

## The Egyptian Origins of Planetary Hypsomata

by  
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*This paper is dedicated with much thankfulness to  
the memory of Dr. Jorge Roberto Ogden Aquino*

### Abstract

Specific Egyptian decan stars that were venerated in Middle Kingdom Coffin Texts appear to have survived as the "places of secret" in later Babylonian astrological texts and as the corresponding planetary exaltations or hypsomata of Hellenistic astrology. This paper explores the history of these honored decans and examines their relationships to one another within the decanal system. The decanal relationships appear to account for the pattern of the exaltations for four of the planets.

### The Egyptian Origins of Planetary Hypsomata

The ancient Egyptians observed stars rising in an area that they called the *mskt* region, which, as defined by the author of the Roman-era Carlsberg papyri, can only be the general range of the ecliptic on the eastern horizon.<sup>1</sup> Approximately every 10 days, the rising of a particular star or stars just before the sun in the *mskt* region marked the beginning of a new 10-day week for the Egyptians. These stars are called "decans" from the Greek word for "ten." The Carlsberg author tells us that Sirius sets the pattern of behavior for all the decan stars by doing four things over the course of a year. It is "first," then 90 days later, it is "*šn dw3t*." 70 days after that, it is "born." 80 days after that, it "works" or "serves." Then, 120 days later, it is back to "first." It is necessary to understand this system correctly in order to understand the thesis of this paper.

Sirius disappears from the sky for roughly 70 days following its heliacal setting. Because of that, Otto Neugebauer assumed that the 70-day period that stars are said to be *šn dw3t* refers the period of invisibility following heliacal setting. Based on that, Neugebauer further conjectured a model of the decans that sounds plausible, but which, in fact, fails because it posits a pattern that no stars fit.<sup>2</sup> Neugebauer, with Richard A. Parker, found

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<sup>1</sup> Neugebauer, Otto and Parker, Richard A., *Egyptian Astronomical Texts Volume I* (Brown University Press, Providence, RI, 1960), 50, n 4-6. Also see the discussion on *mskt* in Willems, Harco, *The Coffin of Heqata (Cairo JdE 36418): A Case Study of Egyptian Funerary Culture of the Early Middle Kingdom* (Orientalia Lovaniensia Analecta 70, Peeters Publishing, Leuven, 1996), 263-7.

<sup>2</sup> Conman, Joanne, "It's About Time: Ancient Egyptian Cosmology," *Studien zur Altägyptischen Kultur*, Volume 31, 2003: 42-57.

concordance between New Kingdom funerary texts known as the Book of Nut and the Carlsberg papyri.<sup>3</sup> The spreadsheet that is part of the Book of Nut as found in the Cenotaph of Seti I and in the tomb of Rameses IV indicates that every 10 days a different star moves into each of these four states. If the concordance is valid, then, using the model described in the Carlsberg texts, one should be able to find stars that were observable at some time and place in Egypt and put them into a Book of Nut spreadsheet. That is impossible using Neugebauer's model. Stars that are far enough away from the ecliptic so that they disappear for about 70 days do not rise and set in the same sequential order.<sup>4</sup> His model does not and cannot match the pattern required by the spreadsheet in the Nut texts.

The pattern required by both the Carlsberg and Nut texts *is* satisfied by a model that I have proposed.<sup>5</sup> I discarded Neugebauer's hypothesis altogether and re-examined the Egyptian material, focusing on the unambiguous information in the Carlsberg texts. Because the heliacal rise of Sirius was used by the Egyptians to mark their New Year, I assumed that it was one of the four things the star did during the course of a year that set the decan stars' pattern. I investigated what Sirius does 70 days, 80 days, 90 days, etc. after its heliacal rise and found that about 160 days after its heliacal rise, Sirius rises acronychally. Approximately 200 days after its acronychal rise, it rises heliacally again. Obviously, 160 days is the sum of 90 and 70 days (first and *šn dw3t*) and 200 days is the sum of 80 and 120 days (born and work). Therefore, based on the behavior of Sirius, "first" means heliacal rise and "born" means acronychal rise. It is possible to find a bright star rising in the *mskt* region (or very near it) about every ten days and those stars all follow the same general pattern. This model works at various times in Egypt's history, as well as at different locations throughout Egypt. While there are some differences in the actual stars that rise at different locations and/ or at different times in history, the pattern itself remains consistent.

Because of Neugebauer's erroneous theory, Neugebauer and Parker failed to recognize the decan system's assimilation directly into Hellenistic astrology.<sup>6</sup> Traditionally, the decans had been used exactly as the Greek astrological signs were used: to mark and measure time-periods. The astrological signs took their names from twelve astronomical constellations that lay along the ecliptic 2000 years ago. Astronomical constellations differ from astrological signs. Constellations are used to delineate regions of the sky for mapping purposes, while astrological signs, artificial divisions of the ecliptic (the apparent path of the sun), are used to measure time. The Greek astrological signs, first

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<sup>3</sup> EAT I: 41.

<sup>4</sup> Sarah Symons, "The 'Transit Star Clock' from the Book of Nut," *Under One Sky: Astronomy and Mathematics in the Ancient Near East*, edited by John M. Steele & Annette Imhausen, *Alter Orient und Altes Testament*, 297, (Münster 2002), 441-2.

<sup>5</sup> Conman, SAK: 60-4.

<sup>6</sup> Neugebauer, Otto and Richard A. Parker, *Egyptian Astronomical Texts Volume III* (Brown University Press, Providence, RI, 1969), 168-174. They also failed to recognize the decans of Asyut coffins as part of the decanal system explained in the Carlsberg Papyri. (See: Conman, SAK: 64-8).

attested in the fifth century BCE,<sup>7</sup> are twelve 30° divisions of the 360° circle of the ecliptic spaced out over a 365.25-day year. The thirty-six 10° divisions of the ancient Egyptian decan zodiac were easily incorporated into the Greek zodiac by allocating three decans to each sign.

Several ideas that are integral to astrology seem to appear first in Hellenistic astrology. While some could be Greek creations, others bear such striking resemblance to long-held Egyptian beliefs that it is difficult not to conclude that they are the result of Egyptian influence. Babylonian sky-watchers tracked the motion of the planets as if they were living creatures traveling through the night sky. The Babylonian constellations do not appear to have had any intrinsic characteristics that were transmissible to planets; rather, they functioned as the landscape, the scenery against which the planets and moon moved. This should not be surprising since people who use the stars for navigation, such as caravan traders or seafarers, rather naturally tend to see and think of the sky as map. But sedentary people who use the stars primarily for timekeeping just as naturally tend to associate certain cyclic events on earth with the appearance of coinciding celestial phenomena. The correlation suggests cause and effect. The latter is, of course, exactly what the ancient Egyptians did with the heliacal rise of Sirius and the Inundation. The Greeks believed that planets caused effects on earth. Egyptian ideas about the stars suggest strongly that they are the source for this conviction.

The astrological belief that a star (or section of the sky) has its own spirit or deity and that that spirit or deity, linked with the time marked by its star's rising, can influence or impart traits closely resembles the Egyptian belief that deities manifest at certain times only or in certain forms only at specific times. Julius Firmicus Maternus (Book IV, chapter 22) correctly ascribes the idea to the Egyptians, although it is likely far older than he ever realized.<sup>8</sup> In the Egyptian language, the word "ꜣt" means a "moment/ instant of maximum force/ power." The word refers to a point in time when a person or deity reaches his greatest potency.<sup>9</sup> Egyptians understood gods (and sometimes people) to have a moment "when they appeared or manifested in a state or condition of being in which they are able to produce or to develop an activity."<sup>10</sup>

Egyptian gods manifested in different forms depending on the time. CT Spell 345 refers to that god who appears as a *bꜣ* by day and as Thoth by night.<sup>11</sup> The planet Mercury is

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<sup>7</sup> Van der Waerden, B. L. "History of the Zodiac," *Archiv für Orientforschung*, Volume 16 (1953): 217; also, Rochberg-Halton, Francesca, "New Evidence for the History of Astrology," *JNES* 43 (1984): 118.

<sup>8</sup> Maternus, Julius Firmicus, *Ancient Astrology Theory and Practice Matheseos Libri XVIII*, translated by Jean Rhys Bram (Noyes Press, New Jersey, 1975), 147-50

<sup>9</sup> Ogden, Jorge, R., "Studies in Ancient Egyptian Magical Writing, Apropos of the Word ꜣt," *GM* 164 (1998): 82.

<sup>10</sup> *Ibid.*, 79.

<sup>11</sup> Faulkner, Raymond O., *The Ancient Egyptian Coffin Texts Volume I* (Aris and Phillips, 1973), 281.

described in New Kingdom texts as a god in the morning and Seth in the evening.<sup>12</sup> Sepdet, who had a ferocious male side, became a beautiful young woman who brought the annual flood at New Year.<sup>13</sup> CT Spell 467 speaks of Sepdet causing floods, creating food, and speaking in her "good time."<sup>14</sup> She is credited with providing food, but that ability appears to be limited to her time at New Year (e.g., PT § 965;<sup>15</sup> CT Spell 837<sup>16</sup>). The idea that stars' existence had a temporal quality is first attested in the Pyramid Texts: "May your flesh be born to life, and may your life be more than the life of the stars when they live."<sup>17</sup> This idea is reiterated in the Coffin Texts: "May your life be [more than] the life of the stars in their season of life."<sup>18</sup> The Pyramid Texts refer to the shrines of gods, which may also signify the time certain stars rose, e.g., PT § 300: "The Great One indeed will rise within his shrine and lay his insignia on the ground."<sup>19</sup>

The much later Naos with the Decades of Nectanebo I is unique in distinguishing five forms for each decan, rather than the four that might be expected from the Carlsberg texts' description of a star's life cycle. The decan images on this monument are also unlike any others known, either from earlier or later times.<sup>20</sup> According to the inscription on the Naos, a decan in one phase of its life was responsible for climate and vegetation, prayed to in that form for "water, air, and fields." In another form, it was the "Lord of War," while in a third form, it was called "Lord of Life," a *b3* "living on earth." The fourth and fifth forms were the decan's "divine image who gives offerings in every temple," and the decan's *b3*, "living eternally." The last is pictured as a mummy and prayed to for a good burial.<sup>21</sup> For the Babylonians, stars do not have this sort of life cycle, playing different roles at different times of the year. That time is the regulating force which determines the various forms of the decan deities parallels what is found in later astrology; specifically, changes in the qualities that planets manifest in different signs and differing influences of the signs themselves when they occupy different locations or houses.

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<sup>12</sup> EAT III: 180.

<sup>13</sup> Kákósy, László, "Die Mannweibliche Natur Des Sirius In Ägypten," *Studia Aegyptica* 2 (1976): 41.

<sup>14</sup> Faulkner, Raymond O., *The Ancient Egyptian Coffin Texts Volume II* (Aris and Phillips, 1977), 95.

<sup>15</sup> Faulkner, Raymond O., *The Ancient Egyptian Pyramid Texts* (Oxford University Press, NY, 1969), 165.

<sup>16</sup> Faulkner, Raymond O., *The Ancient Egyptian Coffin Texts Volume III* (Aris and Phillips, 1978), 24.

<sup>17</sup> Faulkner, PT: 311.

<sup>18</sup> Faulkner, CT II: 149.

<sup>19</sup> Faulkner, PT: 66.

<sup>20</sup> Kákósy, László, "Decans in Late Egyptian Religions," *Oikumene* 3 (1982): 182.

<sup>21</sup> Habachi L. and Habachi, B., "The Naos with the Decades (Louvre D 37) and the Discovery of Another Fragment," *JNES* 11 (1952): 256-8.

In both Hellenistic and later astrology, a planet's influence is strongest when it is in its exaltation, that is, when it is found in a certain degree of a particular sign.<sup>22</sup> The exaltation or hypsoma of a planet is its place of maximum potency, exactly like the moment of striking power, the *3t* of the Egyptian gods, the "good time" of Sepdet. Jupiter is exalted in the 15<sup>th</sup> degree of Cancer; Mercury, in the 15<sup>th</sup> degree of Virgo; Saturn, in the 21<sup>st</sup> degree of Libra; Mars, in the 28<sup>th</sup> degree of Capricorn; and Venus, in the 27<sup>th</sup> degree of Pisces.<sup>23</sup> These degrees of exaltation correspond to the middle decans of Cancer and Virgo and the last decans of Libra, Capricorn, and Pisces.

It has been proposed that the exaltations or hypsomata developed from what late Babylonian astrological texts refer to as "places of secret" of the planets.<sup>24</sup> "The term *bīt* or *ašar niširti* also suggests that the 'place of secret' be interpreted as a position in the sky that a planet can reach (*kašādu*) or not. The earliest mention of the *ašar niširti* of Venus (but not of the other planets) occurs in the planetary omens of *Enuma Anu Enlil*."<sup>25</sup> In later astrological texts, the Babylonian places of secret for Mercury, Jupiter, and Mars match the Hellenistic exaltations exactly, except that the Babylonian position is given as the general region of a constellation, rather than as a degree of an astrological sign.<sup>26</sup> There are significant differences between the Babylonian understanding of these places and the Greek understanding.<sup>27</sup> Unlike the Greek idea that particular places strengthened a planet's power to influence, the Babylonian notion was that if a planet reached its special place, it was an auspicious omen. If a planet moved towards its place, but disappeared before reaching it, that foretold ill fortune for the king or the land.<sup>28</sup>

Rochberg-Halton writes that "the original reasons for choosing the specific positions of the planet's *bīt niširti* or hypsomata remain obscure."<sup>29</sup> She suggests the places of secret for the sun and moon may be connected to the Babylonian calendar, since the sun occupied its place of secret at the Babylonian New Year. That would be consistent with the idea that certain times could have been associated with a "place of secret" for each planet. But was the idea of these places originally Babylonian? Just as the reasons for choosing a particular position as a "place of secret" are unknown, the origin of the very idea that any place in the sky could be luckier or more strengthening for a given planet is also unknown. Ulla Koch-Westenholz writes that these places were "important enough to

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<sup>22</sup> Rochberg-Halton, Francesca, "Elements of the Babylonian Contribution to Hellenistic Astrology," *Journal of the American Oriental Society*, JAOS 108 (1988): 56-57.

<sup>23</sup> Dorotheus of Sidon, *Carmen Astrologicum*, translated by David Pingree (Ascella Publications, Mansfield, UK, 1993), 162.

<sup>24</sup> Hunger, Hermann and David Pingree, *Astral Sciences in Mesopotamia* (Brill, Leiden, 1999), 28.

<sup>25</sup> Rochberg-Halton, JAOS: 53.

<sup>26</sup> *Ibid.*, 57.

<sup>27</sup> *Ibid.*, 52-53.

<sup>28</sup> *Ibid.*, 54.

<sup>29</sup> *Ibid.*, 57.



of *h3w* (*phwy h3w*). In four of the coffins, including the youngest three, these two decans are called *h3t d3t* and *phwy d3t*.<sup>33</sup>

Using SkyMap Pro 9 software, I searched for bright stars that rose within the range of the ecliptic on the eastern horizon (the *mskt* region). The range of the sun's motion is approximately 60° - 120° at Asyut in 2000 BCE. However, based on the glyph for *3ht* (☉), it is likely that the *mskt* region can be extended beyond the sun's exact range, perhaps at least 15° in either direction to include very bright stars that would have made good markers themselves or could have been used to indicate that particular dimmer stars closer to the ecliptic were rising when it was too light to see them. If the glyph represents the range of the sun's motion during the course of a year, the mountains that frame the sun may indicate the actual boundaries of *mskt* region, extended to include such bright stars and possibly also the range of the moon and planets. The beauty of the Carlsberg system is that it allowed anyone who knew it the ability to know what was rising heliacally – whether or not it was actually visible – by knowing the concurrent acronychally rising star(s). This is essentially the same principle that later astrologers used to determine the sun's place in the zodiac.

Beginning with Sirius, since its identification is certain, I looked for stars rising heliacally at approximately 10-day intervals and used the best candidates to create Table I. The table illustrates good agreement between the pattern of the later planetary hypsomata in astrological decans and the pattern of the honored decans from the coffins. Since we cannot confirm when or where the observations for these coffins were made, attempts at absolute precision are pointless. Nevertheless, the table does suggest specific stars that may have been associated with the venerated decans. For that reason, I have also indicated the four "Royal Stars of Persia."

In any given decade of days, the star that is "born" is the star that rises acronychally, the *šn dw3t* star is the one that rises late at night marking the *wš3w* hour, and the "first" star is the one that rises heliacally.<sup>34</sup> The star that is "born" is separated from the *šn dw3t* star by seven stars and from the "first" star by twenty stars.<sup>35</sup> As stated above, the decan lists on the coffins all begin with *tm3t hrt*, which is the seventh decan after *spd*. The decan *smd srt* is the twentieth after *spd*. The decan *imy-ht 3hwy* is the seventh decan after *smd srt* and the twentieth after *tm3t hrt*. This pattern exactly matches the pattern for four planets' later exaltations in Hellenistic astrology and includes three of the same planets found by Rochberg-Halton in the Babylonian texts.<sup>36</sup> Mercury's hypsoma is the seventh decan after Jupiter's. Mars's hypsoma is the twentieth after Jupiter's. Venus's hypsoma is the seventh decan after Mars's and the twentieth after Mercury's. Thus, the astrological exaltations

<sup>33</sup> EAT I: 26-9.

<sup>34</sup> Conman, SAK: 60 ff.; also see: Conman, Joanne, "Speculation on Special Sunlight and the Origin of the *wš3w* Hour," *Apuntes de Egiptologia* 3, <http://www.ceae.unlugar.com/conman3.htm>

<sup>35</sup> EAT I: 58-59; also see: Quack, "Kollation und Korrekturvorschläge zum Papyrus Carlsberg 1," *The Carlsberg Papyri 3: A Miscellany of Demotic Texts and Studies*, edited by P. J Frandsen and K. Ryholt (CNI Publications, Copenhagen, 2000), 167.

<sup>36</sup> Rochberg-Halton, *JAOS*: 57.

two thousand years later for four planets correspond to the four honored Asyut decans as follows: Mercury to *tm3t hrt*, Jupiter to *spd*, Mars to *smd srt*, and Venus to *imy-ht 3hwy*. (See Table I).

Table I

Stars	Heliacal Rise 2000 BCE	Asyut Coffin Decans	Zodiac Decan Hypsoma	Dendera Gold Decan
Arcturus	17-Sep	1 <i>tm3t hrt</i>	♀ 2 Vir	7
Spica	25-Sep	2 <i>tm3t hrt</i>	3 Vir	8
Alphecca, Iota Centaurus	7-Oct	3 <i>wšt bk3t</i>	1 Lib	9
Zubeneschamali, Zubenelgenubi, Menkent	17-Oct	4 <i>ip ds</i>	2 Lib	10
Hadar	27-Oct	5 <i>sbšsn</i>	♃ 3 Lib	11
Antares	7-Nov	6 <i>hntt hrt</i>	♁ 1 Sco	12
Ras Alhague, Sabik, epsilon Scorpius	16-Nov	7 <i>hntt hrt</i>	2 Sco	13
Wega, Shaula, Sargas (theta Scorpii)	25-Nov	8 <i>tms n hntt</i>	3 Sco	14
Kaus Australis	4-Dec	9 <i>kdty</i>	1 Sag	15
Nunki	11-Dec	10 <i>hnwy</i>	2 Sag	16
Altair	20-Dec	11 <i>hry-ib wš</i>	3 Sag	17
Deneb (alpha Cygni), Dabih, Algedi	29-Dec	12 "crew" (?)	1 Cap	18
dark	7-Jan	13 <i>knm</i>	2 Cap	19
Enif, Sadaksuud	16-Jan	14 <i>smd srt</i>	♂ 3 Cap	20
Sadalmelik	26-Jan	15 <i>srt</i>	1 Aqu	21
Markab Scheat	5-Feb	16 <i>sšwy srt</i>	2 Aqu	22
Schedar, Alpheratz	15-Feb	17 <i>hry hpd srt</i>	3 Aqu	23
Fomalhaut, Algenib	26-Feb	18 <i>tpy-<sup>c</sup> 3hwy</i>	♁ 1 Pis	24
Mirach	7-Mar	19 <i>3hwy</i>	2 Pis	25
Almach	17-Mar	20 <i>imy-ht 3hwy</i>	♀ 3 Pis	26
Mirfak	28-Mar	21 <i>bšwy</i>	1 Ari	27
Algol, Hamal, Sheratan, Deneb Kaitos,	9-Apr	22 <i>kd</i>	2 Ari	28
epsilon Perseus	19-Apr	23 <i>hšw</i>	♁ 3 Ari	29
Capella	29-Apr	24 <i>ryt</i>	♃ 1 Tau	30
<b>Menkalinan, Menkar</b>	<b>12-May</b>	<b>25 <i>hry ryt</i></b>	2 Tau	31
Aldebaran	22-May	26 <i>rnm hry</i>	♁ 3 Tau	32
<b>zeta Taurus, pi 3 Orion, delta Eridani</b>	<b>2-Jun</b>	<b>27 <i>rnm hry</i></b>	1 Gem	33
Castor, Bellatrix	13-Jun	28 <i>bw</i>	2 Gem	34
Rigel, Pollux	24-Jun	29 <i>hrt w<sup>c</sup>rt</i>	3 Gem	35
Procyon	7-Jul	30 <i>tpy-<sup>c</sup> spd</i>	1 Can	36
Sirius	17-Jul	31 <i>spd</i>	♃ 2 Can	1
Regulus	28-Jul	32 <i>knmt</i>	♁ 3 Can	2
Alphard, Zosma	7-Aug	33 <i>sšwy knmt</i>	1 Leo	3
Denebola	17-Aug	34 <i>hry hpd n knmt</i>	2 Leo	4
Zavijava nu Hydra	27-Aug	35 <i>h3t hšw</i>	3 Leo	5
Vindemiatrix, Canopus	6-Sep	36 <i>phwy hšw</i>	1 Vir	6

## KEY :

Decan highlighted in offering prayer	Venus	♀	Mercury	♁
	Sun	♁	Saturn	♄
<i>tm3t hrt</i>	Moon	♁	Royal Star	♁
	Jupiter	♃	Mars	♂



Luc Gabolde has shown that the processional of Thutmoses III at Karnak was directed toward the setting point of Canopus at the time of Sesostris I.<sup>37</sup> Gabolde hypothesizes that the older orientation was used because a clear view of the exact point on the horizon was blocked when Thutmoses III reconstructed the processional. He also considers that Sesostris himself may have been using an older alignment, perhaps that of Inyotef II. However, there is a link between the god Amun and Canopus not known to Gabolde or anyone else until now.

On February 26, 1953 BCE, during the reign of Sesostris I, the five planets visible to the naked eye formed a conjunction in the eastern sky before dawn. This is thought to be the closest massing of the planets in the last 5,000 years.<sup>38</sup> This dramatic conjunction has been linked with the origin of the Chinese calendar.<sup>39</sup> It appears to have considerable implications for ancient Egypt as well. Such a major conjunction is not a one-day event; it would have been seen coming together and then separating for well over a month. At the time the planets began unmistakably forming the conjunction, Canopus was rising acronychally. Admittedly, it rises well outside of the *mskt* region, but it would have been co-rising with the decan star that was born and it would have been noticed. Canopus remained prominent in the southeastern sky just after sunset for the next month, as the conjunction peaked and then began to separate.

It is remarkable that the order of the planets at the time of the new moon closest to the conjunction is identical to the order that is found in all the New Kingdom tomb art and that remained the Egyptian order of the planets until Greco-Roman times.<sup>40</sup> It is an arrangement that is unknown elsewhere and which makes little sense except to commemorate this conjunction. In the hour before sunrise on March 2, the waning moon at its last visibility (marking the beginning a new Egyptian month), was also conjunct the five visible planets. The planetary order of Jupiter, Saturn, Mars, Mercury, and Venus that is seen in all the subsequent tomb art was apparent as the planets began to separate from their massing. The order was maintained for over a decade of days, more than the first Egyptian week of the new month.

This impressive conjunction occurred close to the time when it is estimated that the Nile floods began returning to beneficial levels not seen in several hundred years.<sup>41</sup> It is quite possible that the conjunction was associated with the return of the floods. For the Egyptians, there was already a centuries old tradition of associating celestial events with

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<sup>37</sup> Gabolde, Luc, "Canope et les orientations nord-sud de Karnak établies par Thoutmosis III," *RdE* 50, (1999): 280-281.

<sup>38</sup> Weitzel, R. B., "Clusters of Five Planets," *Popular Astronomy* 53 (1945): 160.

<sup>39</sup> Pankenier, David, "Mozi and the Dates of Xia, Shang, and Zhou: A Research Note," *Early China* 9-10 (1983-85): 175-183; Nivison, David S., and Kevin Pang, "Astronomical Evidence for the Bamboo Annals' Chronicle of the Xia Dynasty," *Early China* 15 (1990): 88-90.

<sup>40</sup> EAT III: 175.

<sup>41</sup> Butzer, Karl W., *Early Hydraulic Civilization in Egypt* (University of Chicago Press, 1976), 28-9, 31.

the Nile's behavior. If the conjunction was connected with the return of the floods and was understood as a manifestation of Amun's power through the star Canopus, it may help to explain that god's rapid rise to prominence in the New Kingdom.

The timing of three of Amun's festivals during the New Kingdom agrees quite well with phases of Canopus' life cycle as described in the Carlsberg model. The Feast of Opet was most important. It celebrated the renewal of Amun and the king's right to rule, as reconfirmed by the god.<sup>42</sup> Opet took place in late August.<sup>43</sup> The festival is not attested before Dynasty 18.<sup>44</sup> The name change of the two decans *ḥ3t ḥ3w* and *phwy ḥ3w* to *ḥ3t d3t* and *phwy d3t* on the younger Asyt coffins may reflect the festival's institution. The heliacal rise of Canopus would have coincided with the heliacal rise of these decans in the New Kingdom. The earlier name may indicate the first appearance of plants (*ḥ3w*) as the annual flood began to recede. The word "*d3t*" refers to a crossing the sky or ferrying over water, a migratory journey. It describes the annual Opet festival, in which the statue of the god Amun was ferried and/or carried in a land procession from Karnak to Luxor.

On the cliffs of the western bank of the Nile overlooking Thebes, graffiti written by priests of Amun indicates that they kept watch through the night for the appearance of their god. The panoramic view from those cliffs looks toward the east and Karnak temple. H. E. Winlock proposes that the priests sat up all night watching for their fellow priests to appear near dawn, carrying the statue of Amun.<sup>45</sup> There is absolutely no reason why the priests should have done something so utterly pointless. It is more reasonable to suppose that those priests kept watch through the night for the heliacal rising of the star whose appearance would announce that it was time for the god's statue to begin its sacred procession. A star's heliacal rise gave it the power to influence events on earth, to create climate, bringing wind or water, ultimately effecting crops, as Sepdet did at Inundation. The striking time, the *3t*, was the time of a deity's star's heliacal rise. Therefore, Amun's proven power to provide beneficial floods would have been acknowledged when his star rose heliacally. During Opet, Amun himself regenerated, just as a heliacal rising star does after a period of invisibility. The god, through his statue, made an appearance to the people in his festival procession, just as a star does in its heliacal rise. The god's power was transferred to the king in a ceremony that is analogous to the star's power to effect conditions on earth.

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<sup>42</sup> Bell, Lanny, "The New Kingdom 'Divine' Temple: the Example of Luxor," *Temples of Ancient Egypt*, edited by Byron E. Shafer (Cornell University Press, 1997), 157.

<sup>43</sup> Nelson, H. H. and Hölscher, Uvo, with a chapter by Siegfried Schott, "Work in Western Thebes 1931-33," *Oriental Institute Communications, Number 18* (University of Chicago Press, 1934), 66.

<sup>44</sup> Murnane, William J., "Luxor," *The Oxford Encyclopedia of Ancient Egypt, Volume II*, edited by Donald B. Redford (Oxford University Press, Oxford, 2001), 310; also, Murnane, William J., "The Kingship of the Nineteenth Dynasty," *Ancient Egyptian Kingship: New Investigations*, edited by David O'Connor and David P. Silverman (E. J. Brill, Leiden, 1992), 188.

<sup>45</sup> Winlock, H. E., *The Rise and Fall of the Middle Kingdom in Thebes* (The MacMillan Company, New York, 1947), 83-85.

The Opet festival increased in length throughout the New Kingdom,<sup>46</sup> consistent with Canopus' increasing visibility. During the first millennium, the star, the second brightest in the sky, would have been seen for increasingly longer time periods, rising higher in elevation. The star's increased visibility moved northward through the country over the centuries. Eventually, Canopus appeared to co-rise with not one, but two decan stars. In the later years of the New Kingdom, the increased length of Opet apparently kept pace with the star's increased visibility.

In addition to Opet, two other festivals of Amun appear to coincide with the life cycle of Canopus. The Book of Nut says that stars "withdraw to the sky" after their birth,<sup>47</sup> which is correctly the acronychal rise. In the New Kingdom, the time Canopus rose acronychally, withdrawing to the sky, coincided with the perfectly titled festival of Amun's Entrance into the Heavens.<sup>48</sup> Later in the year, the god's statue traveled west for the Beautiful Feast of the Valley or Talfest, which took place after the full moon of the tenth month, counted from New Year at summer solstice.<sup>49</sup> That occurs in late April or early May, about the time Canopus would have begun its 120-day period of work, the phase of a star's life that is represented on the Asyut coffins' tables. Three New Kingdom festivals for Amun thus appear to correspond with changes in phases of the life cycle of the star Canopus consistent with the Carlsberg decan model.

Canopus and Sirius may have been revered because they indicated the state of their associated deities who controlled conditions on earth. However, other decan stars may have been honored simply because they changed phases of their life cycle concurrently with these two significant stars in the decanal system. I used the decan names that occur most frequently in the lists found in plates 26-29 in EAT I to create a table based on the Carlsberg Papyrus model.<sup>50</sup> It is clear that a number of venerated decans have relationships with one another. (See Table II).

Seven out of the ten unquestionably identifiable decans that appear in the Asyut prayer are those that change phases at times coinciding with decans stars associated with Amun's later festivals. At the time of Opet and the heliacal rise of the stars marking *ḥ3t d3t* and *pḥwy d3t*, the stars of the decans *3ḥwy* and *imy-ḥt 3ḥwy* rise acronychally, while the star of *rmn ḥry* is the *šn dw3t* star concurrent with *ḥ3t d3t*. At the time of Amun's Entrance into the Heavens, the stars marking *ḥ3t d3t* and *pḥwy d3t* rise acronychally and the stars of *ḥntt ḥrt* and *ḥntt ḥrt* are *šn dw3t*. Some of the venerated decans can be associated with non-Amun festivals. New Year, the time Sirius (*spd*) rises heliacally, *ḥntt ḥrt* begins its time

<sup>46</sup> Schott, Siegfried, *Altägyptische Festdaten* (Akademie der Wissenschaften und der Literatur, Jahrgang 1950, NR. 10), 84-7.

<sup>47</sup> EAT I: 76.

<sup>48</sup> Schott, Siegfried, *Altägyptische Festdaten*, 98.

<sup>49</sup> Schott, Siegfried, *Altägyptische Festdaten*, 107; see also, Nelson, H. H. and Uvo Hölscher, "Work in Western Thebes 1931-33," 66.

<sup>50</sup> EAT I: 56-60.

Table II

Date			Heliacal Rise	<i>šn dw3t</i>	Acronychal Rise	Work	
1	3 <sup>ht</sup>	F	1	<i>tm3t hrt</i>	<i>ḥbwt</i>	<i>b3wy</i>	<i>knm</i>
1	3 <sup>ht</sup>	M	2	<i>tm3t hrt</i>	<i>hrt wḥrt</i>	<i>kd</i>	<i>smd srt</i>
1	3 <sup>ht</sup>	L	3	<i>wšt bk3t</i>	<i>tpy-ḥ spd</i>	<i>h3w</i>	<i>srt</i>
2	3 <sup>ht</sup>	F	4	<i>ipds</i>	<i>spd</i>	<i>ḥryt</i>	<i>s3wy srt</i>
2	3 <sup>ht</sup>	M	5	<i>sbšsn</i>	<i>knmt</i>	<i>hry ḥryt</i>	<i>hry hpd srt</i>
2	3 <sup>ht</sup>	L	6	<i>hntt hrt</i>	<i>s3wy knmt</i>	<i>rmn hry</i>	<i>tpy-ḥ 3hwy</i>
3	3 <sup>ht</sup>	F	7	<i>hntt hrt</i>	<i>hry hpd n knmt</i>	<i>rmn hry</i>	<i>3hwy</i>
3	3 <sup>ht</sup>	M	8	<i>tms n hntt</i>	<i>h3t h3w</i>	<i>ḥbwt</i>	<i>imy-ht 3hwy</i>
3	3 <sup>ht</sup>	L	9	<i>kdy</i>	<i>phwy h3w</i>	<i>hrt wḥrt</i>	<i>b3wy</i>
4	3 <sup>ht</sup>	F	10	<i>hnwy</i>	<i>tm3t hrt</i>	<i>tpy-ḥ spd</i>	<i>kd</i>
4	3 <sup>ht</sup>	M	11	<i>hry-ib wi3</i>	<i>tm3t hrt</i>	<i>spd</i>	<i>h3w</i>
4	3 <sup>ht</sup>	L	12	"crew" (?)	<i>wšt bk3t</i>	<i>knmt</i>	<i>ḥryt</i>
1	<i>prt</i>	F	13	<i>knm</i>	<i>ipds</i>	<i>s3wy knmt</i>	<i>hry ḥryt</i>
1	<i>prt</i>	M	14	<i>smd srt</i>	<i>sbšsn</i>	<i>hry hpd n knmt</i>	<i>rmn hry</i>
1	<i>prt</i>	L	15	<i>srt</i>	<i>hntt hrt</i>	<i>h3t h3w</i>	<i>rmn hry</i>
2	<i>prt</i>	F	16	<i>s3wy srt</i>	<i>hntt hrt</i>	<i>phwy h3w</i>	<i>ḥbwt</i>
2	<i>prt</i>	M	17	<i>hry hpd srt</i>	<i>tms n hntt</i>	<i>tm3t hrt</i>	<i>hrt wḥrt</i>
2	<i>prt</i>	L	18	<i>tpy-ḥ 3hwy</i>	<i>kdy</i>	<i>tm3t hrt</i>	<i>tpy-ḥ spd</i>
3	<i>prt</i>	F	19	<i>3hwy</i>	<i>hnwy</i>	<i>wšt bk3t</i>	<i>spd</i>
3	<i>prt</i>	M	20	<i>imy-ht 3hwy</i>	<i>hry-ib wi3</i>	<i>ipds</i>	<i>knmt</i>
3	<i>prt</i>	L	21	<i>b3wy</i>	"crew" (?)	<i>sbšsn</i>	<i>s3wy knmt</i>
4	<i>prt</i>	F	22	<i>kd</i>	<i>knm</i>	<i>hntt hrt</i>	<i>hry hpd n knmt</i>
4	<i>prt</i>	M	23	<i>h3w</i>	<i>smd srt</i>	<i>hntt hrt</i>	<i>h3t h3w</i>
4	<i>prt</i>	L	24	<i>ḥryt</i>	<i>srt</i>	<i>tms n hntt</i>	<i>phwy h3w</i>
1	<i>šmw</i>	F	25	<i>hry ḥryt</i>	<i>s3wy srt</i>	<i>kdy</i>	<i>tm3t hrt</i>
1	<i>šmw</i>	M	26	<i>rmn hry</i>	<i>hry hpd srt</i>	<i>hnwy</i>	<i>tm3t hrt</i>
1	<i>šmw</i>	L	27	<i>rmn hry</i>	<i>tpy-ḥ 3hwy</i>	<i>hry-ib wi3</i>	<i>wšt bk3t</i>
2	<i>šmw</i>	F	28	<i>ḥbwt</i>	<i>3hwy</i>	"crew" (?)	<i>ipds</i>
2	<i>šmw</i>	M	29	<i>hrt wḥrt</i>	<i>imy-ht 3hwy</i>	<i>knm</i>	<i>sbšsn</i>
2	<i>šmw</i>	L	30	<i>tpy-ḥ spd</i>	<i>b3wy</i>	<i>smd srt</i>	<i>hntt hrt</i>
3	<i>šmw</i>	F	31	<i>spd</i>	<i>kd</i>	<i>srt</i>	<i>hntt hrt</i>
3	<i>šmw</i>	M	32	<i>knmt</i>	<i>h3w</i>	<i>s3wy srt</i>	<i>tms n hntt</i>
3	<i>šmw</i>	L	33	<i>s3wy knmt</i>	<i>ḥryt</i>	<i>hry hpd srt</i>	<i>kdy</i>
4	<i>šmw</i>	F	34	<i>hry hpd n knmt</i>	<i>hry ḥryt</i>	<i>tpy-ḥ 3hwy</i>	<i>hnwy</i>
4	<i>šmw</i>	M	35	<i>h3t h3w</i>	<i>rmn hry</i>	<i>3hwy</i>	<i>hry-ib wi3</i>
4	<i>šmw</i>	L	36	<i>phwy h3w</i>	<i>rmn hry</i>	<i>imy-ht 3hwy</i>	"crew" (?)

The vertical dateline corresponds to the Asyut coffin dates, which are listed only as First, Middle, or Last week of the month. The Heliacal Rise column corresponds to the top line on the coffins, while the Work column corresponds to the bottom line of the coffins' tables. The Acronychal Rise and *šn dw3t* columns are taken from the model described in the Carlsberg Papyri and do not appear on the Asyut coffins. Darker gray highlights indicate decans specifically named in the coffins' prayer; lighter gray indicates *tm3t hrt*.

of work. The heliacal rising of *hntt hrt* coincided with the chief festival for the god *Nhb-k3w*, who may have also had a lesser festival coinciding with New Year.<sup>51</sup>

The decan statues in the treasury of the Ptolemaic-era temple of Hathor at Dendera "were made of stone or wood, metal or faience, but in the case of Sothis, *hr-tp-nfr*, *hnt(w)-hr(w)*, *3hwy*, and *tm3t* only gold was used."<sup>52</sup> If Sothis in the Dendera series is the equivalent of *spd* in the Asyut coffins, then four of these gold decans correspond to Asyut decan numbers 1, 19, 22, and 31; that is, Dendera's *tm3t* is Asyut's number 1, *tm3t hrt*; Dendera's *3hwy* is Asyut's number 19, *3hwy*; Dendera's *hnt(w)-hr(w)* is Asyut's number 22, *kd*; and Dendera's Sothis is Asyut's number 31, *spd*. Sothis and *3hwy*, of course, are named on the coffins' offering lists. While *tm3t hrt* does not appear in the offering prayer, that decan is always given the prominent first place in the coffins' star tables and that place corresponds in relationship to *spd* as Mercury's exaltation corresponds to that of Jupiter. The additional Dendera gold statue for *hnt(w)-hr(w)* appears to correspond to the hypsomata of the sun.

Called a "false decan" by Neugebauer and Parker,<sup>53</sup> *hr-tp-nfr* is the only other gold figure. The decan list that corresponds to these statues contains twelve of these so-called false decans which serve to separate the thirty-six into groups of three, thus functioning as Greek zodiac signs might. If the so-called false decans actually represent some Egyptian personification of the zodiac signs, then *hr-tp-nfr*, which immediately follows *hnt(w)-hr(w)*, could represent the zodiac sign of the moon's exaltation, Taurus. The gold decans match the planetary hypsomata of Mercury (*tm3t*) and Jupiter (Sothis) exactly. Venus (*3hwy*) and *hnt(w)-hr(w)* (the sun) are one decan away from an exact match. (See Table I). In Hellenistic astrology, the planets Saturn and Mars are malefic so it may have been undesirable to represent the decans of their hypsomata in gold.

Rochberg-Halton discusses some discrepancies with Jupiter's place of secret in the *Enuma Anu Enlil*.<sup>54</sup> Jupiter's place seems to be in Gemini or between Gemini and Cancer, while its later Greek hypsoma is in mid-Cancer. This confusion may be the result of the fact that the star Sirius is the true origin of Jupiter's hypsoma. In the round zodiac ceiling from Hathor's temple at Dendera, which places all planets in their exaltations, Jupiter is found between Gemini and Cancer, directly *above* Sirius.<sup>55</sup> The hypsoma may have been located in the astrological decan of mid-Cancer in order to maintain the pattern of counted places.

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<sup>51</sup> Bakir, Abd El-Mohsen, *The Cairo Calendar (No. 86637)* (General Organisation for Government Printing Offices, Cairo, 1966), 11; cf. Spalinger, Anthony, "Calendars: Real and Ideal," *Essays in Egyptology in Honor of Hans Goedicke*, Betsy M. Bryan and David Lorton, editors (Van Siclen Books, San Antonio, 1994), 302-6.

<sup>52</sup> Kákosy, L., *Oikumene*: 178.

<sup>53</sup> EAT III: 134; pl. 41.

<sup>54</sup> Rochberg-Halton, *JAOS*: 54-55.

<sup>55</sup> EAT III, pl. 35.

## SUMMARY

The spacing pattern of seven and twenty decans between planetary hypsomata matches the pattern of the Egyptian decan model as described by the author of the Carlsberg Papyri. While there is no attested connection between the decans that are honored in the Asyut coffins' prayer and the later Babylonian places of secret, it would be an extraordinary coincidence had the Babylonians just happened to choose a pattern of fortunate places in the sky that matches the pattern of the specially revered Egyptian decans so closely. Their cosmology was quite different from that of the Egyptians. It seems even more implausible for the Greeks to have later modified the Babylonian notion of a planet reaching a propitious place in the sky to the idea that that place empowered a planet with its maximum potency in producing effects on earth, corresponding exactly to the Egyptian concept of a god's striking power or *ʒt*.

More probably, some of the many traders who traveled between Egypt and Mesopotamia carried sacred teachings concerning particular stars out of Egypt and subsequently, that knowledge was incorporated into Babylonian thinking. The idea that special stars were associated with the timing of the manifestation of power by specific Egyptian gods could certainly have been adapted to Babylonian gods, who later gave oracles through or as planets. Planets most often associated with particular Babylonian gods could have been matched with their places because the stars that marked them were associated with lore arising from their earlier association with certain Egyptian gods. The planets' Babylonian "places of secret" and Greek hypsomata appear to have their origins in the Egyptian religion of the Middle Kingdom.

Neugebauer and Parker consider the texts on the statue of one Harkhebi to reveal a transmission of Babylonian doctrine to Egypt in the early third century BCE.<sup>56</sup> But in fact, the astrologer and snake charmer was more likely quite traditionally Egyptian when he "purified himself in [the] days when Akh (decan) rose heliacally beside Benu from earth,"<sup>57</sup> i.e., when Venus rose in its hypsomata. By Harkhebi's time, *ʒhwy* had been an adored decan for nearly two millennia in Egypt.

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<sup>56</sup> Ibid., 216.

<sup>57</sup> Ibid., 214.