Sothic dating of the Egyptian Middle Kingdom is fallacious

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Author’s notes to self are {enclosed in braces}.

1. Introduction

The chronology of dynastic Egypt is commonly divided into eight periods: the Early Period, Old Kingdom, First Intermediate Period, Middle Kingdom, Second Intermediate Period, New Kingdom, Third Intermediate Period, and Late Period. It is widely, though not universally, accepted that "Sothic dating" is essential in dating dynastic Egypt generally, and the Middle Kingdom in particular. (A brief description of Sothic dating is given in Section 2.3.) For example, the *Oxford Encyclopedia of Ancient Egypt* states that dates for the Middle Kingdom "have to be reconstructed" via Sothic dating [Spalinger, 2001]. Similarly, the review of chronology in *Civilizations of the Ancient Near East* states that "if [Sothic dating] is unreliable, then the whole of Egyptian second-millennium chronology floats by as much as two hundred years" [Cryer, 1995]. And what was at one time taken as the standard review of chronology wholly bases its analysis on Sothic dating [Ward, 1992]. That review has since been essentially superseded by *Ancient Egyptian Chronology*, which concludes that Sothic dating is the sole means for furnishing precise dates for the Middle Kingdom [Krauss & Warburton, 2006]. Essentially the same conclusion was reached at a 2005 symposium devoted to Egyptian chronology in the second millenium BC [Wiener, 2006].

There are a few Egyptologists who believe that a chronology can be developed without Sothic dating, especially Kitchen [2006]. That will not be debated here. It is clear, in any case, that the reliability of Sothic dating has importance for chronology. The purpose of the present work is to consider the reliability of Sothic dating for the Middle Kingdom. It should be noted that if Sothic dating fails for the Middle Kingdom, then the dates of all earlier periods also become questionable—indeed, unless Kitchen is right, unfounded.

2. Background

2.1 Nile inundations

The water that flows down the river Nile originates as rain, collected from some areas of Africa. There are two main areas where the rains fall and feed into the Nile: the Ethiopian Highlands and the East African Equatorial Lake Plateau. Roughly five-sixths of the annual Nile flow is sourced in the Highlands, and almost all the remainder in the Lake Plateau. The Highland input is highly seasonal, with 80–85% occurring during July–October. The Lake Plateau input is relatively constant throughout the year. (For details on Nile hydrology, see Sutcliffe & Parks [1999].)

Why is the Highland input highly seasonal while the Lake Plateau input is not? The Highland rains occur when the summer sun intensely heats the air over the region of North Africa, particularly over the Sahara and Saudi deserts. As the air is heated, it rises (and the air pressure at the surface is therefore lowered). The resulting low-pressure areas then draw in air from the adjacent regions: in particular, from the Indian and South Atlantic oceans—see Figure 1. Air originating over oceans contains much moisture. As this air is drawn over land, its moisture tends to precipitate out; i.e. it rains. The amount of annual rainfall can have large variations; the reasons for this are complex (for details, see Vizy & Cook [2003] and references therein).

During wintertime, land in the region of North Africa is cold. Hence there are no low-pressure areas to draw in moisture-laden air from oceans—see Figure 1. Because there is no source of moisture, the Ethiopian Highlands then receive very little rain.

As for the East African Equatorial Lake Plateau, rainfall is again heaviest there during the times of the year when the temperature is greatest. Because the region is equatorial, though, it effectively has two summers; so the heaviest rains occur twice each year (in about March–May and October–December), rather than once as in the Highlands. Rains are collected by a wide network of lakes and regional rivers, which somewhat attenuates the two peaks. The regional rivers ultimately flow into the “Sudd”. The Sudd is a swamp, roughly 400 km long and as much as 300 km wide; it is thick with tall aquatic vegetation (papyrus, grass, etc.). As the water flows through the Sudd, roughly half of it is lost to evapotranspiration. There is also significant evaporation down-river from Sudd. All this leads to the intra-year input from the Lake Plateau to the Nile being much less variable than the intra-year input from the Highlands.

Monthly inflows and outflows for the Sudd are shown in Figure 2a. Compare these to the Nile monthly inflows at Aswan, shown in Figure 2b. Even the largest peaks in Sudd inflows are barely noticeable at Aswan, about 3000 km down-river.

For the purposes of the present work, the main conclusion from the above is the following. The annual Nile inundations result from heavy precipitation in the Ethiopian Highlands, and such precipitation can only occur during summer and early autumn. This conclusion holds not just for today; it also holds for the second millennium BC.

The Nile inundations in Egypt actually continue for a couple of months after the Ethiopian rains cease falling. There are three reasons for this. First, it takes a few weeks for the water from Ethiopia to flow to Egypt. Second, some of the water from the land that has been inundated by the Nile flows back into the Nile [Popper: 1951: p.253]. Third, when the Nile’s primary Ethiopian tributary, the Blue Nile river, is in high flood, water from other, more southerly, tributaries tends to get backed up; after the Blue Nile flood weakens, the backed-up waters then flow into the main Nile [{reference?}].

2.2 Calendars

The primary calendar used by the Egyptians—usually called the *civil calendar*—comprised three seasons together with five “epagomenal” days. The three seasons were called *Inundation* (when the Nile was in flood), *Emergence* (of land, as the Nile floodwaters retreated), and *Dryness* (when the Nile was at its lowest) [Rochberg-Halton, 1992]. Each season consisted of four months; hence there were 12 months in total.

Each month was exactly 30 days long; so the calendar year had $12 \times 30 + 5 = 365$ days. An actual year is 365.2422 days long. Hence, each year the Egyptian calendar would fall behind by 0.2422 days. Thus, after 753 years, the calendar would fall behind by $753 \times 0.2422 = 182$ days, i.e. half a year. Did the Egyptians really allow their calender to fall behind like that? So it has been claimed: that is the consensus opinion in Egyptology.

If the claim were true, then the three seasons of the calendar would become misaligned with the actual seasons of the year. For example, suppose that in some particular year the Nile flood began at the start of the Inundation season. Then 753 years later, the flood would begin in the middle of the Emergence season. Only after another 753 years would the flood begin around the start of the Inundation season.

With the modern calendar, most years also have 365 days. An extra day, though, is included in leap years, to prevent the calendar from falling behind the way that the Egyptian calendar did. The modern calendar is formally called the *Gregorian calendar* (because it was first introduced by Pope Gregory XIII, in the sixteenth century). The Gregorian calendar is actually a small refinement of the *Julian calendar* (which was introduced by Julius Caesar). The Julian calendar has a leap year exactly every four years. The Gregorian calendar is the same, with a few exceptions (specifically, if a year is divisible by 100, then it is not a leap year, unless the year is divisible by 400—e.g. 1900 and 2100 are not leap years, but 2000 is). The crucial feature of the Gregorian calendar is that it follows the actual seasons—winter, spring, summer, and autumn.

It might seem strange that the Egyptians would have allowed their calendar to get so far out of alignment with the actual year. The Egyptians, though, are believed to have done so for religious reasons [{references?}]. Furthermore, in most other societies, the primary purpose of the calendar was to assist with farming—the calendar indicated which days to sow, harvest, etc. For the Egyptians, the calendar was largely unneeded for this purpose, because Nile levels determined the dates that were appropriate for farming activities. Depuydt [1997] discusses Egyptian calendars at length and says the following (p.19).

> There is surely no evidence for [a calendar that followed the seasons]. The natural assumption is that a society *must* have a seasonal calendar. However, [a society] may well be functional without one. Events that typically follow the seasons, such as those making up the agricultural cycle, are not predictable to the day or week anyhow. Any feasts celebrating such events would therefore have to be organized *ad hoc*, without the aid of a calendar. Furthermore, the Egyptian civil calendar moves very slowing in relation to the seasons, at a rate of only about one day in four years. Within antiquity's average lifespan, spanning somewhere between 30 and 40 years, the civil calendar would hardly shift ten days in relation to the seasons and could easily be perceived as following the seasons.

Additionally, the Egyptians might have had another calendar that was kept in line with the seasons—albeit with its use restricted to the temple [Depuydt, 1997: ch.1,8; Krauss, 2006b].

What evidence is there that the Egyptians allowed their calendar to continuously fall behind? There is negligible evidence from the Middle Kingdom period, nor from any time before then. The primary evidence that the calendar continuously fell behind used to be statements by the Roman writer Censorinus, in the third century AD. It has been cogently argued, however, that Censorinus is unreliable [O'Mara, 2003]. Even so, there is other evidence from the first millennium BC confirming that, for some centuries of that millennium (at least), the Egyptians did indeed allow their calendar to continuously fall behind: see Appendix 1 for details. The Middle Kingdom, though, was a millennium earlier than the time confirmed by that evidence.

For the Middle Kingdom, the claim that the calendar continuously fell behind is largely supposition. The only evidence to support the claim is that if the claim were invalid, then "the link between the lunar date and a Sothic date implicit in the astronomical dates of the Illahun archive" [Hornung et al., 2006a: p.48]. {Argue against this.}

2.3 Sothic dating

Here I will present only a brief description of Sothic dating. For a more detailed description, see the lucid work of Depuydt [2000: sect.1]. The calculations involved in determining a Sothic date can be subtly complex: for details, see Krauss [2003], Ward [1992], and de Jong [2006]. Different investigators make different assumptions when computing Sothic dates (most notably regarding the location of the observations). Such different assumptions lead to differences in calculated dates of a few decades at most; so they are not relevant here.

Sothic dating involves ancient of observations of a certain star. “Sothis” is the Greek rendering of the Egyptian name for the star; the modern name is “Sirius”.

Each year, as the earth revolves around the sun, Sirius becomes obscured by the sun for about two months. The star then reappears one morning, just before sunrise. This first visibility of Sirius is called “the heliacal rising of Sirius”. In pharaonic Egypt, this heliacal rising always occurred on a *Julian* date in mid July.

The idea behind Sothic dating is illustrated in the following example. There is a record of the heliacal rising (of Sothis/Sirius) from the Middle Kingdom pharaoh Senwosret III (also written as “Senusret III” or “Sesostris III”—the latter being the Greek rendering). This record tells that during the seventh year of the pharaoh’s reign, the heliacal rising was in the 4th month of the Emergence season, 16th day. (Some authors have suggested that the day in the record should actually be read as 18, rather than 16 [Krauss, 2003]; this seems wrong [Luft, 2003], but in any case, such a difference is not relevant here.) Considering that the Julian date of the heliacal rising is approximately known and assuming that the Egyptian calendar fell behind by about ¼ of a day each year (as discussed in Section 2.2), then it is possible to approximately calculate the year in which the heliacal rising occurred—and thus when Senwosret III reigned.

(A few authors have proposed a slightly different assumption: that the Egyptian calendar was readjusted according to direct observations of Sirius. For details, see Krauss [2003] and Depuydt [2000: sect.1]. There is little evidence for this. In any case, the difference between allowing the calendar to fall behind continuously, as described above, and readjusting via Sirius observations should only be about one day per millennium. Even allowing an additional day or two for observational errors [O’Mara, 2003: n.20], that is not large enough to be relevant here.)

The record of the heliacal rising during the reign of Senwosret III is often called the “Illahun Sothic record”—after the Illahun (or el-Lâhûn) funeral complex, where the record was found. Because the internal chronology of the Middle Kingdom is fairly secure, the dates for all pharaohs in the Middle Kingdom can be determined by using the Illahun Sothic record. As Depuydt [2000: sect.2] puts it, this record is “the single most famous statement of Egyptian chronology”. It is on this record that the Sothic dating of the Middle Kingdom wholly depends.

3. Nile records

3.1. Inundation record of Senwosret III

On the Nile river, about 500 km upriver from Aswan, lies the Dal Cataract (21.0 °N, 30.6 °E). At the cataract is an inscription from Pharaoh Senwosret III (the pharaoh of the

Illahun Sothic date). The inscription has not heretofore been published (though some information is given by Bell [1975: p.238] and Vercoutter [1966: p.164]). The inscription records the level reached by the Nile during the tenth year of Senwosret III (three years after the Sothic record). It also gives the date: 3rd month, 9th day.

The Egyptian date of the heliacal rising, in the Sothic record, is 8th month, 16th day. The heliacal rising was in early July (Gregorian, converting from the Julian date mentioned in Section 2.3). The Egyptian date of the Nile level must therefore have been 5 months and 7 days earlier than that, i.e. in late January (Gregorian). (R.A. Parker gave the date as January 24th [Bell, 1975: p.238]; such precision, though, requires several assumptions that are at least debatable.) The crucial point here is that if the Sothic dating were valid, then the Nile inundation occurred in late January—and that is impossible.

Thus, the records of the Nile inundation and the heliacal rising contradict each other. Why? Perhaps the phrase in the Illahun record, *peret Sepdet*, which is usually translated as "the heliacal rising of Sirius", means something else. (Indeed, Rohl [1995: app.D] has argued this, noting in particular that the literal translation of the phrase is merely "the going forth of Sirius".) Whatever the case, the Nile record invalidates Sothic dating via the Illahun record.

It is also notable that the season given in the inscription is the Inundation season (see Figure 3). That is consistent with the inscription being a record of an inundation. Indeed, it seems to your author that the Egyptians would have kept their calendar seasons broadly aligned with the actual seasons, and the inscription is consistent with that.

The excavator of the Nile record, A.J. Mills, has very kindly granted permission for publication of the record herein. Photographs and a hand transcription by the excavator are available at www.informath.org/Dal-Mills. The original excavation notes are reproduced in Appendix 2. A transcription and translation of the inscription are shown in Figure 3a (very kindly provided by C. Jurman).

3.2. Inundation record of Sobekhotep VIII

Another seasonally-dated record of a Nile inundation comes from the fourth year of Pharaoh Sobekhotep VIII (Sobekhotep is also written as Sobkhotep, Sebekhotop, Sebekhotpe, etc.). Sobekhotep VIII reigned during the Second Intermediate Period [von Beckerath, 1964: p.66]. The record tells of a Nile inundation that flooded the temple of Amenre (Amon-Ra) at Karnak. The temple flooding occurred during at least some of the last month of the Egyptian year as well as during the epagomenal days (the five days immediately following the last month). The relevance of this record for chronology has been discussed by others [Rohl, 1995: app.D; Kitchen, 1996: sect.NN], albeit inaccurately.

The record appears to tell of an unusually-high Nile inundation [Baines, 1976; Janssen, 1987: p.131]. Indeed, the temple is on elevated ground, and it would not be flooded by the Nile in a normal inundation. Said [1993: p.150] analysed how high the inundation would had to have been to flood the temple, taking into consideration the accumulation of silt in the Nile riverbed over the millennia. He concluded that the inundation must have been slightly higher than any modern inundation. The analysis, however, used an incorrect silt-accumulation rate [Evans, 1994: p.39–40]. If a more realistic rate is used, though, and even allowing for some error, the conclusion is still broadly the same: the inundation must have been at least as high as any modern inundation, if it were to flood the temple.

Before considering the flood further, I first consider the identity of the pharaoh. The flood record does not, in fact, specify the numeral VIII. The numeral VIII was added for the following reason [Habachi, 1974: p.213–214].

> Sekhemre-Seusertaui Sobkhotep (VIII), responsible for the erection of the stele [on which the flood was recorded], was among the kings mentioned in the list of ancestors erected by Tuthmosis III in his Festival Hall at Karnak. Due to the fact that this section of the list is much damaged, the name has been read in different ways. Since the [high Nile inundation] took place in the five epagomenal days, J. von Beckerath [1964: p.66] places the reign of this king between 1695 and 1625 B.C., that is, in the Thirteenth Dynasty. This assigns him number 8 in the series of kings with that name.

In other words, the numeral VIII was determined solely on the basis of Sothic dating. Thus, without Sothic dating, the Sobekhotep cited in the record could a priori have reigned at almost any time during the Second Intermediate Period. (Indeed, Bell [1975: p.245] suggests that Sobekhotep might well have reigned near the beginning of the period, with the high inundation following on from the high inundations that are known to have frequently occurred during the late Middle Kingdom.)

Different Egyptological chronologies give slightly different dates for the Second Intermediate Period. Here, I will conservatively assume only that the period lay sometime in 1850–1500 BC, which easily encompasses the range of the main chronologies [Hornung et al., 2006b; Kitchen, 2006]. It is generally believed that in 139 AD, the first day of the Egyptian calendar year fell on July 19 (Gregorian) [{reference}]. Hence, assuming that the Egyptian calendar fell behind by 0.2422 days each year, we can calculate the following.

- If the record were from 1500 BC, the calendar would be offset by 1638 × 0.2422 = 396.7 days ≡ 31 days; so the temple flooding would have been in early/mid June (Gregorian).
- If the record were from 1850 BC, the calendar would be offset by 1988 × 0.2422 = 481.5 days ≡ 116 days; so the temple flooding would have been in March (Gregorian).

{The remainder of this section needs substantial work.}

It takes some time for Nile water to flow from Karnak to Cairo. Hence the Gregorian date of the Nile record was sometime in July–November. (Indeed, records from Dongala, about 275 km upriver from the cataract, indicate the maximum being in August–September consistently during 1912–1973 [Shahin, 1985: tbl.15]; so assuming that the maximum was in July–November seems conservative.) Popper [1951: tbl.32] gives dates of plenitude for 338 years during AD 1074–1888; the earliest date is July 25 {mention errors and Pococke}.

When, during the Gregorian year, did the temple flooding occur? Baines [1976] argues that the record of the epagomenal days refers to shortly after the Nile maximum, i.e. in or near September. I will not consider this argument here. Instead, I will adopt this (conservative) answer: the epagomenal days of the record were some time during late July through October.

As discussed in Section 2.1, Nile inundations occur in summer–autumn. At Cairo, the level of the Nile typically begins to rise from its winter–spring low in June, reaches its maximum in September–October, and then falls to a low level by December [Said, 1993:

p.96–97]. There is variability in this: in modern times, the Nile maximum has been recorded as occurring as early—see Said [1993: p.97]. {Say how early it could possibly be; is the date related to Nile height?}

Thus, those (Gregorian) dates, and all dates in between, are impossible. Hence either our assumption about the Egyptian calendar falling behind is incorrect or the Second Intermediate Period did not lie in 1900–1450 BC. In either case, Sothic dating is invalid.

4. Conclusions

In 1950, R.A. Parker published what has remained a definitive work on Egyptian chronology [Parker, 1950]. That publication essentially ended debate on the validity of Sothic dating, and it firmly established the now-accepted chronology, at least in outline. For the Middle Kingdom, and prior, the chronology was dependent on an assumption: that the Egyptians allowed their calendar to continuously fall behind. The lack of evidence for this assumption has always been a serious weak point of the chronology. Indeed, I believe that this weakness should have caused the chronology to be considered questionable even without the work presented here. The work presented here makes the assumption untenable.

{Mention about names of seasons: all available records show the inundation occurring during the Inundation season.}

The following can be concluded.

1. Sothic dating is not valid for the Middle Kingdom, and thus the Middle Kingdom does not have an absolute chronology that is at all secure.
2. The chronology of the Second Intermediate Period, as put forth by Ryholt [1997], is in fact dependent on the date of the Middle Kingdom. Hence, that chronology is unfounded.
3. The claim that the Egyptians of the New Kingdom allowed their calendar to continuously fall behind is not invalidated by the present work. {Nile records cannot distinguish here….} Even so, Sothic dating of the New Kingdom is now made very questionable. {What does this mean for New Kingdom chronology?}
4. For prior to the Middle Kingdom, the status of chronology *with* Sothic dating is summarised by Spalinger [2001: p.267]: "no firm basis exists for a fixed point in time … the chronology earlier than the [Middle Kingdom] is approximate at best [because the chronology has been developed by counting back from the Middle Kingdom using textual records]". Thus the chronology prior to the Middle Kingdom, already weak, becomes very much weaker. {Mention Depuydt [2000] and *Ancient Egyptian Chronology*.}
5. The internal chronologies of the three kingdom periods do not depend on Sothic dating. As such, the internal kingdom chronologies are unaffected by the present work.

Appendix 1: post-pharaonic Sothic dating

In 1995, L. Depuydt published a review of the case for Sothic dating [Depuydt, 1995]. This review was afterwards widely accepted as conclusively demonstrating that Sothic dating is valid. The primary evidence adduced in the review for concluding in favour of validity comprised some Aramaic texts: specifically, the Memphis Shipyard Journal.

The Memphis Shipyard Journal is a document from the fifth century BC. It is a record of accounts. Some lines of the document contain dates, and each of those dates is specified doubly: once in the Egyptian calendar and once in the Babylonian calendar. When the Egyptian dates are converted to Babylonian dates—under the assumption of Sothic dating—the converted dates match the Babylonian dates in the documents almost perfectly. Depuydt [1995: sect.3.3] describes the importance of these double dates as follows.

> The Egyptian and Neo-Babylonian calendars differ completely in structure. But to find that pairs of dates … as a rule match is the most striking confirmation ever to emerge of the correctness of [Sothic dating], at least back to the fifth century [BC]. … There is therefore not the least doubt that [for this period] the Sothic hypothesis is not really a hypothesis but simply the truth.

The Memphis Shipyard Journal has been published and translated by Porten & Yardeni [1993: C3.8]. There appear to be three firm double dates, all on scroll C3.8IIIB [Porten & Yardeni, 1993: fig.7]. The scroll, however, consists of fragments which have been collated. The collating was done “primarily by matching up the double dates” via Sothic dating [Porten & Yardeni, 1993: fig.7]. Hence the argument of Depuydt [1995: sect.3.3], that the double dates in the Memphis Shipyard Journal support Sothic dating, is entirely circular. (Additionally, some of the collation appears to be highly dubious. In particular, on line 23, the character `W` is split across two fragments; yet the reconstructed character is unlike other occurences of `W` in the text.) Thus the document provides no support for Sothic dating.

There are, however, other Aramaic documents from the fifth century BC (from Elephantine) that do contain double dates—and these provide the support for Sothic dating that Depuydt [1995] attributed to the Memphis Shipyard Journal. For a detailed discussion of these documents and their support for Sothic dating, see Porten [1990] and Stern [2000].

To summarize, the conclusion of Depuydt [1995] is correct; the evidence adduced by Depuydt for the conclusion is insufficient, but there is other evidence that does suffice.

{(As well, there is other circumstantial evidence for other times [Depuydt, 1995].)}

Appendix 2: Excavation notes

What follows are the original excavation notes, by A.J. Mills, for the inscription at the Dal Cataract. The last line refers to the river height at Sarkematto. Note that the north-east corner of Tina Island is the upstream end.

LOCATION

At the north-east corner of Tina Island is a large rocky outcrop. This sits among the fallen detritus and rocks at the north-west corner of the outcrop. The site is at normal inundation level.

DESCRIPTION

There are 2 separate, hieroglyphic inscriptions. Both are cut and pecked on the northern face of a large granite boulder. Inscription A is the eastern (left) one. B is to the west.

Inscription A consists of 3 lines, each about 6 cm high and about 50 cm in length. It contains a date and Senuseret III's name. It is quite clear for the most part. Letters are well-formed, silhouetted.

Inscription B consists of 2 lines, each about 3.5 cm high and about 40 cm long. The first line exactly parallels the first part of A, but only up to the date in line 2. The second line is largely destroyed. This inscription is much less clear. The letters are smaller and less well cut.

Both are inundation levels.

The bottom line of A is 3.47 m above the water on 16/IV/1968—Sarkematto 178.8.

{Where is Sarkematto? What is 178.8? Why is date of notes years before date of water level? What is exact location of Tina Island?}

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{"Application of the 19th century flood data for Roda to the pharaonic period presupposes a comparable irrigation system" [Krauss, 2006: p.371]. Also, is the flax-harvesting date on p.375–376 a problem?}

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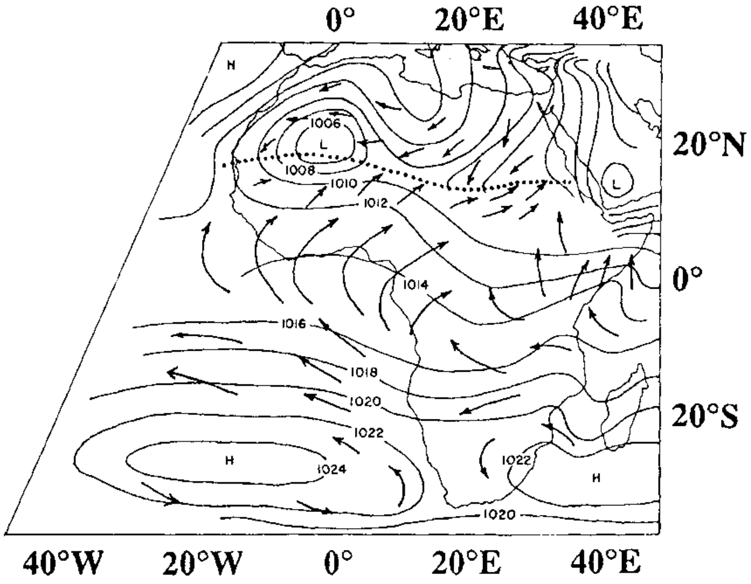
July/August Circulation



January Circulation

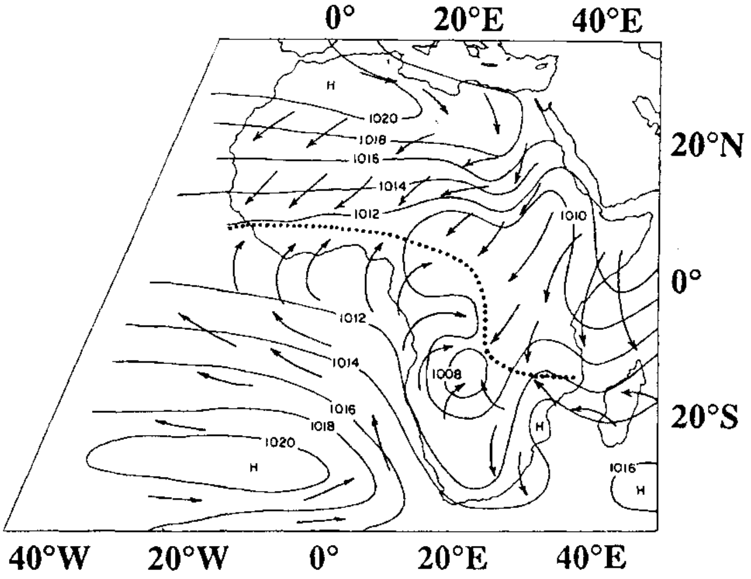
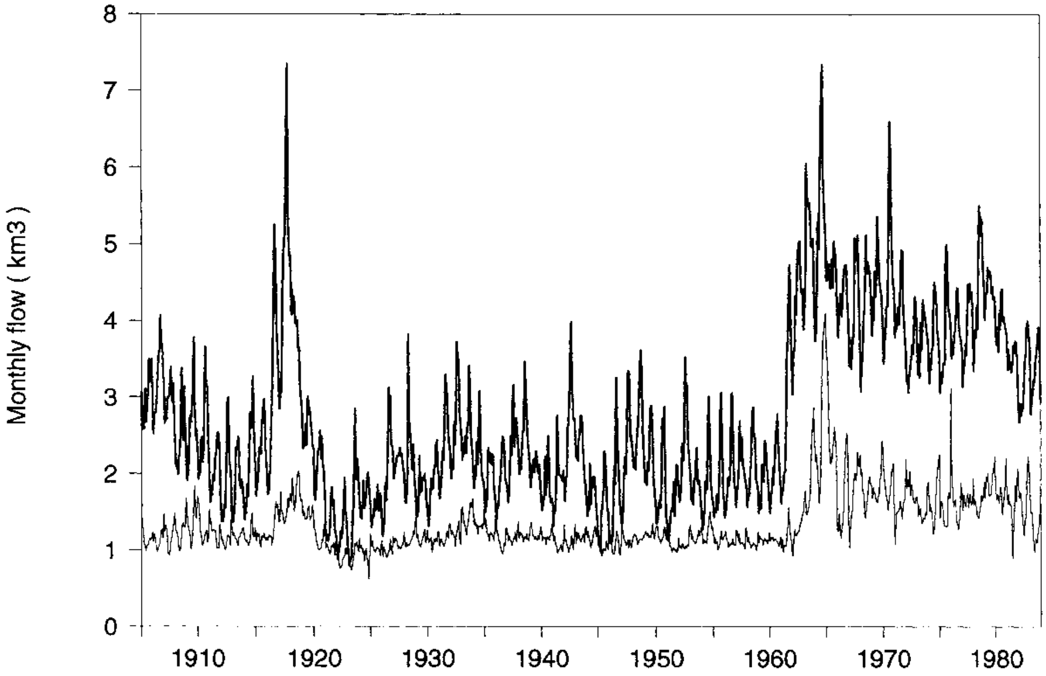
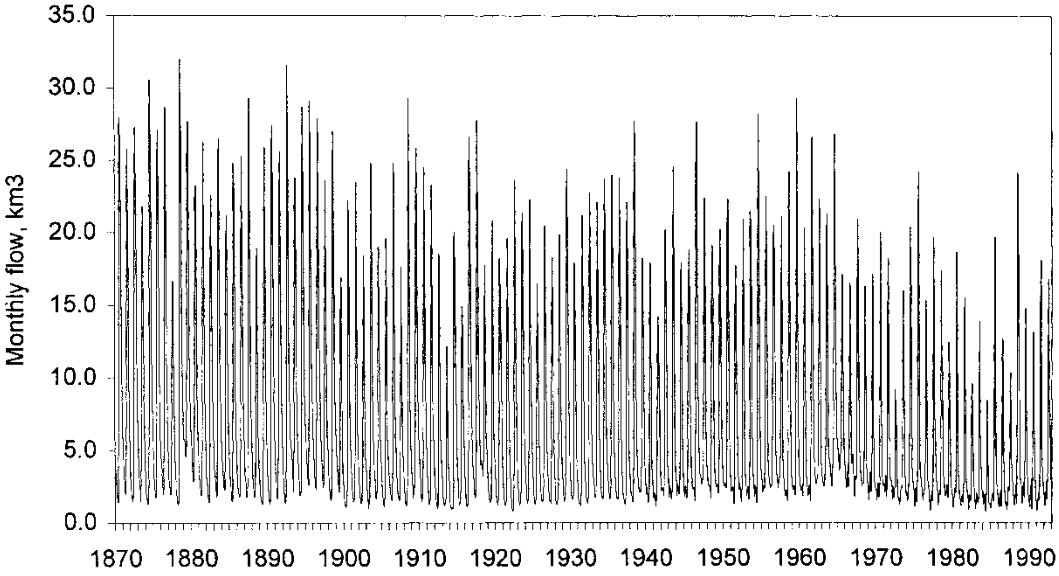


Figure 1. Schematic of the pattern of winds, pressure, and convergence over Africa (adapted from Nicholson [1996: fig.2]). (Dotted lines indicate the Intertropical Convergence Zone, where precipitation tends to occur.)



a.



b.

Figure 2. *a*: Sudd monthly inflows and outflows [Sutcliffe & Parks, 1999: fig.5.4]. *b*: inflows at {Aswan} (i.e. main Nile flows) [Sutcliffe & Parks, 1999: fig.11.1]. Note that the top and bottom scales are different. {Should x-axes be temporally aligned?}

Text A

1 | *rʾ n ḥꜥpj gmy ḥr mꜣꜥ*$^{?}$ *n Jšmyk*

2 | *ḫft śwꜣj.t ḥr=f*$^{?}$ *m ḫd m rnp.t-sp 10 ꜣbd 3 ꜣḫ.t śśw 9*

3 | *ḫr ḥm n nśwt bjtj (Ḫꜥj-kꜣ.w-Rꜥ) dj ꜥnḫ ḏd wꜣs mj Rꜥ ḏ.t r nḥḥ*

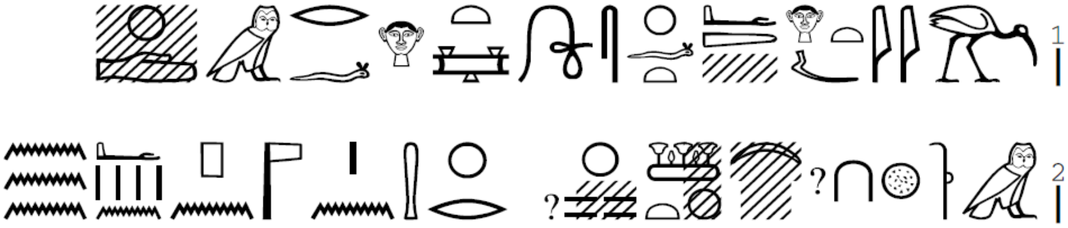
1 | Level (lit. mouth) of the Nile, (as it was) found at the river bank of Ishemyk,

2 | while passing on it towards the north in regnal year 10, 3rd month of the Akhet season, day 9

3 | under the majesty of the king of Upper and Lower Egypt, Khaikaura, given life, stability and prosperity like Ra forever and ever.

Figure 3a. Inscription A. The season is specified as Akhet, i.e. Inundation. (The transcription, transliteration, and translation were very kindly provided by Claus Jurman [2011].)

Text B



[1] *gmy.t ḥr mꜣʿ ẖft swꜣj.t ḥr=f m-*[*ẖd*]

[2] *m rnpt-sp 10 ꜣbd* [/] *ꜣẖ.t śśw* ⌜4$^{?}$⌟ *ḫr ḥm n nṯr pn mḥ 4 n mw*

[1] What was found at the river bank while passing on it (the river) towards [the north]

[2] in regnal year 10$^{?}$, […] month of the Akhet season, day ⌜4$^{?}$⌟ under the majesty of this God: 4 cubits of water.

Figure 3b. Inscription B. The season is specified as Akhet, i.e. Inundation. (The transcription, transliteration, and translation were very kindly provided by Claus Jurman [2011].) {Where is this inscription discussed?}