

Figure 5. Thoth as the Moon-God. From Chapter 18 of the *Papyrus of Ani* in the *Book of Coming Forth By Day*.

□ On the Source of the Moon's Light in Ancient Egypt

Mario BEATTY

Abstract : *In this article, the author shows that the Ancient Egyptians seem to have discovered that the moon shines, but it does not shine from light of its own. It is borrowed light from the sun. In revealing this observation in Ancient Egypt, the author focuses on the **Great Hymn to Thoth** on the statue of Horemheb and selects passages from the **Book of Coming Forth By Day**. Based on Ancient Egyptian astronomical observations in these texts, there is significant evidence to conclude that they definitively observed during the New Kingdom (1600 B.C. - 1080 B.C.) that the source of the moon's light derived from the sun. In concluding, he briefly highlights the importance of this discovery relative to the history of astronomy.*

Résumé : *Sur l'origine de la lumière de la Lune, en ancienne Égypte –. Dans cet article, l'auteur montre que les anciens Égyptiens semblent avoir découvert que la lune brillait non pas d'une lumière émise intrinsèquement par elle-même, mais par réflexion de la lumière provenant du soleil. Sa thèse s'appuie sur l'étude des textes hiéroglyphiques comme **Le Grand Hymne à Thoth** inscrit sur la statue de Horemheb et des passages du **Livre de la venue au Jour (Livre des Morts)**. Les observations astronomiques attestées par ces textes permettent d'affirmer qu'au Nouvel Empire (1600 B.C.–1080 B.C.) les Égyptiens savaient que la lumière lunaire avait pour origine le Soleil. En conclusion l'auteur souligne l'importance de cette découverte replacée dans la perspective de l'histoire de l'astronomie.*

1. Introduction

In addition to the sun, the moon is the most prominent celestial phenomena in the sky linked with human society. The most obvious visible characteristic of the moon is its changeability. The moon waxes through the phases of no moon, new crescent, half-disk, gibbous, and full moon and wanes backwards through similar phases. We are able to view the various sizes of the moon as it moves nearer and farther from us in its elliptical orbit. A not so obvious feature of the moon is the actual source of its light. The fact that the source of the light of the moon is from the sun is a rudimentary astronomical observation in contemporary times, but for ancient peoples this was an observation that involved great complexity and was considered a major development in the history of astronomy. This observation reflects the culmination of intellectually precise and well-informed astronomical observations over a significant period of time. Concurrent with this observation, we will inevitably encounter the growth of the expressive capability of the language to communicate a more nuanced point of view relative to the interaction between the light of the sun and the moon.

Lunar observation is not the simple matter that it may seem and there is a distinction to be made between observing phenomena and knowing its cause. In this article, I will show that

the Ancient Egyptians seem to have discovered that the moon shines, but it does not shine from light of its own. It is borrowed light from the sun (see Figure 1). In revealing this observation in Ancient Egypt, I will primarily focus on the **Great Hymn to Thoth** on the statue of Horemheb and select passages from *the Book of Coming Forth By Day*. Based on Ancient Egyptian astronomical observations in these texts, there is significant evidence to conclude that they definitively observed during the New Kingdom (1600 B.C. - 1080 B.C.) that the source of the moon's light derived from the sun. In concluding, I will briefly highlight the importance of this discovery relative to the history of astronomy.

2. The Statue of Horemheb

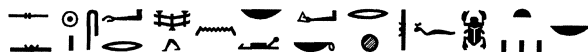
The Statue of Horemheb, now located in the Metropolitan Museum of Art, New York, dates to the reign of Tutankhamon (1361 B.C.-1352 B.C.) when Horemheb served as the Chief of the army before eventually ascending to the throne as the last ruler of the 18th Dynasty after the demise of Aya, Tutankhamon's successor. The particular portion of the statue that I will highlight is not visible on any major photograph taken of it because it is actually encarved on an unrolled papyrus roll situated on Horemheb's lap (see Figure 2). Because of this fact, I have utilized the epigraphic reproduction of this part of the statue from H.E. WINLOCK's article (see Figure 3).¹ This part of the statue reveals an important discourse on the essence of Thoth (see Figure 5). Thoth plays an important role in moon iconography because he is the "Lord of Maat," the cosmic order upon which the universe rested. He is the reckoner of time and seasons par excellence, dividing the year (*rnpt*) into twelve months (*3bd*), which were, in turn, subdivided into three seasons of four months each: the season of inundation (*3ht*), sowing (*pṛt*) and harvest (*šmw*). Each month had thirty days and Thoth gave his own name to the first month. The discourse on Thoth begins, first and foremost, with his genetic relationship to the sun-god Ra:



dw3 Dḥwty s3 R^c iḥ nfr prt nb ḥ^cw šḥd ntrw

Adoring Thoth, son of Ra, Moon, Of beautiful rising, lord of appearances who illuminates the gods

Shortly after this description we again encounter a description of Thoth that conceptually links him to the sun-god Ra:



šḥtp r^c s^cr n nb w^c di.k rḥ.f ḥprt nb

Who pleases Ra, Ascends to the Sole Lord, you cause him to know all that has happened

Before I examine these passages, I want to make a few comments relative to the significance of their location on the statue. Because this information is situated on the unrolled papyrus roll of the statue, it takes on a wider significance than simply a hymn.

¹ H.E. WINLOCK, "A Statue of Horemheb Before His Accession," *Journal of Egyptian Archaeology*, 10 (1924), 1-4.

The determinative of the papyrus rolled up, tied, and sealed (𓏏) is used to convey and indicate abstract knowledge. Conversely, when the papyrus roll is loosened, untied, and rolled out as it is in this statue, we are not only encountering the indication of abstract knowledge but, more importantly, its communication. This specific artistic feature of the unrolled papyrus reinforces the importance of the information contained on it. This feature indicates that the information on it takes on a heightened significance relative to the other parts of the statue. Far from being merely a “hymn”, an important sense of meaning is communicated through uniting an artistic feature with knowledge content. In this particular transmission of knowledge, we are immediately made aware of Thoth's essence as a divinity. Thoth is described as the “son of Ra, Moon.” The placement of the symbol of the moon (☾) after the epithet “son of Ra” was not done as an after thought, but reflects the notion that Thoth is being described in relation to the sun-god Ra not just as a divinity, but as a divinity whose power and essence is manifested in the moon. What is being communicated is the genetic relationship not just between Ra and Thoth as divinities, but between Ra and Thoth as divinities residing in two prominent celestial phenomena, the sun and the moon. The direct description of Thoth as the son of Ra is a rare occurrence in Ancient Egyptian texts. This is a very precise and clear astronomical observation that suggests that Thoth, the Moon, as the son of the sun-god Ra, is not only connected to Ra in a biological sense, but he is also connected to Ra in a cosmological sense. As the offspring of the sun-god Ra, the source of the light of Thoth, the moon, also comes from this same source source. Without the genetic transmission of light from the sun-god Ra to Thoth, the moon, Thoth would be incapable of rising (*pṛt*), appearing (*ḥꜣw*), or illuminating (*shd*) the gods. The sun-god Ra is the source of Thoth's origin and power as the moon which is why the passage appropriately begins with this particular epithet because without it, Thoth, as the moon, can not carry out his responsibility in upholding Maat, the cosmological order and reality upon which the movement of the universe is based. The interaction between Ra and Thoth as the light of the sun and moon respectively, is presented in a way that does not negate the importance of the moon as a unique celestial phenomena in its own right, but there is never a question as to who the “Sole Lord” (*nb wꜣ*) is; it is the sun-god Ra. Thoth is clearly charged with carrying out the commands of the “Sole Lord” which explains why it is Thoth that must please Ra (*shꜣp Rꜣ*) and it is Thoth who relays knowledge to Ra of all that has happened (*dī.k rḥ.f ḥpṛt nb*). The sun-god Ra, of course, does not have to please Thoth because he is the “Sole Lord” whose power provides light and life to everything existing and alive.

On the left side of the base of the statue, there is yet another presentation of the interaction of the light of the sun and the moon (see Figure 4). This description highlights their relationship at night:



ḥtp dī nswt Dḥwty nb mdw-nṯr nb ḥnmw wḏ maꜥt

A royal offering to Thoth, lord of God's words, lord of Hermopolis
who determines maat,



sḳdd rꜣ m sktt

who rows Ra in the night-bark.

In this translation, I differ in one important aspect from the translation put forth by Miriam LICHTHEIM.² LICHTHEIM translates the present participle *skdd* as “who embarks” and thus, she reads “who embarks Ra in the night-bark.” The translation is particularly novel in her choice to deviate from more normative readings of *skdd* as “who sails,” “who voyages”, or “who rows.”³ Her translation here is not particularly helpful because the word “embarks” primarily suggests the beginning of a journey, but not the journey itself. The term *skdd* refers to the movement of the sun throughout the whole night, not just at the beginning. For this reason, I dispense with “embarks” which implies a static moment in the process of movement and opt for “who rows” which seems to accurately capture the dynamic of the continuity of the sun’s movement throughout the night in the night-bark (*sktt*) which is guided by Thoth. The relationship between Thoth and Ra is one of continuous celestial movement. After the sun-god Ra rises, appears, and shines in traversing the daytime sky, he sets at night and the movement of Thoth, the moon, takes over, but we must emphasize the fact that the sun-god Ra does not disappear nor does he die. This is why Ra remains an important part of the movement of the universe, even at night. Thoth, as the moon, can only row the night-bark with the presence of Ra in it because the path of light from Ra is the same path as the moon. They do not traverse the night sky in different boats; they travel in the same boat which indicates the close relationship between these two celestial bodies in the night sky. The boat reflects maat, the orderly movement of the universe and if the sun-god Ra was absent from the night-bark, Thoth would have no light in order to row the sun-god, his father, at night. In fact, it is important to emphasize that the nightly Seket (*sktt*) boat is not for Thoth, it is for Ra. Hence, Thoth is actually riding in Ra’s nightly boat although Thoth is rowing it. This reinforces the notion that as the moon, Thoth does not need his own boat at night because he has no independent light of his own. Thoth is rowing the sun-god Ra at night, but the sun-god Ra is actually lighting the way. All the secrets of the night revolve around the sun-god Ra although Thoth “knows the secrets” and “records thier expression.”⁴

3. The Book of Coming Forth By Day

The Book of Coming Forth By Day reflects a later New Kingdom (ca. 1600-1080 B.C.) version of the historical continuity and evolution of spiritual and funerary texts that aided the deceased in his/her journey to the celestial realm of the blessed. *The Pyramid Texts* (ca. 2450-2150 B.C.) and the *Coffin Texts* (ca. 2240-1990 B.C.) are earlier versions of the funerary texts.

The Book of Coming Forth By Day was a comprehensive set of sacred utterances written on papyrus rolls along with corresponding vignettes that dates from the earliest part of the 18th dynasty around 1600 B.C. onwards. Reciting these utterances would provide the deceased with the knowledge and power to be an effective spirit (3h) in travelling in the afterlife to the abode of the blessed souls. *The Book of Coming Forth By Day* has primarily been analyzed within the conceptual confines of religion, but the text also reveals important information relative to the harmonious convergence of astronomical knowledge

² Miriam LICHTHEIM, *Ancient Egyptian Literature*, Vol. II: The New Kingdom (Berkeley: University of California Press, 1976), 101.

³ Raymond O. FAULKNER, *A Concise Dictionary of Middle Egyptian*, (Oxford: Griffith Institute Ashmolean Museum, 1991), 250.


⁴ LICHTHEIM, *Ancient Egyptian Literature*, Vol. II, 102.

with myth and spirituality. There are some outstanding examples in *The Book of Coming Forth By Day* that symbolically show the nuanced relationship between the light of the sun and the moon around 1500 B.C. The first strong evidence comes from Chapter 2 of the *Papyrus of Nu in The Book of Coming Forth By Day* :



í w^í wbn m í^íh í w^í psd m í^íh

O you Sole One who rises in the moon, O you Sole One who glistens in the moon.⁵

The major issue in translation has been over whether or not to read the ideogram of the owl () grammatically as a preposition or the *m* of predication. In translating this passage as “O Sole One who rises as the moon, O Sole One who shines as the moon,” ALLEN is the only scholar to read the owl ideogram as *m* of predication.⁶ BUDGE, BARGUET, and FAULKNER all read the owl as a preposition. BUDGE translates “Hail, One, shining from the moon! Hail, One, shining from the moon!”⁷ BARGUET reads “O l’Unique qui se lève en Lune, O l’Unique qui brille en Lune.”⁸ FAULKNER translates “O you Sole One who shine in the moon, O you Sole One who glow in the sun.”⁹ ALLEN, BUDGE, and BARGUET all rightly read the second depiction of a divinity with a headdress of a lunar crescent and disc as the moon and Faulkner reads the symbol as the sun which is a mistake. It is more accurate to read the phrase *m í^íh* as an adverbial predicate and not a nominal predicate; hence, I have chosen to translate this passage in harmony with BUDGE, BARGUET, and FAULKNER who read the owl ideogram as a preposition. This grammatical position becomes important because BARGUET asserts that “Il s’agit, ou de Re, ou du soleil nocturne” in reference to the “Sole One.”¹⁰ On the statue of Horemheb, the sun-god Ra is referred to by the epithet of the “Sole Lord.” Here he is referred to as the “Sole One” and we can infer from this that it is the sun-god Ra who rises, shines, and glistens in the moon.

This reflects a very straightforward and precise way of saying that the moon shines by the light of the sun. The sun rises and shines (*wbn*) and glistens (*psd*) as it revolves around the heavens and its rays strike the moon. The use of the term *wbn* emphasizes not only the light of the sun, but also its movement and *psd* emphasizes the power of the light of the sun. In this passage, the power of the light of the sun penetrates the moon which is grammatically shown by the adverbial predicate “in the moon” (*m í^íh*). The moon’s light cannot be separated from the light of Ra, who is given the epithet of the “Sole One” (*w^í*) in this passage because Ra is the only divinity that has the power to give the moon light.

⁵ Ch. 2 of the *Papyrus of Nu* in BUDGE, *The Book of the Dead*: The Chapters of Coming Forth By Day (London: Kegan Paul, Trench, Trubner & Co., Ltd., 1898), 25-26.

⁶ Thomas George ALLEN, *The Book of the Dead or Going Forth By Day* (Chicago: The University of Chicago Press, 1974), 8.

⁷ BUDGE, *The Book of the Dead*, 25.

⁸ Paul BARGUET, *Le Livre des Morts des anciens Égyptiens* (Paris: Les Éditions du Cerf, 1967), 41.

⁹ R.O. FAULKNER, *The Ancient Egyptian Book of the Dead* (Austin: University of Texas Press, 1997), 36.

¹⁰ BARGUET, *Le Livre des Morts*, 41.

Hence, Ra is not loosely connected to the moon; to the contrary, Ra has such an intimate relationship with the moon that he can be conceptualized as actually being inside (*m*) the moon.

Further evidence comes from Chapter 114 of the *Papyrus of Nebseni* which discusses the initial observation of the lunar crescent. The opening of the face of the moon or, in other words, the debut of the lunar crescent was always a sacred moment in time for the Ancient Egyptians because it reassured them of the perpetual cycle of universe. The appearance of the lunar crescent after its invisibility was clearly a catalyst for a great deal of emotion and spiritual reflection. The celestial dynamic powerfully shows that although physical “death” and disappearance are immutable features of the universe, perpetual and continuous life and appearance will naturally follow for eternity. The distinction between new crescent invisibility and crescent visibility is an important one for celebrating festivals. After the new moon, which means no moon, the moon becomes visible for the first time in the evening in crescent form. This new crescent always closely follows sunset or precedes sunrise, and it can never appear in the middle of the night. The moon appears as a crescent whenever it lies closer to the sun than we do on earth. The appearance of the moon on the second day of the Ancient Egyptian lunar month is its initial appearance. Thus, the initial appearance of the lunar crescent does not mark the beginning of the lunar month for the Ancient Egyptians as it does with sundry other cultures of the world. Chapter 114 of the *Papyrus of Nebseni* not only juxtaposes the new crescent day and midmonth day, but it describes the physical form of each phase:



ind hrw tn b3w hnmw iw.i rh.kw.i šrtt m 3bd m smdt hb


Hail to you, souls of Hermopolis. I, even, I know what is small on new crescent day and on the midmonth day (i.e. the fifteenth day).



si3 R^c šst3w grh rh.n.tn si3 n.wi Dhwty pwy

Ra recognizes the secrets of the night and you (i.e. the souls of Hermopolis) know that this Thoth recognized me.¹¹

In this passage, the image of the first appearance of the lunar crescent is qualified by the adjective small (*šrtt*) precisely observing its form. It also seems as if the adjective “small” also qualifies the midmonth day, which is the day of the full moon and the writing mathematically shows that this celestial phenomena occurred on the fifteenth day

(). Hence, the moon is conceptualized as a full eye. In the beginning of the month, the lunar crescent is small. Conversely, on the midmonth day, the unseen black portion of the eye is small.

In this passage, it is clear that the writing of the full moon suggests that the Ancient Egyptians had an understanding of the astronomical full moon. Parker states that the “astronomical full moon may occur as early as the night of the fourteenth or as late as the

¹¹ Ch. 114 of the *Papyrus of Nebseni* in BUDGE, *The Book of the Dead*, 236.

night of the seventeenth of the lunar month.”¹² The representation of the full moon as occurring on the fifteenth day reflects their experiential observation that the majority of full moons take place on the fifteenth day of the month.¹³ The full moon stands in apposition to the sun and shines above the horizon the whole night. The full moon can only rise at sunset and set when the sun rises. What is unique about this passage is the contextualization of the particular relationship between the sun and the phases of the moon. We encounter the fact that it is Ra, the sun-god, who recognizes and perceives the secrets of the night. The verb *si3* meaning “to recognize” or “to perceive” is used intentionally by the Ancient Egyptians to allude to the precise nature of the observation of both the new crescent and the full moon. Further evidence of this dynamic can be shown by the fact that both the fourteenth and seventeenth day of the lunar month are termed *si3*, strongly suggesting that the Ancient Egyptians were well aware that the precise astronomical full moon can occur between the fourteenth and seventeenth day of the lunar month.¹⁴ In addition, it takes careful naked eye observation to recognize the distinction between the large gibbous phases of the moon and the actual full moon. Ra “recognizes the secrets of the night” because these are celestial observations that are not easily understood. Moreover, the importance of the fact that it is Ra who recognizes these secrets about the moon is not to be underestimated in this passage. Indeed, it alludes to the fact that the phases of the moon are determined by the sun’s recognition of this luminous celestial body and if the sun does not recognize, perceive, and influence the moon’s light, then there would be no phases of the moon to speak about.

Chapter 116 in the **Papyrus of Nu** discusses the same celestial observation, but does it in a seemingly contradictory manner. The new crescent day is described as great (*°3t*) and the moon is said to be lessened (*hbt*) on the day of the full moon :



ind hr tn ntrw imyw hmnw rh.tn wi mi rh.i n dšrt(nt)

Hail to you, Gods who dwell in Hermopolis. You know me like I know the red crown (or goddess Neith)



r srwd irt kmt rš m ip ipwt iw.i rh.kw.i b3w

to restore the black eye. (I) rejoice in the counting up of the things which are counted. I know the souls



Iwnw °3t m 3bd hbt m smdnt Dḥwty pw št3

¹² Richard A. PARKER, *A Vienna Demotic Papyrus on Eclipse and Lunar-Omina* (Providence: Brown University Press, 1959), 35; Richard A. PARKER, *The Calendars of Ancient Egypt* (Chicago: The University of Chicago Press, 1950), 13.

¹³ PARKER, *A Vienna Demotic Papyrus*, 20.

¹⁴ See Figure III.91b in Marshall CLAGETT, *Ancient Egyptian Science*, Vol. II: Calendars, Clocks, and Astronomy (Philadelphia: American Philosophical Society, 1995).

Sia the knowing, and Atum.¹⁵

In Chapter 131 of the **Papyrus of Nu**, we encounter a similar theme of the close connection between the light of Ra and the moon, but this passage illuminates this dynamic without directly referring to the moon :

I am this Ra who shines in the night. As for every man who is in his following, he is alive

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m šms n Dḥwty dīf ḥ3w n ḥr pn m grḥ

in the following of Thoth and he shall grant appearances in glory to this Horus in the night.¹⁶

In the moon's diurnal course at night, the Ancient Egyptians sometimes referred to this movement as the sun-god Ra shining at night.¹⁷ This is the image of the moon we encounter in this passage. Once again, this is a powerful symbolic image that implies that the moon, as a distinct celestial phenomena, has no light of its own. It is not the moon that shines in the night; it is Ra that actually shines in the night and emits light and the moon bounces this light back to us on earth. This passage goes on to further emphasize the power of the sun's energy by asserting that every man owes his life (*nh*) directly to energy of solar origin. Without the power of the sun, life would cease to exist. If there is no light emanating from Ra, there is no moon which is why the Ancient Egyptians could conceptualize the image of the moon as directly equivalent to Ra shining in the night.

There is one last prominent chapter in *The Book of Coming Forth By Day* that strengthens the argument that the Ancient Egyptians knew that the moon has no light of its own from careful celestial observation. In Chapter 115 in the *Papyrus of Nu*, we encounter a precise explanation by the Ancient Egyptians as to why there is a lessening of the moon (*hbt*) on new crescent day and this lessening is inextricably linked to the wearing of a tress (*ḥnskt*) or a lock of hair by a male:



iw.ī rh.kw.ī iry ḥnskt n t3y ḥr.s Ra ḥr mdt n

I know why a tress is made for a male in it. Ra was speaking to



imy ḥ3.f ḥf n r.f 3tw ḥpr ḥbt pw m 3bd

"he who dwells in his place" (the snake who dwells in his consuming fire) then an injury was done to his mouth. That is how the injury on new crescent day came about.¹⁸

The use of the auxiliary *h^c* situates the event in the past as an objective historical narration and indicates the extension of the action between Ra and "he who dwells in his place." This is grammatically important because an injury (*3tw*) was done to his mouth (*r.f*), that is, to the mouth of the sun-god Ra presumably by "he who dwells in his place." BARGUET refers to this divinity as a snake, calling it a "divinite chtonienne" that is described in the *Coffin Texts* as "celui qui est dans sa flamme."¹⁹ The injury to the mouth of Ra is given as the

¹⁶ Ch. 131 of the *Papyrus of Nu* in BUDGE, *The Book of the Dead*, 286.

¹⁷ Manfred LURKER, *An Illustrated Dictionary of The Gods and Symbols of Ancient Egypt* (London : Thames and Hudson, 1980), 82.

¹⁸ Ch. 115 of the *Papyrus of Nu* in BUDGE, *The Book of the Dead*, 237.

¹⁹ BARGUET, *Le Livre des Morts*, 152.

reason for why there is a lessening (*hbt*) of the moon on new-crescent day (*3bd*). This is a astronomically precise explanation for the lessening of the moon that the Ancient Egyptians provide in the early years of the eighteenth dynasty. The lessening or the waning of the moon is due to an injury to the sun-god Ra, not to the moon itself. This example puts a philosophical exclamation point on the thesis that the Ancient Egyptians knew in their most profound spiritual texts that the moon shines by the light of the sun; thus, it is philosophically consistent that the waning of the moon would also be conceptualized as interconnected to the celestial movement of the sun-god Ra. Lurker implicitly assumes this when he states that "the moon was regarded as the 'sun shining at night', therefore, conceptions relating to the course of the sun were transferred to a lunar context."²⁰

4. Conclusion

The close observation of the moon, like the sun, occupied the astronomical imagination of the Ancient Egyptians since the beginnings of their civilization. The moon played an important part in marking time and festivals in the lunar calendar. In observing the essence and movements of the moon, the Ancient Egyptians soon became aware of the fact that the moon has no autonomous light of its own; its light comes from the sun. This important discovery is revealed by the Ancient Egyptians at approximately 1600 B.C. in *The Book of Coming Forth By Day* and reaffirmed two centuries later on the statue of Horemheb. In the history of astronomy, there is some internal debate as to the first Greek philosopher who discovered the moon does not shine by its own light, but by the light of the sun. Most scholars situate the discovery with Anaxagoras of Clazomenae (500 B.C. - 428 B.C.), but Dicks asserts that Parmenides, a Greek philosopher closely linked to the Pythagorean school who precedes the birth of Anaxagoras by approximately forty years, was the first to discover it.²¹ It is a historical fact that Anaxagoras sought fit to spend time in Egypt to study at the feet of Egyptian priests for specific knowledge on exact speculations of nature. It is also interesting to note that this discovery by Anaxagoras was not well-received in his homeland of Greece. He was saved by Pericles after he was heavily persecuted and eventually imprisoned because many felt that his discovery was analogous to the disbelief in God.²²

Based on the textual evidenced examined herein, we are able to strongly assert that the Ancient Egyptians had prior knowledge of this important astronomical discovery at least one thousand years before the birth of Anaxagoras. Indeed, Pericles and Anaxagoras, the former student of Egyptian priests, "discovered" an observation that had been posited and substantiated by his teachers for numerous generations. In reference to this pathbreaking astronomical discovery, future books and works on the subject should be written to reflect the keen astronomical observations of the Ancient Egyptians.

²⁰ LURKER, *Gods and Symbols of Ancient Egypt*, 82.

²¹ Sir Thomas HEATH, *Aristarchus of Samos: The Ancient Copernicus* (New York: Dover Publications, Inc., 1981), 62, 78; D.R. DICKS, *Early Greek Astronomy to Aristotle* (Ithaca: Cornell University Press, 1970), 52, 58; S. SAMBURSKY, *The Physical World of the Greeks* (Princeton : Princeton University Press, 1987), 24.

²² SAMBURSKY, *Physical World of the Greeks*, 24-25.

□ The author - L'auteur

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T. D. ALLEN, M. BEATTY, G. K. CARR, V. WATKINS, *The Celestial Sphere in Ancient Egypt*, ANKH 4/5, 1996-1997, pp. 215-221.

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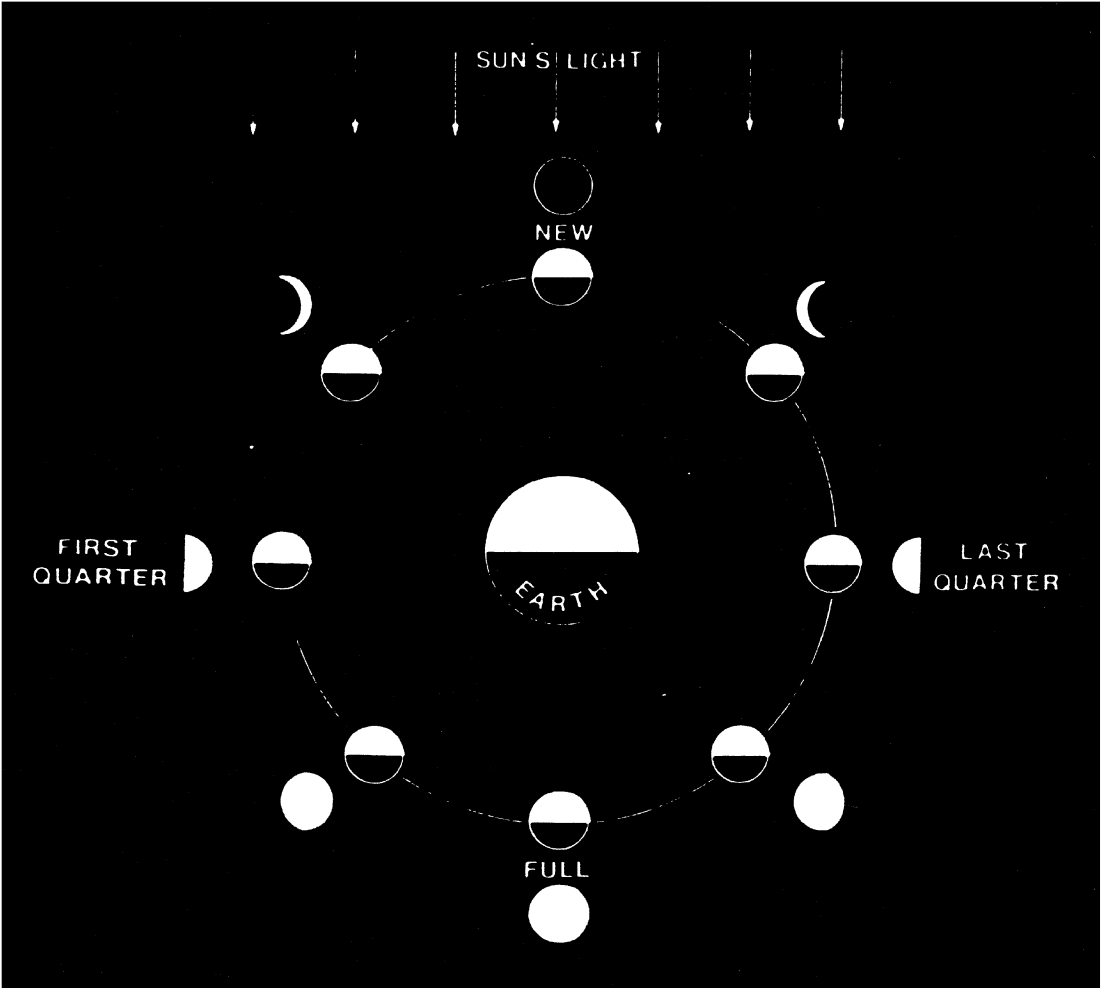


Figure 1: The Light of the Moon from the Sun.



Figure 2 : The Statue of Horemheb in the Metropolitan Museum of Art, New York. Dynasty XVIII (1361-1352 B.C.)



Figure 3 : Epigraphic Reproduction of the Hieroglyphs of the unrolled papyrus situated on Horemheb's lap.

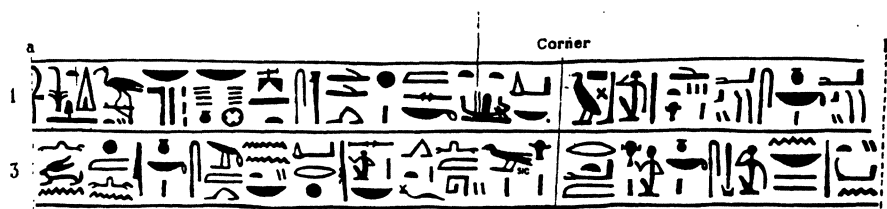


Figure 4 : Epigraphic reproduction of the Hieroglyphs on the left side of the base of Horemheb's statue.