Absolute chronology of Exodus

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Abstract

"Chronology is the backbone of history" is usually taught in schools but what is very disturbing is the total absence of reliable chronology to fix the Exodus because the date goes from 2100 to 650 BC (Sparks: 2015, 60); such a 1500-year gap is not at all serious. Furthermore, Exodus pharaoh identifications and theories (page 61) are absurd because the pharaoh of the Exodus died suddenly in the Red Sea according to the biblical text (Ps 136:15) and it is easy to see that the state of the mummy of Seqenenre Taa (Cairo Museum, The Royal Mummies CG 61051) proves that his body received severe injuries and remained abandoned for several days before being mummified. In addition Crown Prince Ahmose Sapaïr (Musée du Louvre, Paris: statue E 15682), who was the eldest son of Seqenenre Taa (1543-1533), died shortly before his father (Ex 12:29), who himself died on May 10, 1533 BCE. According to the biblical chronology based on absolute dates, not to the scholarly chronology of Edwin R. Thiele, the pharaoh of the Exodus died on May 10, 1533 BCE (exactly the same day). Consequently Seqenenre Taa was the pharaoh of the Exodus, according to absolute chronology.

For archaeologists, the "**archaeological truth**" is based on two main pillars: 1) given that all historical witnesses contain errors or mistakes, they therefore are not reliable and must be corrected by archaeological surveys; 2) there are no original documents because they result from a process governed according to the theory of evolution. On the contrary for historians, "**historical truth**" is based on two main pillars: 1) an accurate chronology (Herodotus' principle) anchored on absolute dates and 2) reliable documents (Thucydides' principle) coming from critical editions.

Regarding biblical chronology, the Vatican's biblical scholars made Abraham enter into Canaan in 2138 BCE (Vigouroux: 1899, 737), while nowadays they say 1850 BCE (De Vaux: 1986, 1805). How can one explain such discrepancies in dates[1]? The present chronology of the Bible is an elaborate system of life-spans, "generations", and other means which delineate the events over the 4,000 years of narrative time between the Creation of the world and the re-dedication of the Temple in 164 BCE.

Establishing such a chronology was theological in intent, not historical in the modern sense, and functions as an implied prophecy whose key lies in the identification of the final event. Furthermore the chronology of the monarchy, unlike that of earlier periods, can be checked against non-Biblical sources and numerous disagreements appeared with historical synchronisms. Possibly the most widely followed attempt to reconcile the contradictions has been that proposed by Edwin R. Thiele in his *The Mysterious Numbers of the Hebrew Kings*, but his work has been widely criticised for, among other things, introducing "innumerable" co-regencies, constructing a "complex system of calendars", and using "unique" patterns of calculation; as a result his following is largely among scholars "*committed ... to a doctrine of scripture's absolute harmony*". The weaknesses in Thiele's PhD dissertation have led subsequent scholars to continue to propose chronologies, but[2], there is "*little consensus on acceptable methods of dealing with conflicting data*".

[1] The early Church Father Eusebius, attempting to place Christ in the chronology, put his birth in AM 5199, and this became the accepted date for the Western Church. As the year AM 6000 (800 CE) approached there was increasing fear that the end of the world was nigh, until the Venerable Bede then made his own calculations and found that Christ's birth took place in AM 3592. Martin Luther placed the Apostolic Council of Acts 15 in the year AM 4000, believing this marked the moment when the Mosaic Law was abolished and the new age of grace began. This was widely accepted among European Protestants, but in the English-speaking world, Archbishop James Ussher switched the focus back to the birth of Christ (c. 1650), which he found had occurred in AM 4000, equivalent, he believed, to 4 BCE, and thus arrived at 4004 BCE as the date of Creation.

[2] The criticism is to be found in Brevard Childs' *Introduction to the Old Testament as Scripture*.

First, one must get an accurate biblical chronology. In order to check the accuracy of the Bible chronology one must use only the durations of reign given by the biblical text (marked by #). As Thiele had understood in his PhD work, the reigns of Judean kings (like Rehoboam) have begun on 1st Nisan with an accession year (year 0), which was a system of Babylonian origin, and the reigns of Israelite kings have begun on 1st Tishri (year 1) without an accession year, which was a system of Egyptian origin adopted by King Jeroboam I (dates in bold are absolute dates[3] calculated by astronomical events). Several reigns (highlighted) have been confirmed by archaeology (Kitchen: 2003, 604):

[3] For example, *all the nations had to serve the king of Babylon for 70 years* (Jr 25:11-12), from October 609 BCE (death of Ashur-uballit II, last Assyrian king) to October 539 BCE (death of Belshazzar, last Babylonian king).

n°	JUDAH	reign	#	reference	ISRAEL	reign	#	reference
23	Solomon	1017-**977**	40	1Ki 11:42				
24	Rehoboam	**977**-960	17	1Ki 14:21	Jeroboam I	10/**977** - -05/955	22	1Ki 14:20,21
25	Abiyam	960-957	3	1Ki 15:2				
26	Asa	957 - -916	41	1Ki 15:10	Nadab	06/955-05/954	2	1Ki 15:10,25
					Baasha	06/954-04/931	24	1Ki 15:28,33
					Elah	05/931-04/930	2	1Ki 16:8
					Zimri	05/930	*7 d*	1Ki 16:10-16
					Omri/	06/930-05/919/	12	1Ki 16:21-23
					[Tibni]	[06/930-01/925]	6	
27	Jehoshaphat	916 - -891	25	1Ki 22:42	Ahab	06/919-01/898	22	1Ki 16:29
					Ahaziah	02/898-01/897	2	1Ki 22:51
28	Jehoram J.	893-885	8	2Ki 8:17	Jehoram A.	02/897 - -08/885	12	2Ki 3:1
	[Ahaziah]	886-**885**	[1]	2Ki 9:27,29				
29	Athaliah	**885**-879	6	2Ki 11:1-4	Jehu	10/**885**-03/856	28	2Ki 10:36
30	Joash	879 - -839	40	2Ki 12:1-2	Jehoahaz	04/856-09/839	17	2K 10:35;13:1
					Jehoash	[01/841-09/839]	2	2Ki 13:10
31	Amasiah	839 - -810	29	2Ki 14:2		09/839-01/823	16	2Ki 13:10
					Jeroboam II	01/823-05/782	41	2Ki 14:23
32	Uzziah [Azariah]	810 - [796 - -758	52	2Ki 15:2	[Zechariah]	[06/782-02/771]	[11]	2Ki 14:29
					Zechariah	03/771-08/771	*6 m*	2Ki 15:8
					Shallum	09/771	*1 m*	2Ki 15:13
					Menahem	10/771-03/760	10	2Ki 15:17
					Peqayah	04/760-03/758	2	2Ki 15:23
33	Jotham	758-742	16	2Ki 15:33	Peqah	04/758-05/**738**	20	2Ki 15:27
34	Ahaz	742-726	16	2Ki 16:2	[Hoshea]	[06/738-01/729]	9	2Ki 15:27-30
35	Hezekiah	726-697	29	2Ki 18:2	**Hoshea**	02/729-09/**720**	9	2Ki 17:1,3
36	Manasseh	697-642	55	2Ki 21:1				
37	Amon	642-640	2	2Ki 21:19				
38	**Josias**	640-**609**	31	2Ki 22:1				
39	Jehoiaqim	609-598	11	2Ch 36:5				
40	Zedekiah	598-**587**	11	2Ch 36:11				
	Jehoiachin	587-5**61**	26	2K 25:27,28				
	total n°24-40	*977-587*	*390*	Ezk 4:5-6				
	Babylonian empire	**609-539**	70	Jr 25:11-12				2Ch 36:20-21
	Temple desolation	**587-517**	70	Dn 9:2				Zk 7:1-7

The previous chronological reconstruction of all the Judean and Israelite kingdoms (from 977 to 561 BCE) can be verified in three different ways:

✓ There is absolutely no contradiction between the reigns of the kings of Judah (left) and those of the kings of Israel (right), there is a perfect fitting.

✓ There is absolutely no contradiction between the sum of Judean reigns going from n°24 to n°40, from the split of the Judean kingdom in October 977 BCE to the destruction of Jerusalem in October 587 BCE, and their total given in Ezekiel 4:4-6 of 390 years[4], from the 1st year of Rehoboam to the 11th of Zedekiah, is indeed 390 years. This period began when the 40-year reign of Solomon (1Ki 11:42) broke apart in two rival entities: Israel and Judah. This revolt (in October 977 BCE), considered by God as a major fault (1Ki 12:19), ended after the destruction of the Temple when the Jews of the exile (Jr 25:8-12) arrived in Babylon around October 587 BCE. Similarly the Babylonian world domination of that era lasted exactly 70 years (Jr 25:11-12;

[4] 390 = 17 + 3 + 41 + (25 – 2) + 8 + (7 – 1) + 40 + 29 + 52 + 16 + 16 + 29 + 55 + 2 + 31 + 11 + 11.

29:10; Is 23:13-17), starting in the beginning of the kingdom of Jehoiakim (Jr 27:1-7), in October 609 BCE, and ending in October 539 BCE when Cyrus subdued all nations, including Babylon, and freed the Jews (Is 45:1-7). A 70-year period of desolation (Dn 9:6), without worship at the Temple (Mt 24:15), began in October 587 BCE and ended in October 517 BCE when the worship at the Temple restarted after the 4th year of Darius I (Zk 7:1-7).

✓ There are at least 7 precisely dated events, over the period 977-587, which occurred during these reigns, which can also be dated by some synchronisms with other chronologies (Gertoux: 2017, 14-29). A correct review of Babylonian, Assyrian, Egyptian and Israelite chronology, based on a chronology anchored on dates validated through astronomy, shows a perfect agreement between the four chronologies, if the co-regencies are taken into account, which mainstream historians refuse to do. Edwin R. Thiele was the first scholar to pass (in 1943) his PhD the goal of which was to determine a scientific biblical chronology. All his thesis was based on the following hypothesis: given that Ahab is mentioned in the Kurk Stele which records the Assyrian advance into Syria/Palestine at the Battle of Qarqar in 853 BCE and Jehu is mentioned on the Black Obelisk of Shalmaneser III paying tribute in 841 BCE, and that these two events are securely dated by Assyrian chronology as being 12 years apart, consequently Ahab might have fought the Assyrians in his last year and Jehu paid tribute in his first year. Despite the various criticisms Thiele's methodological treatment remains today the typical starting point of scholarly treatments of the subject, and his PhD dissertation, published in his book: *The Mysterious Numbers of the Hebrew Kings*, is considered to have established the date of the division of the Israelite kingdom. The work of Thiele and those who followed in his steps has achieved acceptance across a wider spectrum than that of any comparable chronology, so that Assyriologist D. J. Wiseman, biblical scholar and archaeologist and Professor of Assyriology at the University of London, wrote: *The chronology most widely accepted today is one based on the meticulous study by Thiele*, and, more recently, Leslie McFall, former lecturer in Hebrew and Old Testament and now researcher in Biblical Studies: *Thiele's chronology is fast becoming the consensus view among Old Testament scholars, if it has not already reached that point*. Contrary to appearances the purpose of these biblical scholars is not to establish a reliable chronology of the Bible but to discredit it. For example, in his book: *Secrets of the Times. Myth and History in Biblical Chronology*, the biblical scholar Jeremy Hugues explained how he proceeded to achieve his goal. This book is a revised version of his PhD dissertation which was submitted to the Faculty of Oriental Studies of Oxford University in 1986. He wrote: *841 BC (Nisan) is in fact the date of a key synchronism between Assyrian and Israelite chronology, corresponding to the 18th year of the reign of Shalmaneser III, when the latter conducted an inconclusive campaign against 'Hazael of Aram' and received tribute from various rulers including 'Jehu the Omrite'. Since Assyrian campaigns almost invariably began in the spring it is probable that Jehu's payment of tribute occurred in the late summer of 841 BC, in which case he must presumably have come to the throne either during or before the Israelite year 842 BC* (Hugues: 1990, 183-184,264-266). This claim of Hugues is based on two prejudices which are widespread but wrong: 1) Assyrian narratives are more accurate and reliable than biblical narratives and 2) the date 841 BCE marks the beginning of Hazael's reign instead of the end. The conclusion of Hugues reflects the frame of mind of mainstream historians: *A major part of this study has been concerned with the task of reconstructing the original pre-schematic chronology of the book of Kings and using this to construct a historical chronology of the Israelite and Judean kingdoms (...) the chronology of Kings is historically inaccurate, but it is not corrupt. The reason it is inaccurate is that the Biblical writers were more interested in chronological schematism than in historical accuracy. Biblical chronology is essentially mythical (...) The mythical purpose of chronological schematism is that it serves to express a belief that history is governed by a divine plan (...) There are fundamentalist groups which see history as a succession of 'dispensations' or ages, and there are others who believe that events are controlled by stars or planets, and that we are currently living in the age 'age of Aquarius'. These are fringe beliefs which are not taken seriously by most people*. The work of Hugues was in fact an in-depth study, which was concerned with the task of "improving" the original chronology of the book of Kings and using this to construct a new chronology of the Israelite and Judean kingdoms, but replacing Bar-Hadad II by Hadad-ezer[5] involves a chronological absurdity because there would have been afterward a king of Syria reigning during the period 805-780 with two different names: Mari' and Bar-Hadad (III, whose reign was in fact 840-805), depending on inscriptions (!), but it is unprecedented[6].

The checking of chronologies shows that the chronological data from the Bible (Old and New Testament) are absolutely correct from 1533 BCE to 140 CE (Gertoux: 2016, 1-202).

[5] Naaman (910-890) was a former army chief of Ben-Hadad II (2Ki 5:1). Hazael himself had been head of Bar-Hadad II's army (890-885) before becoming king (885-840).

[6] Some kings changed their name or took a throne name but never used two names simultaneously.

In order to check the accuracy of the Bible chronology from 977 BCE to 2038 BCE, one must use, as was done previously, only the durations given by the biblical text (marked by #):

n°	HEBREW	BCE	#	reference	Biblical character vs archaeology
	Abraham (in Ur)	**2038**-1963	75	Gn 12:4-5	Kudur-Lagamar king of Elam (1990-1954)
	Canaan-Egypt	1963-**1533**	430	Ex 12:40-41	
	Birth of Isaac	1963-**1938**	25	Gn 21:5	
	Isaac is weaned	1938-**1933**	(*5*)	Gn 21:8-9	
	Period of servitude	*1938-1488*	*450*	Ac 13:17-20	Hyksos dynasties (1748-1533)
	Period of affliction	*1933-1533*	*400*	Gn 15:13	Apopi (1613-1573) Dynasty XV met
	Moses (*Exodus*)	**1533**-1493	40	Ex 16:35	Pharaoh Seqenenre Taa (1544-1533)
	Pacification period	*1493-1488*	*5*	Jos 14:7,10	Hazor is destroyed (c. 1500 BCE)
1	Joshua	**1493**-1463	30	Jos 24:29	
2	Without judge	1463-1452	[11]	Jos 24:31	
	total n° 1-2	*1493-1452*	*41*	Nb 32:13	Tribe of Asher (Amenhotep II)
3	Cushan-rishataim	1452-1444	8	Jg 3:8	Šauštatar I king of Mitanni (1455-1435)
4	Othniel	1444-1404	40	Jg 3:11	
5	Eglon	1404-1386	18	Jg 3:14	Bedouins those of Yehua (Soleb)
6	Ehud	1386-1306	80	Jg 3:30	Sisera (Jg 4:1-16) king of Ušnatu (1370-1346)
7	Madian	1306-1299	7	Jg 6:1	
8	Gideon	1299-1259	40	Jg 8:28	Jerubbaal the priest of Iehuô
9	Abimelek	1259-1256	3	Jg 9:22	
10	Tola	1256-1233	23	Jg 10:2	
11	Jair	1233-1211	22	Jg 10:3	
12	Anarchy	1211-1193	18	Jg 10:8	Israel Stela (Merenptah)
	total n° 1-12	*1493-1193*	*300*	Jg 11:26,30	
13	Jephte	1193-1187	6	Jg 12:7	
14	Ibzan	1187-1180	7	Jg 12:9	
15	Elon	1180-1170	10	Jg 12:11	
16	Abdon	1170-1162	8	Jg 12:14	
17	[Eli] Philistines	1162-1122	40	1S 4:18	The Sea Peoples
18	Samson	1122-1102	20	Jg 16:31	
19	Samuel's sons	1102-1097	[5]	1S 8:1-3	
20	Saul	1097-1057	40	Ac 13:21	Tell Qeiyafa ostracon (king enthroned)
21	David	1057-1017	40	1Ki 2:11	
22	Solomon (year 4)	**1017**-1013	4	1Ki 6:1	House-of-David (Tell Dan Stela)
	total n° 1-22	*1493-1013*	*480*	1Ki 6:1	
23	Solomon	**1017** - 977	40	1Ki 11:42	

The above chronological reconstruction, going from the birth of Abraham in 2038 BCE to the reign of King Solomon (1017-977), can be verified in four different ways:

✓There is absolutely no contradiction between the sum of Hebrew reigns going from n°1 and their total given in the biblical text: 41 years (n°1-2), 300 years (n°1-12) and 480 years (n°1-22). Similarly: a 430-year period of alien residence began when Abraham entered Canaan in 1963 BCE and ended with the departure from Egypt in 1533 BCE; a 450-year period of servitude began when Isaac the ancestor of the people of Israel was born in 1938 BCE and ended with of the complete pacification of Canaan in 1488 BCE; a 400-year period of affliction began when Isaac was persecuted by Agar's son (Gn 21:8-9) and ended with the departure from Egypt in 1533 BCE, the end of slavery (Ga 4:25-29). The 400-year period began with the persecution of Isaac when he was weaned at 5 years old and not from his birth.

✓The exodus from Egypt in 1533 BCE, when Moses (1613-1493) was 80 years old, can be dated precisely because this central event in Israel's history was marked by the death of Pharaoh (Seqenenre Taa) in the Red Sea (Ps 136:15) as well as his firstborn son (Ahmose Sapaïr) who was crown prince (Ex 12:29-31).

✓The genealogy of Moses' ancestors, which can be accurately calculated (DiTommaso: 1998, 81-91), confirms Abraham's birth in 2038 BCE:

Terah[7] (2168-1963)
I
Nahor II (2098-1923?) / Abram (**2038**-1863) / Saraï (2028-1901)
I

[7] Terah (Gn 11:25-26,32); Abram (Gn 16:16, 17:17; 25:7); Saraï (Gn 23:1); Ishmael (Gn 16:16, 25:17); Isaac (Gn 25:26, 35:28); Jacob (Gn 47:9,28); Levi (Ex 6:16); Joseph (Gn 41:46-50, 50:22-23); Kohath (Ex 6:18); Amram (Ex 6:20); Miriam (Nb 20:1,29, Ex 2:1-4); Aaron (Ex 7:7; Nb 33:39); Moses (Dt 34:7).

Ismael (1952-1815) / Isaac (1938-1758) / 6 sons with Keturah
I
Jacob-Israel (1878-1731)
I
(1st) Reuben (1794-1654) / (3rd) Levi (1792-1655) / (12th) Joseph (1788-1678)
I
Kohath (1731-1598)
I
Amram (1691-1554)
I
Miriam (1623-1493) / Aaron (1616-1493) / Moses (1613-**1493**)

✓When Abram arrived in Canaan he was 75 years old (Gn 12:4-5) and because Hagar was pregnant with Ishmael 10 years later (16:3-4), the War of Nine Kings (Gn 14:1-17), which occurred a year before, must be dated in 1954 BCE. During that war, Abram shot Chedorlaomer the king of Elam (1990-1954). However according to biblical scholars there is a big problem with this major event of Abram's story: *it is historically impossible that, at any time of the 2nd millennium, the five cities of the Dead Sea were vassals of Elam, and could Elam have been at the head of a coalition that have united four Middle East powers* (De Vaux: 1986b, 211). Indeed mainstream historians have great faith in the current chronology of Elam, despite its many uncertainties (Vallat, Gasche: 2002, 374-391, but an important issue is the following: Is the current chronology ("Middle Chronology") reliable?

Why Babylonian "Middle Chronology" is not reliable?

Archaeological excavations of the 19th century showed that the city of Ur (Tell al-Muqayyar, Irak) had been the capital of a vast Sumerian empire that was ruled by the kings of Ur III dynasty. These new archaeological data confirmed the biblical data that describe Ur as a powerful city in the land of Shinar (Sumer) and after its collapse Ur, dated 2004 BCE in the "Middle Chronology", became a small city in the land of the Chaldeans (Old Babylonia). If the "Middle Chronology" is right, there is really a problem with the biblical narrative because Abraham would have left an important city in 1963 BCE that in fact had collapsed 41 years earlier! One must know that the Middle Chronology is anchored on the fall of Babylon dated 1595 BCE, instead of 1499 BCE, by a majority of Assyriologists. This date, based on the Venus Tablet (astronomical tablet), is chosen mainly as it is consistent with the chronology accepted by most historians of the late 20th century, hence the name of Middle chronology.

Absolute chronology may be obtained because according to the Venus Tablet, there are only 4 possible dates for the fall of Babylon. This astronomical tablet (*Enuma Anu Enlil 63*), copied in 7th century BCE, describes the rising and setting of Venus during the reign of Ammisaduqa (a descendant of Hammurabi). Although the interpretation of this astronomical tablet is difficult, because much data appears to have been poorly copied, the fall of Babylon can be dated to the period 1500-1700 only according to 4 possibilities (below):

Chronology (BCE):	Ultra-Low	#	Low	#	Middle	#	High	#
Fall of Ur	1912		1944		2004		2064	
Reign of Hammurabi	1697-1654		1729-1686		1793-1750		1849-1806	
Reign of Ammisaduqa	**1551-1530**		1583-1562		1647-1626		1703-1682	
Venus rises year 1 (computed)	14-Feb 1549	0	24-Feb 1581	0	14-Mar 1645	0	31-Mar 1701	0
Shabatu 18 Year 1 (observed)	27-Feb 1549	13	19-Feb 1581	-5	9-Mar 1645	-6	28-Mar 1701	-3
Fall of Babylon	1499		1531		1595		1651	

Despite the excellent agreement with the fall of Babylon in 1499 BCE the Ultra-Low chronology is considered too low compared to Kassite (!) and Hittite chronologies. This criticism is unfounded (Gasche: 2003, 205-221), because these chronologies are very approximate: most durations of reigns are unknown and they have no link with any astronomical events.

Two astronomical elements help eliminate the chronologies called Low, Middle and High:

✓The many astronomical events described in the Venus tablet were observed 13 days (in 1549 BCE) after the date calculated with the Ultra-Low Chronology (in green) when they should have been observed prior to the calculated date with the other chronologies (in orange), which is impossible to explain[8].

✓Actually the best way for dating the fall of Babylon is to use a couple of well known lunar eclipses. For example a tablet of astronomical omens (*Enuma Anu Enlil 20*) mentions a lunar

[8] Astronomical predictions could solve the problem but these extremely complex astronomical cycles were predictable only from 19th century CE.

eclipse, dated 14 Siwanu, at the end of the reign of Šulgi (14/III/**48**) and another (*Enuma Anu Enlil 21*) mentions a lunar eclipse, dated 14 Addaru, at the end of the Ur III dynasty ending with the reign of Ibbi-Sin (14/XII/**24**). These two lunar eclipses were separated by 42 years of reign (= 9 years of Amar-Sin + 9 years of Šu-Sîn + 24 years of Ibbi-Sin). Over the period 2200-1850 there were only three couples of eclipses (P means partial and # means impossible), spaced by 42 years, matching the description of astronomical omens.

1st eclipse (14/III/**48**)	Magnitude	2nd eclipse (14/XII/**24**)	Magnitude	gap (1st - 2nd)		Chronology
13/08/2189	1.21	12/03/2107	1.00	82 years		
12/05/2175	1.80	"	"	68 years		
04/07/2150	1.32	"	"	43 years		
25/07/2095	1.32	04/05/2063	1.78	32 years		
[2106]#		[2064]#				High
"	"	13/04/2053	0.63 (P)	**42** years	**OK**	**-**
"	"	11/02/2031	1.14	64 years		
[2046]#		[2004]#				Middle
26/06/2019	1.07	24/04/2016	1.84	3 years		
"	"	15/03/1977	0.82 (P)	**42** years	**OK**	**-**
"	"	04/03/1976	1.47	43 years		
25/05/2008	0.96	15/04/1969	1.84	39 years		
18/07/2002	1.08	23/02/1929	1.63	73 years		
[1986]#		[1944]#				Low
27/06/1954	1.39	06/03/1911	1.72	**42** years	**OK**	**Ultra Low**
18/07/1937	0.75 (P)	14/02/1901	0.94	36 years		
18/05/1915	1.47	14/02/1882	1.58	33 years		
"	"	27/03/1875	1.82	40 years		
28/06/1908	1.04	"	"	33 years		

The result is irrefutable, there is no lunar eclipse according to the Low, Middle, and High chronology, neither at the end of Shulgi's reign, nor at the end of Ibbi-Sin's reign. In contrast, with the Ultra-Low chronology there was a total lunar eclipse (bad omen) at the end of each of these two reigns, the first one on 6 March 1911 BCE (06/03/-1910*) for the 14/XII/**24** of Ibbi-Sîn and the second on 27 June 1954 BCE (27/06/-1953*) for the 14/III/**48** of Šulgi.

BCE				**King**
1912	1	X	**23**	**Ibbi-Sîn**
	2	XI		
	3	XII		
	4	I	**24**	
	5	II		
	6	III		
	7	IV		
	8	V		
	9	VI		
	10	VII		
	11	VIII		
	12	IX		
1911	1	X		Lunar eclipse dated 14/XII/**24**
	2	XI		
	3	**XII**		
	4	I	(25)	Collapse of Ur
	5	II		

BCE				**King**
1954	1	X	**47**	**Šulgi**
	2	XI		
	3	XII		
	4	I	**48**	Lunar eclipse dated 14/III/**48**
	5	II		
	6	**III**		
	7	IV	**0**	**Amar-Sin**
	8	V		
	9	VI		
	10	VII		
	11	VIII		
	12	IX		
1953	1	X		
	2	XI		
	3	XII		
	4	I	**1**	
	5	II		

Consequently, the set of Assyrian reigns (which are without intercalation before Aššur-Dan I), combined with the construction length between temples (Lackenbacher: 1982, 15-17), enable us to date precisely the reign of Šamšî-Adad I (1712-1680), which fixes the reign of Hammurabi (1697-1654), because Šamšî-Adad I's death is dated year 17 of Hammurabi, and therefore those of Ibbi-Sîn (1936-1912) and Ammisaduqa (1551-1530).

Synchronisms between Assyrian, Babybolnian and Elamite chronologies are highlighted in grey (hereafter) and dates based on astronomical dating (absolute dates) are highlighted in sky blue. Some underlined dates of reigns have been adjusted by 1 year to take account of the absence of intercalation (framed dates represent extrapolated values deduced from synchronisms and *dates in italic* are the average values deduced from synchronisms):

ASSYRIA	Reign		BABYLONIA	Reign		ELAM (AWAN)	Reign	
			Ur-Nammu	2020-2002	**18**	[Ḫie?]-lu	*2015-1990*	*25*
Amînum	*1969-1955*	*14*	Šulgi	2002-**1954**	**48**	Chedorlaomer	1990-**1954**	**36**
Sulili (Zariqum)	*1955-1941*	*14*	Amar-Sîn	1954-1945	**9**			
Kikkia	*1941-1927*	*14*	Šu-Sîn	1945-1936	**9**	ISIN	Reign	
Akia	1927-1913	*14*	Ibbi-Sîn	1936-**1912**	**24**	Išbi-Erra	1923 - -1890	**33**
Puzur-Aššur I	**1913**-1900	*14*	*Collapse of Ur*					
Šalim-ahum	1900-1886	*14*						
Ilu-šumma	1886-1873	*14*				Šû-ilîšu	1890-1880	**10**
Êrišu I	1873 - -1834	**40**				Iddin-Dagân	1880-1859	**21**
						Išme-Dagân	1859-1839	**20**
Ikunum	1834 - -1821	**14**				Lipit-Eštar	1839-1828	**11**
						Ur-Ninurta	1828-1800	**28**
Sargon I	1821-1782	**40**	Sûmû-abum	1799-1785	**14**	Bûr-Sîn	1800-1779	**21**
Puzur-Aššur II	1782-1774	**8**	Sûmû-la-Il	1785 - -1749	**36**	Lipit-Enlil	1779-1774	**5**
Naram-Sîn	1774 - -1722	**54**				Erra-imittî	1774-1767	**7**
						Enlil-Bâni	1767-1743	**24**
			Sâbium	1749 - -1735	**14**	Zambîya	1743-1740	[3]
						Iter-piša	1740-1736	[4]
						Ur-dukuga	1736-1732	[4]
Êrišu II	1722-1712	**10**	Apil-Sîn	1735-1717	**18**	Sîn-mâgir	1732-1721	**11**
Šamšî-Adad I	1712 - -**1680**	**33**	Sîn-muballiṭ	1717-1697	**20**	Damiq-ilîšu	1721-**1698**	**23**
			Hammurabi	**1697-1680**	**17**	*Isin annexed*		
Išme-Dagan I	1680-1670	**11**		1680 - -1654	**26**			
Aššur-dugul	1670-1664	**6**						
6 kings (accession)	1664-1664	**0**						
Bêlu-bâni	1664-1654	**10**						
Libbaya	1654 - -1638	**17**	Samsu-iluna	1654 - -1616	**38**	ELAM (SIMAŠKI)	Reign	
						Kutir-Nahhunte	*1645 - -1620*	*25*
Šarma-Adad I	1638-1626	**12**						
Puzur-Sîn	1626-1615	**12**						
Bazaya	1615-1588	**28**	Abi-ešuḫ	1616-1588	**28**	Temti-Agun II	*1620-1595*	*25*
Lullaya	1588-1582	**6**	Ammiditana	1588 - -1551	**37**	Kutir-Silhaha	*1595-1570*	*25*
Šû-Ninûa	1582-1568	**14**						
Šarma-Adad II	1568-1565	**3**						
Êrišu III	1565-1553	**13**				Kuk-Našur II	*1570 - -1545*	*25*
Šamšî-Adad II	1553-1547	**6**	Ammiṣaduqa	**1551 - -1530**	**21**			
Išme-Dagan II	1547-1531	**16**				Kudu-zuluš II	*1545-1525*	*20*
Šamšî-Adad III	1531-1516	**16**	Samsuditana	1530 -	**31**	Tan-Uli	*1525-1505*	*20*
Aššur-nêrârî I	1516-1491	**26**	*Fall of Babylon*	-**1499**		Temti-halki	*1505 - -1485*	*20*
Puzur-Aššur III	1491 - -1467	**24**	Agum II	*1503-1487*	*16*			
			Burna-Buriaš I	*1487-1471*	*16*	Kuk-Našur III	*1485-1465*	*20*
Enlil-nâṣir I	1467-1455	**13**	Kaštiliaš III	*1471-1455*	*16*	Kidinu	*1465-1450*	*15*
Nûr-ili	1455-1443	**12**	Ulam-Buriaš	*1455 - -1439*	*16*	Inšušinak-sunkir-nappipir	*1450 - -1440*	*10*
Aššur-šadûni	1443-1443	**0**						
Aššur-rabi I	1443-1433	**10**	Agum III	*1439 - -1423*	*16*	Tan-Ruhuratir II	*1440-1435*	*5*
Aššurnâdinaḫḫe I	1433-1424	**10**				Šalla	*1435-1425*	*10*
Enlil-naṣir II	1424-1418	**6**	Kadašman-Harbe I	*1423 - -1407*	*16*	Tepti-ahar	1425 - -1405	*20*
Aššur-nêrârî II	1418-1411	**7**						
Aššur-bêl-nišešu	1411-1403	**9**	Kara-indaš	*1407 - -1391*	*16*			
Aššur-rê'im-nišešu	1403-1395	**8**				Igi-halki	1405 - -1385	*20*
Aššurnâdinaḫḫe II	1395-1385	**10**	Kurigalzu I	*1391 - -1375*	*16*			
Erîba-Adad I	1385 - -1358	**27**				Pahir-iššan	1385-1375	*10*
			Kadašman-Enlil I	**1375** - -1360	**15**	Attar-Kittah	1375-1365	*10*
						UnpaḫašNapiriša	1365-1360	*5*
Aššur-uballiṭ I	1358 - -1323	**35**	Burna-Buriaš II	1360 - -1333	**27**	Kidin-Ḫutran I	1360-1355	*5*
						Humbannumena	1355-1345	*10*
						Untaš-Napiriša	1345 - -1305	*40*
Enlil-nêrârî	1323-1313	**10**	Kurigalzu II	1333-1308	**25**			
Arik-dên-ili	1313-1302	**11**	Nazi-Maruttaš	1308 - -1282	**26**	Kidin- Ḫutran II	1305 - -1275	*30*
Adad-nêrârî I	1302-1271	**31**						

Why "Conventional Egyptian Chronology" is not reliable?

Susan L. Cohen explains in her PhD dissertation the origin of disagreement among scholars (Cohen: 2002, 12-13). Despite its technical nature her comment gives two major indications: 1) there are only two Egyptian chronologies that rely on absolute dates: Krauss' chronology ("Low") or Von Beckerath's chronology ("high") according to whether the observation was made at Elephantine (conjecture) or at Thebes (likely); 2) other Egyptian chronologies are not based on absolute dates, including the "Conventional Egyptian Chronology", and consequently (relative chronologies) are of no scientific value. How can one know if Von Beckerath's chronology is the true chronology? The answer is simple: one must use another astronomical dating in order to confirm it, which is possible now since Luc Gabolde, a French Egyptologist, found such a dating in 2010. In his article dedicated to the orientation of the temple of Amun-Ra at Karnak (Thebes), Luc Gabolde gave the precise measurement of the azimuth of the sunrise at winter solstice[9] based on the axis of the temple: 116° 43' 7,35" (Gabolde: 2010, 243-256).

[9] The winter solstice occurs on 21 September in our Gregorian calendar, but in the astronomical Julian calendar, it occurred on January 5 c. 1950 BCE, http://www.imcce.fr/fr/grandpublic/temps/saisons.html

Due to the precession of equinoxes, the azimuth of sunrise has changed slowly over time. If one observes the sun at the horizon, its path on azimuth moves through three peculiar positions easy to observe: the sunrise at summer solstice, the sunrise at winter solstice and the culmination of the sun at summer (or winter) solstice on the celestial meridian. To highlight this special and unique day, the Egyptians built a central corridor in several of their temples in order to let sunrays cross these temples on this very day of the year, as in the Senwosret I's temple in the Karnak Temple Complex on the day of winter solstice[10].

Given that the construction of the temple of Senwosret I was decided at the time of his accession, the direction of the corridor has been set at this time which fixes his 1st year of reign in 1946 BCE. If we use the reigns' duration coming from the Turin King List (TK), we get the following chronology (below):

[10] The winter solstice occurred on 5 January at 4:46 UTC in -1946. The azimuth of sunrise (altitude 0°) at winter solstice (5 January), seen from Senwosret I's temple in Karnak (32°39' East, 25°42' North) at exactly 4:44:20 UTC, was -63.264° or 116.736° (116° 43' 48"), which is the value for the axis of the temple: 116° 43' 7,35" http://www.fourmilab.ch/cgi-bin/Yourhorizon
Given that the azimuth of Sirius at its heliacal rising was 111°7', that star was not used to align the temple.

12th Dynasty		**TK**	absolute	v. Beckerath	^{14}C dates	**#**
Amenemhat I	Sehetepibre	**29**	1975-1946	1976-1947	1975-1948	**27**
Senwosret I	Kheparkare	**45**	**1946**-1901	**1956**-1911	**1948**-1903	**45**
Amenemhat II	Nebkaure	3[8]	1901-1863	1914-1876	1903-1870	**33**
Senwosret II	Khakheperre	[8]	1863-1855	1882-1872	1870-1863	**7**
Senwosret III	Khakaure	**19**	**1855**-1836	**1872**-1853	**1863**-1825	**38**
Amenemhat III	Nimaatre	[45]	1836-1791	1853-1805	1825-1781	**44**

It is seen that the chronology of Von Beckerath is partially confirmed but there are still several small shifts of a few years because he assumed the existence of a few co-regencies. In order to solve these small disagreements, we can use now the El-Lahun papyri, which describe numerous lunar festivals that occurred during the 19 years of Senwosret III's reign, followed by the 45 years of Amenemhat III, consequently the 10-year co-regency between Amenemhat I and Senwosret I was not taken into account. These papyri show the lunar days *psḏntyw* which were dated in the civil calendar (highlighted in brown in the chart below). We can see that few *wag* feasts have been dated (highlighted in night blue) and they all fall on lunar day 17 (instead of theoretical day 18). This document can be dated precisely thanks to the Sothic rising of IV Peret 16, Year 7 of Senwosret III (highlighted in purple) since, according to astronomy, it took place in Thebes on 11 July at that time[11].

[11] The heliacal rising of Sirius was on 11 July at Thebes (Longitude 32°39' East, Latitude 25°42' North) with an *arcus visionis* 8.5°. This heliacal rising of Sirius is dated between 1849 and 1846 BCE owing to the equality: IV Peret 16 = 11 July. The chart checks that the 1st lunar cycle of 25 years (beginning on I Akhet 1) coincided with the full moon of 30 November 1857 BCE. In addition, the Sothic rising, dated 11 July, 1848 BCE, coincided with the 1st lunar crescent, which may have been a remarkable event (IV Peret 1 coincided with the full moon of 26 June 1848 BCE.

Colour	Event
	Lunar day 1 (*psḏntyw*) dated in the civil calendar
*	Lunar day 1 shifted one day compared to the theoretical cycle
	Wag Feast dated in the civil calendar
	Heliacal rising of Sirius dated in the civil calendar

	BCE			AKHET				PERET				SHEMU				
				I	II	III	IV	I	II	III	IV	I	II	III	IV	5
King	1857			Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	
	1856		**1**	**1**	30	29	29	28	28	27	27	26	26	25	25	
	1855		2	19	19	18	18	18	17	17	16	16	15	15	14	
Senwosret III	1854	**1**	3	9	8	8	7	7	6	6	6	5	5	4	4	3
	1853	**2**	4	28	27	27	26	26	25	25	24	24	23	23	23	
	1852	**3**	5	17	17	16	16	15	15	14	14	13	13	12	12	
	1851	**4**	6	6	6	6	5	5	4	4	3	3	2	2	1	1
	1850	**5**	7	25	**25**	24	24	23	23	23	22	22	21	21	20	
	1849	**6**	8	**15**	**14**	**14**	13	13	12	12	11	11	10	10	10	
	1848	**7**	9	4	4	3	3	2	2	1	1 **16**	30	29	29	28	
	1847	**8**	10	23	**23**	**22**	22	21	21	20	20	19	19	18	18	
	1846	**9**	11	12	12	11	11	10	10	**10**	9	9	8	8	7	
	1845	**10**	12	2	1	1	**30**	30	29	28	28	27	27	27	26	
	1844	**11**	13	**21**	20	20	19	19	18	18	17	17	16	16	15	
	1843	**12**	14	10	9	9	9	8	8	7	7	6	**6**	5	5	4
	1842	**13**	15	29	28	28	27	27	27	26	26	25	25	24	24	
	1841	**14**	16	18	**18**	17	17	16	16	15	15	14	14	14	13	
	1840	**15**	17	8	7	7	6	6	5	5	4	4	3	3	2	2
	1839	**16**	18	26	26	26	25	25	**24**	24	23	23	22	22	21	
	1838	**17**	19	16	15	15	14	14	14	13	13	12	12	11	11	
	1837	**18**	20	5	5	4	4	3	3	2	2	1	**1**	**17**	1	30
	1836	**19**	21	24	24	23	23	22	22	21	21	20	20	19	19	
Amenemhat III	1835	**1**	22	13	13	13	12	12	11	11	10	10	9	9	8	
	1834	**2**	23	3	2	2	1	1	1	30	29	29	28	28	27	
	1833	**3**	24	22	21	21	20	20	19	19	18	18	18	**17**	17	
	1832	**4**	25	11	11	10	10	9	9	8	8	7	7	6	6	
	1831	**5**	**1**	**1**	30	29	29	28	28	27	27	26	26	25	25	
	1830	**6**	2	19	19	18	18	18	17	17	16	16	15	15	14	
	1829	**7**	3	9	8	8	7	7	6	6	6	5	5	4	4	3
	1828	**8**	4	28	27	**27**	26	26	25	25	24	24	23	23	23	
	1827	**9**	5	17	17	16	16	15	15	14	14	13	**13**	**29**	12	12
	1826	**10**	6	6	**6**	**6**	5	5	4	4	3	3	2	2	1	1
	1825	**11**	7	25	25	***25**	24	23	23	23	22	22	21	21	20	
	1824	**12**	8	15	14	14	13	13	12	12	11	11	10	10	10	
	1823	**13**	9	4	4	3	3	2	2	1	1	30	29	29	28	
	1822	**14**	10	23	23	22	22	21	21	20	20	19	19	18	18	
	1821	**15**	11	12	12	11	11	10	10	10	9	9	8	8	7	
	1820	**16**	12	2	1	1	30	30	29	28	28	27	27	27	26	
	1819	**17**	13	21	20	20	19	19	18	18	17	17	16	16	15	
	1818	**18**	14	10	9	9	9	8	8	7	7	6	6	5	5	4
	1817	**19**	15	29	28	28	27	27	27	26	26	25	25	24	24	
	1816	**20**	16	18	18	17	17	16	16	15	15	14	14	14	13	
	1815	**21**	17	8	7	7	6	6	5	5	4	4	3	3	2	2
	1814	**22**	18	26	26	26	25	25	24	24	23	23	22	22	21	
	1813	**23**	19	16	15	15	14	14	14	13	13	12	12	11	11	
	1812	**24**	20	***6**	5	4	4	3	3	***3**	2	1	1	1	30	
	1811	**25**	21	24	24	23	23	22	22	21	21	20	20	19	19	
	1810	**26**	22	13	13	13	12	12	11	11	10	10	9	9	8	
	1809	**27**	23	3	2	2	1	1	1	30	29	29	28	28	27	
	1808	**28**	24	22	21	21	20	20	19	19	18	18	18	17	17	
	1807	**29**	25	11	11	10	10	9	9	8	8	***8**	7	6	6	
	1806	**30**	**1**	**1**	30	29	29	28	28	27	27	26	**26**	**25**	**25**	
	1805	**31**	2	**19**	***20**	***19**	***19**	**18**	***18**	**17**	***17**	**16**	15	15	14	
	1804	**32**	3	9	***9**	**8**	7	7	6	6	6	5	5	4	4	3
	1803	**33**	4	28	27	27	26	26	25	25	24	24	23	23	23	
	1802	**34**	5	17	17	16	16	15	15	14	14	13	**13**	12	12	
	1801	**35**	6	6	6	6	5	5	4	4	3	3	2	2	1	1
	1800	**36**	7	25	**25**	24	24	23	23	23	22	22	21	21	20	

Calendars in 1837 BCE

AUGUST															SEPTEMBER (Julian calendar)																				
17	18	19	20	**21**	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	**6**	7	8	9	10	11	12	13	14	15	16	17	18	**19**	20	21	22	23	24	25
ABU															ULULU (Babylonian calendar)																				
10	11	12	13	**14**	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	**1**	2	3	4	5	6	7	8	9	10	11	12	13	**14**	15	16	17	18	19	20
I SHEMU					*II SHEMU* (Egyptian secular calendar)																														*III SHEMU*						
26	27	28	29	30	**1**	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	**17**	18	19	20	21	22	23	24	25	26	27	28	29	30	**1**	2	3	4	5
I SHEMU					*II SHEMU* (Egyptian lunar calendar)																														*II SHEMU*						
26	27	28	29	**30**	**1**	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	**29**	**1**	2	3	4	5	6

Parker has compiled and explained the 30 days of the Egyptian lunar month, which shows that several days do not fit at all with their moon phases. Paradoxically, Parker refused the moon phases cycle of Macnaughton (Parker: 1950, 9) because he considered him as an eccentric.

½ month	n°	Day of the month		Moon phase according to:	
		Name	Meaning	**Macnaughton**	**Parker**
(15)	1	*psḏntyw*	*Shining ones*	Full moon	First invisibility #
	2	*3bd*	*Month*	After full moon	First crescent
	7	*dnit*	*Quarter*	Last quarter	First quarter
	14	*si3w*	*Perceptions*	Last crescent	Before full moon
	15	*smdt*	*Subordinate*	Before new moon	Full moon (?)
1	17	*si3w*	*Perceptions*	Before first crescent	-
2	18	*i'ḥ*	*Moon*	First crescent	- #
7	23	*dnit*	*Quarter*	First quarter	Last quarter
14	30	*prt Mn*	*Min going-forth*	Before full moon	New moon #

As one can see, in Parker's lunar cycle it is obvious that the meaning of days 1 (*psḏntyw*) and 18 (*i'ḥ*) has nothing to do with the corresponding lunar phase and is even opposed to it. The Egyptian word *psḏntyw* literally means "shining ones" which is opposed to its moon phase (after the new moon) called "first invisibility", which is paradoxically impossible to observe because it is not visible. Furthermore, the Egyptians who never mentioned eclipses, solar and lunar, because they saw them as a death omen, would have chosen to start their lunar months on the new moon, which is visually identical to an eclipse. In addition, day 18 which literally means "moon" would have no link with the lunar cycle, which would be the last straw. Although the lunar cycle given by Duncan Macnaughton is simple as well as logical, mainstream historians still use the lunar cycle given by Parker in 1950. Conclusion: according to absolute chronology, Abraham met Pharaoh Amenemhat I (1975-1946), in his 14th year of reign (1963 BCE), then he founded Tanis in his 20th year (1957 BCE) of reign and led a military action against Kudur-Lagamar in his 23rd year of reign (1954 BCE).

Absolute chronology of the 18th Dynasty

Although absolute chronology is available, most Egyptologists continue to use the "Conventional Egyptian Chronology" which is clearly wrong. Despite the fact that the beginning of the biblical Exodus is fixed in 1533 BCE by the biblical chronology (c. 1500 BCE by all Jewish authors before our common era)[12] and during the reign of Ahmose by several historians of the past, current Egyptologists state that the Exodus either never occurred or could have occurred during the reign of Ramses II but in an insignificant way (a few hundred people). According to most Egyptologists the war of the Hyksos, which occurred during the reign of Ahmose[13], has nothing to do with the Exodus of the Bible.

[12] For example, **Demetrius the Chronographer**, a Jewish chronicler, wrote (c. 220 BCE): *Since Adam [in 5307 BCE] until the birth of Abraham 3334 years (1973 BCE), until the entry of Jacob into Egypt 3624 years (1683 BCE), until the Exodus of Moses 3839 years (1468 BCE)* (Stromata I:21, 141; Preparatio evangelica IX:21:1-19).

[13] **Manetho** wrote (c. 280 BCE): *When this people or shepherds (Hyksos) were gone out of Egypt to Jerusalem, Tethtmosis the king of Egypt, who drove them out, reigned afterward 25 years and 4 months [Ahmose], and then died (...) and then ejected them naked out of the country. It was also reported that the priest, who ordained their polity and their laws, was by birth of Heliopolis, and his name Osarsiph [Auserre-Apophi], from Osiris, who was the god of Heliopolis; but that when he was gone over to these people, his name was changed, and he was called Moses* (Against Apion I:75-91, 237-266). **Tatian** wrote (160-170 CE): *the departure of the Jews from Egypt to the places whither they went occurred in the time of king Amosis (Ahmose), under the leadership of Moses. He thus speaks: Amosis lived in the time of king Inachus. After him, Apion the grammarian, a man most highly esteemed, in the 4th book of his Aegyptiaca (there are five books of his), besides many other things, says that Amosis destroyed Avaris in the time of the Argive Inachus, as the Mendesian Ptolemy wrote in his annals (...) Wherefore, if Moses is shown to be contemporary with Inachus, he is 400 years older than the Trojan war, in 1184 BCE* (To the Greeks XXXI, XXXVIII, XXXIX).

Despite the general consensus regarding the "Conventional Egyptian Chronology", each prominent Egyptologist has developed his own Egyptian chronology (or chronologies). For example, a sample of chronologies performed by 5 prominent Egyptologists:

17th Dynasty	^{14}C dates	v. Beckerath	Dodson	Shaw	Malek	Helck
Seqenenre Taa	?	?	1558-1554	?	?	1537-**1533**
Kamose	1560-1557	?	1553-1549	?	?	1533-1530
18th Dynasty						
Ahmose	1557-**1532**	1550-1525	1549-1524	1550-1525	1540-1525	1530-1504
Amenhotep I	1532-1511	1525-1504	1524-1503	1525-1504	1525-1504	1504-1483
Thutmose I	1511-1499	1504-1492	1503-1491	1504-1492	1504-1492	1483-1470
Thutmose II	1499-1486	1492-1479	1491-1479	1492-1479	1492-1479	1470-1467
Thutmose III	1486-1434	1479-1425	1479-1424	1479-1425	1479-1425	1467-1413
Amenhotep II	1434-1407	1428-1397	1424-1398	1427-1400	1427-1401	1413-1388

According to Aidan Dodson ("Conventional Egyptian Chronology"), as well as radiocarbon dating, the beginning of the Exodus with the death of Pharaoh (Ps 136:15) would have occurred under Ahmose (who did not die in 1533 BCE!), but according to Wolfgang Helck it would have occurred under Seqenenre Taa. Faced with this complex situation most people consult Wikipedia which says (in October 2016): *The Exodus is the founding, or etiological, myth of Israel (...) The historicity of the exodus continues to attract popular attention, but most histories of ancient Israel no longer consider information about it recoverable or even relevant to the story of Israel's emergence. The archeological evidence does not support the story told in the Book of Exodus and most archaeologists have therefore abandoned the investigation of Moses and the Exodus as "a fruitless pursuit". The opinion of the overwhelming majority of modern biblical scholars is that the exodus story was shaped into its final present form in the post-Exilic period, although the traditions behind it are older and can be traced in the writings of the 8th century BCE prophets. How far beyond that the tradition might stretch cannot be told: "Presumably an original Exodus story lies hidden somewhere inside all the later revisions and alterations, but centuries of transmission have long obscured its presence, and its substance, accuracy and date are now difficult to determine."* As we have seen, this opinionated assertion is false.

Actually, several reigns of the 18th Dynasty can be anchored on astronomical events as Sothic risings and lunar dates in the secular Egyptian calendar. For example, in year 9 of Amenhotep I, a Sothic rising is dated III Shemu 9[14] (Ebers papyrus) and in the reign of Thutmose III, two lunar days 1 (*psḏntyw*) are respectively dated I Shemu 21 of year 23 (Urk.IV 657.2) and II Peret 30 of year 24 (Urk.IV 836.1-3). Reigns prior to Thutmose III can be reconstructed by combining the length of reigns with accession dates. These data are insufficient to reconstruct the chronology, but the information provided by Manetho, transmitted by Josephus (Against Apion I:93-98), seems fairly reliable over this period (1550-1400 BCE):

[14] It is indeed a lunar date because the Sothic rising at that time is dated July 11 and the date in the Egyptian secular calendar should have been III Shemu 14 (July 11).

Pharaoh	Accession date	Highest date	Duration (min.)	Manetho	Reign duration
Taa Seqenenre	?	**11** II Shemu	10 years	-	10 years ? m.
Kamose	II Shemu	**3** III Shemu 10	2 years 4 m.	-	3 years
Ahmose		**22**	21 years	25 years 4 m.	25 years 4 m.
Amenhotep I	III/IV Shemu ?	**21**	20 years	20 years 7 m.	20 years 7 m.
Thutmose I	III Peret 21	**11 ?**	10 years	12 years 9 m.	12 years 9 m.
Thutmose II		**1** II Akhet 8	1 year	13 years	3* years ?
[Hatshepsut]	[coregency]	**20** III Peret 2	[20 years]	[21 years 9 m.]	[21 years 9 m.]
Thutmose III	I Shemu 4	**54** III Peret 30	53 years 11 m.	-	53 years 11 m.

18th Dynasty	Reign duration	Astronomical dates	Number of scarabs	Average per year
Ahmose	25 years 4 m.	04/**1530**-07/1505		
Amenhotep I	20 years 7 m.	**08/1505-02/1484**		
Thutmose I	12 years 9 m.	02/1484-11/1472	241 / 290	18,9 / 22,7
Thutmose II	3* years	08/1472-05/1469	65 / 90	[20] / [30]
[Hatshepsut]	21 years 9 m.	[08/1472-04/1450]	463 / ----	21,3 / ----
Thutmose III	53 years 11 m.	**08/1472-03/1418**		
Amenhotep II	25 years 4 m.			
Thutmose IV	9 years 8 m.		---- / 374	---- / 38,7
Amenhotep III	30 years 10 m.			

Durations of reign are obtained by matching the highest dates of the reign with accession dates. The 13 years attributed to Thutmose II by Manetho result either from a miscalculation in the subtraction of co-regencies, or a scribal error "/ 3 years" being read "13 years". The length of the reign of Thutmose II can be checked by listing the number of scarabs[15] assigned to each pharaoh and assuming a normal statistical distribution (constant average production rate).

As one can see all the data regarding durations fits perfectly and is exactly consistent with the reigns of Amenhotep I and Thutmose III dated thanks to astronomical dates. Unfortunately, most Egyptologists, not to say all (except maybe Wolfgang Helck), reject absolute chronology not because this chronology is wrong, but because they have not enough scientific skill to check it.

[15] Assuming an annual average of 20/30, we obtain a reign of about 3 years (= 65/20 or 90/30) for Thutmose II, not 13 years (Gabolde: 1987, 61-81). Average per year: [20] = [18,9 + 21,3]/2 ; [30] = [22,7 + 38,7]/2.

How to determine a Sothiac date (rising of Sirius)

As Sirius is the brightest star in the sky, it is easy to spot. A heliacal rising is a coincidence between the sunrise (Helios was Sun god) and the rising of a star. But because of the overwhelming brightness of the sun there must be a minimum angle between the star above the horizon and the sun below the horizon. This angle is called *arcus visionis*, which is an observational data[16]. The helical rising of Sirius during Seti's reign is dated I Akhet 1 year 4 (1291 BCE), given that the astronomical ceiling of Seti I starts by a Sothic rising dated on I Akhet [1] according to his cenotaph: *All these stars begin on I Akhet when Sirius appears*. The date I Akhet 1 year 4 was 12 July in 1291 BCE in Thebes[17], which was the greatest centre of astronomy at Thutmose's time according to Greek ancient historians like Plato (Phaedrus 274c-d) or Pythagoras (Life of P. §§ 12,18,19).

As seen previously, lunar dates have not been translated into the Egyptian secular calendar, except sometimes lunar day 1 (called *psḏntyw*), because these dates had no practical value. There were some exceptions with the lunar days coinciding with a unique astronomical event such as a helical rising of Sirius. We find such an example with the dating: *III Shemu 9 "Opening of the Year"* dated year 9 of Amenhotep I (Ebers papyrus). It is indeed a lunar date because the Sothic rising at that time is dated July 11 and the date in the Egyptian secular calendar should have been III Shemu 14 (July 11)[18]. Number "9" in Egyptian (called *psḏ*) also means "shine", which also explains the connection between lunar day 1 *psḏntyw* "*those shining ones*", the Ennead of gods (*psḏt*) and the Nine Bows (*psḏt*).

[16] A set of measures showed that it could be modelled by the equation: *arcus visionis* = 10.5 + 1.44x(mag.). The *arcus visionis* of Sirius (magnitude -1.46) is theoretically 8.4°, which is the minimum (but usually around 8.5-8.9°).

[17] Thebes: Longitude 32°39' E, Latitude 25°42' N and Heliopolis: Longitude 31°20' E, Latitude 30°05' N. Because the Sothic rising during Seti's reign is dated 12 July in Thebes (or Karnak) but 17 July in Heliopolis we can conclude that it occurred in Thebes.

[18] Julian day = 201 + (139 – Year*)/4 + (Egyptian day – 1); Year* = astronomical year.

Calendars in 1496 BCE

JUNE					JULY (Julian calendar)																											AUGUST			
26	27	28	29	30	1	2	**3**	4	5	6	7	8	9	10	**11**	12	13	14	15	16	17	**18**	**19**	20	21	22	23	24	25	26	27	28	29	30	31	1	**2**	3	4
							Full moon								**Sothic rising**								**1st lunar crescent**														
SIMANU (Babylonian calendar)																							DUMUZU															
7	8	9	10	11	12	13	**14**	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	**1**	2	3	4	5	6	7	8	9	10	11	12	13	14	**15**	16	17
III SHEMU (Egyptian secular calendar)																																				*IV SHEMU*			
29	30	**1**	2	3	4	5	6	7	8	9	10	11	12	13	**14**	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	**1**	2	3	4	5	6	7	8
		II SHEMU					*III SHEMU* (Egyptian lunar calendar)																																
24	25	26	27	28	29	30	**1**	2	3	4	5	6	7	8	**9**	10	11	12	13	14	15	16	**17**	18	19	20	21	22	23	24	25	26	27	28	29	30	**1**	2	3

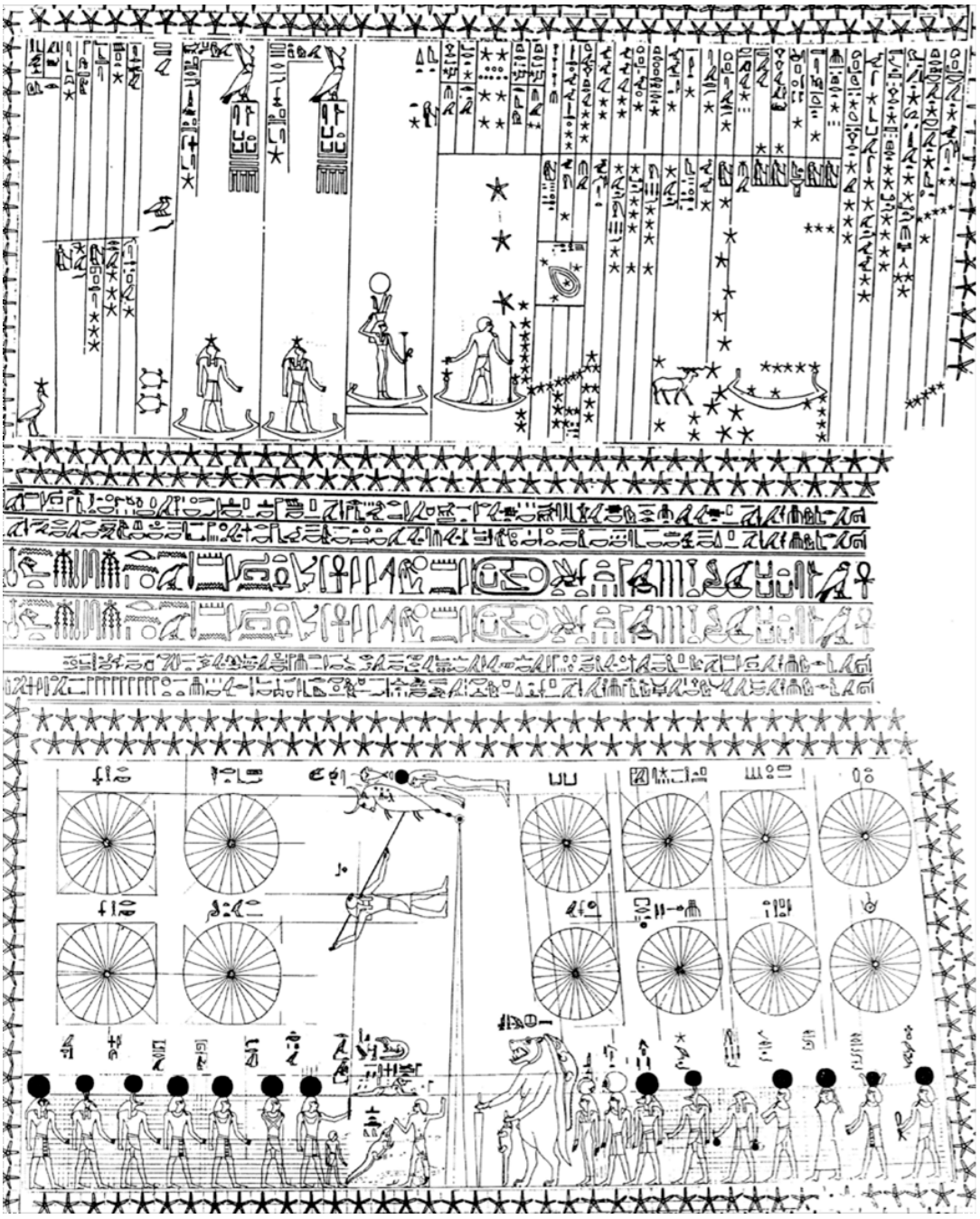
The reign of Thutmose III (1472-1418) is well-known, it is based on the following chronological data: the date of his accession is year 1, I Shemu 4, and the date of his death is year 54, III Peret 30 (length of his reign: 53 years 11 months). Years of reign are counted from the date of accession (I Shemu 4) and not from 1st Thoth (I Akhet 1). Moreover, Thutmose III began to reign independently, without Hatshepsut, presumably from year 22, II Peret 10, according to the Armant Stele.

The astronomical ceiling of Senenmut's tomb gives the position of several constellations and planets, known at the time. Some constellations and stars like the Big Dipper, Orion, Venus, Mars, Mercury, Saturn and Jupiter are easy to identify (the name of the 12 months of the year as well as of 5 planets is written alongside in hieroglyph).

This ceiling describes a right ascension of Jupiter between 75° and 95° where Mars is not visible, which could occur in the period from 1455 to 1505, only during the night on 14 November 1463 BCE according to astronomy. Senenmut was a very important person under Hatshepsut, thus we can find the year of the

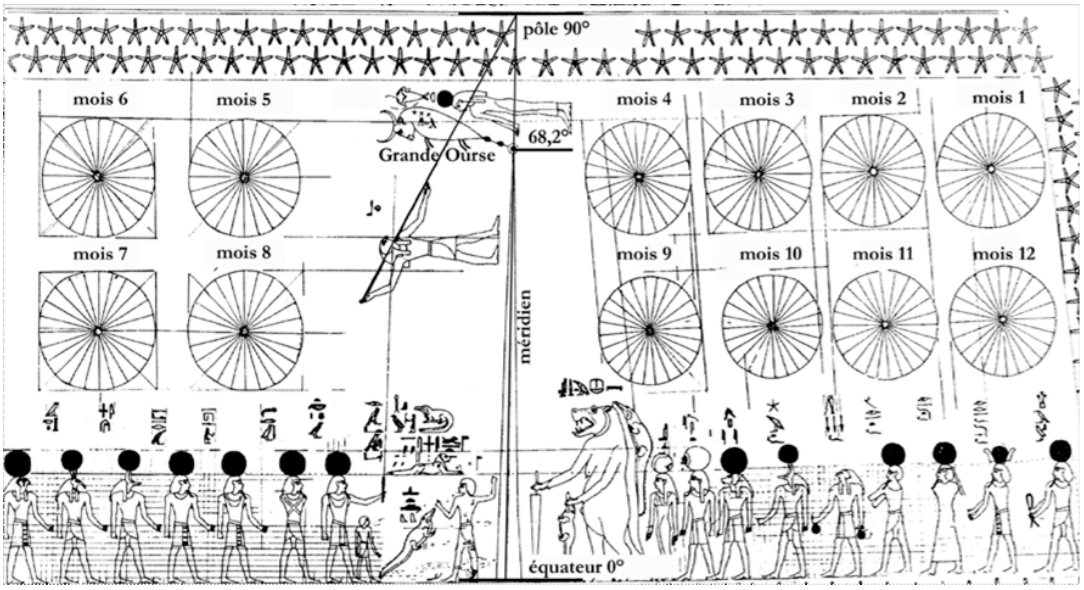
reign when the ceiling of his grave was painted. Senenmut received the prestigious title of "Grand Steward of Amun" probably around the 5th or the 7th year of Thutmose III[19] and also had the rare privilege for an individual of developing a royal tomb and appending his own grave. The start date of the tomb is Year 7. As Senenmut's tomb is only a small part of the vast complex, 2 years of construction seem to have been sufficient to complete the ceiling. The famous expedition to Punt, for example, which is represented on a retaining wall of the temple, is dated year 9. Astronomical observation represented on the ceiling must therefore date from this year 9 of Thutmose III. So, according to the accession date, the accession of the pharaoh would have taken place in 1472 (= 1463 + 9) and his reign from 08/1472 to 03/1418.

[19] The ostraca of this tomb can set the year in which the ceiling was realized, because masonry and stone cutting started on IV Peret 2, year 7 of Thutmose III and spread out through year 9. As ostracon No. 80 states that the door of the chapel was opened on III Akhet 27, year 11, we can assume that the development work and decoration, such as the astronomical ceiling design (from observation) were performed at the end of the development work in year 9/10.



The vertical line in the middle represents the meridian, the floor line (horizon) represents the equator (0°) and the ceiling line (zenith) represents the pole (90°). By extending the inclined side of the meridian in the upper part, this line intersects the toes of Orion's left foot (equidistant from the left and right edges), that is to say Rigel (β Orionis). The line that crosses the Big Dipper and pointing to the pole is directed towards month 8. The Egyptians identified

Orion to Osiris and its main star Rigel ("foot" in Arabic) gave its name to the whole constellation, s3ḥ meaning "Orion" as well as "Toes". The arrangement of 12 months in 3 groups of 4 can be used to date events because these 360 days are divided by the meridian into 3 equal parts of 120 days (360 days = 36 "Egyptian weeks" or decans of 10 days).



On the lower part, 12 circles can be recognized thanks to their names in hieroglyphs, they represent the 12 Egyptian months. In the centre of this panel, separating the 12 circles into two unequal groups, a long and narrow triangle symbolizes the meridian. On the tip of the meridian there is a small circle which is connected to the schematic drawing of a bull called Big Dipper by a hieroglyph inscribed on its body. The Egyptians believed that the 7 main stars of this constellation embodied a bull or rather its thigh and that the star (η) at the tip of the meridian was *Ursae majoris*, the Big Dipper. If we extend the spear of the falcon-headed god figured under the Big Dipper and the meridian, the two lines meet at the North Pole (90° altitude or declination), the meridian crossing vertically the ceiling reaches the equator, a line describing the horizon (0°). The star in the small circle (η *Ursae majoris*) is located at 68.2° (altitude). This value is obtained by precisely measuring the length going from the equator to the pole, knowing that the total distance from the equator to the pole is 90°. When a star is on the meridian, it holds the highest position[20], one says that it culminates. The culmination played an important role among the Egyptians and the culmination of the star η *Ursae majoris* was done on the night of 18/19 March at midnight with a declination of 68.2° at that time. Moreover, if one extends the spear backwards it leads to month 8 (IV Peret) which began in mid-March at that time (c. 1470 BCE)[21], which again confirms the identification. If the boundary between the 2nd and the 3rd part was the night of 18/19 March (culmination of the star η *Ursae majoris*), the one between the 3rd and the 1st was 120 days later, on the night of 16/17 July which corresponds to the heliacal rising of Sirius, the brightest star in the sky, and the Egyptian New Year celebration. That day began the first season of the Egyptian year, and the Nile began to flood the Lower Egypt in mid-July. The boundary between the 1st and the 2nd part was located 120 days later, on the night of 14/15 November. During that night unfolded another major astronomical event: the culmination of Rigel (β *Orionis*) at midnight. To reconstitute the calendar for an entire year, which was divided into 36 decans, each covering a period of 10 days (excluding the 5 epagomenal days), one must first verify that the 8th month (IV Peret 1) actually began around 19 March in 1460 BCE and then, adding 3 times 10 days, one gets the beginning of each month:

[20] If it is a circumpolar star it is also its lowest position.

[21] Because of the precession of the equinoxes, the apparent position of the Sun relative to the backdrop of the stars at some seasonally fixed time slowly regresses a full 360° through all 12 traditional constellations of the zodiac, at the rate of about 50.3 seconds of arc per year (= 360° divided by 25,772 year), or 1° every 71.6 year. This phenomenon enables the dating of the ceiling in 1460 BCE +/- 10 years because the value of the declination was 68.4° +/- 0.1°(6'). The accuracy is not very good but the "absence of Mars" on the ceiling allows its dating with a high precision.

month 8			month 9			month 10			month 11		
1	2	3	4	5	6	7	8	9	10	11	12
19 Mar.	29 Mar.	8 Apr.	18 Apr.	28 Apr.	8 May	18 May	28 May	7 June	17 June	27 June	7 July
month 12			month 1			month 2			month 3		
13	14	15	16	17	18	19	20	21	22	23	24
17 Jul.	27 Jul.	6 Aug.	16 Aug.	26 Aug.	5 Sep.	15 Sep.	25 Sep.	5 Oct.	15 Oct.	25 Oct.	4 Nov.

month 4			month 5			month 6			month 7		
25	26	27	28	29	30	31	32	33	34	35	36
14 Nov.	24 Nov.	4 Dec.	14 Dec.	24 Dec.	3 Jan.	13 Jan.	23 Jan.	2 Feb.	12 Feb.	22 Feb.	4 Mar.

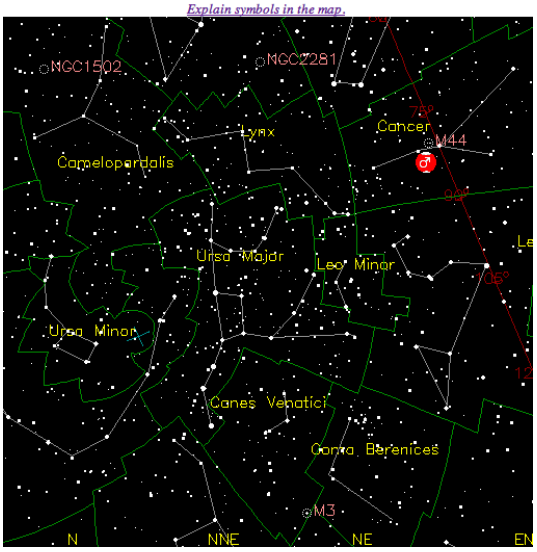
From the foregoing, it is possible to find the place of observation because a heliacal rising of Sirius on 17 July was only possible (at that time) at a latitude of 30° North (near Heliopolis). Similarly, the simultaneous passage on the meridian of Rigel (β *Orionis*) and the star of the Big Dipper (η *Ursae majoris*) also give a latitude of 30° North. To check this first point one has to know what a heliacal rising of Sirius is. In fact The "absence of Mars" on the ceiling allows its dating with a high precision. For example in the upper part of the drawing of the southern sky, one recognizes the god Orion standing in a boat. On the left there is a woman standing too in a boat. It is Isis identified with the goddess Sothis. Follow two falcon-headed gods with a star on their head. The hieroglyphs above them identify them as Jupiter and Saturn. At the extreme left is Venus whom the Egyptians represented in the guise of a heron (*bnw*). Mercury is also present in the form of a small Sethian figure, above, to the right of Venus. Mars, the last of the five planets known in antiquity, is missing. Its absence (empty boat) in so neat a celestial map is all the more remarkable in that in all later cards and, without exception, even more characteristically, Mars on board in a ship follows Jupiter and Saturn depicted as a 3rd falcon-headed god.

The only possible conclusion is that Mars was not visible during the night represented in the tomb of Senenmut. Another detail makes it possible to calculate the year of the astronomical ceiling[22]. However, among the 50 years between 1505 and 1455 there is only one in which Jupiter had a right ascension (75°-95°) on the night of 14/15 November, and Mars was not visible (right below): it is the year 1463 BCE (= -1462).

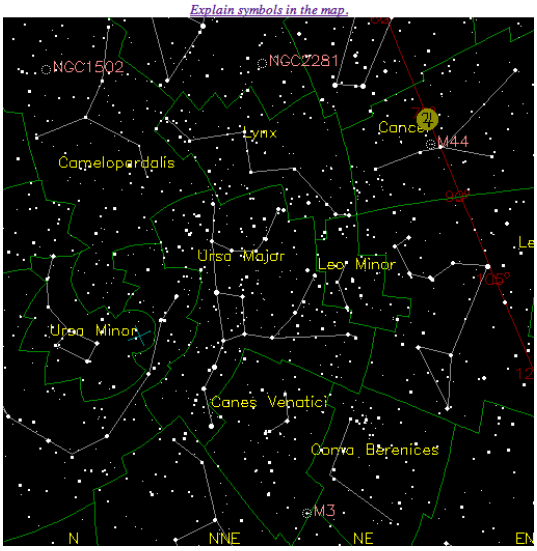
Sun Saturn
Mercury Uranus
Venus Neptune
Earth Pluto
Mars Asteroid
Jupiter Comet

[22] We note that near the figures of Orion and Jupiter there are small dots determining the exact position of the two stars. On the map, the line near Jupiter corresponds to all points of the same longitude which have the same rise between 73° and 95°. See http://www.fourmilab.ch/cgi-bin/Yourhorizon

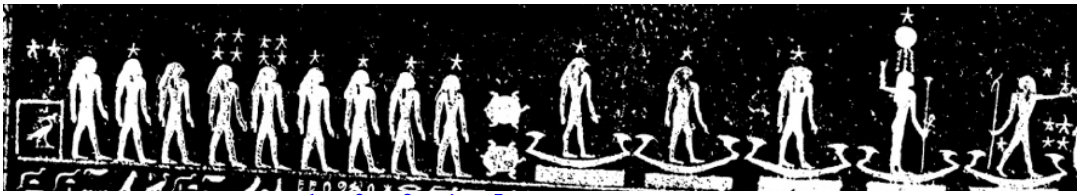
View toward horizon from 30°5'N 31°20'E, azimuth 30° Fri -1463 Nov 14 22:00 UTC



View toward horizon from 30°5'N 31°20'E, azimuth 30° Sat -1462 Nov 14 22:00 UTC



The previous result is surprising, because the Egyptian priest astronomers, usually very accurate in their representations, were particularly ill-advised to choose that particular year when Mars was absent (but with Venus* depicted as Phoenix). This is unique in Egyptian representations because Mars always appears in its boat as on the Sarcophagus of Nectanebo II:



⇑ Venus* ⇑ Mercure | 1 2 3 4 5 5 epagonemal days | ⇑ **Mars** | ⇑ Saturn | ⇑ Jupiter | ⇑ Sothis | ⇑ Orion

Observation of the shape and the position of Orion's constellations, Sirius and Venus explain the reason for their choice. If Rigel corresponds to Orion's toes with the 3 stars aligned in its belt, Sirius is located consequently on the level of Sothis' ankles, which are at the same level as the head of the heron (*benu*) representing Venus. This heron, called Phoenix by the Greeks, inaugurates the beginning of the ceiling at the upper left side and month 1 inaugurates the beginning of the ceiling at the bottom right side. If the culmination of the Big Dipper can be dated 14 November 1463 BCE, this year began with the heliacal rising of Sirius on 16 July 1464 BCE (-1463*) on month 1. But on this day occurred an exceptional phenomenon, which only occurs every 103 years: the heliacal rising of Sirius, the brightest star in the sky, coincided with the heliacal setting of Venus, the brightest planet. This coincidence of dates inaugurated a new era called "Great year" or "Phoenix rebirth" by the Greeks[23].

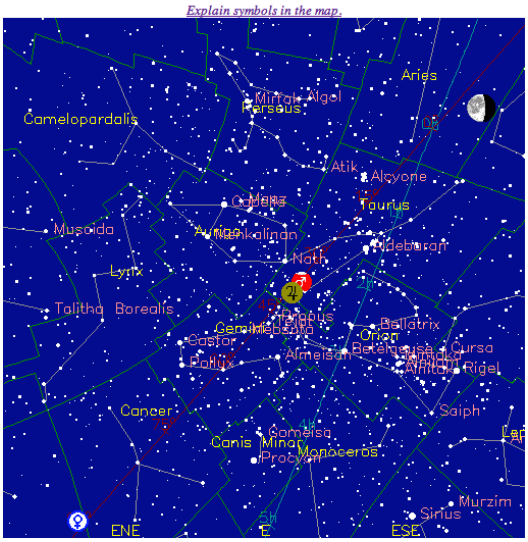
[23] The dates in this table can be shifted +/- 8 years because of the Venus period.

Heliopolis (cycle 243 years):	-1558	-1315	-1072	-829	-586	**-343**	**-100**	**143**
+103 years	**-1455**	-1202	-969	-726	-483	**-240**	3	246
Thebes (cycle 243 years):	**-1542**	**-1299**	**-1056**	-813	**-570**	-327	-84	159
+103 years	-1439	**-1196**	-953	-710	-467	-224	19	262

These dates (above) have played a special role (van Oosterhout: 1993, 83-96), since some have been commemorated and those in bold have left a historical record[24] and some eras of the Phoenix were pictured. The heliacal rising of Sirius at Heliopolis in 1464 BCE (-1463*) was on 16 July and coincided with the heliacal rising of Venus* (represented by a heron with a 5-pointed star above its head). An *arcus visionis* of around 8.5° means that Sirius and Venus may be seen 2° above the horizon and the sun was 6° beneath the horizon. Although Egyptian drawings look simple on astronomical ceilings and are also of symbolic nature, they are astronomically correct and reliable.

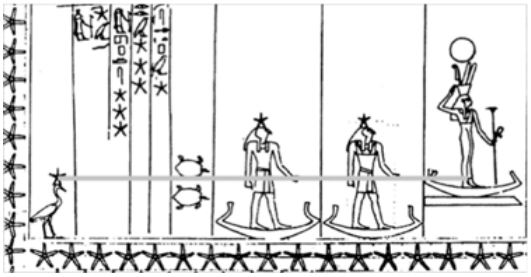
[24] For example, the double helical rising of Sirius and Venus in 143 AD was commemorated by Antoninus Pius, the one of -1299* (1300 BCE) by Seti I, the one of -1196 by Tausert, the one of -1056 by Psusennes I (whose name means "*the star rising over the city [of Thebes]*"), and the one of -343 by Nectanebo II.

View toward horizon from 30°5'N 31°20'E, azimuth 90° (E) Wed -1463 Jul 16 2:20 UTC



Venus Jupiter Mars Sirius
Beginning of the year (16 July 1464 BCE)

One can see on Senenmut's ceiling that the Egyptian drawings of celestial maps were extremely accurate. The star above the head of the heron (phoenix) represents the heliacal setting of Venus coinciding with the heliacal rising of Sirius, located at the ankles of Sothis (associated with Isis representing Venus), Rigel being located at the toes of Orion (*s3ḥ*) which means "toes". Canis Major was chosen by the Egyptians as the first constellation because the rising of Sirius, its brightest star matched the beginning of the Nile's flood at summer solstice.



Venus* Jupiter Saturn Sirius
120 days later (15 November 1463 BCE)

Two other Sothic dates appear during the reign of Thutmose III[25]. The Elephantine Stone, from the temple of Khnum that Thutmose had built, mentions a Sothic rising dated III Shemu 28 and the Buto Stele has a Sothic setting dated before the I Shemu 30. The date is indeed a setting (with sunset), not a Sothic rising (with sunrise), for the following reason: between III Shemu 28 and I Shemu 30 there are 62 days, this duration would correspond to a difference of 244 years (= 4x61) in case of Sothic dates, which is impossible for the same king. In addition, the hieroglyph representing the "rising" actually means "leave" (two legs walking surmounted by a horizontal bar "bolt") and not "arrive", confirming the representation (very rare) of a Sothic setting which occurs 61 days before the rising. Between the Sothic

[25] The regnal years are likely after the II Peret 10 of Thutmose III's year 22 without Hatshepsut.

setting dated I Shemu 30 and the Sothic rising dated III Shemu 28 there was a period of invisibility of 62 days and not 70 days. This difference could be explained by the fact that this period decreased by about 1.5 day for 1° latitude southward, which implies 67 days in Buto (latitude 31.1°) and 59 days in Thebes (latitude 25.7°). This period of invisibility is different from Egyptian texts, which always indicate 70 days. This discrepancy with astronomy illustrates the role of religious Egyptian astronomy. Indeed, at that time, the period of invisibility of Sirius was about 65 days at the latitude of Buto or 63 days at the latitude of Memphis. Even assuming good observing conditions (*arcus visionis* of 8° for Sothic rising and 6.5° for Sothic setting) there was a period of 67 days at the latitude of Buto and not 70 days as Egyptian texts indicate. This period of 70 days was a symbolic period of 7 decans, the Egyptian year being covered by 36 decans, or 360 (= 12x30) days. The 28 Shemu III also belongs to the effective reign of Thutmose, after his 22 years of co-regency with Hatshepsut. In addition, the Palestine campaign which occurred from years 23 to 25 is mentioned in the Buto Stele: *It is a brave king who, in the melee, made great slaughters among Asiatic coalitions. He is the one that makes rulers of Retenu's land, in their entirety, to be required to provide their tribute*. Sothic dates appearing on the Buto Stele and on the Elephantine Stone likely date to year 25. Why have these two Sothic dates been engraved? As Thebes was the capital of Egypt at this time (1470 BCE), the Sothic rising was on 12 July in this place. The III Shemu 28 coincides with 13 July on the period 1448-1445, which matches effectively year 25 of Thutmose III since his year 9 is dated 1464 BCE. Given that the accession of Thutmose III was on I Shemu 4, his year 25 was going from 20 April 1448 BCE (-1447*) to 19 April 1447 BCE. The full moons during this period of time (1448 BCE) have been highlighted in yellow.

Year	Egyptian	I Shemu 4	II Shemu 28	II Shemu 29	III Shemu 27	III Shemu 28	III Shemu 29
-1447	Julian	20 April	13 June	14 June	12 July	13 July	14 July
	Lunar day	**year 25**	30	1	29	**1**	2

Year	Egyptian	IV Peret 29	IV Peret 30	I Shemu 4	I Shemu 28	**I Shemu 29**	**I Shemu 30**
-1447	Julian	15 April	16 April	20 April	14 May	15 May	16 May
	Lunar day	29	1	**year 25**	29	**1**	2

One can see that the heliacal rising of Sirius dated 12 July 1448 BCE coincided with a full moon, which was no doubt a remarkable event. However the event was dated III Shemu 28 instead of III Shemu 27 because the full moon was the last day in the Egyptian lunar calendar. In practice, the 1st day of the Egyptian lunar calendar was also considered as a full moon (the "two eyes" of Horus), that's why the coincidence was dated on 1st day of the lunar month. Similarly, the Sothic setting mentioned in the Buto Stele dated I Shemu 30 (16 May 1448 BCE) coincided with a full moon dated a day before on I Shemu 29.

These exceptional coincidences of Sothix rising or setting with the full moon may explain why these two Sothic dates were mentioned on inscriptions.

					AKHET				PERET				SHEMU				
					I	II	III	IV	I	II	III	IV	I	II	III	IV	5
18th Dynasty	**BCE**	**Jb**			Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	
Thutmose I	1479	**6**	**6**	17	8	7	7	6	6	5	5	4	4	3	3	2	2
	1478	**7**	**7**	18	26	26	26	25	25	24	24	23	23	22	22	21	
	1477	**8**	**8**	19	16	15	15	14	14	14	13	13	12	12	11	11	
	1476	**9**	**9**	20	5	5	4	4	3	3	2	2	1	1	1	1/30	
	1475	**10**	**10**	21	24	24	23	23	22	22	21	21	20	20	19	19	
	1474	**11**	**11**	22	13	13	13	12	12	11	11	10	10	9	9	8	
	1473	**12**	**12**	23	3	2	2	1	1	1/30	30	29	29	28	28	27	
Thutmose II	**1472**	**14**	**1**	24	22	21	21	20	20	19	19	18	18	18	17	17	
	1471	**15**	**2**	25	11	11	10	10	9	9	8	8	7	7	6	6	
	1470	**16**	**3**	**1**	1/30	30	29	29	28	28	27	27	26	26	25	25	
Thutmose III	1469	**17**	**4**	**2**	19	19	18	18	18	17	17	16	16	15	15	14	
/Hatshepsut	1468	**18**	**5**	**3**	9	8	8	7	7	6	6	6	5	5	4	4	3
	1467	**19**	**6**	**4**	28	27	27	26	26	25	25	24	24	23	23	23	
	1466	**20**	**7**	**5**	17	17	16	16	15	15	14	14	13	13	12	12	
	1465	**21**	**8**	**6**	6	6	6	5	5	4	4	3	3	2	2	1	1
	1464	**22**	**9**	**7**	25	25	24	24	23	23	23	22	22	21	**21**	20	
	1463	**23**	**10**	**8**	15	14	14	13	13	12	12	11	11	10	10	10	
	1462	**24**	**11**	**9**	4	4	**3**	3	2	2	1	1	30	29	29	28	

	1461	25	12	10	23	23	22	22	21	21	20	20	19	19	18	18	
	1460	26	13	11	12	12	11	11	10	10	10	9	9	8	8	7	
	1459	27	14	12	2	1	1	30	30	29	28	28	27	27	27	26	
	1458	28	15	13	21	20	20	19	19	18	18	17	17	16	16	15	
	1457	29	16	14	10	9	9	9	8	8	7	7	6	6	5	5	4
	1456	30	17	15	29	28	28	27	27	27	26	26	25	25	24	24	
	1455		18	16	18	18	17	17	16	16	15	15	14	14	14	13	
	1454		19	17	8	7	7	6	6	5	5	4	4	3	3	2	2
	1453		20	18	26	26	26	25	25	24	24	23	23	22	22	21	
	1452		21	19	16	15	15	14	14	14	13	13	12	12	11	11	
	1451		22	20	5	5	4	4	3	3	2	2	1	1	1	1/30	
[Hatshepsut	**1450**		23	21	24	24	23	23	22	22	21	21	**20**	20	19	19	
is dead]	1449		24	22	13	13	13	12	12	11	11	10	10	9	9	8	
	1448		25	23	3	2	2	1	1	**1/30**	30	29	**29**	28	**28**	27	
	1447		26	24	22	21	21	20	20	19	19	18	18	18	17	17	
	1446		27	25	11	11	10	10	9	9	8	8	7	7	6	6	

	Lunar dates I Shemu 21 year 23 in 1450 BCE and II Peret 30 year 24 in 1448 BCE
	Sothic setting on I Shemu 29 and Sothic rising on III Shemu 28 in 1448 BCE (year 25)
1464	Heliacal risings of Sirius and Venus on 16 July 1464 BCE (year 9, III Shemu 21)
1463	Right ascension of Jupiter 80° without Mars on 14 November 1463 BCE (year 10)
1456	Jubilee of Thutmose I (Year 30) celebrated at the end of year 16 of Thutmose III.

The chronological reconstruction of Thutmose III's reign allows us to explain two anomalies of Hatshepsut's reign. Indeed, this queen, who was the daughter of Thutmose I, became co-regent in behalf of Thutmose III after the death of her husband Thutmose II because his son Thutmose III was too young to reign, but her co-regency began only after year 3 of Thutmose III[26], not immediately from his year 1 and she celebrated an anachronistic jubilee at the end of year 16, not during his year 30 (Vandersleyen: 1995, 265-318). In fact, at the death of Thutmose II (I Shemu 3, year 3), Hatshepsut prolonged the reign of her husband in behalf of her father Thutmose I (1484-1472), accordingly, she celebrated the 30th year of his reign posthumously at the end of year 16 of Thutmose III. Thus, unlike the novelistic explanations of Egyptologists to explain the anomalies of Hatshepsut's co-regency, at the death of Thutmose II dated I Shemu 3, year 3, Queen Hatshepsut began her co-regency immediately the following day on I Shemu 4, year 3 of Thutmose III (not year 1).

[26] Hatshepsut is mentioned for the first time in a stele dated I Shemu 16, year 3 of Thutmose III.

				AKHET				PERET				SHEMU				
				I	II	III	IV	I	II	III	IV	I	II	III	IV	5
18th Dynasty	**BCE**			Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	
Ahmose	1509	**22**	12	2	1	1	30	30	29	28	28	27	27	27	26	
	1508	**23**	13	21	20	20	19	19	18	18	17	17	16	16	15	
	1507	**24**	14	10	9	9	9	8	8	7	7	6	6	5	5	4
	1506	**25**	15	29	28	28	27	27	27	26	26	25	25	24	24	
Amenhotep I	**1505**	**1**	16	18	18	17	17	16	16	15	15	14	14	14	13	
	1504	**2**	17	8	7	7	6	6	5	5	4	4	3	3	2	2
	1503	**3**	18	26	26	26	25	25	24	24	23	23	22	22	21	
	1502	**4**	19	16	15	15	14	14	14	13	13	12	12	11	11	
	1501	**5**	20	5	5	4	4	3	3	2	2	1	1	1/30	30	
	1500	**6**	21	24	24	23	23	22	22	21	21	20	20	19	19	
	1499	**7**	22	13	13	13	12	12	11	11	10	10	9	9	8	
	1498	**8**	23	3	2	2	1	1/30	30	30	29	29	28	28	27	
	1497	**9**	24	22	21	21	20	20	19	19	18	18	18	17	17	
	1496	**10**	25	11	11	10	10	9	9	8	8	7	7	**6**	6	
	1495	**11**	**1**	**1/30**	30	29	29	28	28	27	27	26	26	25	25	
	1494	**12**	**2**	19	19	18	18	18	17	17	16	16	15	15	14	
	1493	**13**	**3**	9	8	8	7	7	6	6	6	5	5	4	4	3
	1492	**14**	**4**	28	27	27	26	26	25	25	24	24	23	23	23	
	1491	**15**	**5**	17	17	16	16	15	15	14	14	13	13	12	12	
	1490	**16**	**6**	6	6	6	5	5	4	4	3	3	2	2	1	1
	1489	**17**	**7**	25	25	24	24	23	23	23	22	22	21	21	20	

	1488	**18**	**8**	15	14	14	13	13	12	12	11	11	10	10	10	
	1487	**19**	**9**	4	4	3	3	2	2	1	1	30	29	29	28	
	1486	**20**	**10**	23	23	22	22	21	21	20	20	19	19	18	18	
	1485	**21**	**11**	12	12	11	11	10	10	10	9	9	8	8	7	
Thutmose I	**1484**	**1**	**12**	2	1	1	30	30	29	28	28	27	27	27	26	
	1483	**2**	**13**	21	20	20	19	19	18	18	17	17	16	16	15	
	1482	**3**	**14**	10	9	9	9	8	8	7	7	6	6	5	5	4

	Lunar date I Akhet 1 year 10 in 1496 BCE (1st September 1496 BCE)
	Heliacal rising of Sirius on 11 July 1496 BCE (year 9, III Shemu 6+9)

How to determine the date of the Exodus

Four (calculated) calendars are needed to determine the date of the Exodus. They have similarities and differences as follows:

	EGYPTIAN			
N°	SECULAR	#	RELIGIOUS	#
I	I Akhet	30	Thoth	30
II	II Akhet	30	Paopi	29
III	III Akhet	30	Hathor	30
IV	IV Akhet	30	Koyak	29
V	I Peret	30	Teobi	30
VI	II Peret	30	Mehir	29
VII	III Peret	30	Pamenotep	30
VIII	IV Peret	30	Parmuti	29
IX	I Shemu	30	Pahons	30
X	II Shemu	30	Paoni	29
XI	III Shemu	30	Epipi	30
XII	IV Shemu	30	Mesore	29
++	Epagomen	5	[Mesore]	30

	BABYLONIAN		
N°	(JUDEAN)		#
I	Nisan	Nisanu	30
II	Iyyar	Ayyaru	29
III	Siwan	Simanu	30
IV	Tammuz	Dumuzu	29
V	Ab	Abu	30
VI	Elul	Ululu	29
VII	Tishri	Tashritu	30
VIII	Marheshwan	Arahsamna	29
IX	Kislew	Kislimu	30
X	Tebeth	Tebetu	29
XI	Shebat	Shabatu	30
XII	Adar	Addaru	29
XIII	[Adar2]	[Addaru2]	30

	JULIAN	
N°		#
1	January	31
2	February	28
3	March	31
4	April	30
5	May	31
6	June	30
7	July	31
8	August	31
9	September	30
10	October	31
11	November	30
12	December	31
	Leap year	1*

Year	1st day of the year (according to astronomy)	Duration in days	
JULIAN	1st January (independent from astronomy)	365,25 =	365 + 1/4
BABYLONIAN	1st Nisanu (1st lunar crescent after the spring equinox)	354,36346 =	12x29,53
EGYPTIAN (S)	I Akhet 1 (independent from astronomy)	365 =	12x30 + 5
EGYPTIAN (L)	I Akhet 1 (1st full moon before secular I Akhet 1)	354,36346 =	12x29,53
GREGORIAN	1st January (spring equinox must be on 21 March)	365,24219	

Astronomy agrees with the following definition "1st Nisanu = 1st lunar crescent after spring equinox", but in practice when the 1st Nisanu (determined by observation) came just before the spring equinox (this has also been determined by observation) the 2nd Adar (month XIII) was sometimes –although rarely— not added to synchronize the lunar year with the solar equinox. For example the list of Assyrian eponyms mentions a solar eclipse, which occurred on month Simanu in the eponymy of Bur-Sagale (763 BCE). In 763 BCE (= -762*) the spring equinox is 29 March. Thus, the 1st new moon closer to the spring equinox is 19 March and the 1st lunar crescent (= new moon +1) is 20 March (1/I). Similarly the 1st lunar crescent after 1/I (20 March) is 1/II (18 April), the next ones are: 1/III (18 May) and 1/IV (16 June). Given that solar eclipses occur during new moons for reasons of geometry (the sun, moon and earth must be perfectly aligned), the date of the solar eclipse must be at the end of the month on the new moon of 29 Simanu (15 June). Indeed, there was a total solar eclipse over Assyria on 15 June 763 BCE. Concordance with the data is excellent, however it can be noted that the 1st of Nisan is dated a few days (9 days) before the spring equinox. Anyway the only solar eclipse over Assyria during the period 800-750 was the total eclipse dated 15 June 763 BCE. Other solar eclipses have been suggested but it is noteworthy that the partial solar eclipses dated 4 June 800 and 24 June 791 BCE could not possibly have been viewed from Assyria.

The Egyptian secular calendar (S), based on a year of 12 months of 30 days each plus 5 extra days at the end of the year, was used to date secular events and the Egyptian lunar calendar (L) was used to date religious festivals linked to the moon. For example the papyrus Louvre 7848 is dated (line 5): *in year 12, 2nd month of Shemu, (day) 13, on the 15th day of the 1st month of Shemu*. Consequently we have: II Shemu 13 (L) = 1 Shemu 15 (S) in year 12 of Amasis (558 BCE). In 558 BCE I Shemu 1 (S) is dated 7 September and the first full moon before 7 September is on 11 August. In the same way that we have: 1st lunar crescent = new moon + 1 we

have: full moon observed = full moon (astronomy) - 1, hence the full moon observed is 10 August = I Shemu 1 (L) and 9 September = II Shemu 1 (L). Consequently I Shemu 15 (S) and II Shemu 13 (L) are both dated 21 September 558 BCE.

Calendars in 558 BCE

AUGUST																															SEPTEMBER (Julian calendar)																				
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
ELUL																			TISHRI (Babylonian calendar)																											
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
IV PERET (Egyptian secular calendar)																													*I SHEMU (S)*													
4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
I SHEMU (Egyptian lunar calendar)																																					*II SHEMU (L)*					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	1	2	3	4	5	6	7	8	9	10	11	12	13

The Papyrus Rhind briefly describes the fall of Avaris and the events that followed. This papyrus is a copy of a vast mathematical treatise written under Pharaoh Amenemhat III which is dated: IV Akhet, year 33 of King Apopi. Very surprisingly, a scribe added inside a blank a note which has nothing to do with mathematics and which reads as follow: *Year 11, II Shemu; we entered Heliopolis. I Akhet 23; the mighty dignitary of the South (Kamose) attacked Tjaru, [day] 25, we heard that we had entered Tjaru. Year 11, I Akhet 3-birth of Seth [3rd epagomenal day] his voice is given by the majesty of this god (he thundered). Birth of Isis [4th epagomenal day], the sky has made rain*. The fortress of Tjaru has been identified as Tell Hebua. The Pharaoh (not mentioned) who had disappeared was Taa Seqenenre (1543-1533). Accordingly, this Pharaoh had to have died just before the dramatic events described in the papyrus dated II Shemu 1 (1/*X*/**11**), that is I Shemu 1-30 (1-30/*IX*/**11**). How can one determine the Egyptian date 1/*IX*/**11** in 1533 BCE[27] (-1532*)?

According to the Bible, the departure from Egypt is dated 15 Nisan (Nb 33:3). Since the arrival in the desert of Sin is dated the 15th of the following month (Ex 16:1) and the final showdown is near Pi-hahiroth (Ex 14:9) a place halfway between the city called Rameses and the desert of Sin, the date marking the death of the Pharaoh can be fixed towards 30 Nisan/ 1 Iyyar in Year 1 of the Exodus. Consequently this death is dated around 1/II/**1** in 1533 BCE (= -1532*). That year the spring equinox is 3 April. Accordingly the 1st new moon after the spring equinox is 10 April and the 1st lunar crescent (= new moon + 1) is 11 April (1/I) and the 1st lunar crescent after 1/I (11 April) is 1/II (11 May). Josephus gave some chronological details on this important event because he said that at the time Nisan corresponded to Pharmuti (Jewish Antiquities II:308-311,343-344). Indeed if 30 Nisan corresponded to 30 Pharmuti (30/VIII) the Egyptian date was 7 May in 1533 BCE.

The text of Ezekiel mentions the tragic end of a pharaoh and associates it with a cloudy sky and a solar eclipse (Ezk 32:2,7-8). This text targets the Pharaoh of the Exodus, the only one known for ending tragically (Ps 136:15), because the terms "crocodile dragon/ marine monster" always refer to this ruler (Is 51:9-10) as an avatar of the sliding snake, Leviathan (Is 27:1, Ezk 29:2-5, Ps 74:13-14) and not Apries, the Pharaoh of that time whose name is given (Jr 44:30). This process of assimilation between two rulers from different eras is to be found again with the king of Tyre who was assimilated to the original serpent in Eden (Ezk 28:12-14). The expression "*All the luminaries of light in the heavens — I shall darken them on your account, and I will put darkness upon your land*" has a symbolic meaning, but could be understood only if it had also a literal meaning (solar eclipse). The Pharaoh was considered a living god by the Egyptians, the son of Ra the sun god, thus the solar eclipse as a moonless night would have to have marked them. According to astronomy, the only total solar eclipse in this region during this period 1600-1500 was the one dated 10 May 1533 BCE, magnitude 1.08, which was visible in the North of Egypt[28] over several cities such as Heliopolis (dedicated to sun worship), Memphis and Heracleopolis, at 16:40.

Each month of the Egyptian lunar calendar (L) started on the first full moon before the first day of the secular month (S). Given that the lunar month is shorter (29,5 days) than the secular month (30 days), lunar dates are ahead of secular dates. For example in 1533 BCE, 14 Nisan = 24 April[29], consequently IV Peret 1 (S) = 8 April and I Shemu 1 (S) = 8 May. The first full moon before 8 May 1533 BCE is on 25 April = I Shemu 1 (L) accordingly 8 May = I Shemu 1 (S) = I Shemu 14 (L). Year 11 of Seqenenre Taa (1543-1533) in 1533 BCE:

[27] The equation linking the day in the Julian calendar to the day in the Egyptian calendar in Year* is as follows:
Julian day = 201 + (139 – Year*)/4 + (Egyptian day - 1)
Egyptian day = I Shemu 1 = 1/*IX* = 8x30 + 1 = 241
Julian day = 201 + (139 + 1532)/4 + (241 – 1) = 858.75 = 128.75 + 2x365 = 129 (leap year) = 31 + 29 + 31 + 30 + 8 = 8 May (in 1533 BCE).
(0.75 = 3/4, means a leap year every 4 years).

[28] The place called Pi-hahiroth "*mouth of the canal*" (Akkadian) must have been located near the port of Suez (north of the Red Sea).

[29] 24 April = 31 + 28 + 31 + 24 = 115 (Julian day) = 201 + (139 + 1532)/4 + (Egyptian day - 1), hence the Egyptian day = 227 = 7x30 + 17 = IV Peret 17 (S) = 24 April.

Calendars in 1533 BCE

APRIL (Julian calendar)																													MAY											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12
equinox			new moon								1st lunar crescent													Full moon																Eclipse			
ADAR											NISANU (Babylonian calendar)																													IYAR		
21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	1	2	3
III PERET											*IV PERET* (Egyptian secular calendar)																													*I SHEMU*		
24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5
IV PERET (Egyptian lunar calendar)																													*I SHEMU*											
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

The date of the solar eclipse of 10 May 1533 BCE is a key date in Egyptian history, because it corresponds to the death of Seqenenre Taa, dated I Shemu in the papyrus Rhind (Egyptian secular calendar). It is also a key date in biblical history, because it corresponds to the death of the anonymous pharaoh (Ps 136:15) dated 1 Iyyar (Babylonian calendar) at the beginning of the Exodus. The death of Seqenenre generated one of the greatest upheavals in Egyptian history, because it marked the beginning of the "Hyksos War", according to the interpretation of Egyptologists, or the beginning of the Exodus, according to the Bible. Given that the reign of Kamose (1533-1530) took place during this confused period of transition between the 17th and 18th dynasties, it is crucial in order to reconstruct the chronology of that period:

				AKHET				PERET				SHEMU				
				I	II	III	IV	I	II	III	IV	I	II	III	IV	5
	BCE			Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	**May**	Jun.	**Jul.**	Aug.	
17th Dynasty	1545		**1**	**1/30**	30	29	29	28	28	27	27	26	26	25	25	
	1544		**2**	19	19	18	18	18	17	17	16	16	15	15	14	
Seqenenre	**1543**	**1**	**2**	9	8	8	7	7	6	6	6	5	5	4	4	3
	1542	**3**	**4**	28	27	27	26	26	25	25	24	24	23	23	23	
	1541	**4**	**5**	17	17	16	16	15	15	14	14	13	13	12	12	
	1540	**5**	**6**	6	6	6	5	5	4	4	3	3	2	2	1	1
	1539	**6**	**7**	25	25	24	24	23	23	23	22	22	21	21	20	
	1538	**7**	**8**	15	14	14	13	13	12	12	11	11	10	10	10	
	1537	**8**	**9**	4	4	3	3	2	2	1	1	30	29	29	28	
	1536	**9**	**10**	23	23	22	22	21	21	20	20	19	19	18	18	
	1535	**10**	**11**	12	12	11	11	10	10	10	9	9	8	8	7	
	1534	**11**	**12**	2	1	1	30	30	29	28	28	27	27	27	26	
Kamose	**1533**	[1]	**13**	21	20	20	19	19	18	18	17	**17**	16	16	15	
	1532	[2]	**14**	10	9	9	9	8	8	7	7	6	6	5	5	4
	1531	**3**	**15**	29	28	28	27	27	27	26	26	25	25	24	24	
18th Dynasty																
Ahmose	**1530**	**1**	**16**	18	18	17	17	16	16	15	15	14	14	14	13	
	1529	**2**	**17**	8	7	7	6	6	5	5	4	4	3	3	2	2
	1528	**3**	**18**	26	26	26	25	25	24	24	23	23	22	22	21	
	1527	**4**	**19**	16	15	15	14	14	14	13	13	12	12	11	11	

	Lunar date I Akhet 1 on 14 September 1546 BCE (full moon)
1543	Heliacal risings of Sirius and Venus at Thebes on 17 July 1543 BCE
1533	Total solar eclipse over the north of the Red Sea on 10 May 1533 BCE

While the end of Seqenenre's reign was marked by an extraordinary astronomical event: a total solar eclipse (10 May 1533 BCE), the beginning of his reign was also marked by another extraordinary astronomical event: a double helical rising of Sirius and Venus (17 July 1543 BCE in Thebes), an exceptional event which occurred every 243 years and which was depicted as a symbolic phoenix by Egyptian astronomers (it is noteworthy that the Horus name of Seqenenre was "*The one which appeared in Thebes*"). When Seqenenre died his eldest son Ahmose Sapaïr, who was crown prince, was about 10 years old according to the size of his mummy as well as his mortuary statue, accordingly, he was born in 1543 BCE when his father began to reign. This coincidence may explain why he received an exceptional worship for approximately 500 years after his death. When he died his youngest brother, Ahmose, was about 2 years old, which may explain why he was not able to reign at once. When Kamose died, Ahmose was about 5 years old, that is why his mother, Queen Ahhotep (Seqenenre's wife), was his regent until the 20th year of his reign. One also notes that the

counting of regnal years which were beginning on I Akhet 1 before Kamose, began from the date of accession after Kamose. Finally, an extremely rare event, the crescent shaped hieroglyph representing the moon was reversed down after Kamose. Consequently, all these changes prove that the death of Seqenenre and Ahmose Sapaïr was a paramount event in Egyptian history.

According to Egyptian accounts the last king of the 15th dynasty, named Apopi[30] (1613-1573) reigned 40 years in Egypt (Turin King List), then 40 years later (1533 BCE) he met Seqenenre Taa the last pharaoh of the 17th dynasty and gave him an unspecified disturbing message just before his death, according to *The Quarrel of Apophis and Sekenenre*. The eldest son of Seqenenre Taa, Ahmose Sapaïr, who was crown prince died in a dramatic and unexplained way shortly before his father. According to the Bible, the crown prince of Pharaoh died on 14 Nisan (24 April 1533 BCE): *all the first-born in Egypt will die [on 14 Nisan], from the first-born of Pharaoh, heir to his throne, to the first-born of the slave-girl at the mill* (Ex 11:5). Seqenenre Taa died on 10 May 1533 BCE, after 11 years of reign, in dramatic and unclear circumstances. No Egyptian source has described the sequence of events, but the state of the mummy of Seqenenre, especially his head indicating serious injury, is eloquent. This pharaoh died (aged 30 to 40 years) in a very violent manner and it took quite a long time before his mummification (Leca: 1976, 147-148). Although this event was exceptional the Egyptians are absolutely silent about this death, but it is not the case of Egyptologists who explain that Seqenenre was probably slaughtered by at least two Hyksos soldiers. This explanation is ridiculous because this would mean the Egyptians left to decompose the corpse of their pharaoh before its mummifying (in agreement with Psalms 136:15), which would have been blasphemy. Moreover, as the ribs and vertebrae are fractured and dislocated, Seqenenre had to have been attacked by at least two Terminators! Prince Kamose, Seqenenre Taa's brother, assured interim of authority over Egypt for 3 years as Prince of Thebes and threatened to attack the former pharaoh Apopi, the new prince of Retenu (Palestine) who then took the name Moses, according to Manetho, an Egyptian priest and historian (c. 280 BCE). In the Tempest Stele, Kamose blames Apopi for all the disasters that came to fall upon Egypt, which caused many deaths. All these chronological coincidences prove that Apopi and Moses (1613-1493) were the same person and the Hyksos regularly mentioned in Egyptian documents were the Hebrews of the Bible.

[30] Apopi was a birth name meaning "very pretty" in Hebrew that is Moses' birth name (Ex 2:2; Ac 7:20).

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Dear Mr. Gertoux, this year ASOR received nearly 700 proposals for papers, an increase of 40% over last year, and we have consequently been more selective than in years past. Your paper (ASOR Paper Proposal Decision ref. #0626) was reviewed by chairs of two sessions and both had concerns about your methodology and the degree of certainty you propose for your chronology given the significant amount of attention this subject has received (including by scholars drawing upon astronomical observation). As co-chairs of the Program Committee, we have accepted the recommendation of session chairs that your paper not be accepted this year.
Geoff Emberling geoffe@umich.edu (on behalf of Helen Dixon) On Fri, May 26, 2017
co-Chairs, Program Committee