

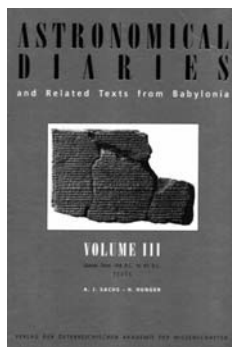
# SOME DATED ECLIPSES FROM TIME SELEUCID BABYLON



Source-books

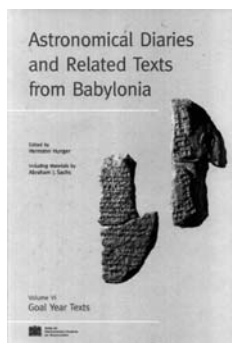
A. J. SACHS–HUNGER

ASTRONOMICAL DIARIES AND RELATED TEXTS FROM BABYLONIA  
VOLUMEN II WIEN 1989 (SH II)

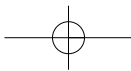
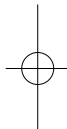
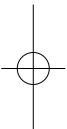


A. J. SACHS–HUNGER

ASTRONOMICAL DIARIES AND RELATED TEXTS FROM BABYLONIA,  
VOLUMEN III WIEN 1996 (SH III)



ASTRONOMICAL DIARIES AND RELATED TEXTS FROM BABYLONIA  
VOLUMEN VI, GOAL YEAR TEXTS (SH VI)  
HERMANN HUNGER WIEN 2006



# THE CLAY TABLETS ARE RIGHT

## DETAILED STUDY OF THE CLAY TABLETS CONTAINING ASTRONOMICAL CONTENT

SH VI p. 4–13 (No.2)

BM 34070

Copy: LBAT 1214

Photo: Pl. 2f.

Bibliography: L. Brack-Bernsen, SEAC 5th (1999) 19

Goal year: SE 79

Plate 2



No. 2 (BM 34070) Obv.

Obv.

I

15 Year 61

16 king Antiochus

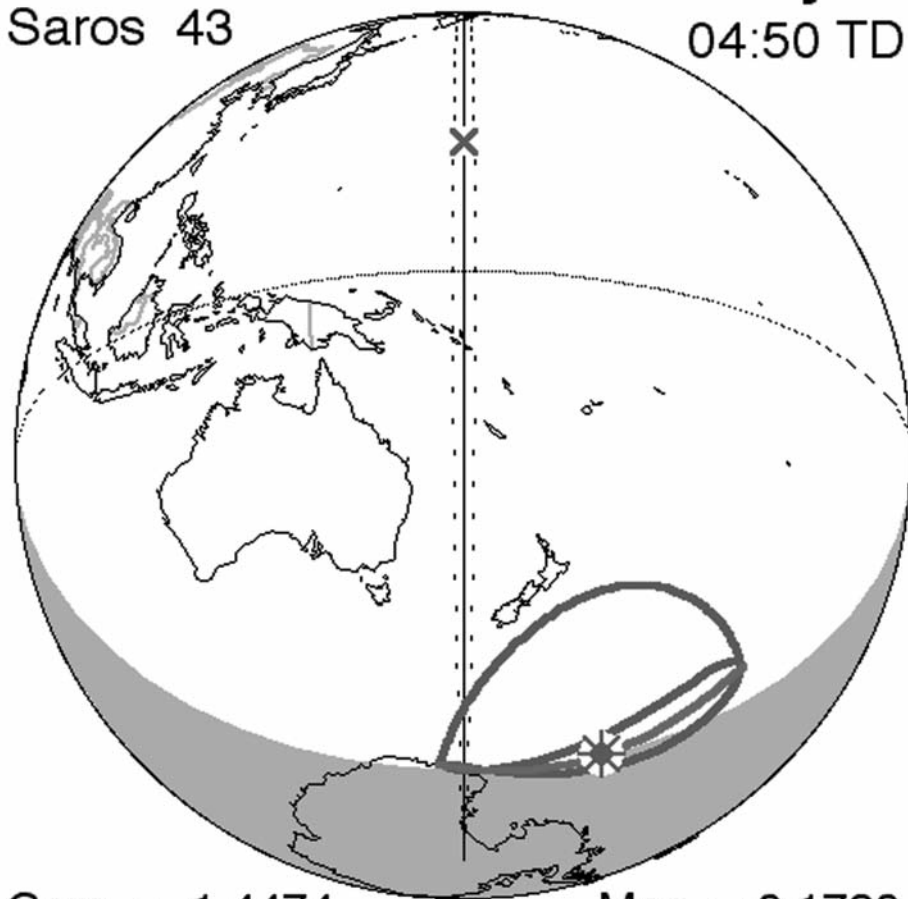
17 Month II, night of the 29th,

18 solar eclipse, BAR, omitted.

19 in 10 UŠ GE6 ana ZALÁG = (in my sight) At 10° before sunset

This solar eclipse really happened on May 19 in BCE 55, not in BCE 251 May 26...

**Partial** **-0250 May 26**  
 Saros 43 04:50 TD



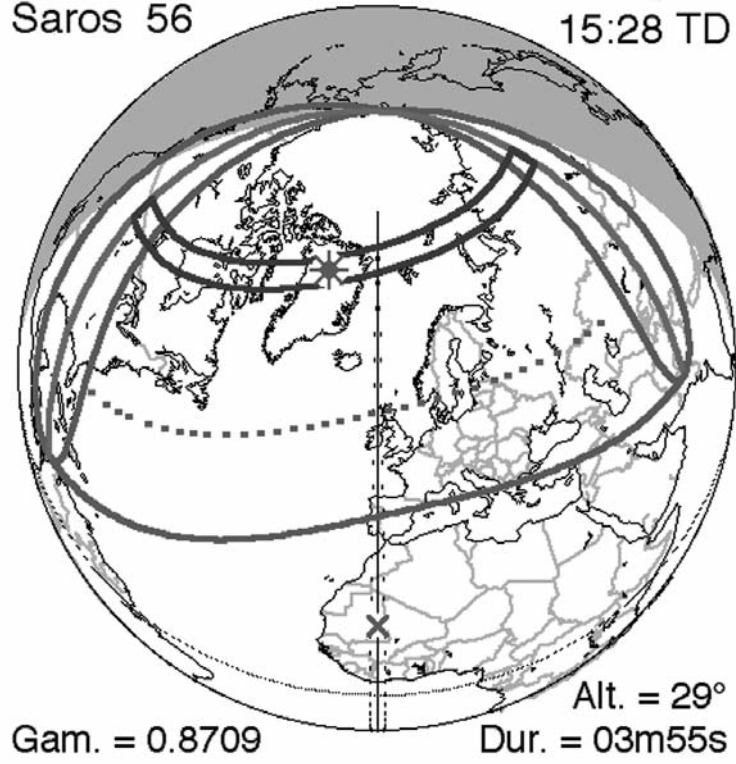
Gam. = -1.4474

Mag. = 0.1720

**Five Millennium Canon of Solar Eclipses (Espenak & Meeus)**

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0299--0200/-250-05-26.gif>

**Total** **-0054 May 19**  
Saros 56 15:28 TD

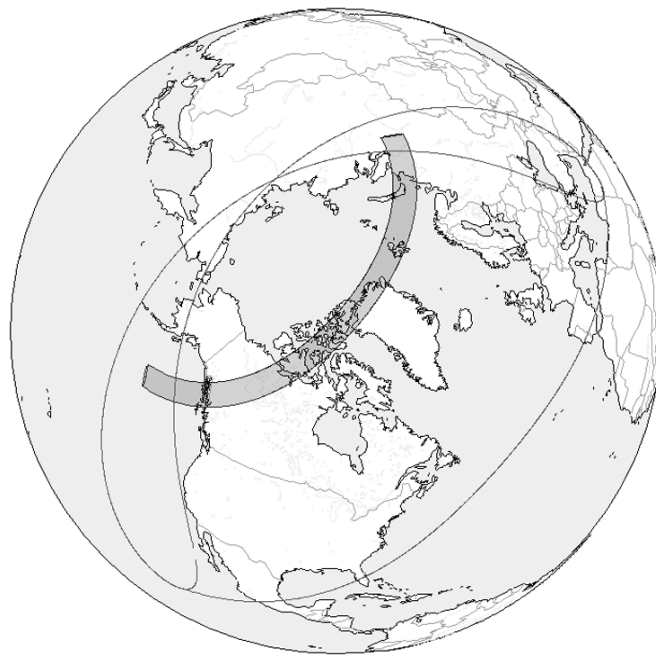


Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0099-0000/-54-05-19.gif>

picture with 10000 sec delta T

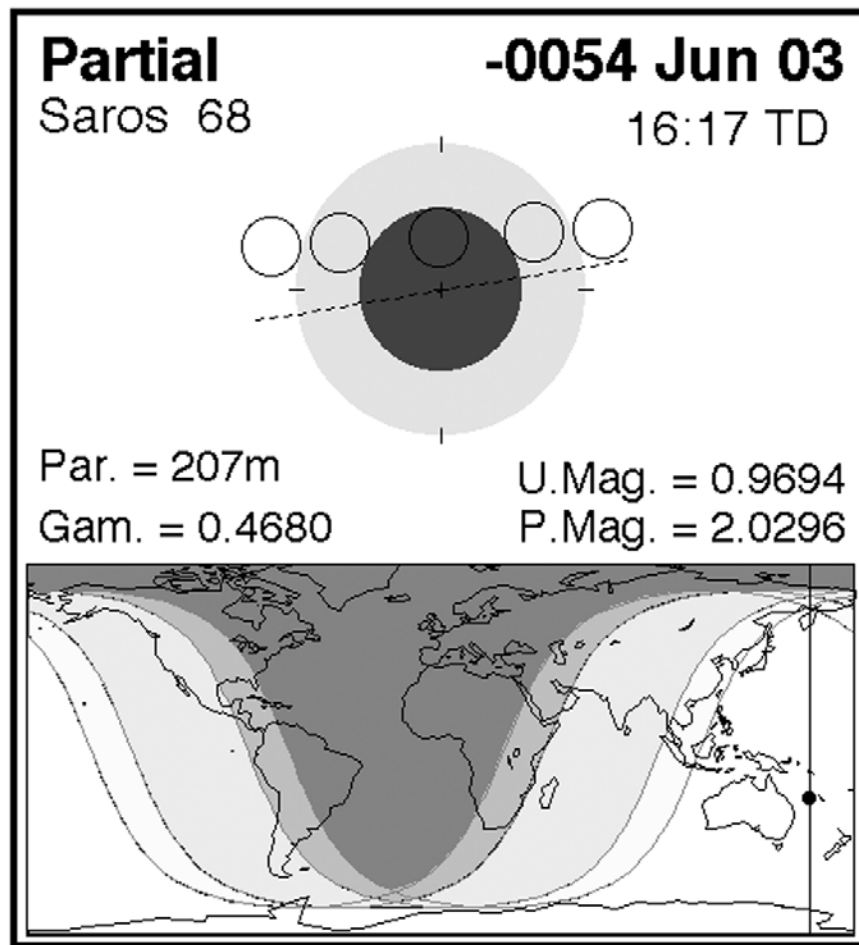
Solar eclipse of -0054 May 19 without delta T



20 Month III, the 14th, lunar eclipse  
21 [...] omitted  
22 [At] ...before sunset

This lunar eclipse really happened on June 3 in BCE 55,

<http://eclipse.gsfc.nasa.gov/eclipse.html>



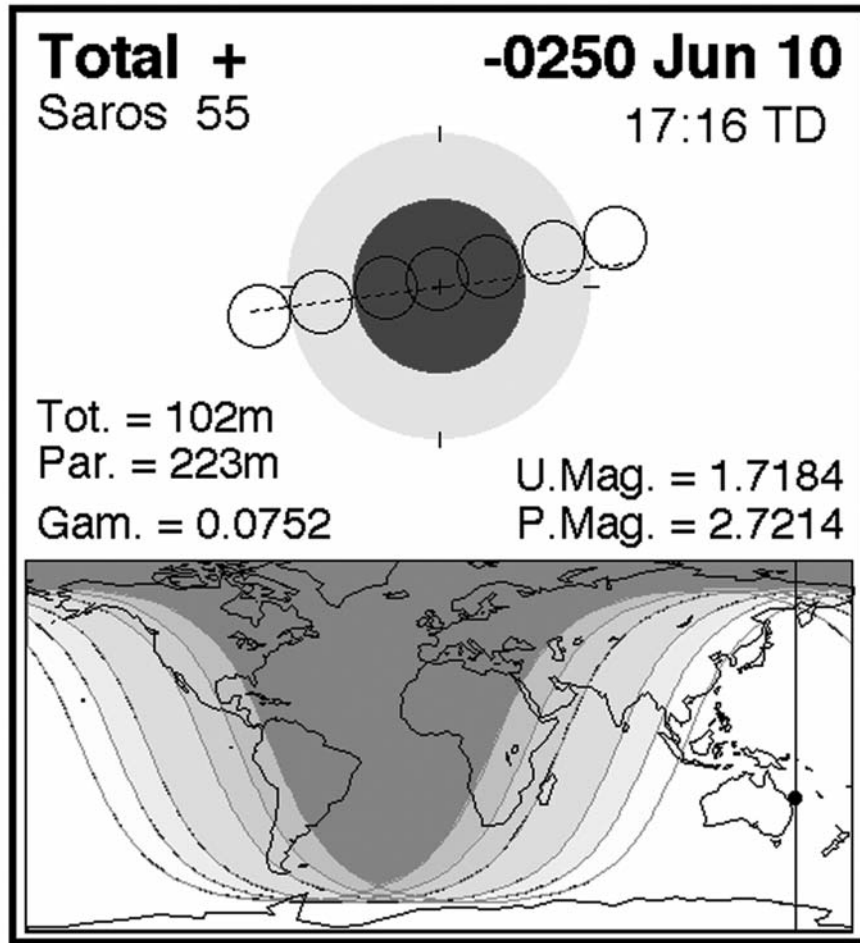
Five Millennium Canon of Lunar Eclipses (Espenak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0099-0000/LE-0054-06-03P.gif>



not in BCE 251 June 10

<http://eclipse.gsfc.nasa.gov/eclipse.html>



Five Millennium Canon of Lunar Eclipses (Espanak & Meeus)  
NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0299--0200/LE-0250-06-10T.gif>

Obv.

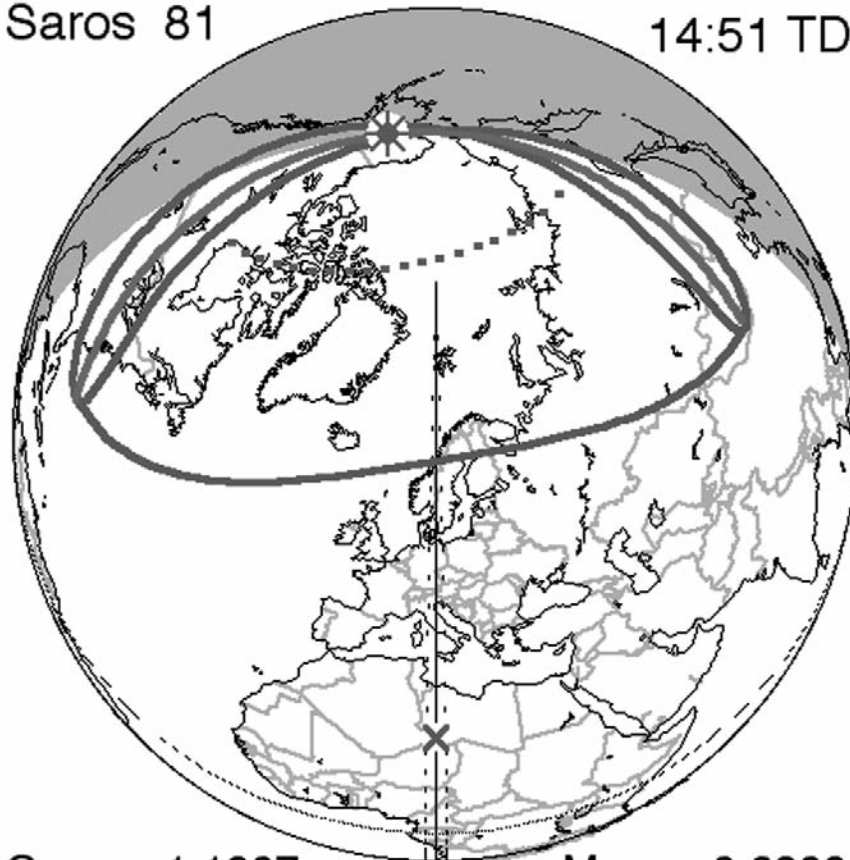
II

- 15 Month III, the 1st sunset to moonset 22°; measured
- 16 The 14th, moonset to sunrise: 2° 50' = -54 June 3, 4:51
- 17 The 15th, moonrise to sunset: 10' = -54 June 3, 19:00
- 18 The 15th, sunrise to moonset: 8°; measured. = June 4, 4:51
- 19 The 16th, sunset to moonrise: 17° = -54 June 4, 19:00

23 [...ni]ght of the 29th,  
24 solar [eclipse] which was omitted,  
25 [At 8]4° before sunrise

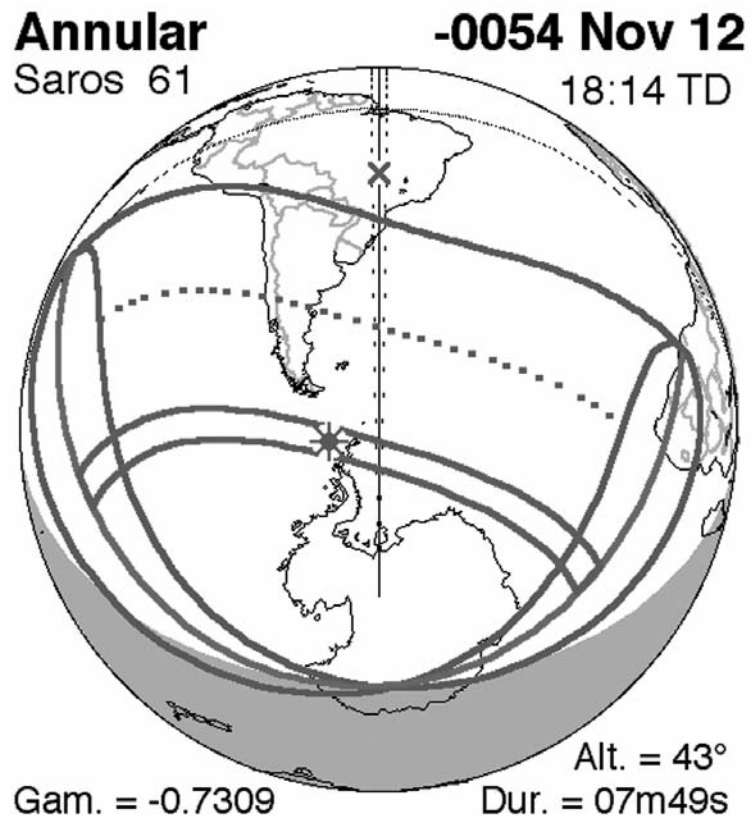
This solar eclipse really happened on Nov 12 BCE 55, not BCE 251 Jun 24...

**Partial** **-0250 Jun 24**  
Saros 81 14:51 TD



**Five Millennium Canon of Solar Eclipses (Espenak & Meeus)**

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0299--0200/-250-06-24.gif>

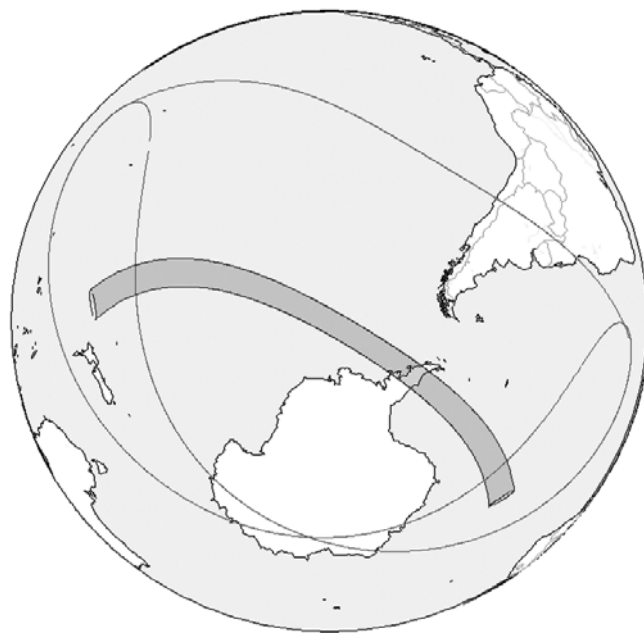


Five Millennium Canon of Solar Eclipses (Espanak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0099-0000/-54-11-12.gif>

picture with 10000 sec delta T

Solar eclipse of -0054 Nov 12 without delta T



Obv.

III

19 Mont VIII, the 1st, sunset to moonset: 11°

20 The 13th, moonrise to sunset: 8°; measured.

21 The 13th, moonset to sunrise: 4° 40'

22 The 14th, sunset to moonrise: 1° 50'

23 The 14th, sunrise to moonset: 12° 20'; measured.

24 The 28th, moonrise to sunrise: 9°; when I watched I did not see it = -54 Nov 12 6:31

After sunset solar eclipse! (-54 Nov 12)

Obv.

I

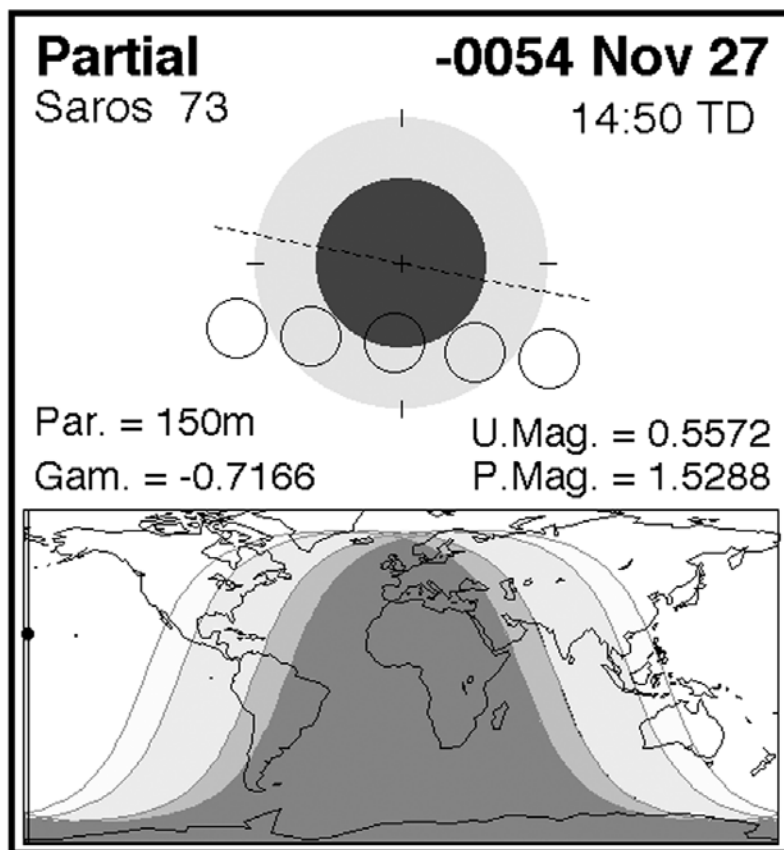
26 [Month IX, night of the 1]3,

27 [...] it made a total (eclipse).

28 [...] ....

This lunar eclipse really happened on Nov 27/28 in BCE 55,

<http://eclipse.gsfc.nasa.gov/eclipse.html>

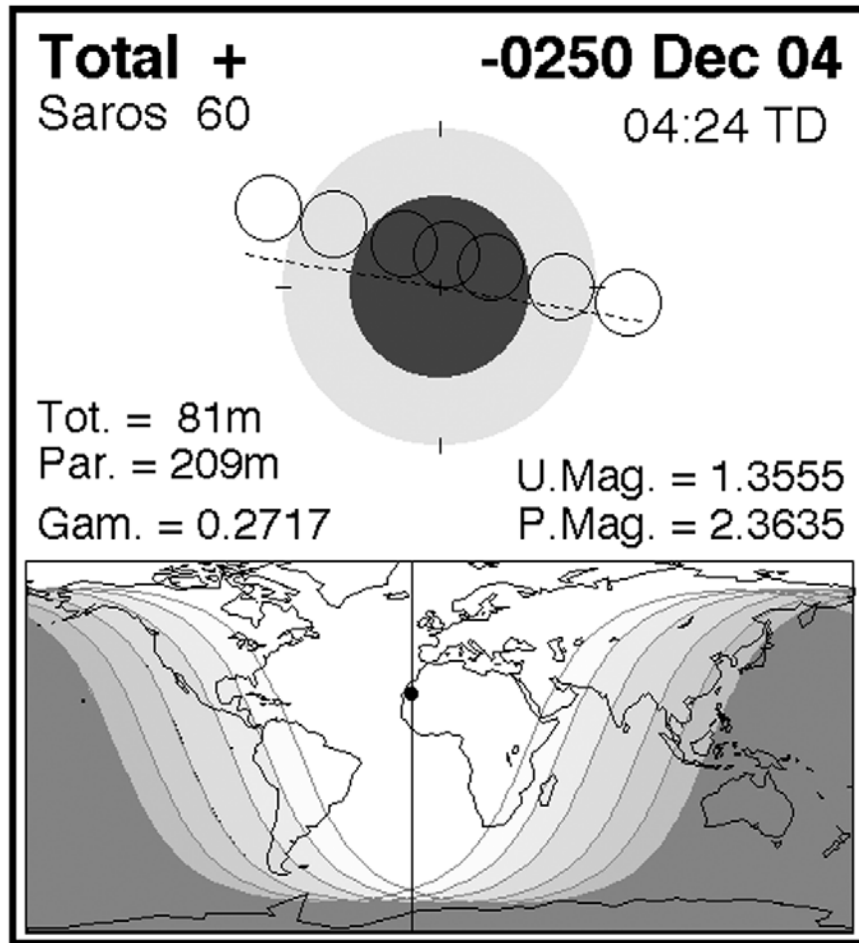


Five Millennium Canon of Lunar Eclipses (Espenak & Meeus)  
NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0099-0000/LE-0054-11-27P.gif>

not in BCE 251 Dec. 4

<http://eclipse.gsfc.nasa.gov/eclipse.html>



Five Millennium Canon of Lunar Eclipses (Espanak & Meeus)  
*NASA TP-2009-214172*

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0299--0200/LE-0250-12-04T.gif>

Obv.

IV

1 Month IX, the 1st, sunset to moonset: 12° [...]

2 The 12th, moonset to sunrise: 8° 20' = -54 Nov 27 6:46

3 The 13th, moonrise to sunset: 7° 20' = -54 Nov 27 17:51

4 The 13th, sunrise to moonset: 4° = -54 Nov 28 6:46

5 The 14th, sunset to moonrise: 5° 20'; clouds, = -54 Nov 28 17:01



SH VI p. 16-23 (No.5)

BM 32154+32408

Photo: Pl. 4-5

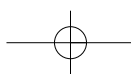
Goal year: SE 81



No. 5 (BM 32154+) Obv.



No. 5 (BM 32154+) Rev.



Obv.

I

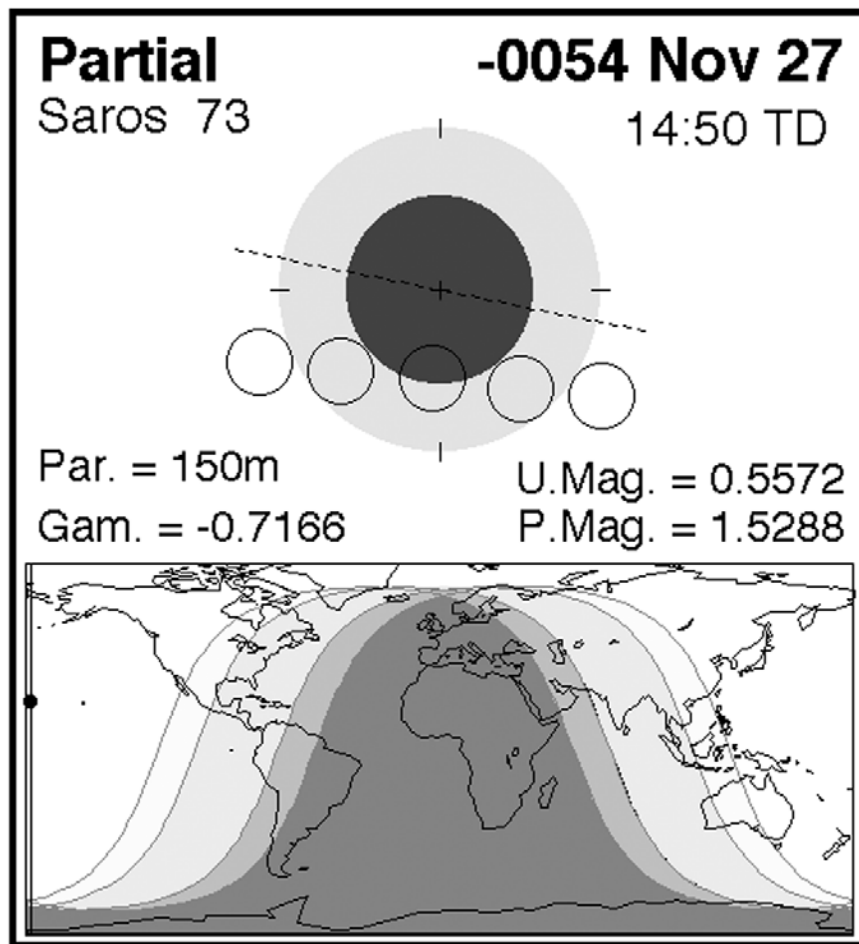
1' [Year 62! in my sight,] king Antiochus.

2' Month I, the 13th, lunar eclipse (after) five months,

3' BAR, omitted; at 39° before sunset.

This lunar eclipse really happened on Apr 24 in BCE 54,  
(not picture, saros 50) after five months [BCE 55 Nov 27/28]

<http://eclipse.gsfc.nasa.gov/eclipse.html>

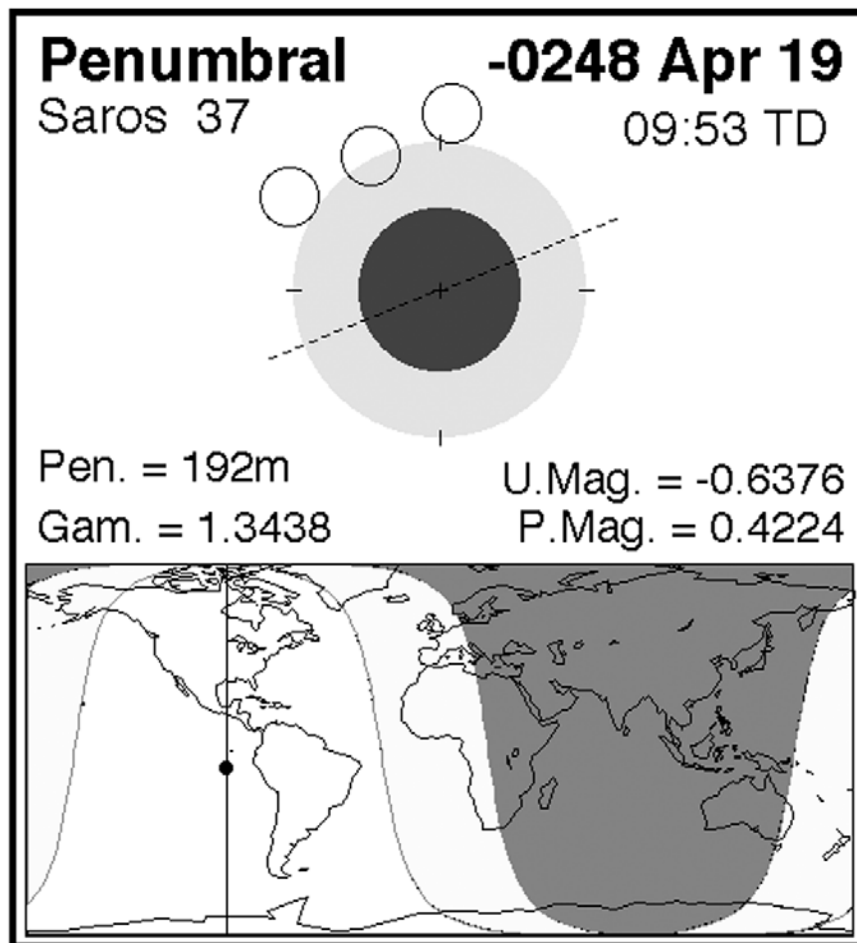


Five Millennium Canon of Lunar Eclipses (Espanak & Meeus)  
NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0099-0000/LE-0054-11-27P.gif>

not in BCE 249 Apr 19

<http://eclipse.gsfc.nasa.gov/eclipse.html>



Five Millennium Canon of Lunar Eclipses (Espanak & Meeus)  
NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0299--0200/LE-0248-04-19N.gif>



BM 45723 (SH II, p. 51)  
Copy: LBAT 267  
Photo: Plate 79



No. -248 (BM 45723) Obv.



No. -248 (BM 45723) Rev.

Obv.

2' [...Mer]cury was 4 cubit above alfa Tauri; very overcast. The 12th, moonset to sunrise  $6^{\circ} 10'$ ; clouds, I did not ...

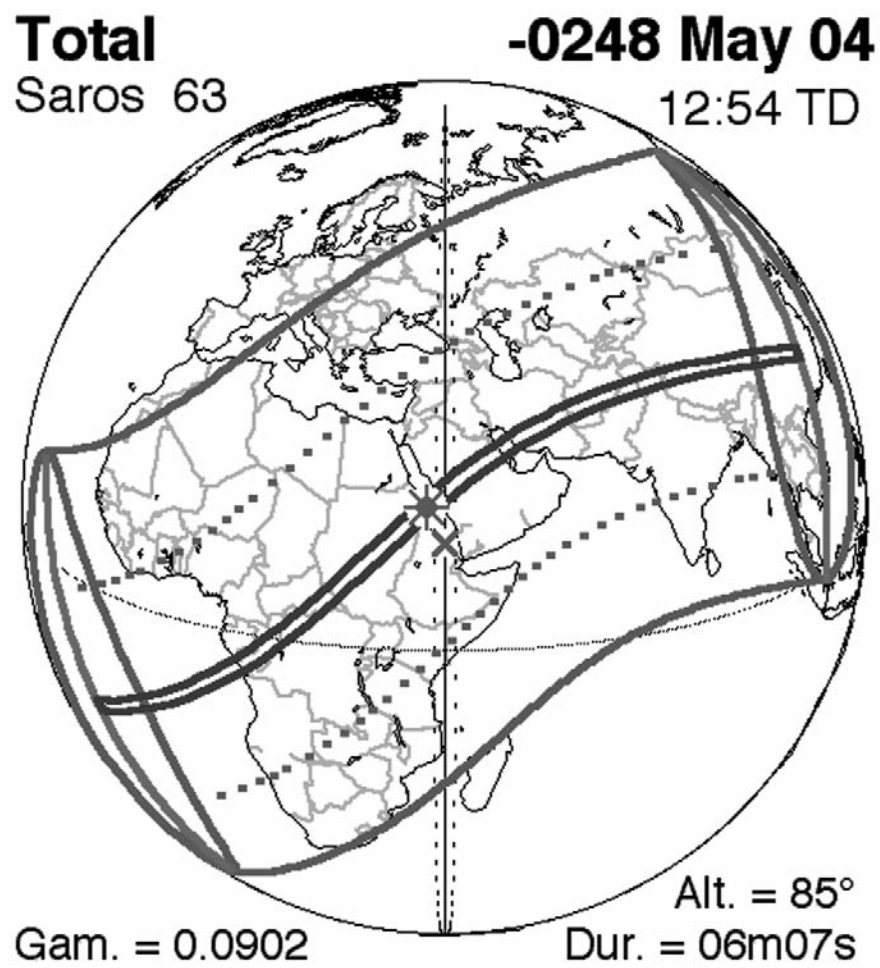
3' [...around] noon, rain DUL; lunar eclipse, (at) five months (distance),... omitted; at  $39^{\circ}$  before sunset. Night ...

This lunar eclipse really happened on Apr 24 in BCE 54, after five months [BCE 55 Nov 27/28] not in BCE 249 Apr 19

BM 32154  
Solar eclipse;  
Obv.

I  
4' The 28th, solar eclipse; more than  
5' two-thirds of the disc it made; at 90° after sunrise.

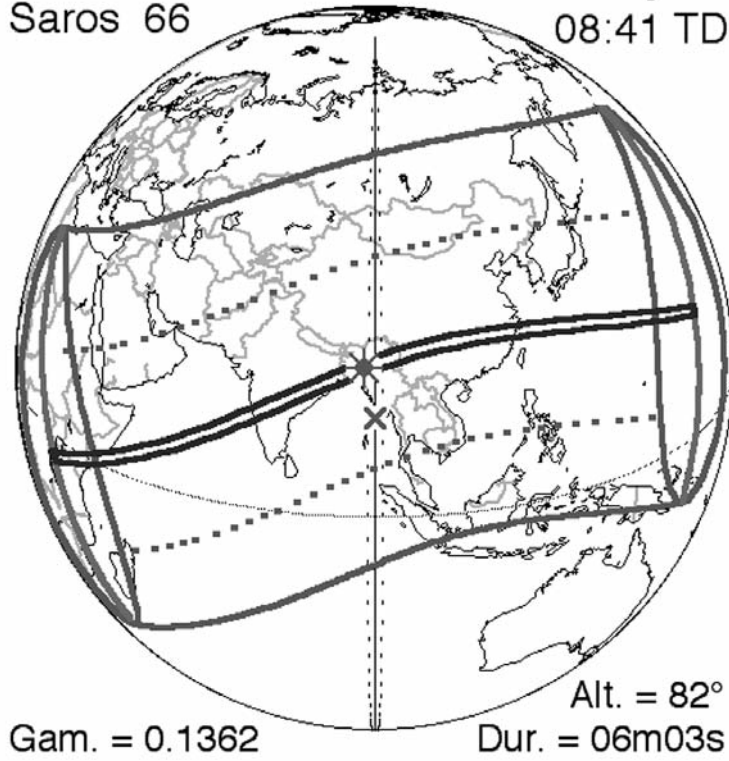
This solar eclipse really happened on May 9 in BCE 54, not in BCE 249 May 4...



Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0299--0200/-248-05-04.gif>

**Total** **-0053 May 09**  
Saros 66 08:41 TD



Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0099-0000/-53-05-09.gif>

picture with 10000 sec delta T

Solar eclipse of -0053 May 09 without delta T



BM 45723 (SH II, p. 51)

Obv.

8° ...The 28th, clouds were in the sky; 90° daytime [...solar eclipse...]

9° [...] onset and clearing; during its eclipse

solar eclipse of -0053 May 09

BM 32154 (SH VI, p.17)

Obv.

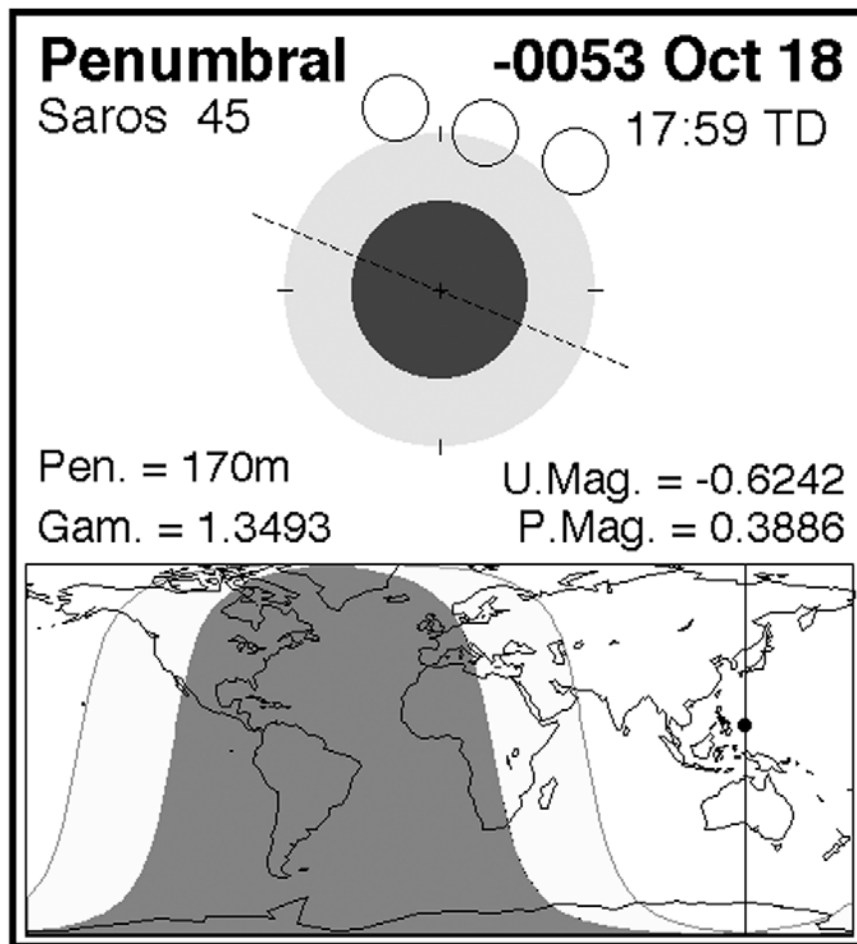
I

6° Month VII, the 15th, lunar eclipse

7° Bar, omitted; at 20° after sunset

This lunar eclipse really happened on Oct 18 in BCE 54,

<http://eclipse.gsfc.nasa.gov/eclipse.html>

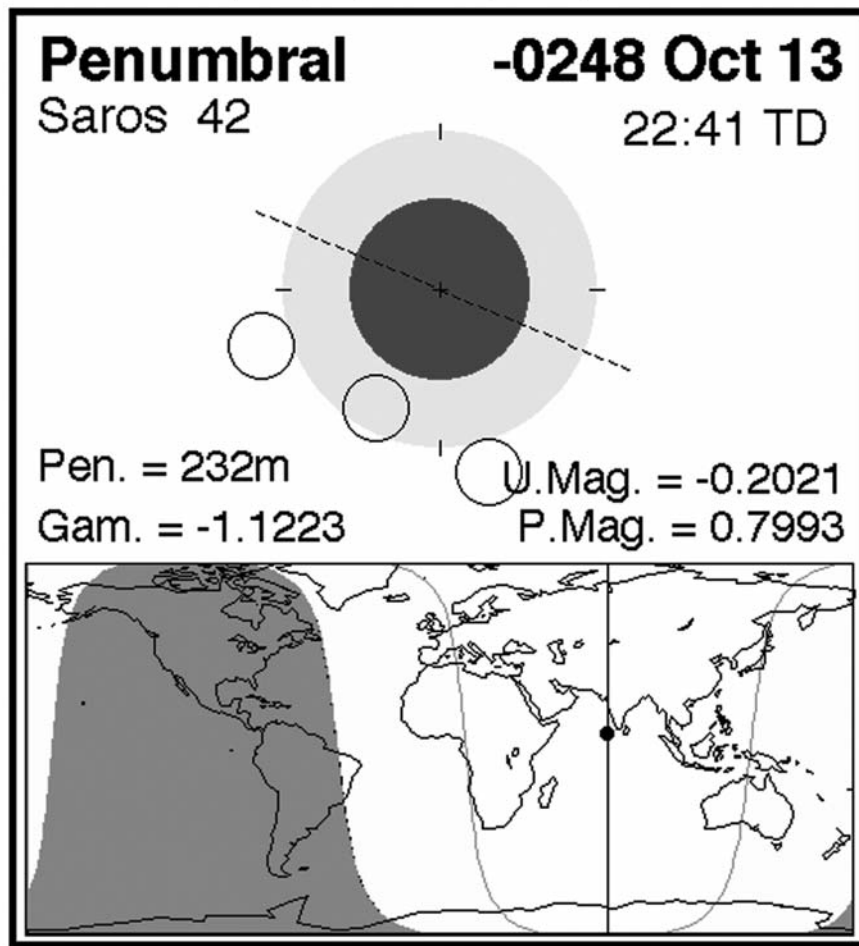


Five Millennium Canon of Lunar Eclipses (Espanak & Meeus)  
 NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0099-0000/LE-0053-10-18N.gif>

not in BCE 249 Oct 13 ...

<http://eclipse.gsfc.nasa.gov/eclipse.html>



Five Millennium Canon of Lunar Eclipses (Espanak & Meeus)  
 NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0299--0200/LE-0248-10-13N.gif>

III

[Month VII]

11' The 15th, moonrise to sunset: 1° 30' = -53 Oct 18 17:31

12' The 15th, sunrise to moonset: 8°, measured = Oct 18 6:09

13' The 16th, sunset to moonrise: 8° 50'; clouds = Oct 19 17:31

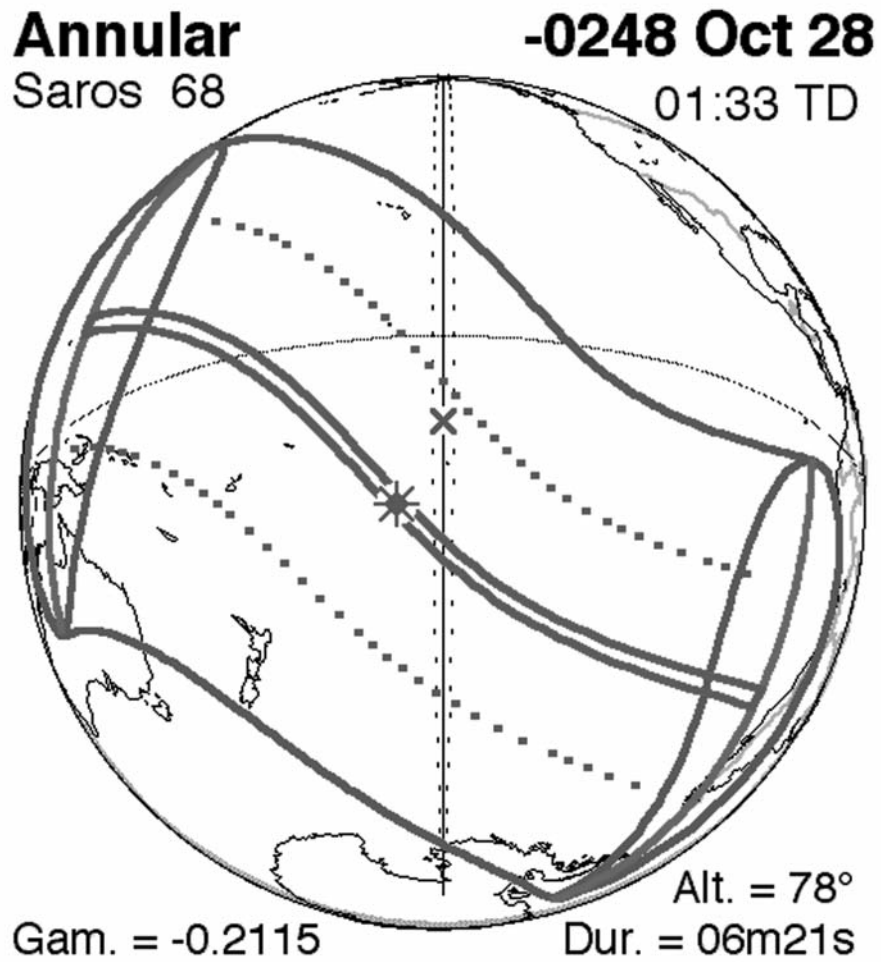
Obv.

I

8' The 29th, solar eclipse which was omitted

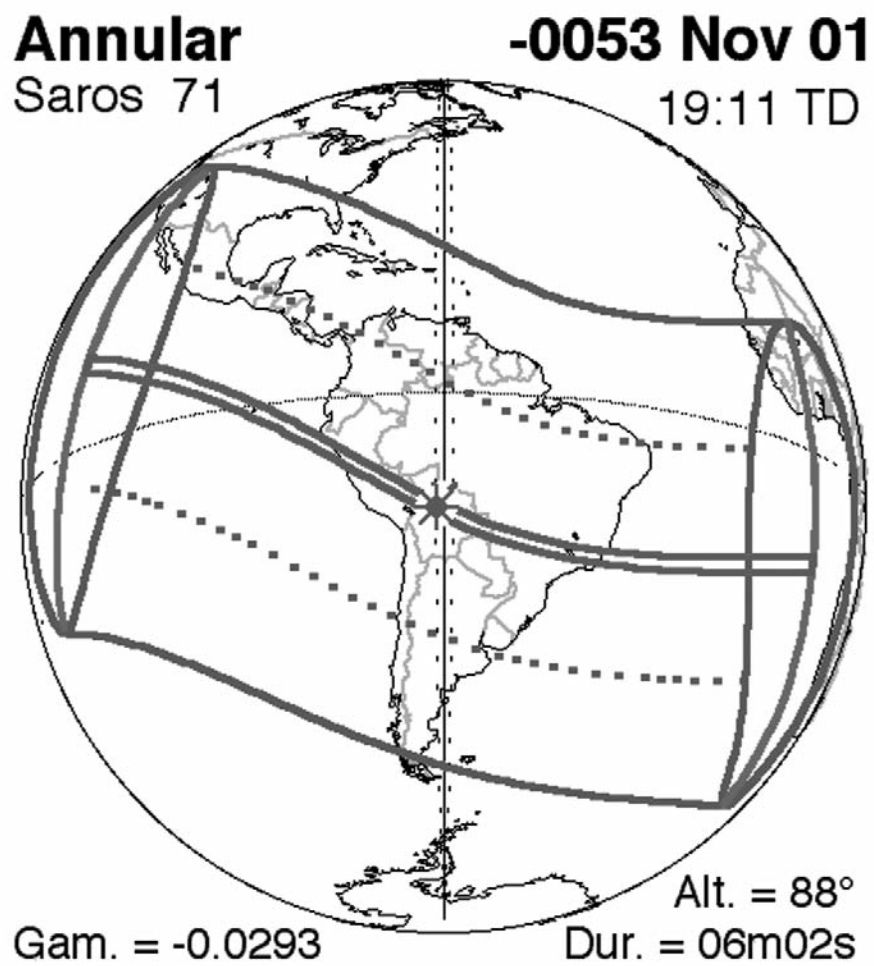
9' at 67° after sunset

This solar eclipse really happened on Nov 1 in BCE 54, not in BCE 249 Oct 27...



**Five Millennium Canon of Solar Eclipses (Espenak & Meeus)**

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0299--0200/-248-10-28.gif>



**Five Millennium Canon of Solar Eclipses (Espenak & Meeus)**

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0099-0000/-53-11-01.gif>

picture with 10000 sec delta T

Solar eclipse of -0053 Nov 1 without delta T



Obv.

III

[Month VII]

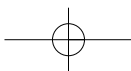
14' The 28th, [moonrise to sunrise:] 10°, measured  
BM 45723 (SH II, p. 53)

Rev.

[Month VII]

2' [...] Night of the 29th, solar eclipse,....omitted

Solar eclipse of -0053 Nov 1





SH VI p. 118-123 (No 31)

BM 34048 (Sp 144)

Copy: LBAT 1249

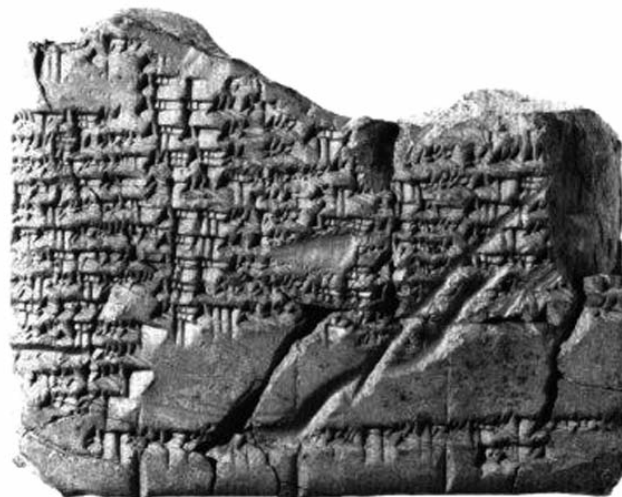
Photo: Plate 24

Goal year: SE 135

Plate 24



No. 31 (BM 34048) Obv.



No. 31 (BM 34048) Rev.

Rev.

I

3' Year 117.

4' Month II

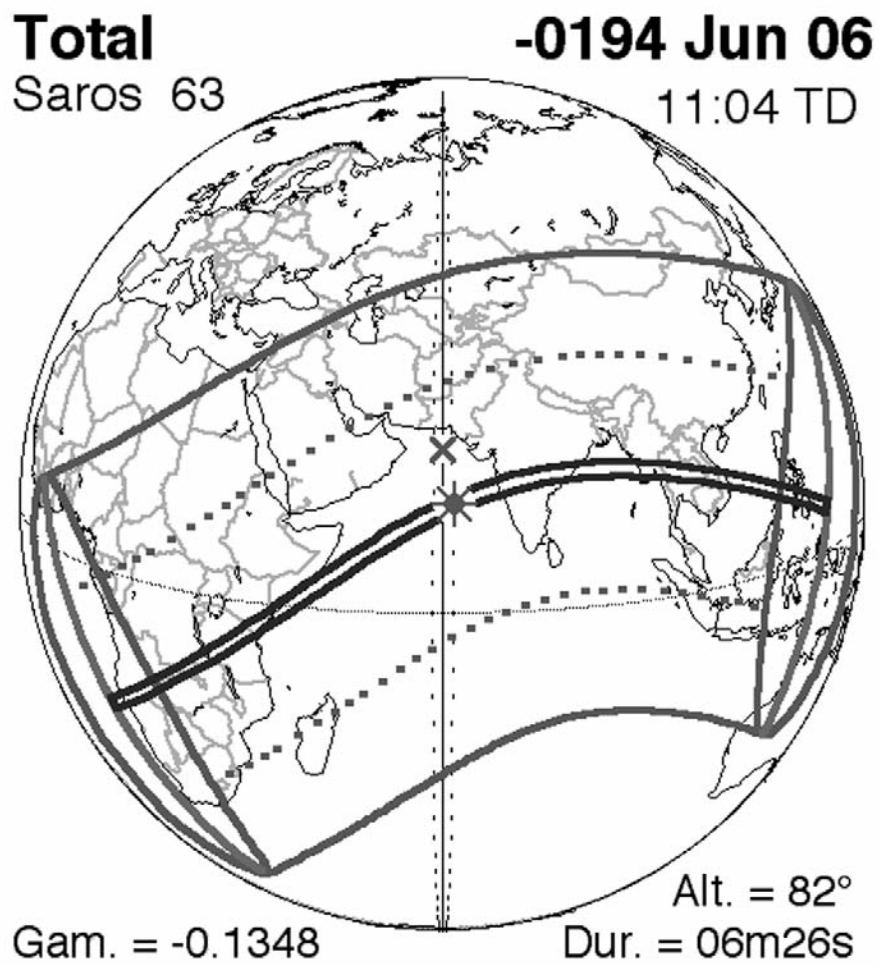
5' when it began on the south side,

6' it made 4 fingers.

7' At 2 beru after sunrise

The date correctly is 116 SE!

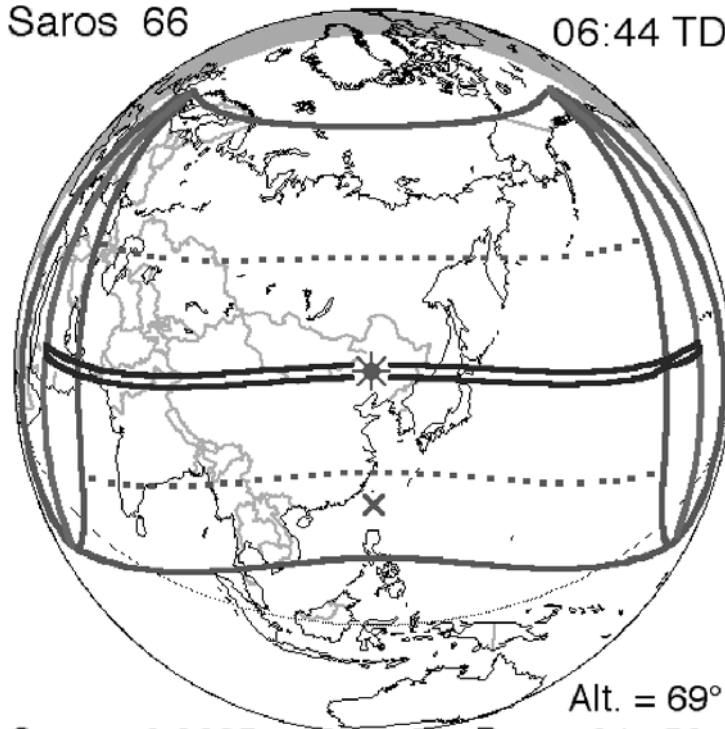
This solar eclipse really happened on June 10 CE 1, not in BCE 195 June 6...



Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0199--0100/-194-06-06.gif>

**Total** **0001 Jun 10**  
Saros 66 06:44 TD



Gam. = 0.3625 Alt. = 69°  
Dur. = 04m56s

Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/0001-0100/1-06-10.gif>

picture with 9500 sec of delta T

Solar eclipse of CE 1 June 10 without delta T



Rev.

I

8' Month III, the 13th, lunar eclipse, BAR omitted

...

II

1' The 13th,

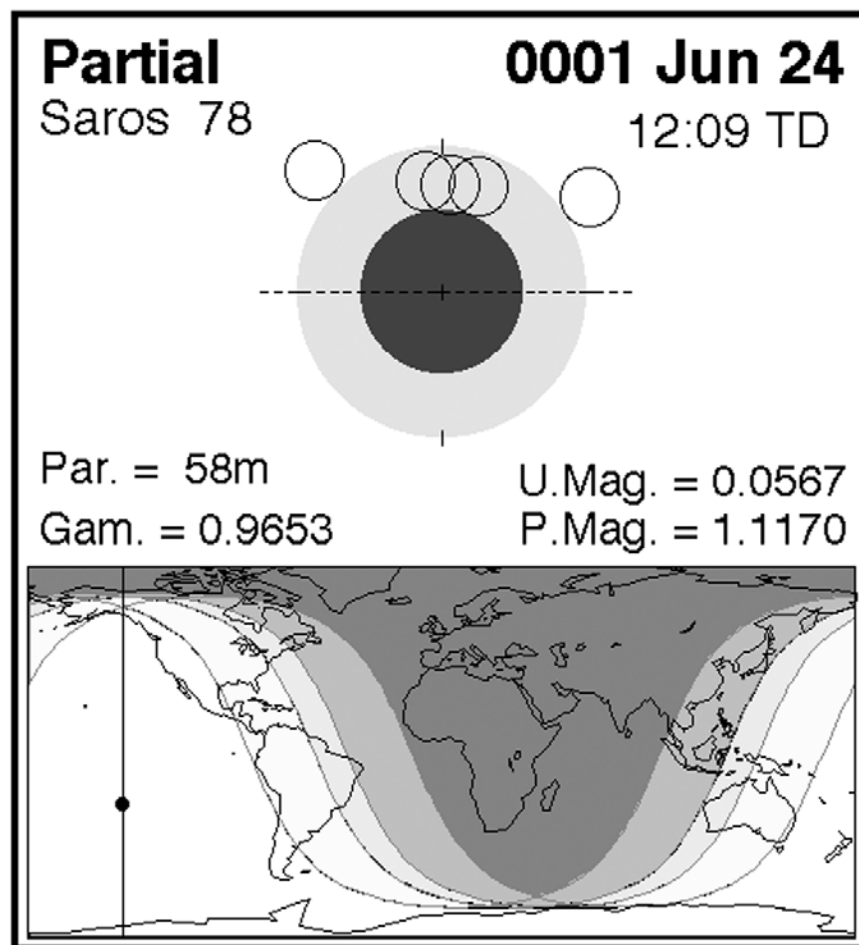
2' The 14th, moonrise to sunset:  $1^\circ$

3' The 14th, sunrise to moonset:  $4^\circ 30'$ ; measured.

4' The 15th, sunset to moonrise:  $11^\circ$ ; measured.

This lunar eclipse really happened on June 24 in CE 1,

<http://eclipse.gsfc.nasa.gov/eclipse.html>

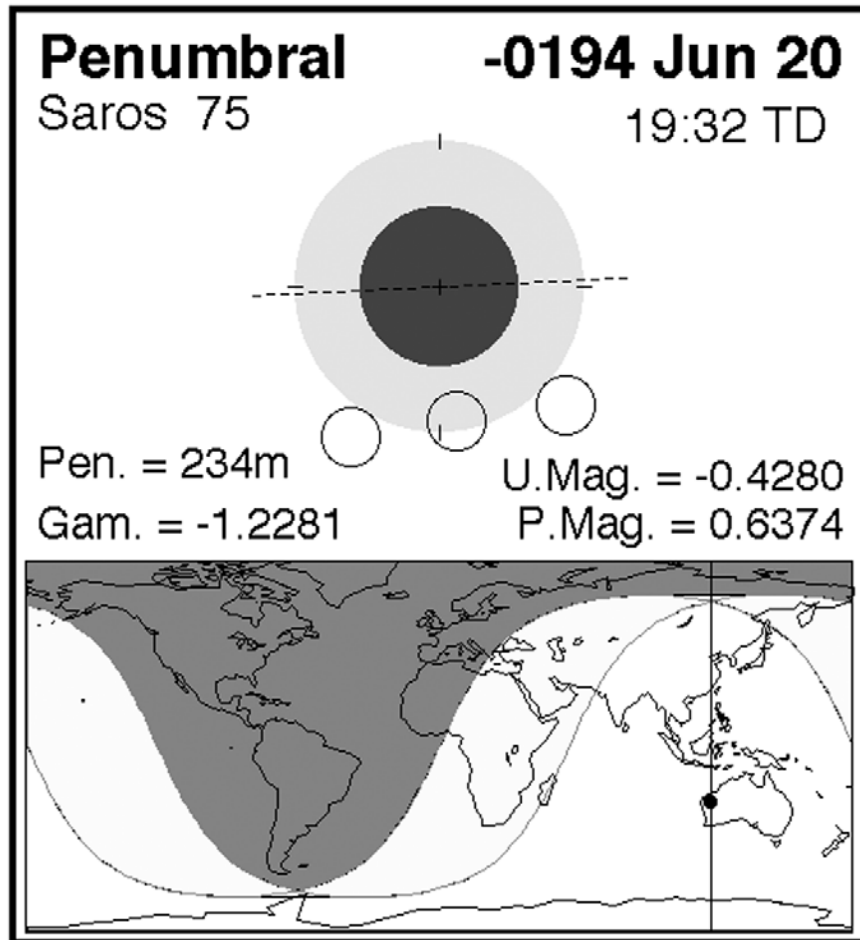


Five Millennium Canon of Lunar Eclipses (Espenak & Meeus)  
NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/0001-0100/LE0001-06-24P.gif>

not in BCE 195 June 20...

<http://eclipse.gsfc.nasa.gov/eclipse.html>



Five Millennium Canon of Lunar Eclipses (Espanak & Meeus)  
NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0199--0100/LE-0194-06-20N.gif>

Rev.

I

10' Month VIII, night of the 15th, lunar eclipse,

11' (after) 5 months, BAR, omitted.

12' At 45° after sunset

...

III

3' Month VIII, (sunset to moonset:) 12°; measured...

4' The 14th, moonset to sunrise: 8° 20'; measured (despite) clouds.

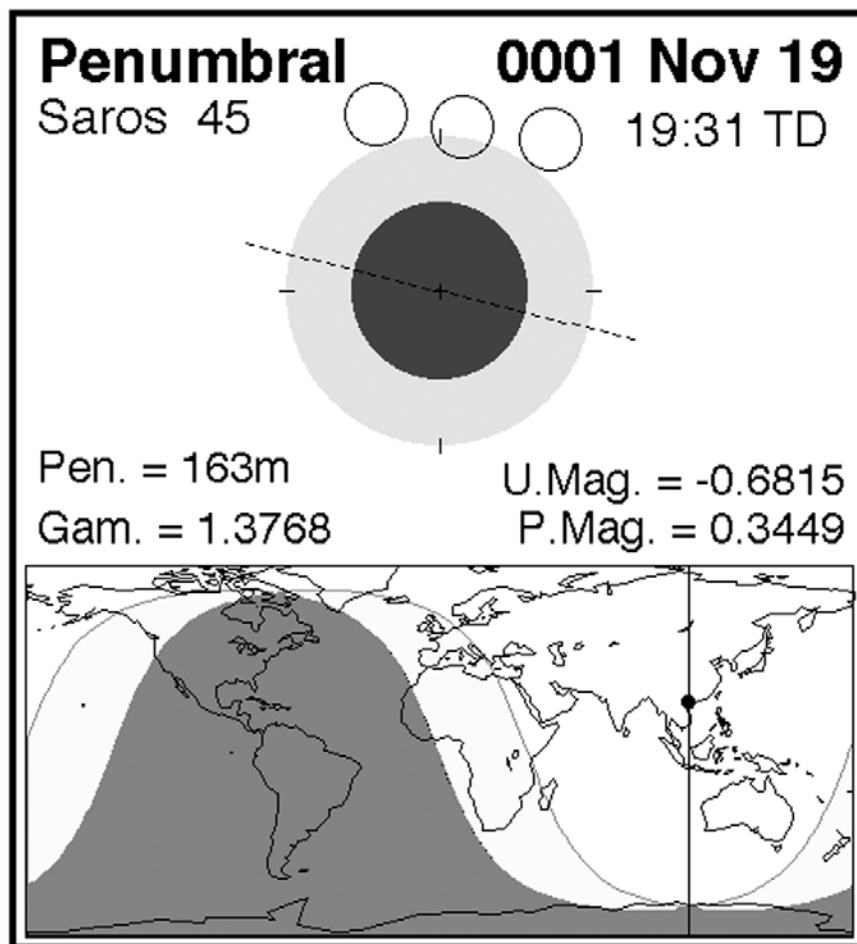
5' [The 15th,] moonrise to sunset: 1° 30'; clouds, I did not watch.

6' The 15th, sunrise to moonset: 7° measured (despite) clouds.

7' The 16th, sunset to moonrise: 6°; clouds,

This lunar eclipse really happened on Nov. 19 in CE 1,

<http://eclipse.gsfc.nasa.gov/eclipse.html>



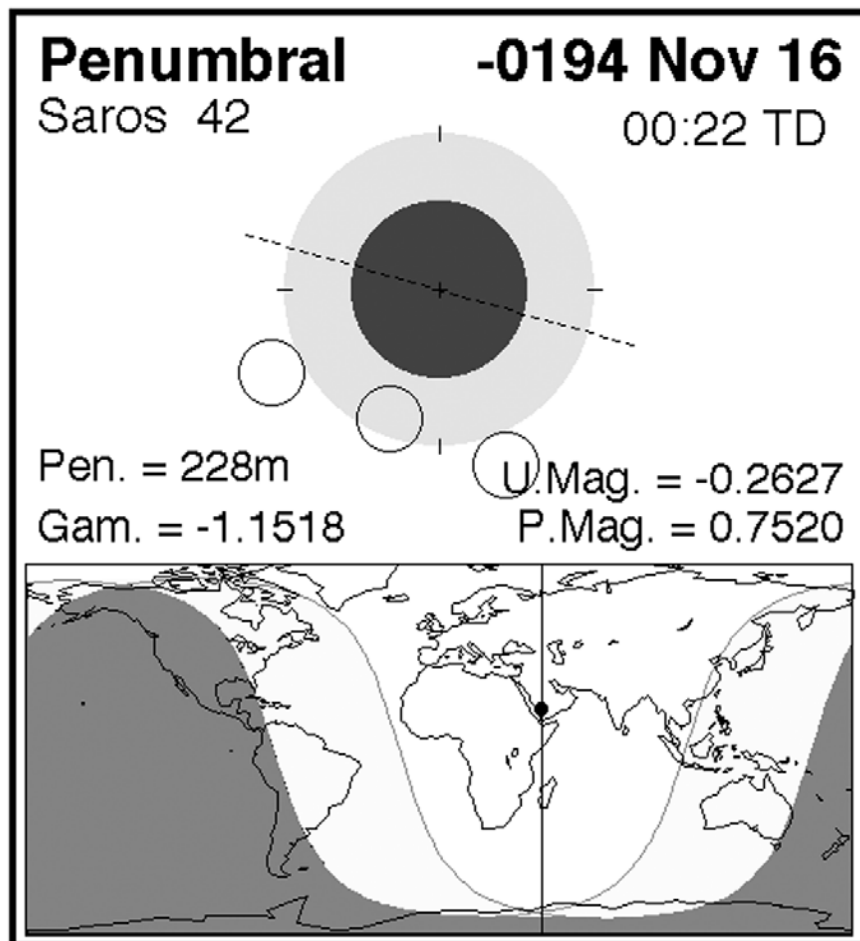
Five Millennium Canon of Lunar Eclipses (Espanak & Meeus)

NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/0001-0100/LE0001-11-19N.gif>

not in BCE 195 Nov. 16...

<http://eclipse.gsfc.nasa.gov/eclipse.html>



Five Millennium Canon of Lunar Eclipses (Espanak & Meeus)  
NASA TP-2009-214172

<http://eclipse.gsfc.nasa.gov/5MCLEmap/-0199--0100/LE-0194-11-16N.gif>



Rev.

I

13' Night of the 29th, solar eclipse

14' [...] omitted. At 91°

15' after sunset.

...

III

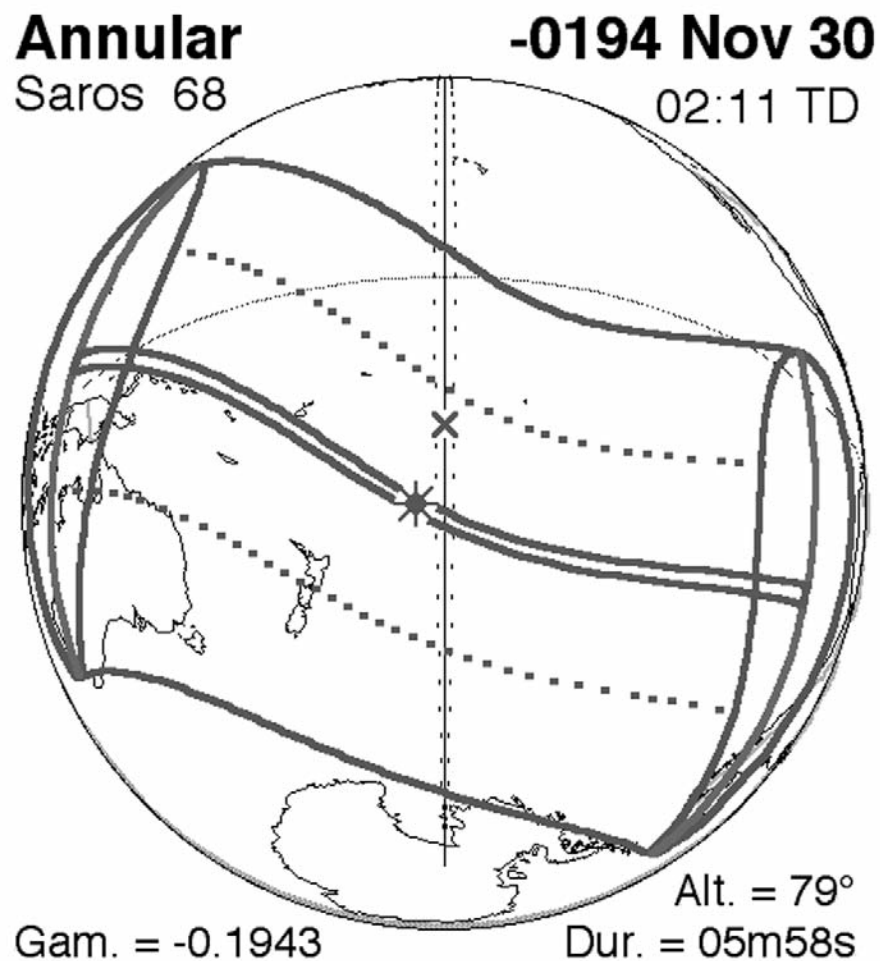
3' Month VIII, ...

...

8' The 28th, [moonrise to sunrise:] 9° 40'

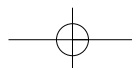
9' ...when I watched I did not see it.

This solar eclipse really happened on Dec. 3 in CE 1, not in BCE 195 Nov. 29...

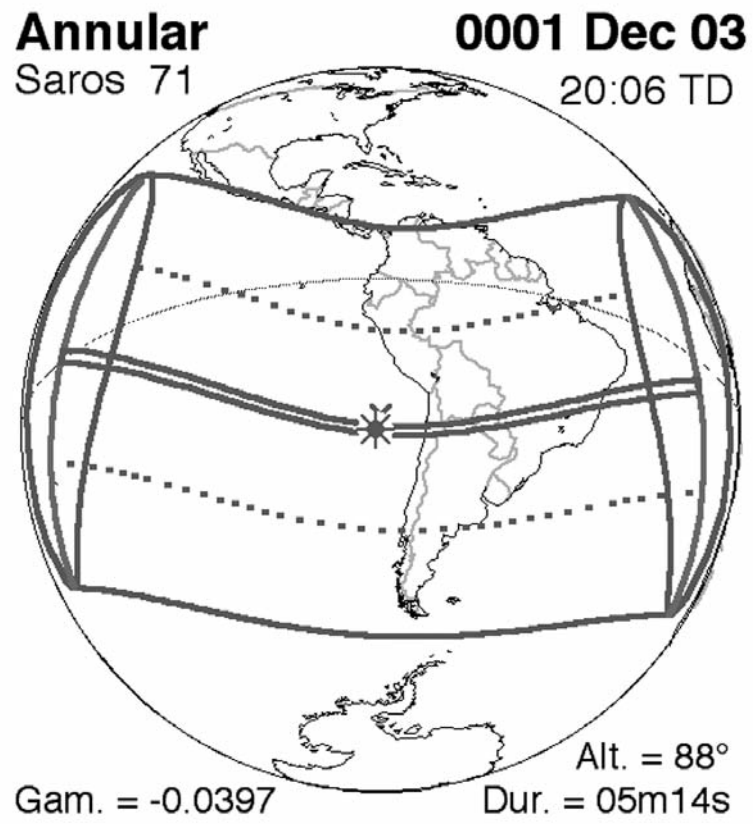


Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0199--0100/-194-11-30.gif>







Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/0001-0100/1-12-03.gif>

picture with 9500 sec delta T

Solar eclipse of CE 1 Dec. 3 without delta T



# Calendar

SE 115 X 0	CE 1 Jan 13
SE 115 XI 0	CE 1 Feb 12
SE 115 XII 0	CE 1 Mar 13
SE 116 I 0	CE 1 Apr 12
SE 116 II 0	CE 1 May 11
SE 116 III 0	CE 1 June 10 solar eclipse
SE 116 III 14	CE 1 June 24 lunar eclipse
SE 116 IV 0	CE 1 Jul 9
SE 116 V 0	CE 1 Aug 7
SE 116 VI 0	CE 1 Sep 6
SE 116 VII 0	CE 1 Oct 5
SE 116 VIII 0	CE 1 Nov 4
SE 116 VIII 13	CE 1 Nov 19 lunar eclipse
SE 116 IX 0	CE 1 Dec 3 solar eclipse
SE 116 X 0	CE 2 Jan 2
SE 116 XI 0	CE 2 Feb 1
SE 116 XII 0	CE 2 Mar 2/3
SE 117 I 0	CE 2 Apr 1

SH VI p. 178-183 (No 46)

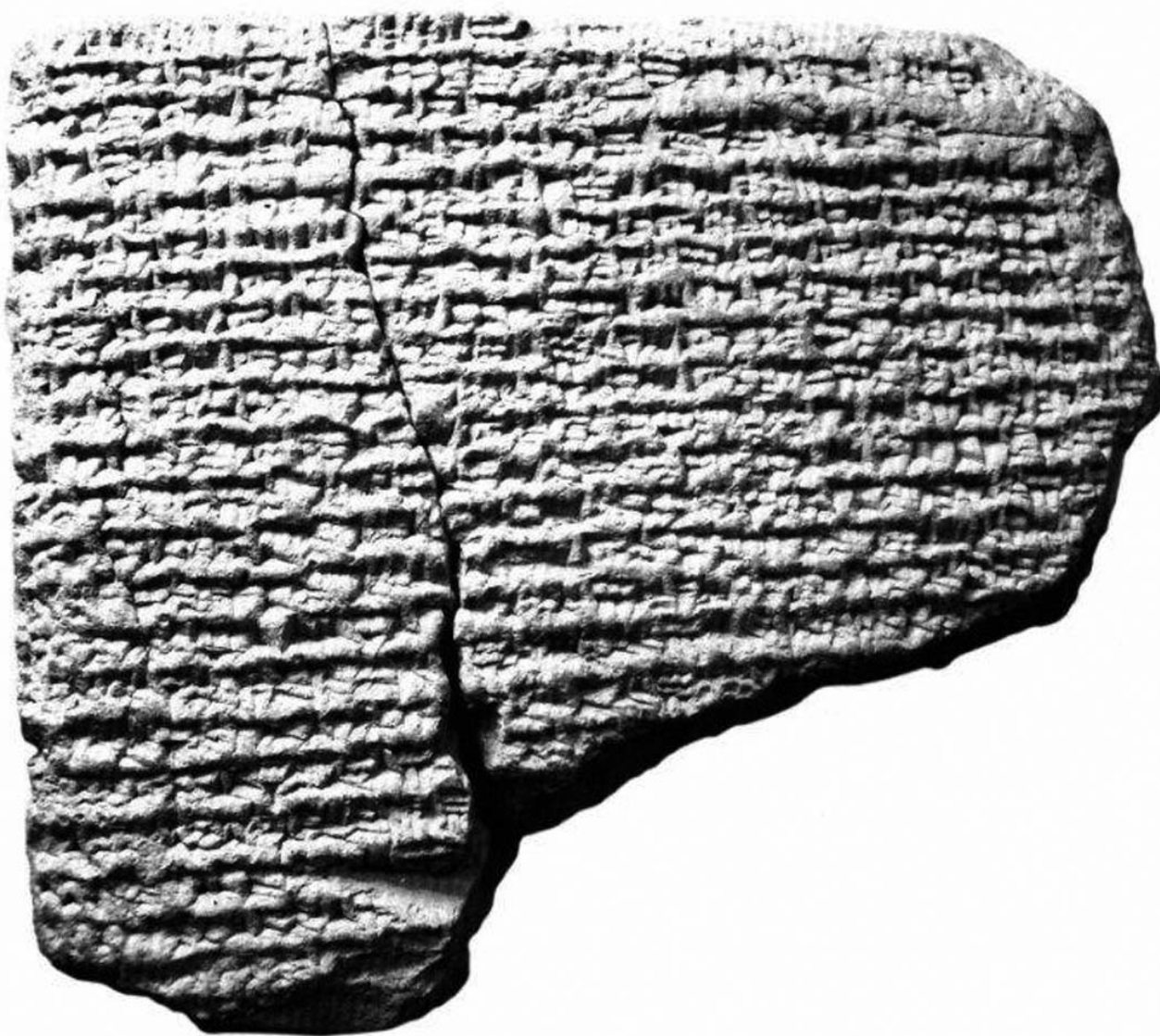
BM 34603

Copy: LBAT 1263

Photo: Plate 34

Goal year: SE 160

Plate 34



No. 46 (BM 34603) Obv.

Rev.

I

3' Year 142, kings Antiochus and his son Antiochus.

4' Month IV, the 28th, solar eclipse: when it began on the north

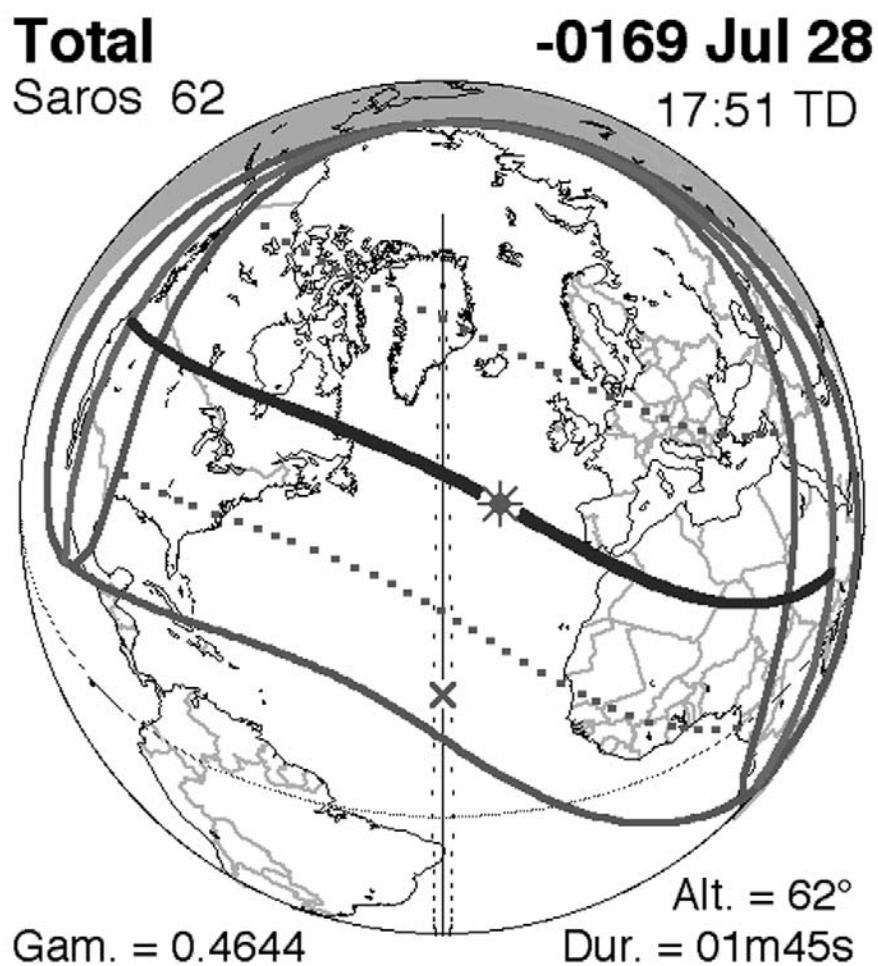
5' and west side, in 12° of daytime

6' it made one-third of the disc

7' in 20 ME ana SÚ samás in my sight =

7' At 20° after sunrise

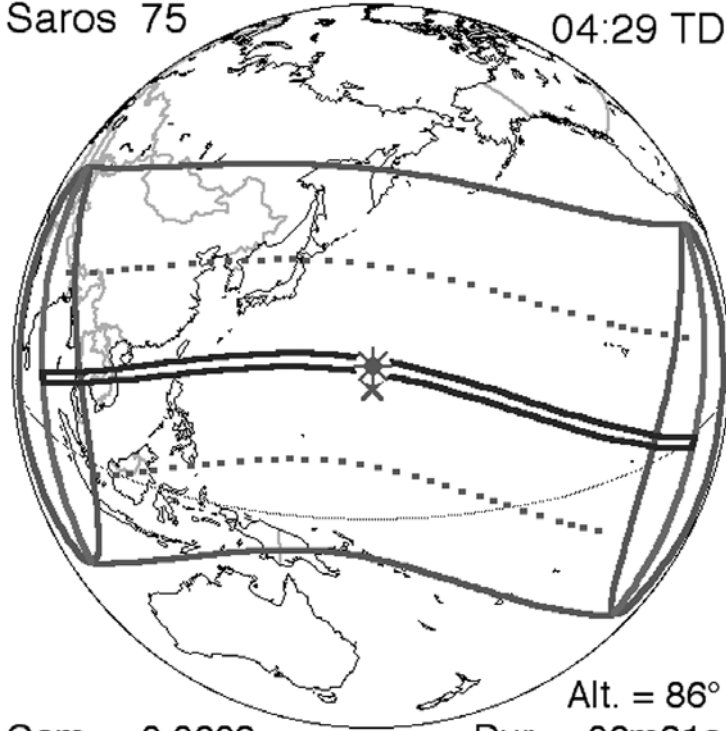
This solar eclipse really happened on July 22 CE 27, not in BCE 170 July 28...



Five Millennium Canon of Solar Eclipses (Espanak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/-0199--0100/-169-07-28.gif>

**Total** **0027 Jul 22**  
Saros 75 04:29 TD



Gam. = 0.0603 Alt. = 86°  
Dur. = 06m31s

Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

<http://eclipse.gsfc.nasa.gov/5MCSEmap/0001-0100/27-07-22.gif>

picture with 9200 sec delta T

Solar eclipse of CE 27 July 22 without delta T

