

Reconstruction of the Chronology of Kings in the Early Egyptian Dynasty: A Multimodal Analysis

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Abstract: *This comprehensive study delves into the historical enigma of Egyptian Predynastic Kings, employing a meticulous multi - approach analysis. Utilizing archaeological evidence from the Palermo Stone and the Turin Papyrus, the methodology establishes a novel framework for dating these ancient rulers. By amalgamating historical records, mathematical calculations, and climatic context, the paper elucidates the inaugural timelines of key Predynastic monarchs. The findings not only shed light on the Predynastic Kings era but also foster insights into its alignment with mythological epochs and climatic transitions. The study underscores the significance of diverse validation methods and culminates in a comprehensive chronology of these enigmatic rulers.*

Keywords: Egyptian Predynastic Kings, Archaeological Evidence, Palermo Stone, Turin Papyrus, Chronology, Validation Methods

1. Methodology

The methodology followed in this paper is creating a list of the Egyptian Predynastic Kings based on the archeological evidence of the Palermo Stone (Appendix 1), and the Turin Papyrus (Appendix 2). The findings are validated by four different approaches detailed in this paper. This methodology led to the development of the first dated list of some of the Egyptian Predynastic Kings.

According to the Turin papyrus, the Predynastic era was 13, 420 years. This could have included a2500 - 3, 000 years gap between the Predynastic kings and the dynastic era, including theBadarian and the Naqadah`s era. This would leave us with circa 10, 420 years as the total duration of the Predynastic kings (13, 420 - 3, 000).

If we refer back to James Henry Breasted hypothesis based on the Palermo stone that if the upper line of the stone was full, there were possibly some 120 predynastic enumerated. (Fig.3).

- Then the average duration of a Predynastic king or a queen term would be circa 86 years. (10, 420 years divided by 120 kings and queens). On the Palermo stone, there are circa 53 Predynastic kings before the first name that we could identify as “King Seka”. This would mean based on an average calculation that:
- King Seka ruled after 4, 558 years (86 years term*53 kings = 4, 558) from the beginning of the Predynastic Kings era.
- The predynastic king's era would have started circa 16, 620 BC (13, 420 Predynastic + 3, 200 dynastic).
- This would mean that King Seka`s inauguration would have been c.12, 062 BC. (16, 620 – 4, 558 = 12, 062).

If we followed this methodology, we can estimate that the inaugurations of the Predynastic kings mentioned on the Palermo stone were approximately on the following dates:

- 1) Seka. c.12, 062 BC.
- 2) Aiu or Khaiu. c.11, 976 BC.
- 3) Tiu. c.11, 890 BC.
- 4) Thesh. c.11, 804 BC.
- 5) Neheb. c.11, 718 BC.
- 6) Uadj - adj. c.11, 632 BC.
- 7) Mekhet. c.11, 546 BC.

On the Turin papyrus, there are a total of circa 60 kings and queens, the first name that we could identify is Ra, which is number 12 on the list (48 names before the beginning of the dynastic era). If we followed the same methodology to estimate when King Ra ruled, after removing the 3, 000 years gap, including theBadarian, and Naqadah`s era, he would have ruled circa 7, 042 years before the beginning of the dynastic era. $((47*86) + 3000 = 7, 042)$. Where:

- 47 is the number of Predynastic kings between him and the beginning of the dynastic era on Turin`s list
- 86 is the average term of the Predynastic kings and queens.
- 3, 000 is the approximate gap between the Predynastic Kings era and the beginning of the dynastic era. These 3, 000 years include the Badarian and the Naqadah`s era.

This would mean that King Ra's inauguration was approximately 6, 378 years from the beginning of the Predynastic Kings era (13, 420 – 7042 = 6, 378), where:

- 13, 420 is the total duration of the Predynastic era according to the Turin papyrus.
- 7, 042 is the number of years between King Ra`s inauguration and the beginning of the dynastic era.

If we want to convert that to a BC date, that would be 16, 620 – 6, 378 = 10, 242 BC. Where:

- 16, 620 is the estimated BC date for the beginning of the Predynastic Kings era.
- 6, 378 is the number of years of the Predynastic era before the inauguration of King Ra.

We can then estimate that the inaugurations of the Predynastic kings and queens mentioned on the Turin were approximately on the following dates:

- Ra. c.10, 242 BC.
- Geb. c.10, 070 BC. (There is a missing name between Ra & Geb.)
- Ozeer or Osire (Osiris). c.9, 984 BC.
- Set. c.9, 898 BC.
- Horus c.9, 812 BC.
- Thoth. c.9, 726 BC.
- Ma`at. c.9, 640 BC.
- The first king entitled Menes on Turin`s list. c.8, 780 BC. (There are 10 kings between Ma`at ad him on the list).

A second way to validate this approach

A second way to validate this approach is that line number 24 on the first column of the Turin list, it mentions the number 7, 707.

There are 36 kings and queens on the Turin list between the beginning of the dynastic era and line 24 on the first column, which would add up to circa 3, 096 years (36 kings*86 average term = 3, 096). If we add the estimated gap between the Predynastic Kings era and the Dynastic era including the Badarian and the Naqadah's eras of around 3, 000 years, we will get 6, 096 years (3, 096 + 3, 000 = 6, 096).

Now, let's subtract what we got from the total number of years of the full Predynastic era based on Turin's papyrus 13, 420 years – 6, 096 years = 7, 324 years. This number is pretty close to the number 7, 707 on line 24 of the first column of the Turin's papyrus, which is supposedly indicating the date of inauguration of the king or queen on line 24, calculating it from the date of the beginning of the Predynastic king's era, so in all cases we are basically talking about the same duration.

A third way to validate this approach: Matching Turin's list and the Palermo stone.

There is a total of 60 Predynastic kings and queens on Turin's list, which would add up to a total duration of approximately 5, 160 years (60*86 average term = 5, 160), which means that the first king or queen on Turin's list would have been inaugurated 8, 160 years before the beginning of the dynastic era (5, 160 + 3, 000 gap = 8, 160), which would be 5, 260 years from the beginning of the Predynastic king's era (13, 420 – 8, 160 = 5, 260), which would be circa 11, 360 BC. (16, 620 the estimated BC date of the beginning of the predynastic kings' era – 5, 260 = 11, 360 BC)

- So, the first Predynastic Turin's list king or queen's inauguration would have been circa 11, 360 BC. That would also fit in our puzzle as the first Predynastic king or queen on the Turin's list according to our approach, we should come close to this date.

Let's do the math.

- "Seka" the first identified name on the Palermo stone is number 54 in descending order.
- The first king on Turin's list is number 60 in ascending order.
- The estimated number of the total Predynastic kings is estimated to be approximately 120 - 130.
- So, the first king on Turin's list would approximately be number 65 in descending order.
- So, there would have been approximately 11 kings between Seka, and the first king on Turin's list.
- That would add up to approximately 946 years (11 kings*86 years term = 946) gap between them.
- The estimated date for the inauguration of Seka is 12, 062 BC, according to this approach, the inauguration date for the first king on the Turin's list should then be c.11, 116 BC., which is pretty close to the date we've estimated earlier 11, 360 BC.

A fourth way to validate this approach.

There are 11 kings between the first king on Turin's list and Ra, which would add up to circa 946 years as well. So, if the estimated date of inauguration of the first king on Turin's list is 11, 360 BC, then King Ra inauguration date is expected to be circa 10, 414 BC, which is as well pretty close to the date we calculated earlier 10, 242 BC.

So, the pieces of the puzzle fit well, with four different approaches.

This method indicated the following:

- The Predynastic Kings' era started c.16, 620 BC.
- The estimated average term per Predynastic king was circa 86 years.
- There is a gap of circa 2500 - 3000 years between the Predynastic Kings era and the beginning of the dynastic era. The Badarian and the Naqadah eras appeared towards the end of this gap and before the beginning of the dynastic era.
- We followed four ways to validate these findings, based on the archeological evidence from the Turin's list, and the Palermo stone.

Based on this methodology, I have listed the identified names of the Predynastic kings and estimated their inauguration dates.

The list of the identified Predynastic kings and their estimated inauguration dates.

- 1) Seka. c.12, 062 BC.
- 2) Aiu. or Khaiu c.11, 976 BC.
- 3) Tiu. c.11, 890 BC.
- 4) Thesh. c.11, 804 BC.
- 5) Neheb. c.11, 718 BC.
- 6) Uadj - adj. c.11, 632 BC.
- 7) Mekhet. c.11, 546 BC.
- 8) The first Turin's List king: c.11, 360 BC.
- 9) Ra. c.10, 242 BC.
- 10) Geb. c.10, 070 BC.
- 11) Ozeer or Osire (Osiris). c.9, 984 BC.
- 12) Set. c.9, 898 BC.
- 13) Horus c.9, 812 BC.
- 14) Thoth. c.9, 726 BC.
- 15) Ma'at. c.9, 640 BC.
- 16) The first king entitled Menes on the Turin's list. c.8, 780 BC.

Let's try to compare this hypothesis to the climatic conditions in Egypt during those periods, in addition to the estimated timeline of the Predynastic period according to Manetho, Eusebius of Caesarea, Diodorus Siculus, and others.

A timeline of Sahara (The Egyptian western desert) occupation:

- 22, 000 to 10, 500 years ago (**c.20, 000 - 8, 500 BC**): The Sahara was devoid of any human occupation outside the Nile Valley and extended 250 miles further south than it does today.
- 10, 500 to 9, 000 years ago (**c.8500 - 7000 BC**): Monsoon rains begin sweeping into the Sahara, transforming the region into a habitable area swiftly settled by Nile Valley dwellers.
- 9, 000 to 7, 300 years ago (**7000 - 5, 300 BC**): Continued rains, vegetation growth, and animal migrations lead to

well - established human settlements, including the introduction of domesticated livestock such as sheep and goats.

- 7, 300 to 5, 500 years ago (**5, 300 - 3500 BC**): Retreating monsoonal rains initiate desiccation in the Egyptian Sahara, prompting humans to move to remaining habitable niches in the Sudanese Sahara. The end of the rains and return of desert conditions throughout the Sahara after 5, 500 coincides with the population return to the Nile Valley and the beginning of pharaonic society.

Eusebius of Caesarea mentioned that according to Manetho, there were 3 eras in the history of Predynastic Egypt. Those three periods are the Demigods, Shemsu - Hor (The followers of Horus), and the Predynastic Kings, extending over a total of c.28, 000 years. Diodorus Siculus mentioned that according to Manetho Egypt's history extends to c.33, 000 years before the first dynastic king Menes Narmer.

The estimated timeline for the Predynastic period would be:

- **c.3, 300 - 5, 000 BC** the Badarian and the Naqada.
- **c.5, 000 - 10, 000 BC** Unknown Era.
- **c.10, 000 - 15, 000 BC** Shemsu - Hur, and the Predynastic Kings.
- **c.15, 000 - 17, 000 BC** The Demigods Era.
- **c.17, 000 - 30, 000 BC** The Gods Era.

The proposed list and dates of the Predynastic Kings do come during the Shemsu - Hur, and the Predynastic Kings era as estimated by Manetho, and other historians.

This is also aligned with the climatic conditions, where c.5, 300 - 8, 500 BC people left the Nile valley and lived in the Egyptian western desert. This is the period when the Ancient Egyptians of the Predynastic Era (AEDEs) had to move to the Egyptian western desert to escape the hypothesized natural disaster, that wiped out the Predynastic Kings era. This is aligned as well with the estimated 3, 000 years gap mentioned earlier.

The title Menes was developed by the New Kingdom to mark the kings who start a new era. The first king that appears with that title on Turin's papyrus is 10 kings apart from Ma'at. Ma'at's estimated inauguration date is estimated to be c.9, 640 BC. This means that the first king titled Menes on the Turin papyrus would have ruled starting from c.8, 780 BC, which would almost exactly correspond to the period right after the disaster. Let's call this period "The Sahara Era", which would extend from c.8, 780 BC until the beginning of the Badarian and the Naqada period c.5, 000 BC.

2. Conclusion

The intricate exploration of the Egyptian Predynastic Kings chronology presents a multifaceted approach to deciphering the historical tapestry of early Egypt. By ingeniously amalgamating archaeological artifacts, mathematical rigor, and climatic context, this study offers a compelling reconstruction of these ancient rulers' reigns. The alignment of multiple validation methods reaffirms the robustness of the proposed chronology and underscores the interplay

between historical records, mythological epochs, and natural transitions. This investigation not only enriches our understanding of ancient Egypt but also exemplifies the power of interdisciplinary methodologies in unlocking the mysteries of antiquity.

Appendix 1

The Palermo Stone

The Palermo Stone (Fig.1) is one of seven surviving fragments of a stele known as the Royal Annals of the Old Kingdom of Ancient Egypt. The stele contained a list of the kings of Egypt from the First Dynasty (c.3150–2890 BCE) through to the early part of the Fifth Dynasty (c.2392–2283 BCE) and noted significant events in each year of their reigns. It was probably made during the Fifth Dynasty. The Palermo Stone is a crucial historical document because it contains one of the earliest known attempts for creating a comprehensive historical record in ancient Egypt. It is essentially a list of the kings of Egypt from the Predynastic period up until the 5th Dynasty. It records the names of kings, their reign lengths, and important events that occurred during their rule. The Palermo Stone is held in the Regional Archeological Museum Antonio Salinas in the city of Palermo, Italy, from which it derives its name. The term "Palermo Stone" is sometimes applied to all seven surviving fragments of the Royal Annals, including those held in museums in Cairo and London. The inscriptions on the Palermo Stone primarily document the names of early Egyptian rulers, their reign lengths, and notable events that occurred during their rule. However, the information becomes more detailed and comprehensive as it progresses through the Old Kingdom dynasties, which followed the Predynastic period.

On the upper line of the Palermo Stone, we can locate a list of seven predynastic kings showing their names: Seka, Aiu or Khaiu, Tiu, Thesh, Neheb, Uadj - adj, and Mekhet. In addition to another six predynastic kings, we cannot identify their names which makes a total of thirteen predynastic kings only in that part of the text. (Fig.2)

James Henry Breasted the American Egyptologist, Archeologist, and Historian mentioned in his book Ancient Records of Egypt that if the upper line of the stone was full, there were possibly some 120 predynastic here enumerated, each rectangle of line. (Fig.3)



Figure 1: Part of the Palermo stone.

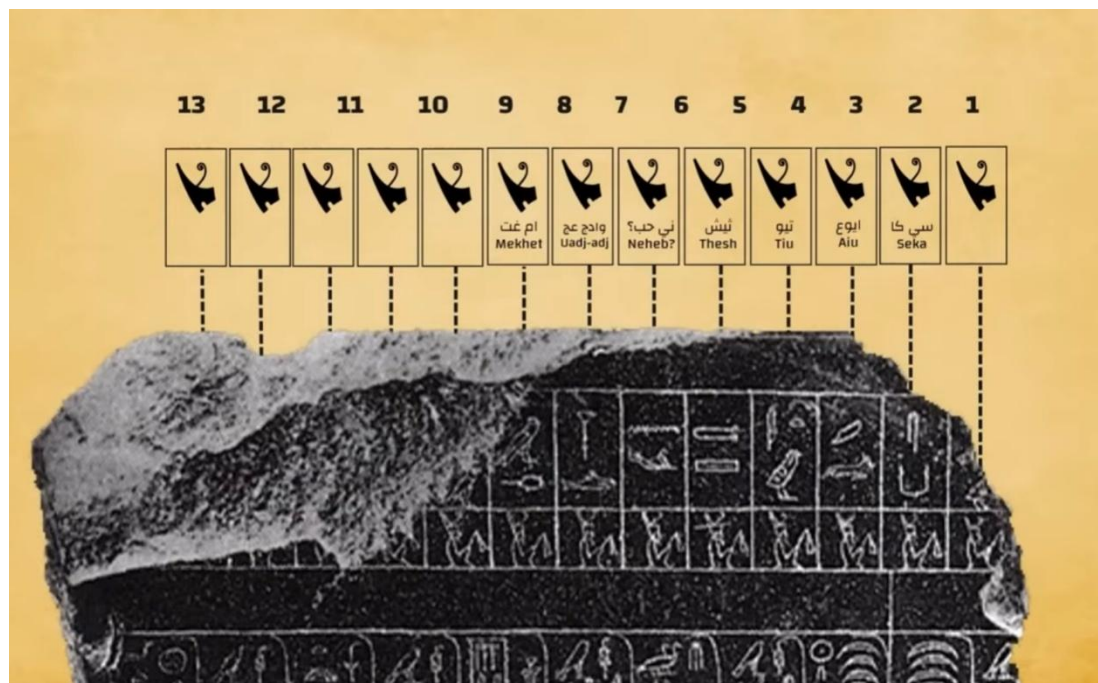


Figure 2: Part of the upper line of the Palermo stone.



Figure 3: If the upper line of the Palermo stone was full there were possibly some 120 predynastic here enumerated, each rectangle of line.

Appendix 2

The Turin Papyrus

The Turin Papyrus is an important ancient Egyptian document that provides valuable information about the history of Egypt, including details about its kings and dynasties. It is also known as the Turin King List or Turin Royal Canon. The papyrus is named after the city of Turin, Italy, where it is currently housed in the Museo Egizio (Egyptian Museum). It dates back to the Ramesside Period of the New Kingdom, specifically the 19th Dynasty (approximately 1292–1189 BC). However, the contents of the papyrus are based on earlier sources, making it a significant historical document.

The papyrus is a fragmented and damaged list that provides a chronological list of Egyptian kings, their names, and the lengths of their reigns. The papyrus is a crucial source for reconstructing the chronology of ancient Egypt. It provides a rare and direct glimpse into the historical records of the early periods of Egyptian civilization.

The Turin Papyrus lists the names of the kings and their reign lengths linearly. It contains eleven columns that cover the period from the Predynastic era up until the 18th Dynasty (Fig.4). The Turin Papyrus is divided into three main sections: the gods, the Old Kingdom, and the First Intermediate Period (which includes the early Middle Kingdom).

Line number 12 on the first column of the Turin papyrus (Fig.3) has the prefix “The King of Upper and Lower Egypt” and then the name Ra. So what we can currently identify from the line would translate to “The King of Upper and Lower Egypt Ra.”

Note here that they call what should be a God in the Ancient Egyptian Dynastic Civilization Ra “The King of Upper and Lower Egypt”. Noting that the New Kingdom did use the title the King of Egypt for Gods in some of its literature.

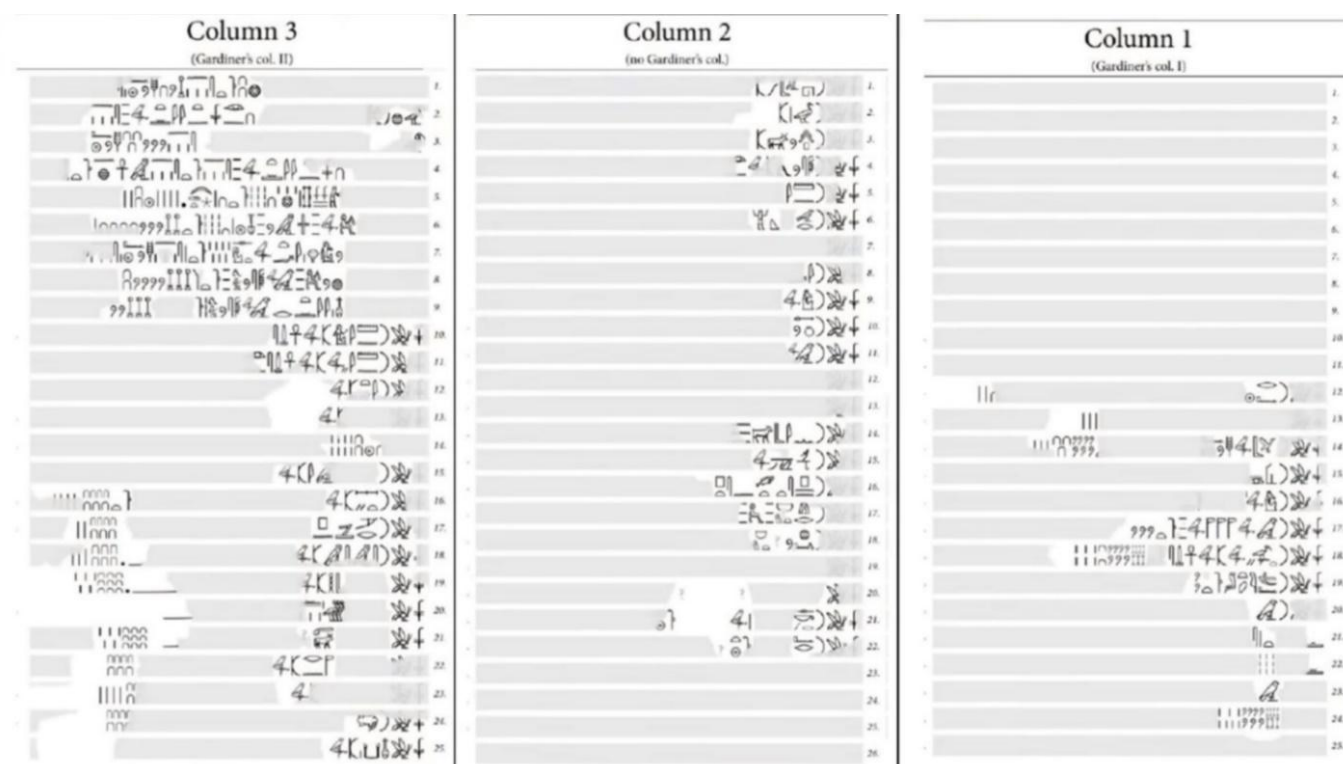


Figure 4: The First three columns of the Turin Papyrus

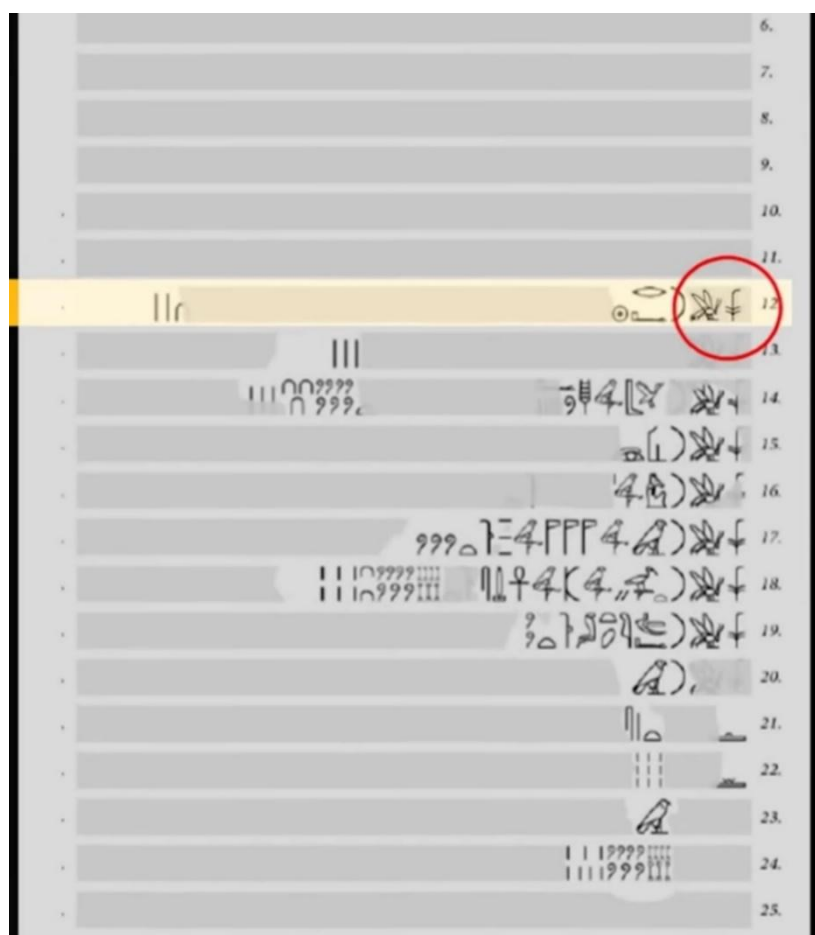


Figure 5: Line number 12 on the first column of the Turin papyrus.

What we can identify from the rest of the list on the first page of the Turin Papyrus (Fig.4) is:

- Line 14: King of Upper and Lower Egypt Geb. (Geb is the Egyptian Dynastic God of Earth.)
- Line 15: King of Upper and Lower Egypt Ozeer or Osire. (Ozeer or Osire (Osiris), is the Egyptian Dynastic God of fertility, agriculture, the afterlife, the dead, resurrection, life, and vegetation. The correct name is Ozeer or Osire –

based on how the Ancient Egyptians wrote and it was Latinized to Osiris.

- Line 16: King of Upper and Lower Egypt Seth. (Seth is the Egyptian God of deserts, storms, violence, disorder, and foreigners).
- Line 17: King of Upper and Lower Egypt Horus the master of the NTR – years 300. (Horus is the Egyptian Dynastic God of kingship, healing, protection, the sun, and the sky. Some consider 300 as his term period, it is important to note that line 17 is not complete.)
- Line 18: King of Upper and Lower Egypt Thoth – years 7726. (Thoth is an Ancient Egyptian Dynastic God associated with various domains, including wisdom, writing, magic, and science).
- Line 19: King of Upper and Lower Egypt Ma'at – years 200. (Ma'at is an ancient Egyptian concept and goddess associated with truth, justice, balance, harmony, and cosmic order.)
- Line 24 is incomplete, but the number “years 7707” appears.

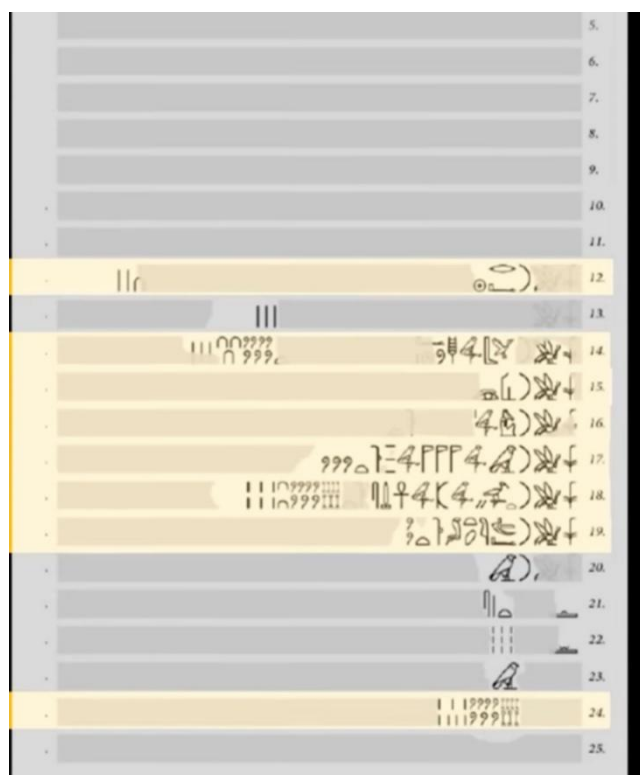


Figure 5: Lines number 14, 15, 16, 17, 18, 19 & 24 on the first column of the Turin papyrus.

The first column of the Turin papyrus is referring to the “Gods Era”, also known as the Mythic Age or the Divine Age, which is a term used to describe the time in the Ancient Egyptian Dynastic mythology when the gods and goddesses were believed to have ruled over the world and interacted directly with humans. This era is part of the religious and mythological beliefs of ancient Egypt. The Gods Era includes the mythic time before the establishment of the first human rulers and dynasties. It encompasses the mythical events and stories surrounding the creation of the world, the emergence of the gods and goddesses, and their interactions with humans and each other.

The second column of the Turin papyrus continues listing the Predynastic NTRs/Kings.

The fourth line in the second column mentions (Fig.6) “The King of Upper and Lower Egypt the followers of Horus who manufactures/makes”. Unfortunately, the text is incomplete, so we can not tell what they mean by manufacturers or makes. Another note is that the word “followers” is plural in the text.

The fifth line of the second column entitles the King Menes, which is a title that was used by the New Kingdom for a King who started a new era. (Fig.6).

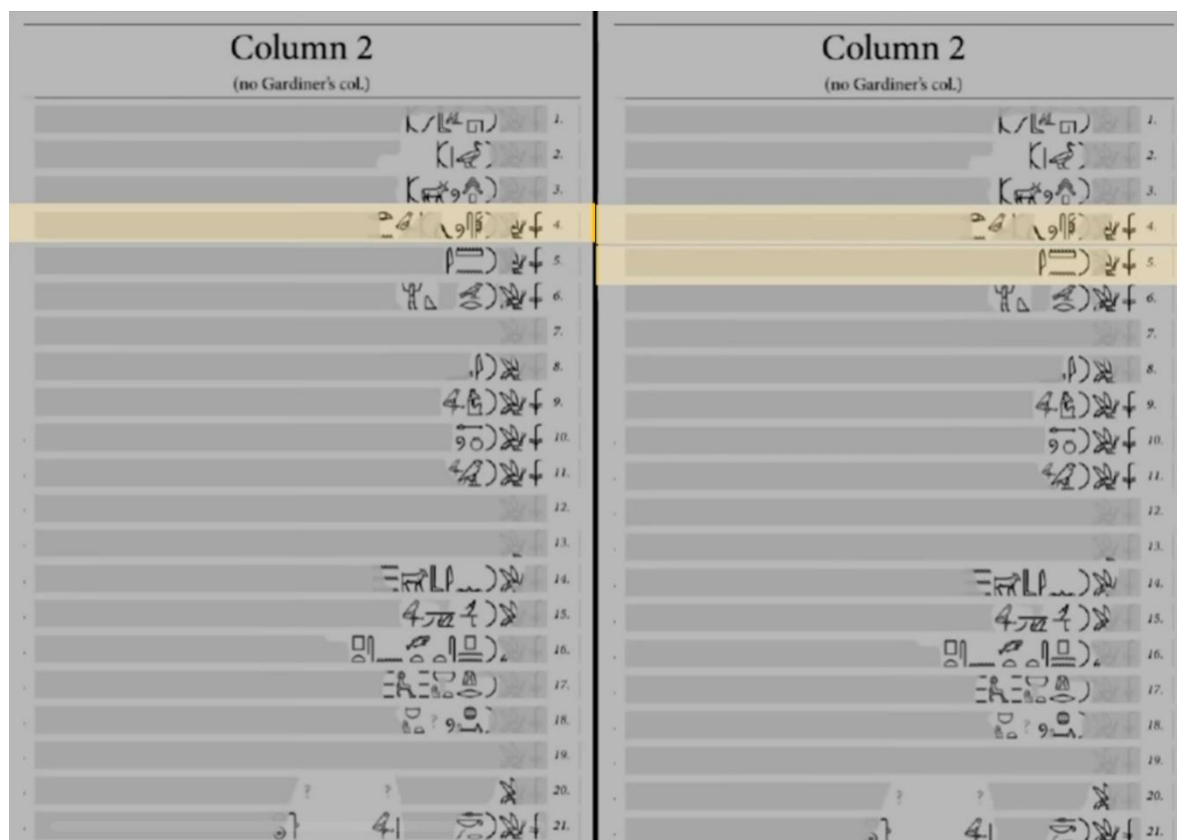


Figure 6: Lines 4 and 5 in column two of the Turin papyrus.

In the third column of the Turin papyrus on line number 8, it mentions “Protection for the nobles of Horus followers, years 13, 420. ”

The tenth line on the third column of the Turin papyrus mentions “The King of Upper and Lower Egypt Menes, the master of life, prosperity, and health. ” which marks the beginning of the dynastic period. The list then goes on with the familiar kings of the dynastic era. (Fig.7)

This is pretty significant as all the names mentioned on the list before the 9th line on the third column of the Turin Papyrus are predynastic kings, and as the papyrus implies their era was 13, 420 years.

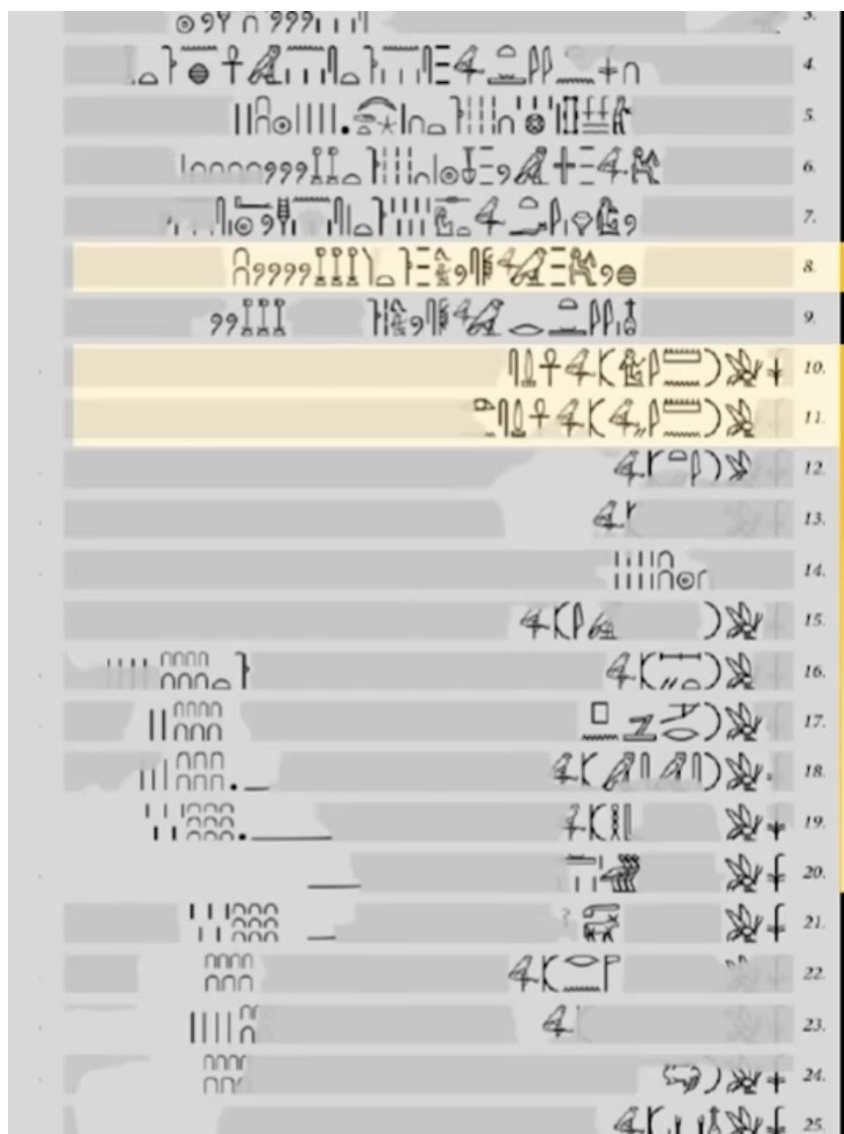


Figure 7: The third column of the Turin Papyrus.

References

- [1] Margaret Bunson: Encyclopedia of Ancient Egypt, Infobase Publishing, New York 2014, ISBN 1438109970.
- [2] Miroslav Verner: The Pyramids: The Mystery, Culture, and Science of Egypt's Great Monuments. Grove/Atlantic Inc., 2007.
- [3] The Predynastic Kings and the Pyramids of Egypt, Mohammad Hasan, Algarhy, August 2023, ISBN - 13: 979 - 8857045671.
- [4] W. M. Flinders Petrie, Ten Years' Digging In Egypt, 1881 - 1891.
- [5] George A. Reisner, Mycerinus. The Temples of the Third Pyramid at Giza (Cambridge, MA: Harvard University Press, 1931).
- [6] Mortensen, Bodil (1999). "el - Omari". In Bard, Kathryn A. (ed.). Encyclopedia of the Archaeology of Ancient Egypt. London/New York. ISBN 9780415185899.
- [7] David O'Connor Eros in Egypt. Archaeology Odyssey, September–October 2001.
- [8] Live Science, 20 July, 2006, <https://www.livescience.com/4180-sahara-desert-lush-populated.html>
- [9] Dodson, Aidan (2004) The Complete Royal Families of Ancient Egypt, p.62. Thames & Hudson, ISBN 0 - 500 - 05128 - 3.
- [10] Breasted, James Henry (1906), Ancient Records of Egypt: Historical Documents from the Earliest Times to the Persian Conquest.