Fall of the Sothic theory: Egyptian chronology revisited

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Summary

Current Egyptian chronology consists of 30 dynasties, as compiled by the 3rd century BC Egyptian priest Manetho, chronologically bound by the Sothic theory proposed by Eduard Meyer of the Berlin School of Egyptology in 1904. But this Sothic theory, based on a 1,460 year cycle for the star Sirius (Greek *Sothis*), contradicts the dates found by Theon, an Alexandrian astronomer of the late 4th century AD; and the 3rd century AD Roman author, Censorinus, never connected the 1,460-year period with Sirius. The celebrated Claudius Ptolemy failed to mention this link, and more recently, Egyptologists like Maspero, von Bissing, Jéquier and the great Egyptologist Sir Flinders Petrie, also rejected Meyer's mathematical system. Of Meyer's four Sothic dates, the oldest has been abandoned and there is uncertainty about the second. As a result, Sir Alan Gardiner referred to Egyptian history as 'merely a collection of rags and tatters'. The doors are open for the reconstruction of Egyptian chronology.

The 'Great Year'

The Egyptian priest Manetho (3rd century BC), in his *Ægyptica*,[1] has left us a collection of 30 dynasties of pre-Alexander Egyptian history; dynasties badly in need of a cementing chronology. It was Richard Lepsius[2] who had first suggested that the references in Egyptian documents to the 'rising of Sirius' (Greek *Sothis*, Egyptian *Sopdet*) might offer some clues for the astronomical calculation. This idea was taken up and developed by Eduard Meyer—with the support of Mahler, Borchardt and Weill—who in 1904 crystallised his Sothic theory in a classic text.[3] Meyer had recognized the fact that the Egyptian civil year of 365 days was entirely an artificial one ('*ein absolut kunstliches Gebilde*'), since, as he said, neither month, nor season, nor even year, corresponded to any natural period.[4] He referred to this vague year as '*Wandeljahr*' (wandering year) in relation to the Sothic (Julian[5]) year of 365 1/4 days; and he rightly estimated that the Egyptian year was late by a day every four years with regard to the Julian year, and by about three-quarters of an hour less with regard to the Gregorian year.

The heliacal rising[6] of the Dog Star, Sirius (its first visible rising shortly before sunrise), mentioned in various Egyptian documents (as *peret Sopdet*), would recur on the Egyptian New Year's Day, at the same observational site, every 1,460 years (365 x 4). This 1,460 year span was known in the Classical era as the 'Great Year'.

Meyer's fictitious long-range calendar

But Meyer's belief that the ancient Egyptians had actually used this Sothic period of 1,460 years as a kind of long-range calendar is pure supposition, with no evidence in support of it. In fact Meyer had to go to Classical texts to get some of his key information: to Theon, an Alexandrian astronomer of the late 4th century AD, and to the 3rd century AD Roman author, Censorinus. According to Meyer's interpretation of the Sothic data as provided by Censorinus, a coincidence had occurred between the heliacal rising of Sirius and New Year's Day in the 100th year before Censorinus wrote his book, *De Die Natali Liber*, c. AD 140.[7] Meyer was therefore able to determine from there, using multiples of 1,460, his Sothic series of AD 140, 1320 BC, 2780 BC and 4240 BC. However, Censorinus had not actually connected the 1,460-year period with Sirius; his evidence contradicts that of Theon, according to whom the conclusion of a 1,460-year period had occurred in the 5th year of the emperor Augustus—26 BC, as opposed to Censorinus' testimony that a Great Year had commenced in c. AD 140.

Scholars have rightly puzzled over the fact, in relation to the Censorinus data, that if one Great Sothic Year of 1,460 years really had ended, and another begun in c. AD 140, why did that most celebrated of astronomers, Claudius Ptolemy, fail to mention it? As currently explained, this astronomical event must have occurred in the very mid-period (c. AD 127–151) of Ptolemy's prolific writing.

Since, as Meyer presumed, the Egyptian civil calendar could have been invented only on one of those occasions of coincidence between the civil and Julian years, and further believing that the second earliest Sothic period of 2780 BC fell in the 4th dynasty when the civil calendar was known already to have been in use,[8,9] he concluded that the calendar must have been introduced at the earlier Sothic period beginning in 4240 BC;[9,10] a date that could also accommodate within it those Egyptian kingdoms pre-dating the 4th dynasty. Meyer therefore regarded 4240 BC as being a '*total certainty*' ('*volliger Sicherheit*') for Egypt's—and indeed the world's—first mathematically fixed date.[11]

Additional Sothic dates

This absolute chronology of Meyer's was in turn filled in with a relative chronology based on the data provided by a handful of Sothic documents combined with calculations of the reign lengths of the various kings as given in the dynastic sequences and the monuments. For instance, with respect to the 12th dynasty, there was the Illahûn (or Kahun) Papyrus, which mentioned a Sothic rising in year 7 of an un-named king whom scholars identify, on purely epigraphical [the study of ancient inscriptions] grounds, as Sesostris III of the 12th dynasty. With the end of the 12th dynasty fixed at 1786 BC by a combination of such Sothic dating and regnal calculation, and the beginning of the New Kingdom (18th dynasty) similarly fixed at 1580 BC, there remains a mere two centuries for the intervening *Second Intermediate Period* of Egyptian history.

Of the various major Egyptian Sothic documents, such as the Illahûn Papyrus, the Elephantine Stele, and the Ebers Papyrus, the latter—famous for its information about medical practices in Egypt—also contains reference to a Sothic rising in the 9th year of another un-named king, who has been identified as Amenhotep I of the 18th dynasty.[12]

Theon had also left a much-discussed statement informing us that 1,605 years had elapsed since the '*Era of Menophres*' until the end of the Era of Augustus, or the beginning of the Era of Diocletian—c. 285 BC, it was not difficult for chronologists to determine when this supposed '*Era of Menophres*' occurred. Thus R. Long wrote: 'From [Theon's] quotation we gather that the era of Menophres (*apo Menophreos*) lasted from circa 1321–1316 BC to AD 285 or the duration of 1,605 years, i.e. from Emperor Diocletian back to someone or something designated "Menophreõs".'[13] Unfortunately Theon did not tell us who or what 'Menophres' was.

Meyer opted for 'who' rather than 'what', and chose to identify him as Rameses I *Menpehtire*.[14] Rameses I *Menpehtire*, founder of the 19th dynasty, conveniently reigned for only about a year. However, his throne name, *Menpehtire*, is not a perfect linguistic equivalent of *Menophres*.

Biot preferred the interpretation that '*Menophres*' instead represented the important city of Memphis, in its ancient pronunciation of *Men-nofir*;[15] a suggestion that would later impress M. Rowton, who added his own refinement, following Olympiodorus, that the Sothic cycle was based upon observations actually made at Memphis.[16]

Name-ring No. 29

A further *sighter* for all these dates—though established well before Meyer—was what had become, since François Champollion's decipherment of the hieroglyphs, an unshakable pillar of Egyptian chronology, seemingly tied to the Bible. This was Champollion's identification of pharaoh Shoshenq I of the 22nd (Libyan) dynasty as the biblical *Shishak* who despoiled the Temple of Yahweh in the 5th year of Solomon's son, Rehoboam (1 Kings 14:25). Champollion thought he had read in Shoshenq's Palestinian conquests from the Bubasite Portal inscription at Karnak of an actual conquest of Jerusalem. He interpreted name-ring No. 29 as '*Ioudahamelek*', which he took to be the name '*Judah*' followed by '*the kingdom*', *yadhamelek*, as '*the kingdom of the Jews*'.[17] Champollion's reading of name No. 29 was subsequently challenged by H. Brugsch, who made a new and detailed study of the list. Brugsch identified names both before and after No. 29 as belonging to Israel as well as to Judah, and therefore felt that its position in the list contradicted Champollion's reading.[18] The now generally accepted view is that proposed by M. Muller: namely, that No. 29 stands for a place, *Yad-ha(m)melek*.[19] Whilst this place has not been successfully identified, its position in the list suggests that it refers to a location in the northwest coastal plain of the kingdom of Israel, not Judah.

From the above one can see that Egyptian chronology and its associated Sothic theory have been built upon a host of assumptions.

Earlier rejection of the Sothic system

Some of the early Egyptologists, like Maspero and von Bissing, rejected Meyer's mathematical system out of hand. So did Jéquier, who wrote as early as 1913:

'The Sothic periods, far from simplifying the chronological calculations for us, have no other effect than to introduce a new element of uncertainty and perhaps a new opportunity for error.'[20]

But most historians were not chronologists, and they demurred to the Sothic calculations of the experts from the Berlin School. Mathematics can however be a hard master. The great Egyptologist, Sir Flinders Petrie, who was strongly attracted to the Sothic idea, nevertheless thought that the mere 100 years assigned by this scheme to the Hyksos occupation of Egypt was far too short to accord with the monumental data. So he took the liberty of interspersing an extra Sothic period of 1,460 years. Eventually common sense prevailed and Petrie dropped this wild idea altogether.[21]

Perpetuation of Sothic error

But academia has stubbornly clung to the Sothic system. After Meyer's original enunciation of Sothic theory, its chief supporter appears to have been the influential Rockefeller-funded Professor J. H. Breasted of the University of Chicago, who, thanks to his enthusiastic promotion of the theory really set it in academic rock. It was Breasted who, in a classic textbook,[22] included an annex, 'Chronological Table of Kings', in which he boldly proposed that all the Egyptian dates in the table marked with an asterisk '*are astronomically fixed*'; fixed that is apparently by reference to Meyer's Sothic calculations. Breasted's textbook, which incorporated Meyer's figure of 4240 BC for Egypt's presumed unification under Menes, still forms the basis for most modern historical syntheses. Breasted even went so far as to specify the precise day for each of two events that occurred during pharaoh Thutmose III's first Asiatic campaign: namely, his crossing of the Egyptian frontier 'about the 19th of April, 1479 BC', and his going 'into camp on the plain of Megiddo on the 14th of May' of that same year.[23]

Figure 1. **Typical textbook Egyptian dynastic history (dynasties 1–30).**[29]

Old Kingdom (Dynasties 1–6)	3150–2200 BC
First Intermediate period (Dynasties 7–11)	2200–2040 BC
Middle Kingdom (Dynasties 11–14)	2040–1674 BC
Second Intermediate period (Hyksos) (Dynasties 14–17)	1674–1553 BC
New Kingdom (Dynasties 18–20)	1552–1069 BC
Third Intermediate period (Dynasties 21–24)	1069–702 BC
Late Period (Dynasties 25–26)	747–525 BC
First Persian Period (Dynasty 27)	525–404 BC
(Dynasties 28–30)	404–343 BC

Current chronology

It should be noted that things chronological have not changed much to this day, for N. Grimal gives that very same year of 1479 as the first year of Thutmose III's reign.[24] Grimal's date too, of 1785 BC for the close of Egypt's 12th dynasty, is completely Sothic. 'Feelings that border on panic seize scholars who trust the Sothic theory when doubt is cast upon it' wrote David Down, adding that:

'[Professor] Lynn Rose quotes Sir Alan Gardiner as saying, "To abandon 1786 BC as the year when Dyn XII ended would be to cast adrift from our only firm anchor, a course that would have serious consequences for the history, not of Egypt alone, but of the entire Middle East (JNES 94-4-237)".'[25]

But not only has Meyer's '*erste sichere Datum*' (first sure date) of 4240 BC long since been abandoned—with c. 3100 BC now favoured as the beginning date for Egyptian dynastic history—even his second Sothic date of 2780 is looking shaky. As P. O'Mara has correctly stated, this figure of 2780 has been re-worked frequently because of what he calls 'numerous technical complexities, with varying results ranging from 2781 BC to 2772 BC'.[26]

What is quite firmly held to this day by historians is the third 'Sothic' date, c. 1320, for the 'Era of Menophres'. Grimal's recent figure of 1295–1294 BC, for instance, is not so very far removed from 1320.[26] And this, despite the fact that as early as 1928 ' … it was obvious that Meyer had by then completely discarded the Menophres theory',[27] by moving the 19th dynasty forward somewhat from his original date. That many Egyptologists have continued to be far from comfortable with this received chronological structure is apparent from the testimony of the renowned Sir Alan Gardiner:

'What is proudly advertised as Egyptian history is merely a collection of rags and tatters.'[28]

Nevertheless, it was also Gardiner who—as we saw above—had warned of the consequences of abandoning the Sothic anchor dates.

Conclusion

The Sothic theory has absolutely bedevilled efforts to establish proper synchronisms throughout antiquity, especially when it is considered that the chronology of the other nations is usually assessed with reference to Egypt. In reference to my thesis on the Sothic cycles (Ref. 5), Dr Grognard remarked: 'It is important to show the weaknesses or errors in our understanding of a theory in order to leave our minds free to think of *a more acceptable alternative*' [emphasis added]. This should be taken as an encouragement for the reconstruction of Egyptian chronology.

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