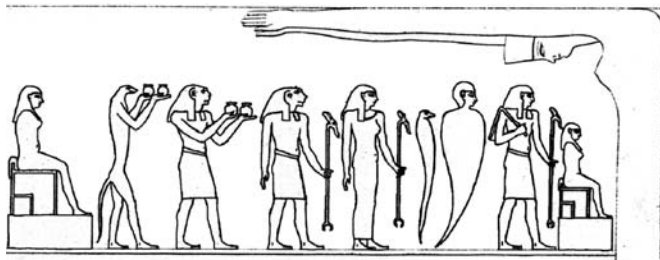


Figure 4.40  
*The fragment of the Big Esna zodiac showing figures of Venus and Mars*

Venus, as the only "female planet" (except Moon), which is practically always represented by a human female figure, and therefore, it is the simplest planet to identify on the Egyptian zodiacs. Notice that Moon, which was

also considered by the old astronomy to be a female<sup>140</sup>, is always represented (or at least accompanied) by a symbol of a crescent or a disc, so it is impossible to confuse these two planets. Consequently, in order to identify Venus, it is sufficient to find on a zodiac a female planetary figure. Let us point out that on all known to us Egyptian zodiacs, except the Athribis zodiacs, Venus can be immediately recognized as the only female planet. Our calculations reconfirmed the correctness of this approach – for all the considered zodiacs we obtained full and meaningful solutions.

Nevertheless, the famous Egyptologist Henry Brugsch made a mistake in identifying Venus on the Denderah zodiacs. Surprisingly, this mistake is persistently reproduced by other Egyptologists and dragged from one book to another<sup>141</sup>, and all these in spite of the fact that N.A. Morozov, already in the first half of the twentieth century, found this error, corrected it, and even explain the reasons why Brugsch made it. Let us explain this matter in detail.

When in the nineteenth century Henry Brugsch was decoding the astronomical contents of the Round Denderah zodiac and tried to find Venus on it, for some reason, he disregarded two female figures with planetary walking sticks (see Figures 4.42 (DR) or 4.41). Possibly, the reason for it was the absence of an inscription near the heads of these two figures. H. Brugsch, in his attempt of decoding of the planetary symbols, was guided by the meaning of hieroglyphic inscriptions without putting too much attention to the analysis of the Egyptian symbols. Indeed, near the two female planetary symbols there are no hieroglyphs, contrary to the other planetary symbols. But anyway, this is the only one occurrence of a female

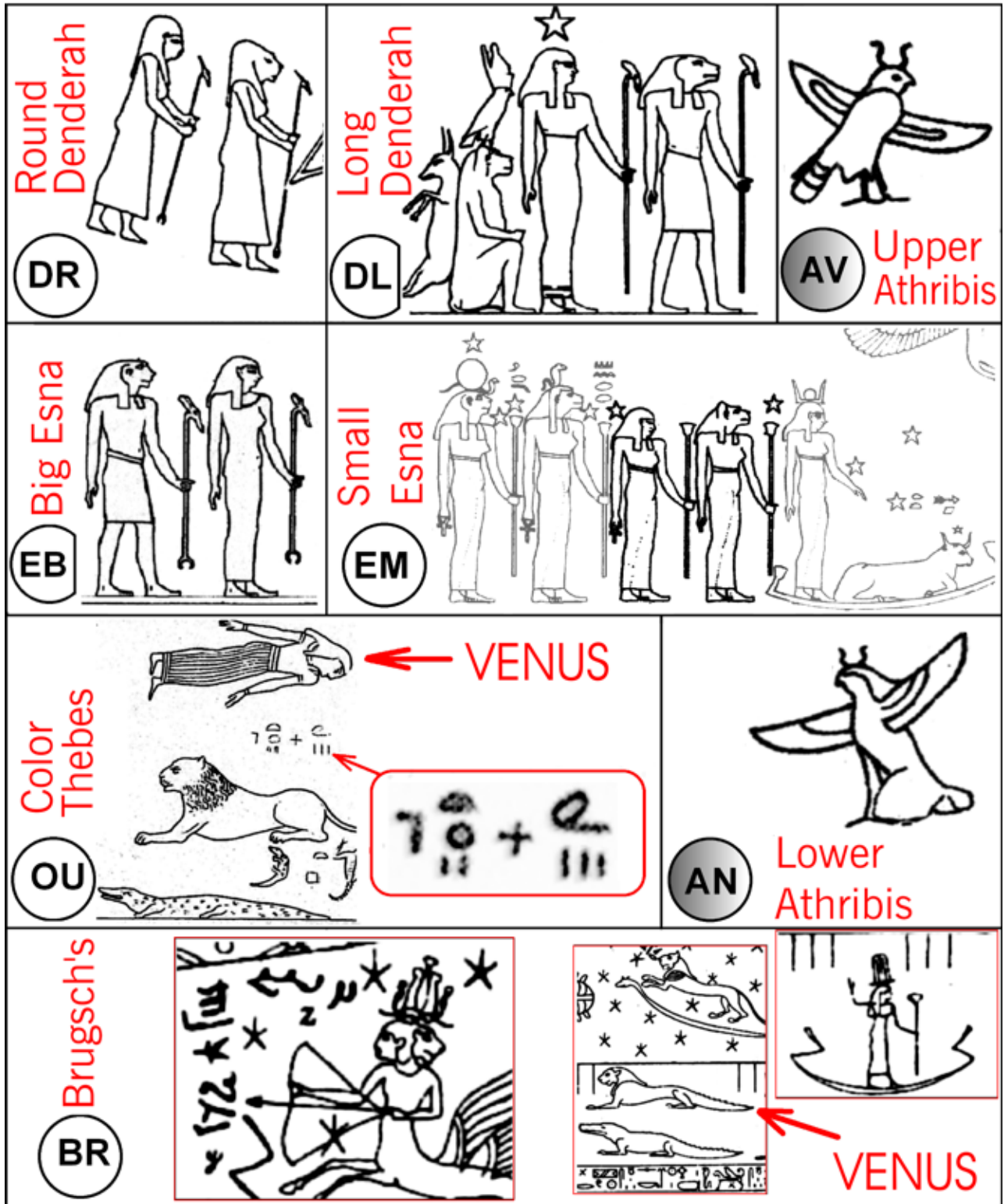


Figure 4.41  
*The fragment of the Round Denderah zodiac showing figures of Venus and Mercury*

<sup>139</sup>See [4], V. 6, p.697.

<sup>140</sup>See [26], p. 121.

<sup>141</sup>See for example [10], p. 30.



# VENUS in Main Horoscope

Figure 4.42  
 Representations of Venus in the main horoscope  
 on different Egyptian zodiacs



planetary symbol on the whole Round zodiac. Instead, Brugsch suggested that Venus is represented by a male(?) planetary figure with a double face. On the Round zodiac this figure is located between Pisces and Aquarius, and on the Long zodiac between Aries and Taurus (see Figures 4.41 and 4.43).

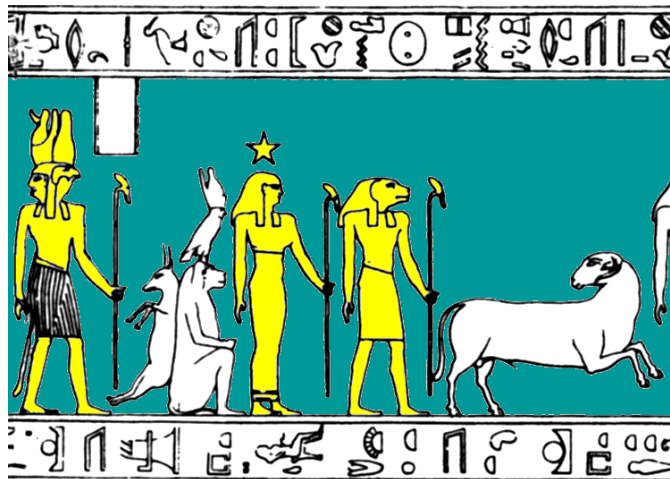


Figure 4.43

*The fragment of the Long Denderah zodiac showing figures of Venus and Mercury*

Henry Brugsch, in his investigation, found on the Long zodiac near the double-faced figure a hieroglyphic inscription, which he read as “*Pnouter-Ti*” and translated as “*God/Goddess of the Morning*”<sup>142</sup>. He interpreted this inscription as the name of Venus but he didn’t realize that from the astronomical point of view it could also be Mercury. N.A. Morozov, while checking the Brugsch’s identification found this mistake. Let us explain why the inscription “*God/Goddess of the Morning*” could also refer to Mercury as well as to Venus. It is known that in ancient Egypt Mercury and Venus were both called “morning star”<sup>143</sup>. They are inferior planets – those with orbits smaller than the Earth’s and that’s why for an observer on the Earth they could be visible only in the evening or morning, when the Sun is not too deep under the horizon. But Mercury is even closer to the Sun than Venus, in fact it is never more than 27°45’ of angle away from the Sun and thus it is seen only as a “morning” star just before sunrise or an “evening” star just after sunset. The angular distance of Venus from the Sun is within 48° so it can be seen also at the beginning and the end of a night. In fact, the name “*God of the Morning*” fits better Mercury than Venus. Moreover, there are other more appropriate planetary symbols for Venus on the both Denderah zodiacs. Namely, as we’ve already explained, on the Round zodiac there is a pair of two females with walking sticks (one of

them with a lion head) and on the Long zodiac there is a female with a walking stick escorted by a lion-headed male figure with a walking stick.

Let us notice that on Egyptian zodiac usually is represented by a couple of planetary figures, one of which is a female and another either a female or a male. On the other hand, all the “male planets” on Egyptian zodiacs, i.e. Saturn, Jupiter, Mars, Mercury and sometimes the Sun (when it is shown by a human figure), are always males.

This double appearance of the inferior planets on Egyptian horoscopes, i.e. a two-faced Mercury and a two-figure Venus, can be explained from the astronomical point of view. The appearances of each of these two inferior planets alternate among mornings and evenings only. These morning and evening appearances are separated by periods of invisibility, which in the beginning of the ancient astronomy was considered as a physical disappearance of the planet. The reappearance of the planet was seen as the birth of a new – morning or evening planet. After some time it was realized the same planet was observed in the mornings and the evenings, which was simply invisible in between. For example, in classical Greece Mercury was called Apollo when it appeared as a morning star and Hermes, when it appeared as an evening star. This old belief left its traces in the ancient Egyptian astronomical symbolism in a form of the double representation of these planets. However, N.A. Morozov pointed out that the creators of the Egyptian zodiacs had already a clear understanding of the true nature of the morning/evening planets, which means that these zodiacs could not belong to the epoch of the early astronomy.

A question arises, after identifying Venus with the figure of Mercury, how Egyptologists explain the presence of the female planetary symbol in a different part of the zodiac? Simply, they are no option left for them, and this definitely creates a big problem. They have no idea what to do with these female planetary symbol. For example, French Egyptologist S. Cauville, in her detailed study of the astronomical symbolism of the Round Denderah zodiac completely ignores this female pair (see Figure 4.41) representing Venus<sup>144</sup>. Nevertheless, she provides some explanation for the all other figures in the vicinity of the zodiac belt on the Round zodiac and conveniently overlooks the correct Venus representation! This deny of the acknowledgment for the correct Venus symbol on the Round Denderah zodiac suggests that Egyptologists realize some flaws in the Brugsch’s identification of Venus with the male two-faced figure. However, what does trouble them to correct the Brugsch’s mistake? Maybe, correcting mistakes made by the prominent classical scholars is considered in Egyptology

<sup>142</sup>See [4], Vol. 6, p. 653.

<sup>143</sup>See [122], page 117.

<sup>144</sup>See [10].

as a blasphemy?

Let us mention that Silvie Cauville, when discussing in [10] the figure of Mercury on the Round zodiac, which she calls Venus, translates the hieroglyphic inscription above the Mercury's head as *"le dieu du matin"*, which in French means *"the god of the morning"*. Let us point out that the noun *"le dieu - the god"* is of masculine gender, so again it confirms the male nature of this figure, which is of course clear from its appearance. We would like to point out that the Egyptian hieroglyphs indicate clearly the gender<sup>145</sup>, and the Cauville's translations demonstrate that this inscription is related to a male figure.

We should admit that in some cases Egyptologists correctly identify Venus and Mercury on the Egyptian zodiacs, i.e. by choosing the female planetary figure as Venus and the two-faced male figure as Mercury. However, this routine is applied only to the zodiacs that were not previously analyzed by such great authorities in Egyptology as for example the renowned H. Brugsch, and consequently there is no danger of creating contradictions with their opinions. For example, the contemporary specialists in the old Egyptian astronomical texts, the well-known Egyptologists O. Neugebauer, R.A. Parker and D. Pingree suggest in [5] a decoding of the Petosiris zodiacs, where Venus is represented by a female bust and Mercury by a two-faced

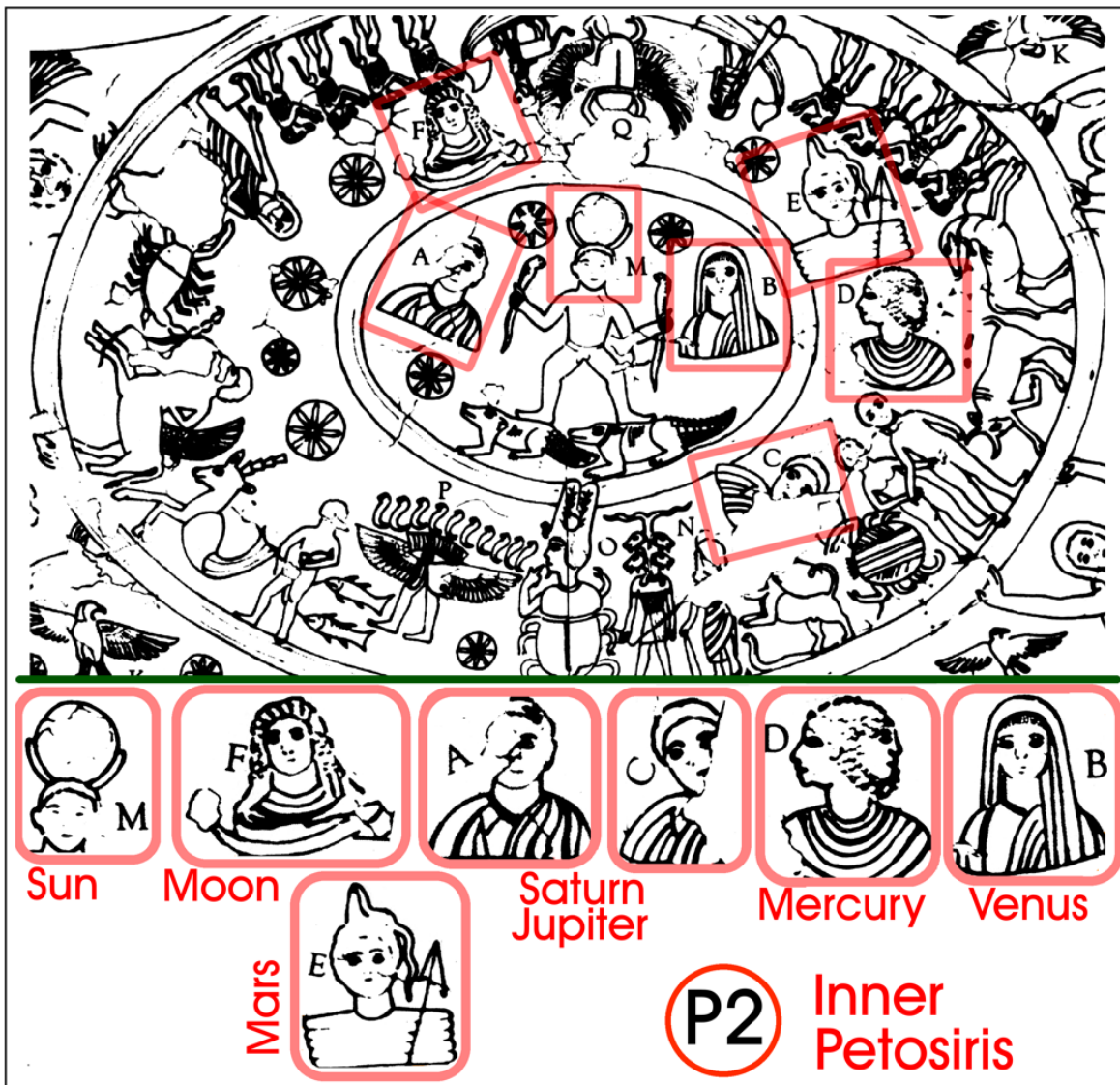


Figure 4.44  
*Planets on the Inner Petosiris zodiac*

<sup>145</sup>See [9], p. 119.



male bust, and this is a correct identification. We should say that on the Petosiris zodiacs all the planets, except the Sun, are shown in a form of busts (see Figure 4.44). For example on the Inner Petosiris zodiac there are two female busts, but one of them sits on a crescent indicating Moon, and the second one, by exclusion must represent Venus. On the same zodiac, Mercury is shown by its standard representation – two-faced male figure (see Figure 4.44). By making this identification the authors of [5], practically make correction of the Brugsch’s mistake. If they were following the Brugsch’s idea, they should recognize the two-faced male figure as Venus and, in the same time, identify a male planet with one of the female figures. On this zodiac the number of busts is equal to the number of planets, so each bust has to represent a planet. As there is no partial horoscope here, there is no room for any manipulation with the planetary figures and the Brugsch’s mistake becomes obvious.

On the Color Thebes zodiac (OU) there is only one variant for Venus possible. Venus is represented by the only female figure located in the horoscope area on this zodiac (see Figures 4.42 (OU) and 1.3). Let us notice that on this zodiac there are no figures with walking sticks present and the planets are indicated by figures accompanied by inscriptions. On Figure 4.42 (OU), we show the magnified inscription corresponding to Venus.

We’ve already discussed the inscription indicating Venus in the Demotic Horoscope on the Brugsch’s zodiac. Since on this horoscope all the planets are marked by Demotic inscriptions, we rely on the Brugsch’s translation. In the Horoscope in Boats, Venus is easily recognized as the only one female figure among all the other figures with walking sticks standing in boats (see Figure 1.15). Note that this figure has a long dress and its step-size is noticeably smaller than the step-size of other figures. On the Horoscope without Walking Sticks, the representation of Venus is unusual. It was first determined by identifying all the other planets so there was only one symbol left for Venus. This symbol appears to be the lioness and the crocodile under it (See 4.42 (BR)). It is interesting to compare it with the Venus representation on the Color Thebes zodiac. On the both zodiacs Venus is shown in Leo. Notice that on the Color Thebes zodiac beside of the female figure symbolizing Venus, there is exactly the same combination, as on the Brugsch’s zodiac, of a lion and a crocodile under it. Consequently, there is a strong indication that such a combination of symbols should be associated with Venus in Leo.

Let us emphasize that a representation of Venus on Egyptian zodiacs is very often endowed with lioness attributes. This is common appearance in main horoscopes, but it is even more common in the symbolism of partial horoscopes, what will be discussed later. For ex-

ample, on the both Denderah zodiacs and the both Esna zodiacs one of the two figures representing Venus has a lioness’ head, what can be seen more clearly on Figure 4.28, where the “goddess” Sekhmet has exactly the same appearance. The fact that Sekhmet or Sekhet is represented with a lioness’ head is well known to Egyptologists<sup>146</sup>. On Figure 4.45 we show two Egyptian stone statues of Sekhmet, where it is easy to see that it indeed has a lioness’ head.



Figure 4.45  
*Photographs of two stone statues representing the “goddess” Sekhmet<sup>147</sup>*

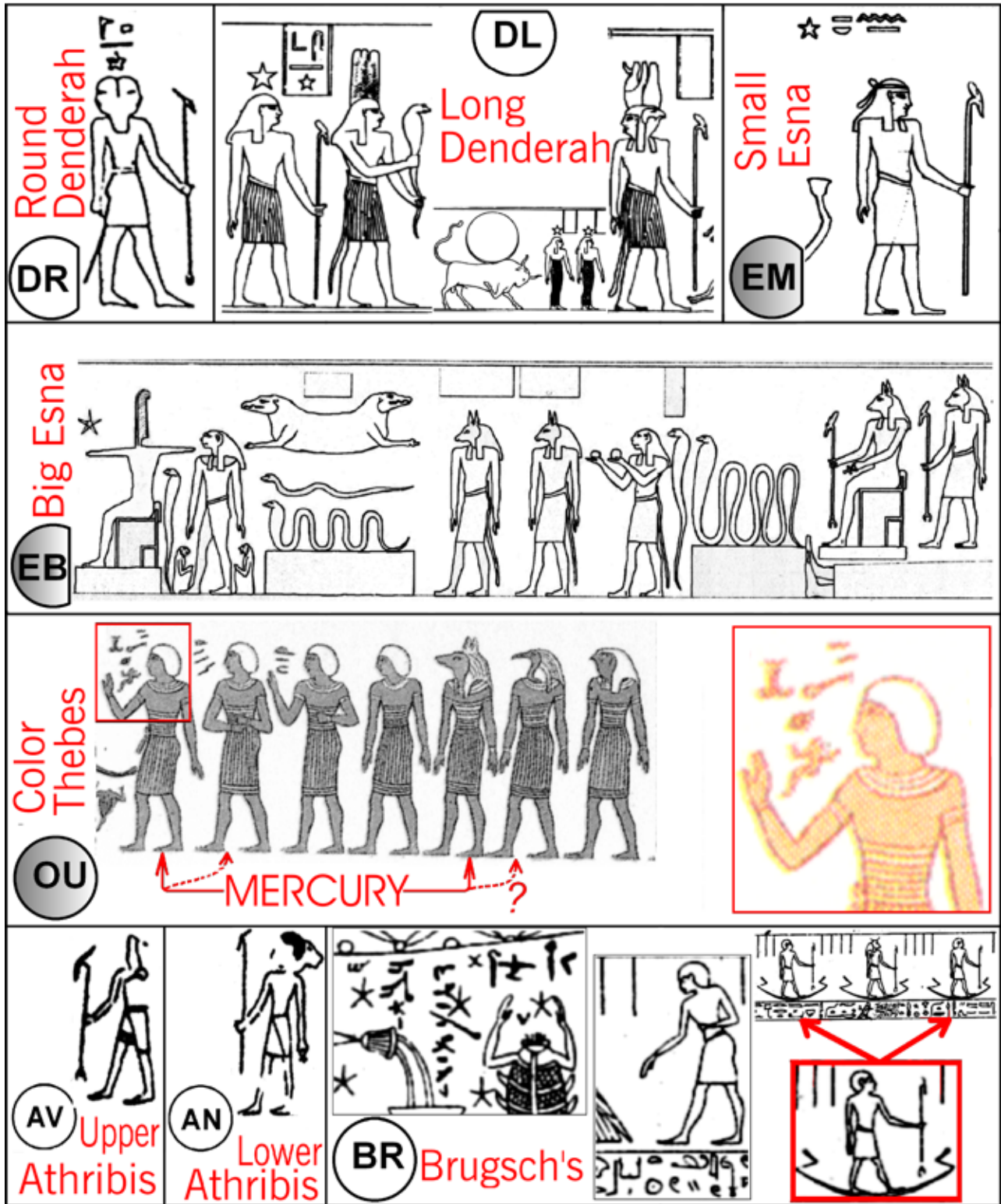
#### 4.4.7. Mercury in the Main Horoscope

On Figure 4.46, we show the representation of Mercury in the main horoscope on different Egyptian zodiacs. The representation of Mercury on the Inner Petosiris zodiac (P2) is given on Figure 4.47. Unfortunately, Mercury on the Outer Petosiris zodiac was badly damaged (see Chapter 7). As before, there are three different representations of Mercury shown on Figure 4.46 (BR), which correspond to the three main horoscopes on the Brugsch’s zodiac. In the Demotic Horoscope on this zodiac, Mercury’s name was inscribed in demotic between Scorpio and Libra (see Figure 4.46 (BR)). Henry Brugsch deciphered it as “*Sebek*” and translated it as *Mercury*.

As we already explained it earlier, Mercury was often represented in a form of a male figure with double face. This is the case of the Denderah, Athribis and Petosiris zodiacs (see Figures 4.46 and 4.47). However, on some Egyptian zodiacs there is no two-faced planetary symbol at all, and Mercury in such cases is represented by a male

<sup>146</sup> See [120], p. 156.

<sup>147</sup> The photo on the left was taken from [121], p. 36, and the photo on the right was taken by the authors in the Hermitage Museum in St. Petersburg, Russia.



# MERCURY in Main Horoscope

Figure 4.46

*Representations of Mercury in the main horoscope on different Egyptian zodiacs (some symbols not related to Mercury were intentionally shrunk)*

figure with one face. Usually it is a human face, but sometimes it could be a face of an animal, for example a jackal's face. We already mentioned that some planetary figures with jackal's or ibis' head can symbolize Saturn as well as Mercury, so these two possibilities should always be considered. On the Color Thebes zodiac, Mercury and Saturn are shown by two figures standing together, one with jackal's and another with ibis' heads. In this situation we are not able to definitely determine which one of these figures represent Mercury, so on Figure 4.46 (OU) we indicated with a solid arrow the most probable variant for Mercury (a figure with a jackal's head) and also another variant with a dashed arrow annotated with a question mark.



Figure 4.47

*Representation of Mercury on the Inner Petosiris zodiac.*

In our investigation we have adopted a principle that **if on a zodiac there is a double-faced male planetary figure, it is Mercury** (see the discussion in subsection 4.4.6).

#### 4.4.8. Additional Symbols associated with Mercury of Egyptian Zodiacs

In the process of our research it became clear that Mercury on various Egyptian zodiacs was often accompanied by additional symbols. In this subsection we will classify briefly these symbols, which turned out to be very useful in certain difficult situations to locate Mercury on a zodiac. These symbols are:

- *Creatures with double faces or with two heads. A pair of two identical animals looking in opposite directions or a figure pointing opposite directions with spread hands.* (See for example Figure 4.46 (EB)) Notice that on the Color Thebes zodiac among the hieroglyphs standing near the head of one of the figures, which is most probably representing Mercury, there is a small symbol of a person in a sitting position with arms spread in different directions (see Figure

4.46 (OU)). There is some resemblance between this figure and one of the sitting figures on the Big Esna zodiac (see Figure 4.46 (EB)).

- *A snake in a vertical position, sometimes held in a hand like a walking stick.* This symbol can also be sometimes be associated with Venus. This symbol is quite common in partial horoscopes but can also appear in main horoscopes. For example, notice two vertically placed snakes on the Big Esna zodiac in the Mercury procession (see Figure 4.46 (EB)). In certain cases, like in the partial horoscope of the summer solstice on the Big Esna zodiac, the snake can be two-headed (we will discuss this example in the subsection devoted to partial horoscopes). We would like to point out that snakes placed horizontally, even with two heads, can be found in many places on the Egyptian zodiacs and they are not connected to Mercury. Some types of such snakes denote the equinox points. Similarly, there is also a special type of a snake in a vertical position, "sitting" on its tail, which is neither related to Mercury but denotes the solstice points. We will discuss these symbols later in more detail.
- *A feather on the head of figure or replacing the head.* This symbol very often denotes Mercury, but there are also some exceptions. It is common symbol for Mercury in partial horoscopes, in particular for the summer solstice horoscopes. Notice that the figure with spread hands sitting in the Mercury procession on the Big Esna zodiac (see Figure 4.46 (EB)) has a feather instead of its head.

#### 4.4.9. Representation of Mercury in two locations on one Horoscope

Mercury is moving on the sky much faster than all other planets (except the Sun and Moon). In one or two days it can noticeably change its position on the ecliptic. We should mention that a typical horoscope shows a date with an accuracy from one to several days and sometimes even more than one week. We are not sure about the intentional accuracy of the dates encoded in the Egyptian zodiacs, but it is likely that it was up to several days. As in the old epochs the time was sometimes measured in weeks not in days, it is probable that the Egyptian zodiacs were intended to show the astronomical picture for the whole week when some important events related to this zodiac took place. If it was indeed the truth, then a horoscope was a perfectly sufficient tool to commemorate an important date with such accuracy. However, in order to keep up with the fast changing position of Mercury, which within one week could move from a visible to invisible position (or vice versa), sometimes it was necessary to record its multiple positions. This would explain the fact



that on some Egyptian zodiacs Mercury appears in two positions simultaneously. For example on the Long Denderah zodiac, Mercury is shown in two close to each other positions, in one of which it was visible but in another it wasn't.

The fact that Mercury is shown on the Long Denderah zodiac two times, was already noticed by N.A. Morozov<sup>148</sup>. On Figure 4.46 (DL) we show a fragment of the Long Denderah zodiac with two symbols representing Mercury. On the left from Taurus, Mercury is shown in visible position by a couple males, one of which has a walking stick and another holds vertically a snake and has two feathers on its head (which are features of Mercury). The visibility of Mercury is indicated here by a star symbol over the head of the figure with a walking stick. On the right side from Taurus, Mercury is shown as a two-faced male with a walking stick. As there is no star over its head, it wasn't visible at that time. The symbols of visibility are not the same of different Egyptian zodiacs and we will discuss them in more detailed way later in this chapter. On the both Denderah zodiacs the visibility symbol, which was discovered by Morozov, is a star over the head.

Mercury has also two representations in the Horoscope in Boats on the Brugsch's zodiac (see Figure 4.46 (BR)).

#### 4.4.10. Relation between Mercury and the Roman god Janus

Let us make few remarks concerning the idea expressed by N.A. Morozov that Mercury corresponds to the two-faced Roman god Janus. This idea finds its support in the mythology. The Greek name of Mercury was Hermes<sup>149</sup> and this name is believed to be derived from *herma* – the Greek word for a heap of stones, such as was used in the country to indicate boundaries or as a landmark.



Figure 4.48  
*The god Janus on a Roman coin*<sup>150</sup>.

<sup>148</sup>See [4], Vol. 6, p. 654.

<sup>149</sup>See [26], p. 151.

<sup>150</sup>Taken from Encyclopaedia Britannica

Hermes was the swift messenger of the gods, and the planet's name is thus a reference to its rapid motions relative to the other objects in the sky. Hermes was also the god of roads and **doorways**, and he was the protector of travellers. He was also called *Hermes Propylaeus*, what means *Hermes the Gatekeeper*.

On the other hand, in the Roman mythology, the gate god is Janus and his name was derived from *jani* (i.e., ceremonial gateways in Rome). Janus is the god of all the doorways and was represented by a double-faced head, with or without a beard (see Figure 4.48). Occasionally he was depicted as four-faced. Such four-faced symbols can also be found on Egyptian zodiacs in partial horoscopes.

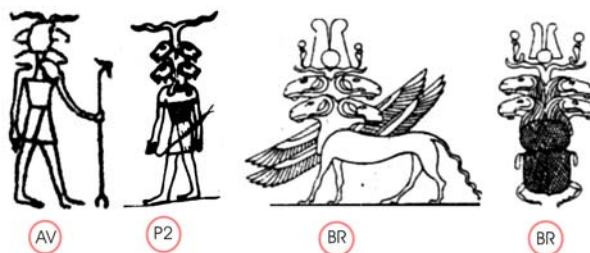
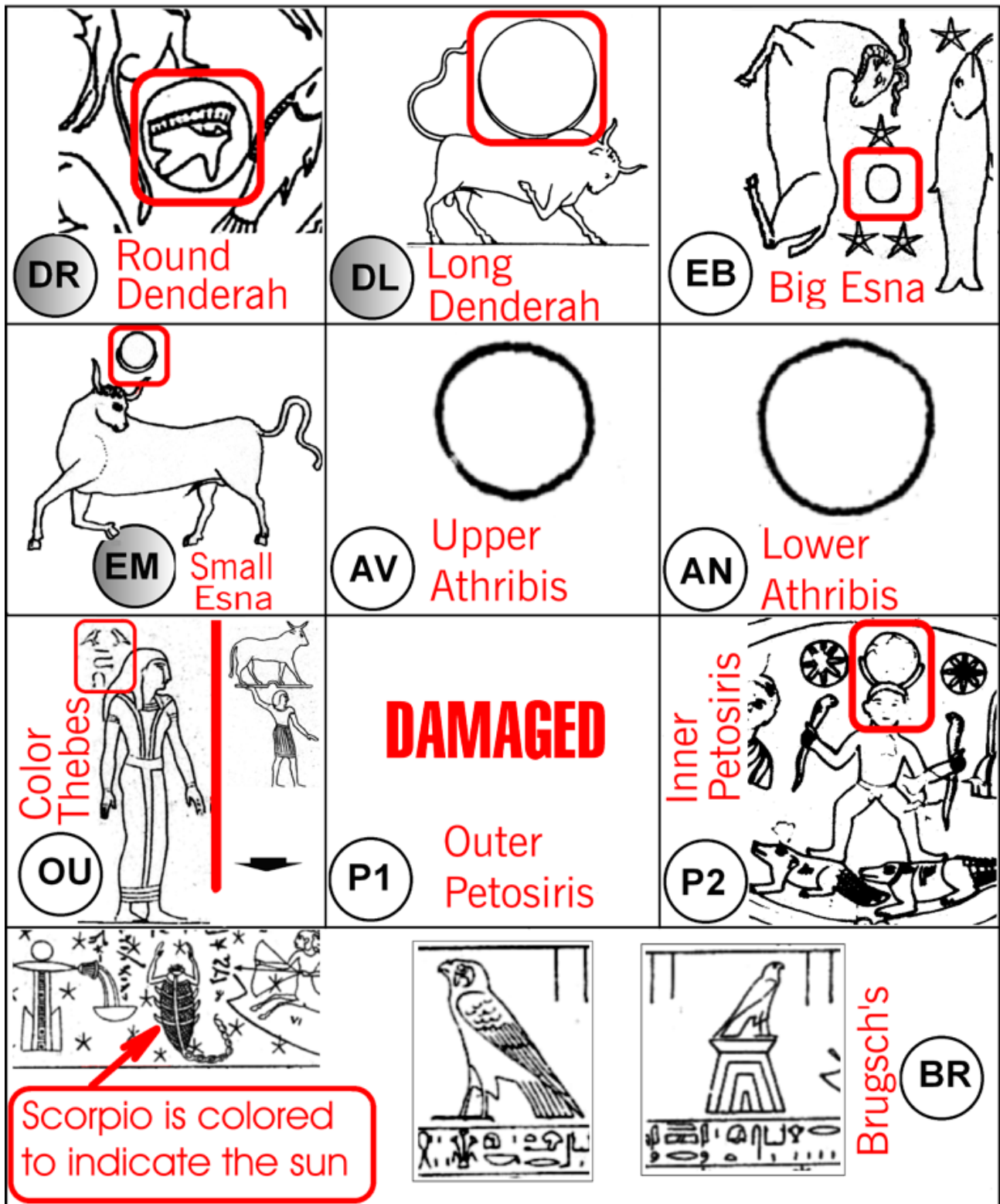


Figure 4.49  
*Four-headed figures on Egyptian zodiacs.*

#### 4.4.11. The Sun in the Main Horoscope

On Figure 4.50, we show the representation of the Sun in the main horoscope on different Egyptian zodiacs. It is not difficult to notice that the Sun in the most cases was shown as a circle. Sometimes, there was a narrow crescent marked on the circle near the edge, maybe in order to indicate that the new Moon's crescent always appears near the Sun. Indeed, usually we can only observe a part of the illuminated Moon's hemisphere. The whole hemisphere, i.e. the full moon, can only be seen when the Sun and Moon are positioned on opposite sides of the Earth. On the other hand, if the Sun and Moon are positioned on the same side of the Earth and are close one to another, we can only see a small part (or even nothing) of the illuminated hemisphere of Moon. This is why Moon "dies" or is "re-born always" near the Sun, where it appears as a narrow crescent. This particular representation of the Sun can be seen on the zodiacs DL, EM and P2 (see Figure 4.50).

On some Egyptian zodiacs, there is no special figure to denote the Sun, but still its location is specified in an indirect way. For example, in the Demotic Horoscope on the Brugsch's zodiac, there is no inscription neither a symbol to indicate the Sun. However, its position is clearly demonstrated by a color filling of the Scorpio's figure. This observation was already made by N.A. Morozov, who profoundly investigated the Demotic Horoscope. He wrote:



# SUN in Main Horoscope

Figure 4.50  
 Representations of the Sun in the main horoscope  
 on different Egyptian zodiacs

“Among the twelve zodiac constellations, only the Scorpio’s figure is colored to indicate that it disappeared in the sunlight that occurs in November, and the opposite to Scorpio the figure of Taurus is filled with black color to suggest that it “rules” through the whole night, or in other words, it culminates at the midnight.”<sup>151</sup> (See Figure 4.50 (BR))

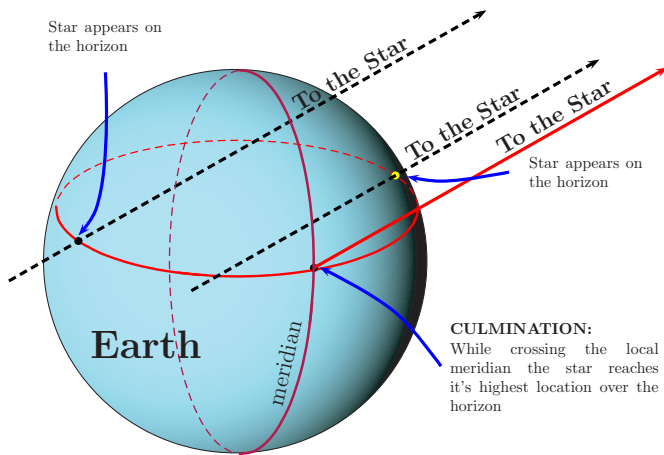


Figure 4.51

*Graph showing a star at the culmination point.*

Any star or planet located on the meridian is said to be at meridian transit or culmination. At the culmination point a star appears at the highest location over the horizon (see Figure 4.51). In a similar way we can consider the culmination of a whole constellation. The sun and a zodiac constellation that culminates at the midnight are located on the ecliptic on the opposite sides (see Figure 4.52).

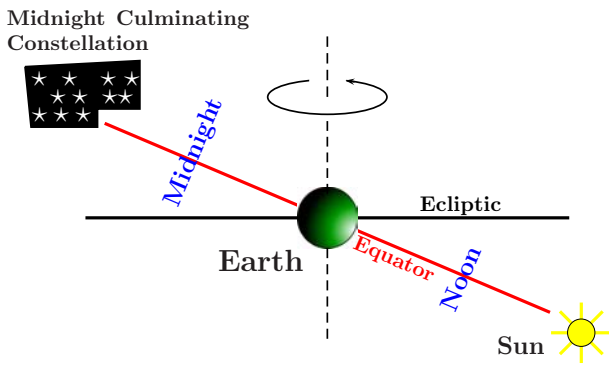


Figure 4.52

*Zodiac constellation, which culminates at midnight is oposite to the Sun on the ecliptic*

On a particular date, a zodiac constellation that culminates at midnight is the only one that can be observed through the whole night and therefore, it could be consid-

ered to be the “main” constellation of that night. Accordingly to this Morozov’s idea, the culminating at midnight constellation of Taurus, which is marked in black on the Demotic Horoscope, indicates that the Sun was located in the colored constellation of Scorpio, which is situated on the opposite side of the ecliptic.

On the two other main horoscopes on the Brugsch’s zodiac, the Sun is shown as a bird (see Figure 4.50 (BR)). Later, when we will discuss features of the partial horoscopes, we will present many examples of birds symbolizing the Sun. We will find out that all these birds look alike. One of such examples was already discussed, when we spoke about the partial horoscopes of the summer solstice, where the Sun is often presented as a bird sitting on a pole (see Figures 3.1 and 3.2). On the Long Denderah zodiac there are several symbols of birds, which belong to the partial horoscopes, indicating the movement of the Sun along the ecliptic. We will return to this discussion later in Section 4.x.x??, in which we will deal with partial horoscopes. Right now we would like to point out that this specific form of birds (see Figure 4.50 (BR)) was commonly used on the Egyptian zodiacs, mainly in partial but also sometimes in main horoscopes, to represent the Sun.

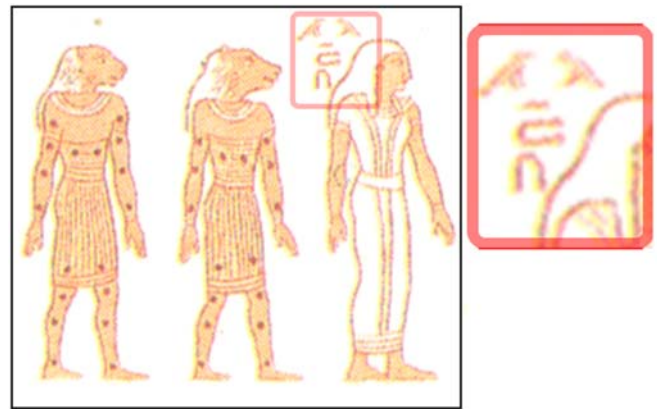


Figure 4.53

*A hieroglyphic inscription near the Virgo’s head on the Color Thebes zodiac.*

We have another example of a disguised representation of the Sun on the Color Thebes zodiac, where there is no special symbol for the Sun. In order to find the Sun we have to look for indirect indications of its location. This is not a complicated task. Notice that on this zodiac, the constellation of Taurus is shown in the way clearly suggesting that it was culminating (see Figure 4.50 (OU)). More precisely, the symbol of Taurus is held up in a hand of a man. Consequently, the Sun at that time should be on the opposite side of the ecliptic, in vicinity of Scorpio or Libra. Our computations proved that at that date the Sun was located in Virgo near its border with Libra

<sup>151</sup>See [4], Vol. 6, p. 696.



(see Chapter 7 for the details). We would like to mention that on the Color Thebes zodiac, there is a hieroglyphic inscription above the head of Virgo with two symbols of birds (see Figure 4.53). It is quite possible that it denotes the Sun in Virgo.

In general, finding the Sun and Moon on the Egyptian zodiacs is not very complicated procedure. However, since the Sun and Moon could be represented by similar or even identical symbols, it is sometimes necessary to consider several possible variants for their identifications in the main horoscope. There is also a possibility that the Sun in the partial horoscope of the spring equinox can be represented by a similar symbol as in the main horoscope. Therefore, in such situations additional variants should be considered. This is exactly the case of the two Denderah zodiacs.

#### 4.4.12. The Astronomical Meaning of the Egyptian Eye Symbol

On the Round Denderah zodiac, in the circle that represents the Sun, there is a symbol of an eye (see Figure 4.54). Let us point out that the identification of this circle with the Sun in the main horoscope was obtained as a result of our computations. In particular, we also considered the possibility that it could represent Moon, but such a variant was rejected because it didn't produce a full solution.

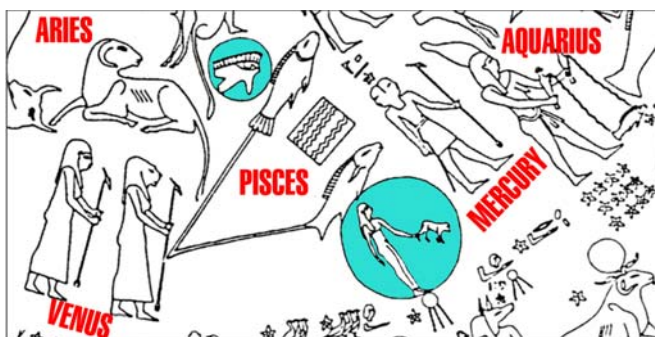



Figure 4.54

*Two representations of the Sun on the Round Denderah zodiac: the circle with an eye (in the main horoscope) and the circle with a female-Venus inside (in the partial horoscope)*

We should explain that in the previous investigations the circle with an eye on the Round zodiac was interpreted in several different ways. For instance, N.A. Morozov identified it with the Sun<sup>152</sup> while T.N. Fomenko with Moon<sup>153</sup>. Let us notice that Egyptologists connect this

<sup>152</sup>See [4], Vol. 6.

<sup>153</sup>See [1].

symbol  of an eye with the Sun as well as with Moon: “The sacred eye, or the eye of Ra, or heaven, is the Sun ... But there are two eyes represented, and ... the right the Sun and, the left the moon.”<sup>154</sup> However, we would like to suggest another explanation of the symbol of an eye on the Egyptian zodiacs, at least in the cases when it is an attribute of a planet.

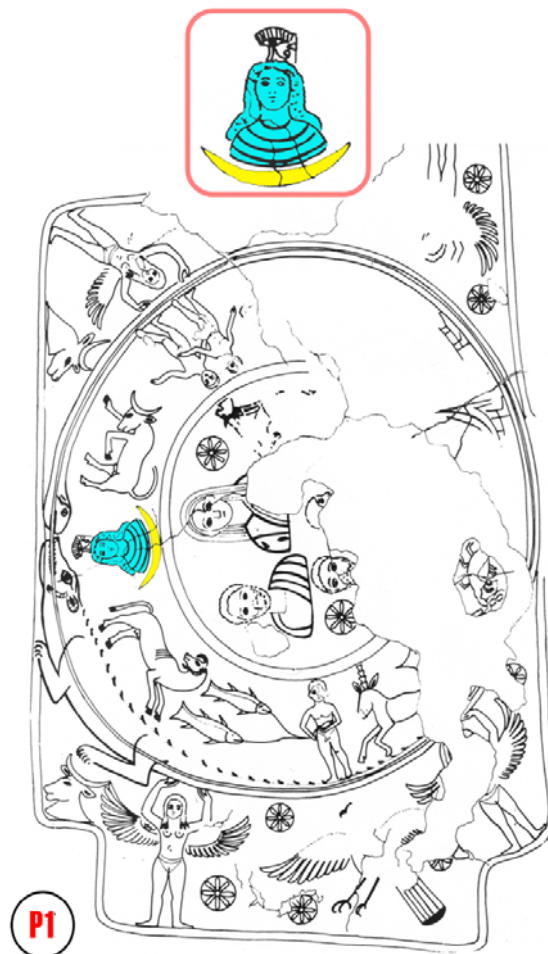



Figure 4.55

*The Outer Petosiris zodiac P1. Moon with the eye symbol is emphasized by colors. See the enlarged detail on the top.*

Among all the Egyptian zodiacs that we investigated, this eye appeared (in association with a planetary symbol) only twice, and in the both cases near Aries. On the Round zodiac it is placed between Aries and Pisces, and on the Outer Petosiris zodiac, it is on the head of the female representing Moon, in between the symbols of Aries and Taurus (see Figures 4.54 and 4.55). Let us observe that exactly in Aries there is a star named *Eye of Aries* or simply *Eye*, which was a famous star in ancient

<sup>154</sup>See [120], p. 54.

astronomy. Nowadays, it is called *Alpha Aries* (or simply “ $\alpha$ Aries”) and it is the brightest star in the Aries constellation (this convention to assign assigned Greek letters to stars in a constellation, according to their visibility, where  $\alpha$  is reserved for the brightest star, was introduced by the German astronomer Johann Bayer in the seventeenth century). Aries representation as a ram (Aries in Latin is *Ram*) is identified with the Egyptian god Amon, who is more frequently found in conjecture with Ra, as Amon-Ra, than alone. So, the Egyptian equivalent for the expression *Eye of Aries* could very well be *Eye of Amon-Ra* or simply *Eye of Ra* and be symbolized by .

Therefore, it seems that the eye as a planetary attribute on the Egyptian zodiacs signifies simply the fact that the planet was in proximity of the star *Eye*. We have only two examples with the eye and in both of them it is related either to the Sun or Moon, so based on this information we can conjecture that this symbol was used, as planetary attribute, in association with the Sun or Moon only.

#### 4.4.13. Moon in the Main Horoscope

On Figure 4.58 we show Moon on different Egyptian zodiacs. Let us recall that we use the convention in which we mark with shaded labels those zodiacs where it was not possible to identify the symbol of Moon during the first stage and the identification was obtained only after the calculations.

Moon is simple to identify in the case, when there is a symbol of crescent appearing on the zodiac. For example, such symbols can be found on the both Petosiris zodiacs and the color Thebes zodiac. It is more complicated case, when the symbol representing the Sun the zodiac is similar or even the same as for Moon. In such situation we have to consider several possible variants. For instance, on the Small Esna zodiac the Sun and Moon have the same representation (compare Figures 4.58 (EM) and 4.50 (EM)) as a circle with a crescent marked along its lower edge. As we already mentioned, a narrow crescent could be added to the circle representing the Sun to indicated that Moon in such a form can only be located not far from the Sun. But the same symbol of a circle with a crescent was also used for Moon, so in such a case the final identification should be done based on the calculation using the additional astronomical information.

Our identification of Moon on the Denderah zodiacs was obtained after long computations involving several possible variants, but verification of the additional data showed that in fact there is only one possibility for the correct identification. The calculations were conducted independently for each of the Denderach zodiacs and the same figure turned out to represent Moon in both cases. This

figure was somehow unexpected because previous investigators didn't even consider it as a planetary symbol. In their research the existence of the partial horoscopes wasn't realized and consequently some important symbols were disregarded. For example, on the Round zodiac there are *three circles* in the area of the zodiac constellations. Not surprisingly, one of these circles was dismissed by N.A. Morozov, who assumed that it was representing the “goddess of justice” or other divinity. This was the circle on Libra (see Figure 4.56). Morozov's explanation was accepted by several other researchers. The results of our calculations proved the contrary – this was the symbol of Moon in the main horoscope (see Figure 4.58 (DR)).

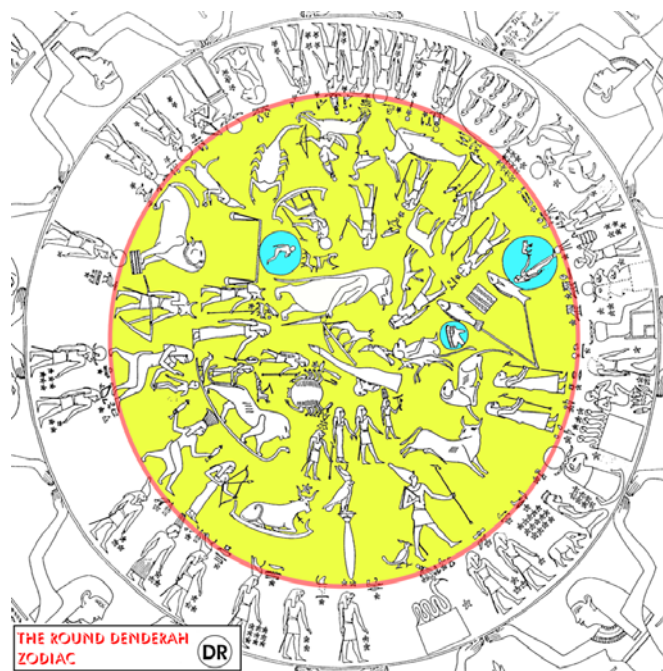
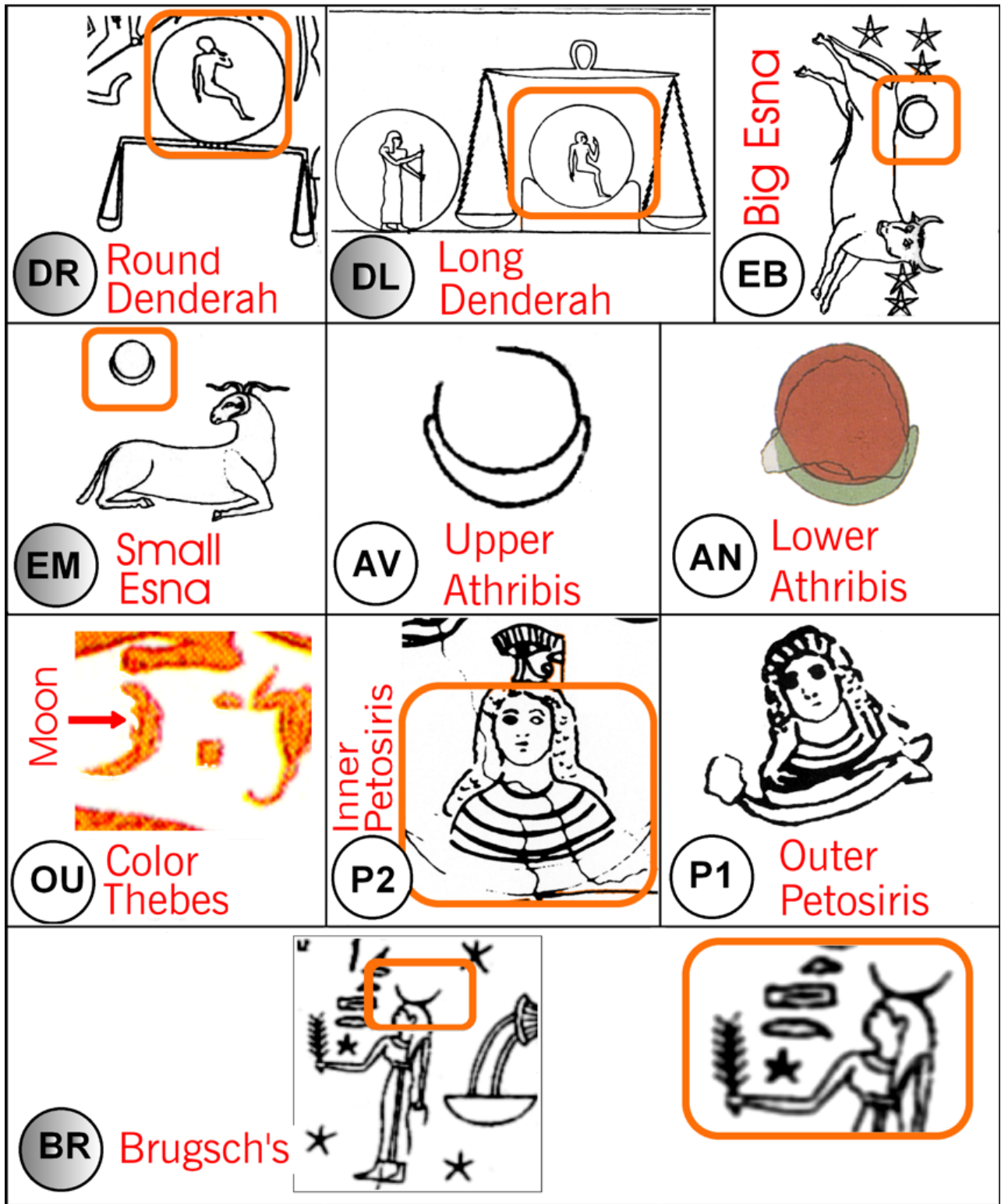


Figure 4.56  
*Three circles (marked in blue) in the planetary area (colored for clarity) on the Round Denderah zodiac.*



Figure 4.57  
*Infant figure with a finger in the mouth on the Denderah zodiacs: on the left - from the Round zodiac, in the middle and on the right - from the Long zodiac (from Bode's Uranographia and the same figure from the Napoleon album).*



# MOON in Main Horoscope

Figure 4.58  
 Representations of Moon in the main horoscope  
 on different Egyptian zodiacs



In spite of the fact that this identification was obtained as a result of computations, it seems to be natural. Moreover, Morozov himself explained a similar figure on the Long zodiac as a symbol of Moon (see Figure 4.57). He wrote about it the following: “... *the figure of a girl has a Moon symbol on her head. The absence of breast and her finger in the mouth indicate that she is a child.*” We show the symbols described by Morozov on the middle (from Bode’s Uranographia) and the right (from Napoleonic album) pictures on Figure 4.57. On the left picture we show the same figure of a child (with a finger in the mouth) inside the circle, that we identified as the symbol of Moon. Notice that among all the planets or stars only Moon is changing its appearance and is called either *young* or *old*. In this way the symbol of child should be associated with Moon and Morozov was right in this idea. Let us explain that the symbol of the child-Moon, described by Morozov belongs to the secondary line on the Long Denderah zodiac, outside the horoscope area. Strangely, he didn’t recognize the same symbol in Libra on the both Denderah zodiacs. His claim that it is the “justice goddess” or Hercules contradicts its appearance in a form of a child.

## 4.5 Planetary Symbols in the Partial Horoscopes

The Egyptian symbols of planets in partial horoscopes are usually very different from the planetary symbols in main horoscopes, and it should be like this. Otherwise, it would be impossible to extract the main horoscope, understand its meaning and decode the date of the zodiac. Apparently, the ancient Egyptian astronomers and artists didn’t want to create such a confusion and they tried to avoid mixing up the symbols of the main and partial horoscopes. We have to acknowledge that they succeeded in achieving this goal. In most of the cases, it is hard to mistake a planet from a partial horoscope for a symbol from the main horoscope.

Partial horoscopes on the Egyptian zodiacs are associated with the solstice and equinox points. In particular, all of them are located around the symbols of the same four zodiac constellations, which contain these four points. Recall, that the equinox point is a position of the Sun, when day and night are of equal length, and a solstice point is the Sun’s location when day or night is shortest. These four points move along the ecliptic, but their movement is very slow. It needs thousands of years to travel across one zodiac constellation. Therefore, it is not surprising that on every investigated by us Egyptian zodiac the autumn equinox is always shown in Virgo, the winter solstice – in Sagittarius, the spring equinox – in Pisces, and finally the summer solstice – in Gemini.

The partial horoscopes always reside near the same four zodiac constellations, which in many aspects affect their appearance. For example, some planetary symbols in partial horoscopes could be integrated with the constellation figures as their attributes or some objects, which at the first glance may look insignificant. As a matter of fact, structure of partial horoscopes can be drastically different from the structure of the main horoscope, with the small details containing the important astronomical information. During the last centuries, the existence of partial horoscope was overlooked by Egyptologists and all the previous investigators. It is surprising how it is possible that so many experts were not able to understand correctly the principal structure of an Egyptian zodiac. An explanation to it could be the fact that their efforts were concentrated on individual zodiacs, without an attempt to make a careful and complete comparative analysis of multiple Egyptian zodiacs. The symbolism of partial horoscopes was understood only after comparing all known to us Egyptian zodiacs. We noticed that similar symbols or details appear on different zodiacs not chaotically but in a certain organized way. The further investigation revealed that on Egyptian zodiacs, aside of the main horoscopes, there are also shown planetary configurations associated with the four solstice and equinox points, which we decided to call *partial horoscopes*. These partial horoscopes appear on almost all the Egyptian zodiacs, not only on few “exotic” ones.

We are not going to present detailed tables of the planetary symbols in partial horoscopes, like it was done for the main horoscopes. These symbols are more individual, less uniform and often integrated into other symbols as their parts, so it is very inconvenient to discuss their meaning out of the zodiac context. In this section we will only initiate a discussion of the symbolism of the partial horoscopes, and later we will return to this topic at many occasions. In particular we will present a detailed explanation of partial horoscopes in Chapters 6 and 7, which are devoted to the decoding and dating of the zodiacs. Here we will only review several concrete examples just to give an idea how a partial horoscope is constructed in principle. One of these examples will be the partial horoscope of the winter solstice on the Round Denderah zodiac. This is the most famous Egyptian zodiac and its symbolism was analyzed and discussed in many works. Let us emphasize that our interpretation of these symbols, belonging to the partial horoscopes, is new.

### 4.5.1. First Example: Partial Horoscope of Autumn Equinox on the Long zodiac

On Figure 4.59, we show a fragment of the Long Denderah zodiac around the Virgo constellation. Recall that Virgo is the place for a partial horoscope of the autumn

equinox, and indeed such a partial horoscope can be found here.

In order to understand the astronomical symbolism shown on Figure 4.59, first of all we have to remember that on the Long Denderah zodiac every constellation is represented by three decans (see Section 4.2.1), one of each is the specific figure of the constellation and two others are the female figures, which all look alike. The symbol of Virgo is a female figure holding a spike in her hand (see Figure 4.53) and the two decans are behind her (see Figure 4.22). In this way the Virgo's symbol serves as her first decan. The partial horoscope of the autumn equinox is integrated into the second decan figure of Virgo, which on Figure 4.59 is shown enlarged. Immediately, one can notice that there is something different about this symbol. There are some planetary attributes incorporated and added here. The Sun is represented in a form of a bird near the girl-decan's head. Such figure of a bird indicates on the Long zodiac the places where the additional astronomical information related to the Sun and nearby planets was inserted.

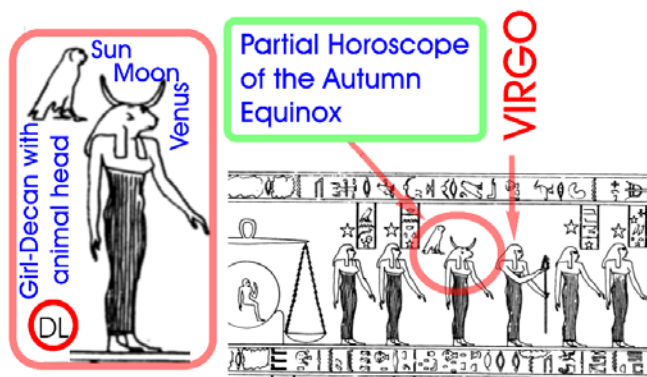


Figure 4.59

*Partial horoscope of the autumn equinox on the Long Denderah zodiac.*

The symbol of Venus and Moon can also be distinguished here. As it was already discussed in Section 4.46, one of the Egyptian attributes was a lioness. For example, Venus was often shown as female figure with a lioness head. This is for example the case on the Round Denderah zodiac (see Figure 4.42). Notice that the head of the second girl-decan in Virgo is not human but animal, and could definitely be a lioness head. Moreover, there the bird representing the Sun also has animal face recalling a lioness head (see the enlarged detail on Figure 4.59). Let us point out that among all the 24 girl-decans on the Long zodiac there are only two with modified appearance. One of them is the one that we are talking about, and another one is the girl-decan with a falcon head between Scorpio and Libra. As we will discuss it later, this symbol also car-

ries planetary information for a partial horoscope, which is the winter solstice one. Notice that the second girl-decan of Virgo actually looks the same (except for the planetary stick) as the symbol Venus could be. If there was a planetary stick in her hand, it would be definitely a Venus figure of the main horoscope with her usual lioness attribute. However, by expressing this incomplete Venus-alike look, the Egyptian artist achieved the goal of showing Venus in the partial horoscope without creating confusion about the main horoscope. The same girl-decan has another attribute – a crescent placed on her head. She the only decan with a crescent on her head, which we recognize as the Moon symbol in this partial horoscope.

To conclude this section, let us remark that there could be another way to decode this partial horoscope. On Figure 4.59, we recognized the face of the second girl-decan as lioness, and consequently decipher this horoscope as the Sun, Venus and Moon in Virgo. However, the drawing of the Long zodiac is not very precise and this face could also be recognized by someone as a bull-face. In this case the decoding of the autumn equinox partial horoscope would be completely different. On many Egyptian zodiacs, including Denderah zodiacs, the bull-head with a crescent symbolizes Saturn (see Figure 4.28), so in this case it would be the symbol of Saturn (instead of Venus and Moon). Venus, which is usually present in partial horoscopes because it is never too far from the Sun, still could be recognized here from the lioness head of the bird representing the Sun. In principle, this decoding is also good, however, it is not possible, because it contradicts the location of Saturn in the main horoscope. As the matter of fact, the motion of Saturn is so slow that during the whole year it usually resides in one constellation only. But Saturn in the main horoscope is in between Aquarius and Capricorn, which is much too far for it to be in Virgo within one year. Consequently, it makes no sense to even consider such a variant, because no solution could be found for it.

#### 4.5.1. Second Example: Partial Horoscope of Winter Solstice on the Round zodiac

On Figure 4.60 we show a fragment of the Round Denderah zodiac around the symbol of Sagittarius.

Let us recall that on the Egyptian zodiacs, Sagittarius is the place for the partial horoscope of winter solstice. Here, in the figure of Sagittarius, similarly to other Egyptian zodiacs, there were incorporated additional symbols of Mercury and Venus. They are shown by a two-faced head of Sagittarius. One face is human (Mercury) but another one is of a lioness (Venus). These is the standard Ehyptian symbol of Sagittarius with a minimal partial horoscope

incorporated in it. We will discuss this symbol in more details in Section 4.8. Notice that one half of the horse-tail of Sagittarius is standing up and on its top there is a goose, which on Egypt zodiacs is associated with Mars. That means, Mars is present in this partial horoscope.

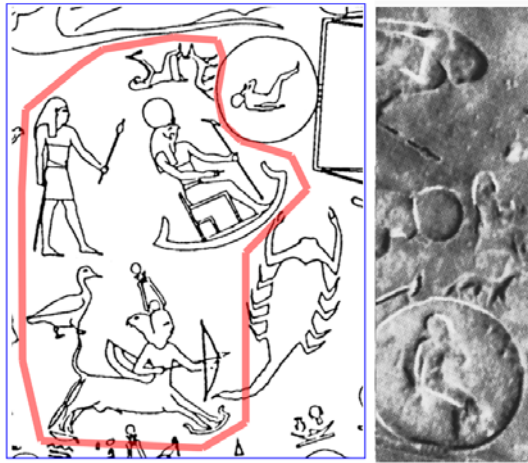


Figure 4.60

*Surrounding of the Sagittarius constellation with the partial horoscope of the winter solstice on the Round Denderah zodiac.*

The presence of additional attributes incorporated into the figure of Sagittarius is indicated by a special Egyptian *pull-out* symbol, which is here a small boat under the front legs of Sagittarius. We will explain later in more detail, why the symbol of a boat or any other symbol, placed right under the feet of a figure, means that this figure was *pulled-out* (in time or in space) from its proper place. On the Egyptian zodiacs of round type, which symbols are arranged one under another, in order to avoid a confusion only boats were used as pull-out symbols. In particular, if a pull-out symbol an attribute of a planet, it means that this planetary symbol doesn't belong to the main horoscope. In the case of Sagittarius, the boat indicates that there is something here not belonging to the main horoscope.