

THE VENUS TABLETS OF
AMMIZADUGA

A SOLUTION OF BABYLONIAN
CHRONOLOGY BY MEANS OF
THE VENUS OBSERVATIONS
OF THE FIRST DYNASTY

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With Tables for Computation by
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CHAPTER I
ANALYSIS OF THE CUNEIFORM TEXTS

THE large tablet K. 160 was first published in III Raw. 63, and was reproduced with transcription and translation by PROFESSOR SAYCE, TSBA. 1874, 316-39. Obverse 1-14 is a duplicate of K. 2321+3032 (a neo-Babylonian text published by JAMES A. CRAIG, *Astrological-Astronomical Texts* Pl. 46) Obv. 16-27. These lines contain 6 observations of the heliacal settings of Venus in the east and west for the 7th-11th years of Ammizaduga.¹ K. 160, begins with the heliacal eastern setting of Venus on the 21st of the 5th month in the 7th year of this king. The text of K. 160, 1-30, which contains 14 observations of the same backward and forward movements of Venus across her periods of darkness for the years 7-17 of Ammizaduga, was combined with K. 2321, Obv. 16-27, and the whole was published in this form by VIROLLEAUD, *Ishtar*, No. XII. In this composite text lines 1-15 constitute a new copy of K. 2321, Obv. 1-15; lines 16-27 are made up by combining K. 160, 1-14 with K. 2321, Obv. 16-27. The remaining observations for the years 19-21 of Ammizaduga are continued on K. 160, Rev. 34-46; the observation for the 18th year was suppressed or lost when the long insertion, Obv. 31-Rev. 33, was made in K. 160. This continuation of the original text in Obv. 34-46 was unfortunately detached from the main text and put under a separate number in VIROLLEAUD, *Ishtar* XIV.

By combining K. 2321 Obv. with K. 160, Obv. 1-30 + Rev. 34-46, a complete set of these movements of Venus for the 21 years of Ammizaduga is obtained, with the exception of the data for the year 18. It is obvious even to one possessed of only popular knowledge of astronomy that the text is often corrupt and the various scribes of Nineveh, Babylon, and Kish, whose copies in the 8th and 7th centuries we possess, were extremely careless about their figures. Numerous examples of dittography are indicated in my notes.

Undoubtedly K. 2321, a neo-Babylonian copy, and its duplicate, W. 1924, 802, excavated at Kish, and dated in the reign of Sargon of Assyria, represent the original tablet of the astronomers of Ammizaduga. This original text was made at Babylon, as the colophon of the *Kish tablet* proves, and was incorporated into the series *Enuma Anu Enlil* as the 62nd or 63rd tablet of that astronomical work. Rm. II 531 is a small Assyrian fragment of a duplicate of K. 160 and contains fragmentary lines of the groups for the years 13-17.

The reverse of K. 2321 contains the same observations as those of the 21 years of Ammizaduga on the obverse and on K. 160, but these are arranged according to the settings of Venus in either east or west in order of the months from *Nisan* to *Adar*. This discovery was first published by Dr. PAUL SCHNABEL, ZA. 36, 114-17, and the fact became clear to me.

¹ K. 160 is broken across the upper part and at least 20 lines are lost here. These contained seven observations partially restored from K. 2321. A photograph of K. 160 will be found on the frontispiece of VIROLLEAUD, *L'Astronomie Chaldéenne, Sin.* A small join which restores the beginnings of lines 34-9 of the obverse has been made since this photograph was taken. K. 2321 is also a long thin tablet like K. 160; it is written in neo-Babylonian

script and is broken across the middle. Between the end of the obverse and the beginning of the reverse at least 50 lines are lost. I have collated both tablets in the British Museum, and have detected a large number of errors in previous copies. For permission to collate these important texts we are most grateful to Dr. HALL, Keeper of the Department of Egyptian and Assyrian Antiquities.

when I discovered the *Kish tablet*, with its peculiar arrangement of groups (*kisru*) of these same observations. It was obvious that the scribe was grouping the observations by months here. I was requested by SCHNABEL and FOTHERINGHAM to collate all the tablets which contain the name *Ninsianna* for Venus. This was the name of Venus current in the late Sumerian period and in the time of the First Dynasty.¹ I also copied S. 174 and observed its similarity to K. 160 and 2321; the eastern and western settings do not occur in their natural order here, but are arranged on some other principle. In collating Rm. 134 and K. 7072 = VIROLLEAUD, *Suppl.* p. 48, it became evident, at once, that the scribe had arranged the settings of Venus, both eastern and western, beginning with *Nisan* and proceeding to *Ayar*.² By reconstructing the Reverse of K. 2321 with the aid of Rm. 134, K. 7072, S. 174 and W. 802 (which completed all the first lines of the original document), I was able to obtain duplicates and restorations of a great number of the observations on the obverse and on K. 160.

The scribe, who compiled the document K. 160, probably did not copy for the series *Enuma Anu Enlil*. For some reason he copied the original observations of the 21 years from the obverse of the Babylonian tablet and then inserted a long reconstruction, taken from some other Babylonian tablet, on the periods of visibility in the east and west. The compilers of the Babylonian and Kish tablets had arranged the observations of the 21 years of Ammizaduga in the order of the monthly settings, and we know from Rm. 134, K. 7072 and S. 174, that this text also existed at Nineveh. The omens depend upon the months of the *risings* and consequently this scribe, having more interest in astrology than in astronomy, has made an artificial set of Venus risings in consecutive monthly order throughout the year, assuming a regular period of visibility in east and west of 8 months and 5 days, a regular interval of invisibility between eastern setting and western rising of 3 months, and a regular period of invisibility between western setting and eastern rising of 7 days. He begins with an eastern rising in *Nisan*, but there is no *Nisan* rising, either eastern or western, in the Ammizaduga observations; moreover, in this scheme of monthly risings no allowance is made for intercalary months, and consequently the composition has no relation at all to the Ammizaduga observations. The scribe assumes a constant value of 30 days for the month. The scribe's scheme has scientific value only for reckoning the average periods of the various appearances of Venus, whose regular period is 584 days. The scribe assumes a period of 19 months 17 days for the period of Venus (8 months 5 days in east + 3 months' invisibility + 8 months 5 days in west + 7 days' invisibility = 19 months 17 days = 587 days). By assuming 360 days for the year he must add 5 or 6 days to the date of any appearance and then add 19 months 17 days to obtain the next corresponding appearance. Thus, in the first group the eastern rising is I 2 and the next eastern rising will be VIII 19 + 6 = VIII 25, as given in Group 12. But the risings exhibited in this scheme have no historical relation to each other and must have been selected from a large number of Venus observations in the records of previous centuries.

More interesting is a comparison of the omens on this document with those of the original document. The scribe indicates clearly enough that the omens are taken from the *risings* only. 'The heart of the land will be happy' occurs here with *Ulul* and *Tebit*, but with *Ulul* and *Adar* on the Ammizaduga documents. 'The harvest of the land will be successful' occurs with *Tebit*,

¹ See Langdon, *Tammuz and Ishtar*, 175.

² SCHIAPARELLI had already made this discovery in 1912, on the basis of K. 2321, and it is doubtful whether I should

have seen the importance of Rm. 134 and K. 7072 if SCHNABEL and FOTHERINGHAM had not requested me to collate them.

Tammuz, Ulul, Tešrit, Araḥsamna and *Šabat = Ayar, Tešrit, Tebit, and Adar* of the Ammizaduga texts. 'King shall send greetings to king' in *Šabat* and *Adar* of the old source does not occur at all in his text! 'King shall send challenge of war to king' occurs in *Adar*, only, = *Adar*, only, in the Ammizaduga texts.

'Destruction shall be (in the land)' or 'calamity shall be, in the land' occurs in *Nisan, Ab, Araḥsamna, = Ab, Araḥsamna, Kislev*, of the old source, which uses only 'destruction shall be wrought'. But a *Nisan* rising did not occur in the Ammizaduga observations; consequently we have no indication of the character of that month there. Omens of rains and floods are entirely omitted in this text. *Kislev* is associated with 'dearth of grain and straw', as in the Ammizaduga texts. A rising in *Sivan* means calamity to the army of the Babylonians as in the omen for the years 8-9 on the old source. 'There will be hostilities in the land' occurs with *Ayar, Tammuz, Tešrit = Ayar, Tešrit*, in the Ammizaduga sources.

It is obvious that the omens of this inserted artificial text of K. 160 agree almost completely with those of the old source. *Ab, Sivan, Araḥsamna* and *Kislev* are clearly months of evil omen for Venus risings. Definitely propitious for Venus risings are *Ulul, Tebit, Šabat, and Adar*.

OMENS OF THE ORIGINAL SOURCE.

Setting.	Rising.	Omen.
Nisan—East	Ulul—West	· libbi māti iḏḏb. Year 12.
Nisan—West	Ayar—East	· nukurāti ina māti ibaššá ebur māti iššir. Year 21.
Ayar—West	Ayar—East	· zunné u mīlé ibaššá ebur māti iššir. Year 5.
Ayar—West	Ayar—East	· ebur māti iššir. Year 13.
Sivan—East	Ulul—West	· libbi māti iḏḏb. Year 20.
Tammuz—East	Ulul—West	· libbi māti iḏḏb. Year 4.
Tammuz—West	Tammuz—East	· zunné ina šamé mīlé ina naḫḫé ibaššá. Year 16.
Tammuz—West	Ab—East	· zunné ina māti ibaššá arbātu iššakan. Year 8.
Ab—East	Araḥsamna—West	· zunné ina māti ibaššá arbātu iššakan. Year 15.
Ab—East	Araḥsamna—West	· zunné ina māti ibaššá arbātu iššakan. Year 7.
Ulul—West	Tešrit—East	· nukuralum ina māti ibašši ebur māti iššir. Year 3.
Ulul—West	Ulul ² —East	· libbi māti iḏḏb. Year 11.
Tešrit—West	Araḥsamna—East	· zunné ina māti ibaššá arbātu iššakan. Year 14.
Araḥsamna—West	Kislev—East	· ḫušāḫḫi še'im u tibni ina māti ibašši arbātu iššakan. Year 6.
Araḥsamna—East	Tebit—West	· ebur māti iššir. Year 2.
Araḥsamna—East	Tebit—West	· ebur māti iššir. Year 10.
Kislev—East	Šabat—West	· ebur māti iššir. Year 13.
Kislev—East	Šabat—West	· ebur māti iššir. Year 5.
Tebit—East	Adar—West	· šarru ana šarri šalta išappar. Year 21.
Šabat—West	Šabat—East	· tapdē šarrāni * Adad zunné-šu * Ea naḫḫé-šu ubbalam šarru ana šarri šulma išappar. Year 1.
Adar—East	Sivan—West	· šumkūt umman māti. Years 8-9.
Adar*—West	Adar—East	· šarru ana šarri šulmā išappar. Year 9. Variant šalta išappar.
Adar—West	Adar—East	· ebur (māti) iššir šarru libbi māti iḏḏb. Year 17.
Adar—East	Sivan—West	· šumkūtīm umman-manda eli naphari-(šunu šarru ibēl). Years 16-17
Ulul ² —West	Ulul ² —East	· tapdā ina māti ruḫti ibašši: ina ekalli amtu. . . Year 19.

It will be noted that 'the heart of the land will be happy' occurs only with risings in *Ulul, Adar*, and intercalary *Ulul*. 'The harvest of the land will prosper' occurs with risings in *Ayar*,

* Text Sivan.

THE MONTHS OF VENUS RISINGS GOVERN OMENS

Tešrit, *Tebit*, and *Šabat*. 'King shall send greetings to king' occurs with risings in *Šabat* and *Adar*, and 'King shall send challenge of war to king' is found also with an *Adar* rising.¹ 'Destruction shall be wrought' occurs with risings in *Ab*, *Arašsamna*, *Kislev*. 'Rains and floods' occur with risings in *Ayar*, *Tammuz*, *Ab*, *Arašsamna*, *Šabat*; this omen occurs in months both propitious and nefast. A rising in *Kislev* is regarded as particularly nefast:— 'Dearth of grain and straw will be in the land *but the harvest will prosper*.' The nature of the omen seems to depend almost entirely on the month of rising. *Ayar*, *Ulul*, *Tebit*, *Šabat* and *Adar* are clearly propitious months, especially for harvests. *Ab*, *Arašsamna*, and *Kislev* are clearly nefast. Two risings in *Sivan* occur, one denoting the destruction of the Babylonian army, and the other the destruction of the *Umman-manda*, hence the month was either indeterminate, or (and this is more probable) we have here references to historical events as in the Sargon liver omens and many others.

OMENS OF THE RISINGS ON THE K. 160 INSERTION.

Rising.	Omen.
1. Nisan—East Adar—West	<i>urubatum ina māti ibaššá.</i> <i>šarru ana šarri nukurta išappar.</i>
2. Ayar—West Tebit—East	<i>nukurāti ina māti ibaššá.</i> <i>ebur māti iššir libbi māti iđb.</i>
3. Sivan—East Ayar—West	<i>miḫitti umman matti.</i> <i>nukurāti ina māti ibaššá.</i>
4. Tammuz—West Adar—East	<i>nukurāti ina māti ibaššá.</i> <i>šarru ana šarri nukurta išappar.</i>
5. Ab—East Tammuz—West	<i>arbātu ibašši.</i> <i>nukurāti ina māti ibaššá ebur māti iššir.</i>
6. Ulul—West Ayar—East	<i>ebur māti iššir libbi māti iđb.</i> <i>nukurāti ina māti ibaššá.</i>
7. Tešrit—East Ulul—West	<i>nukurāti ina māti ibaššá ebur māti iššir.</i> <i>ebur māti iššir libbi māti iđb.</i>
8. Arašsamna—West Tammuz—East	<i>mata dannatu išabbat.</i> <i>nukurāti ina māti ibaššá ebur māti iššir.</i>
9. Kislev—East Arašsamna—West	<i>hušahhi še'im u kibni ina māti ibašši.</i> <i>ebur māti iššir</i>
10. Tebit—West Ulul—East	<i>ebur māti iššir.</i> <i>ebur māti iššir libbi māti iđb.</i>
11. Šabat—East Tebit—West	<i>ebur māti iššir.</i> [<i>ebur māti iššir.</i>]
12. Adar—West Arašsamna—East	<i>šarru [ana šarri nukurta išappar].</i> Cf. Groups 1 and 4. <i>mata dannatu išabbat.</i>

¹ Also on Var. for ninth year.

TABLE OF THE RISINGS, SETTINGS, AND PERIODS OF VISIBILITY AND INVISIBILITY.

Sources.	Year.	WS.	Interval.	ER.	K. 2321, Rev.	WS.	Interval.	ER.	Variants.	
									WS.	ER.
K. 2321, 1-3	1	XI 15	3 days	XI 18	22-23	XI 25	3 days	XI 28		
6-7	3	VI 23	20 days	VIII 13	7-8	VI 23	20 days	VII 13		
10-11	5	II 2	15 days	VI 18	Rm. 134, 7-9	II 2	[15 days	II 18]		
14-15	6	VIII 28	3 days	IX 1	K. 2321, 13-17	VIII 28	5 days	[IX 3]		
K. 160, Obsv. 4-6 +K.2321, 18-19	8	IV 25	7 days	V 2						
K. 160, 9-10 + 2321, 22-3	9	XII 11	4 days	XII 15	26-27	[XII 11]	4 days	[XII 15]		
K. 160, 13-14 + 2321, 26-7	11	VI 26	11 days	VI 7	9-10	VI 26	12 days	VI 8		
K. 160, 17-18	13	II 5	7 days	[II 12]						
K. 160, 20-21	14	VIII 10	1 month 16 days	VIII 26*	10-12 W. 802, R. 12-13	VIII 11	1 month 17 days	VIII 28		
K. 160, 24-5	16	IV 5	15 days	IV 20						
K. 160, 28-9	17	XII 11	4 days	XII 15	26-27	[XII 11]	4 days	[XII 15]		
K. 160, R. 34-6	19	VI 21	15 days	VI 17						
K. 160, R. 40-2	21	I 27	7 days	II 3	Rm. 134; K. 7c72	I 26	6 days	II 3		

Sources.	Year.	ES.	Interval.	WR.	K. 2321, Rev.	ES.	Interval.	WR.	Variants.	
									ES.	WR.
K. 2321, Obsv. 4-5 W. 802	2	VIII 11	2 months 7 days	X 19	15	[VIII 11]	2 months 8 days	X 19		
8-9 W. 802	4	IV 2	2 months 1 day	VI 3						
12-13	5	IX 12	2 months 4 days	XI 16	19	[IX 24]	2 months 4 days	XI 28		
K. 160, 1-3, K. 2321, Obsv. 16-17	7	V 21	2 months 11 days	VIII 2	5-6					
K. 160, 7-8, K. 2321, 20-1	8-9	XII 25	[2 months 7 days]	[III 2]	24-5	[XII 25]	2 months 7 days	[III 2]		
K. 160, 11-12, K. 2321, 24-5	10	VIII 10	2 months 6 days	X 16	16	[VIII 8]	2 months 8 days	X 16		
K. 160, 15-16	12	I 9	5 months 16 days	VI 25	Rm. 134, 1-3, K. 7072, 2-3	I 8	5 months 17 days	VI 25		
K. 160, 18-19	13	[IX] 20	2 months	XI 21		[IX] 21	2 months	[XI 21]		
22-3	15	V 20	2 months 15 days	VIII 5						
26-7	16-17	XII 25	3 months 9 days	III 2[4]						
Lost on K. 160.	18	III 25	2 months 6 days	VI 24†						
K. 160, R. 37-9	20	X 28	[2 months]	XII 28	20-21	[X 28]	2 months	[XII 28]		
43-5	21									

WS. = Western setting. WR. = Western rising. ES. = Eastern setting. ER. = Eastern rising.

* See notes on K. 2321, R. 12. † Read VI 1.

PLAN OF THE INSERTION IN K. 160, OBV. 31—REV. 33.

<i>Rising.</i>	<i>Period of Visibility.</i>	<i>Setting.</i>	<i>Interval.</i>	<i>Rising.</i>
1. I 2 East	8 months 4 days	IX 7 East	3 months	XII 8 West
2. II 3 West	8 months 3 days	X 7 West	7 days	X 15 East
3. III 4 East	8 months 4 days	XI 8 East	3 months	II 9 West
4. IV 5 West	8 months 4 days	XII 10 West	7 days	XII 17 East
5. V 6 East	8 months 4 days	I 11 East	3 months	IV 11 West
6. VI 7 West	8 months 4 days	II 12 West	7 days	II 19 East
7. VII 8 East	8 months 4 days	III 13 East	3 months	VI 13 West
8. VIII 9 West	8 months 4 days	IV 14 West	7 days	IV 21 East
9. IX 10 East	8 months 4 days	V 15 East	3 months	VIII 15 West
10. X 11 West	8 months 4 days	VI 16 West	7 days	VI 23 East
11. XI 12 East	8 months 4 days	VII 17 East	3 months	X 17 West
12. XII 13 West	8 months 3 days	VIII 17 West	7 days	VIII 25 East

CHAPTER II
TRANSCRIPTION AND TRANSLATION

K. 160, *Obverse*

1. [*šumma ina araḥ Abi ūm 21-kam* ^d*Nin-sī-an-na ina šit šamši*]¹ *bal-it*
2. [*2 arḥē ūmī 11-kam ina šamē iḥ-ḥa-ram-ma*]¹ *ina araḥ Araḥsamna ūm 2-kam* ^d*Nin-sī-an-na*
3. [*ina erib šamši innamir*] *zunnē ina māti ibaššū ar-bu-tu iššakan*

If on the 21st of Ab Venus disappeared in the east, remaining absent in the sky for two months and 11 days, and in the month Araḥsamna on the 2nd day Venus was seen in the west, there will be rains in the land; desolation will be wrought. [7th year]

4. *šumma ina araḥ Du'uzi ūm 25-kam* ^d*Nin-sī-an-na ina erib šamši it-bal*
5. *ūmī 7-kam ina šamē iḥ-ḥa-ram-ma ina araḥ Ab ūm 2-kam* ^d*Nin-sī-an-na*
6. *ina šit šamši innamir zunnē ina māti ibaššū ar-bu-tu iššakan*

If on the 25th of Tammuz Venus disappeared in the west, for 7 days remaining absent in the sky, and on the 2nd of Ab Venus was seen in the east, there will be rains in the land; desolation will be wrought. [8th year]

7. *šumma ina araḥ Adar ūm 25-kam* ^d*Nin-sī-an-na ina šit šamši it-bal*. [8th + 9th years]

If in the month Adar on the 25th day, Venus disappeared in the east,²

8. *mu* ^{si}*dūr-gar kug-gi-ga*³-*kam*

Year of the golden throne. For restoration, v. K. 2321, R. 24-5.

9. *šumma ina araḥ Sivan* ⁴*ūm 11-kam* ^d*Nin-sī-an-na ina erib šamši it-bal* 9 *arḥē ūmī 4-kam*
ina šamē iḥ-ḥa-ram-ma
10. *ina araḥ Adar ūm 15-kam ina šit šamši innamir šarru ana šarri šulma išapp-ār*

If on the 11th of Sivan⁵ Venus disappeared in the west, remaining absent in the sky for 9 months and 4 days, and on the 15th of Adar she was seen in the east, king shall send greetings⁶ to king. [9th year]

11. *šumma ina araḥ Araḥsamna ūm 10-kam* ^d*Nin-sī-an-na ina šit šamši it-bal* 2-*arḥē ūmī 6-kam*⁷
*ina šamē iḥḥaram-ma*⁸
12. *ina araḥ Tebet ūm 16-kam ina erib šamši innamir ebūr māti iššir.*

¹ Restored from K. 2321, Obv. 16.

² The period of absence and the date of the western rising were omitted or suppressed to insert the date formula.

³ The ideogram for 'gold' is usually read *guškin* = *ḥurāšu*, but in all the variants for this passage the phonetic complement *ga* indicates a Sumerian word ending in *g*. See also PBS. X 20, 12 = AJSL. 39, 180, 12. This is the date formula of the eighth year of Ammizaduga; for the more complete forms see POEBEL, BE. VI p. 100. In the preceding year, when this event actually occurred, this king placed a golden throne and his statue in Enamtila, which usually refers to the chapel of Enlil in Ekur at Nippur, see Langdon, *Babylonian Liturgies*, p. 134. But there was a

chapel of Gula-Bau in Babylon, probably in Esagila, and this date formula undoubtedly refers to that chapel. See also Langdon, *Babylonian Wisdom*, 64, 7.

⁴ So the text clearly on K. 2321, Obv. 22.

⁵ *Sivan*, the 3rd month, must be changed to *Adar*, the 12th month, and the 9 months which follow are to be struck out. In other words, the scribe was operating with *figures*, not names of months, and 9 months were inserted in the wrong place. See note on K. 2321, Rev. 25, and Obv. 22.

⁶ Var. K. 2321, Obv. 23 has *šalla išapp-ar*, shall send declaration of war.

⁷ K. 2321, R. 16 as 8 here.

⁸ Written *NI-ma*, but Var. K. 2321, Obv. 24, *iḥ-ḥa-ram-ma*.

8 OBSERVATIONS OF VENUS ON K. 160, XTH-XIIITH YEARS

If on the 10th of Arahsamna Venus disappeared in the east, remaining absent 2 months and 6 days in the sky, and was seen on the 16th of Tebit in the west, the harvest of the land will be successful. [10th year]

13. *šumma ina araḥ Ululi ūm 26-kam* ^d *Nin-sī-an-na ina erīb šamši it-bal ūmī 11-kam ina šamē iḥḥaram-ma*

14. *ina araḥ Ululi šani ūm 7-kam ina erīb šamši* ¹ *innamir libbi māti iḷa-ab*

If on the 26th of Ulul Venus disappeared in the west, remaining absent in the sky 11 days, and was seen on the 7th of intercalary² Ulul in the east, the heart of the land will be happy. [11th year]

15. *šumma ina araḥ Nisani ūm 9-kam* ^d *Nin-sī-an-na [ina šit šamši] it-bal 5-arḥē ūmī 16-kam ina šamē [iḥḥaram-ma]*

16. *ina araḥ Ululi ūm 25-kam ina erīb šamši innamir libbi māti [iḷa-ab]* ³

If on the 9th of Nisan Venus disappeared in the east, remaining absent in the sky 5 months and 16 days, and was seen on the 25th of Ulul in the west, the heart of the land will be happy. [12th year]

17. *šumma ina araḥ Aḷari ūm 5-kam* ^d *Nin-sī-an-na ina erīb šamši it-bal 7 (?) ū-mi ina šamē iḥḥaram-ma [ina araḥ Aḷari ūm 12(?) -kam* ⁴

18. *ina šit šamši innamir ebur māti iṣšir* : [*šumma ina araḥ Tebeti*] ⁵ *ūm 20⁶-kam ina šit šamši it-bal [1 arḥam ina šamē iḥḥaramma]* ⁷

19. (*ina šit šamši it-bal ūmī 16-kam ina šamē iḥḥaram-ma*) ⁸ *ina araḥ Šabaṭi ūm 21-kam ina erīb šamši [innamir]* ⁹

If on the 5th of Ayar Venus disappeared in the west, remaining absent in the sky 7 (?) days, and she appeared in the east on the 12th (?) of Ayar, the harvest of the land will be successful. If on the 20th of Tebit (?) she disappeared in the east, remaining absent in the sky one month, and on the 21st¹⁰ of Šabat she appeared in the west. [13th year]

20. *šumma ina araḥ Tešrit ūm 10-kam* ^d *Nin-sī-an-na ina šit šamši it-bal araḥ ūmī 16-kam [ina šamē iḥḥaramma]*

21. *ina araḥ Arahsamma ūm 26-kam ina erīb šamši innamir zunnē ina māti ibaššū [ār-bu-tu iṣsakan]*

If on the 10th of Tešrit Venus disappeared in the west, remaining absent in the sky 1 month

NI=*uḥḥuru*, to loiter, with *ur-lal*, 'to bind the legs', = *uḥḥuru*, II R. 47, Rev. 57. The Sumerian value is *zal*, to loiter, hence *gū-zal* = *guzallu*, *gišḥappu*, *nu'u*, *aḥurá*, loiterer, indolent person, imbecile, RA. 11, 124, R. 1 = BM. 38372, Rev. 10-14.

¹ So the text. Obviously an error for *šit šamši*, sunrise.

² Hence the 11th year of Ammizaduga was an intercalary year, and so was the 10th year. See KUGLER, *Sternkunde*, II 250.

³ Rm. 134, 1-3 has *Nisan* 8 and an interval of 5 months, 17 days. Both have *Ulul* 25 (collated).

⁴ Figures apparently assured by Rm. II 531, 1-2.

⁵ Traces on K. 160 may be *KAN* or *AB*, but Rm. II 531, 3 favours *AB*. This line is repeated on K. 2321, Rev. 17-18, where the interval is 2 months and no space for the days, and the month names are lost.

⁶ Rm. II 531, 3 has 21 here.

⁷ At the end of line 18 there is a long break.

⁸ The text enclosed in parentheses has been displaced from line 20.

⁹ Restore *ebur māti iṣšir*, from K. 2321, R. 18.

¹⁰ I read 21 on the tablet clearly. Rm. II 531, 4 has 11 plainly.

and 16 days, and appeared in the east on the 26th of Araḥsamna, there will be rains in the land;¹ desolation will be wrought. [Year 14]

22. *šumma ina araḥ Abi ūm 20-kam⁴ Nin-sī-an-na ina šit šamši it-bal 2 arḥē ūmī 15-kam² [ina šamē iḥḥaram-ma]*

23. *ina araḥ Araḥsamna ūm 5-kam² ina erīb šamši innamir zunnē ina māti ibaššū a[r-bu-tu iššakan]*

If on the 20th of Ab Venus disappeared in the east, [remaining absent in the sky] 2 months and 15 days, and appeared in the west on the 5th of Araḥsamna, there will be rains in the land; desolation will be wrought. [15th year]

24. *šumma ina araḥ [Du'uzi] ūm 5-kam³ Nin-sī-an-na ina erīb šamši it-bal ūmī 15-kam [ina šamē iḥḥaram-ma]*

25. *ina araḥ [Du'uzi]⁴ ūm 20-kam ina erīb šamši⁵ innamir zunnē ina šamē mlē ina naḫbē ibbaššū*

If on the 5th of [Tammuz] Venus disappeared in the west, [remaining absent in the sky] 15 days, and on the 20th of [Tammuz] appeared in the east, there will be rains in heaven and floods in the springs.⁶ [16th year]

26. *šumma ina araḥ Adari ūm 25-kam⁴ Nin-sī-an-na ina šit šamši it-bal 3 arḥē ūmī 9-kam [ina šamē iḥḥaram-ma]*

27. *ina araḥ Simāni ūm 20(?) -kam ina erīb šamši innamir šumḫu-tim ummān-man-da⁷ eli⁸ naḫḫa-ri-[šu-nu šarru ibe-el]*

If on the 25th of Adar Venus disappeared in the east, [remaining absent in the sky] 3 months and 9 days, and appeared in the west on the 20th(?) of Sivan,⁹ disaster of the Manda hordes; *over all of them the king shall rule.* [16th and 17th years]

¹ If *Araḥsamna* in line 21 be correct then *Tešrit* must be read in line 20, and the traces of this blurred sign seem to indicate *DUL*, as written in Rev. 9, i. e. *Tešrit*. The entire text in lines 20-21 is suspect; for the western setting and eastern rising should appear here. Note that the corrupt text at the beginning of line 19 has also 16 days, which is probably an insertion there, from line 20. The prototype of lines 18-21 has been incurably confused in transmission. *ina šit šamši it-bal ūmī 16-kam ina šamē iḥḥaram-ma* of line 19 has been taken from line 20, where *erīb šamši* stood originally. *erīb šamši* was changed to *šit šamši* by dittography with line 18, and the insertion in line 19 with *šit šamši* caused the original of line 20 to be corrupted to *šit šamši* also. Lines 20-21 must surely be corrected to western setting on the 10th of Tešrit, eastern rising on 26th of *Araḥsamna*. See the same errors in Rm. II 531, 5-6! Correct text on K. 2321, R. 11-12?

² Text clearly 15 and 5. See also photograph. Rm. II 531 has 21 in line 22, and *Kislev* for *Araḥsamna* in line 23.

³ Rm. II 531, 10, has 4 here.

⁴ *Du'uzu* is clear on Rm. II 531, 11.

⁵ Sic! Read *šit šamši*.

⁶ The figure 5 is fairly certain in line 24. Traces of *ŠU* for the month-name remain in both lines.

⁷ The Ummān-Manda are the Cimmerians, CT. 34, 10, 16. According to FORRER, ZDMG. vol. 76, they were an Aryan people; WEIDNER, *Rivista degli Studi Or.*, IX 292, describes them as Indo-Germanic. See also STRECK, *Assurb.*, p. ccclxxv. They are mentioned in the *Hittite Law Code*, ZIMMERN, *Der Alte Orient*, 23 Heft 2, p. 14, § 55. But in the royal inscriptions of the neo-Babylonian Empire, the Ummān-Manda are certainly identical with the *Madaḫ*, Medes; v. THUREAU-DANGIN, RA. 22, 28, 11, and GADD, *Fall of Nineveh*, 35, 59. The term is, therefore, applied to peoples who were nomads, and does not always indicate the same race. Cf. VIROLLEAUD, *Adad*, X 11, *tibāt ummān dadme*, uprising of people of fixed abode, and *tibāt Ummān-man-da*, Sin, III 7; XXXIII 30; *Ishtar*, XXI 42, 95, &c.

⁸ *SU*.

⁹ If *Adar* 25 in line 26 and the interval 3 months and 9 days be correct, then Venus would have risen on the 4th of *Tammuz*. But Rm. II 531, line 12, has *Adar* 15th for *Adar* 25th. If this be correct then *Sivan* 24 should stand in line 27.

28. *šumma ina araḥ Adari ūm 11-kam*¹ *⁴ Nin-si-an-na ina e[rīb šamši] it-bal ūmī 4-kam ina šamē [iḥḥaram-ma]*

29. *GAB-BE (?) ūm [15-kam innamir] ebūru (KI-A)*² *iššir libbi māti ita-ab*

If on the 11th of Adar Venus disappeared in the west, remaining absent 4 days in the sky and appeared [again in the east] on the [15th] day, the harvest will be successful; the heart of the land will be happy. [17th year]

30. *GAB din ša-ru zunnu šal-gu*³

31. *šumma ina araḥ Nisanni ūm 2-kam*⁴ *⁴ Nin-si-an-na ina šit šamši innamir ū-ru-ba-tum ina māti ibaššā*

32. *adi ūm 6-kam ša araḥ Kislimi ina šit šamši izza-az ūm 7-kam ša araḥ Kislimi i-tab-bal-ma 3 arḥē ina šamē*

33. *iḥ-ḥa-ram-ma ūm 8-kam*⁴ *⁴ ša araḥ Adari*⁴ *⁴ Nin-si-an-na ina erīb šamši inappāḥ-ma šarru ana šarri nukurta išappa-ār*

If on the 2nd of Nisan Venus appeared in the east, distress will be in the land. Until the 6th of Kislev she will stand in the east; on the 7th of Kislev she will disappear, and, having remained absent 3 months in the sky, on the 8th of Adar Venus will shine forth in the west: king will declare hostility against king.

34. *šumma ina araḥ Aḫari ūm 3-kam*⁵ *⁴ Nin-si-an-na ina erīb šamši innamir nukrāti ina māti ibaššā*

35. *adi ūm 6-kam ša araḥ Tebiti ina erīb šamši izza-az ūm 7-kam ša araḥ Tebiti i-tab-bal-ma*

36. *ūmī 7-kam ina šamē iḥ-ḥa-ram-ma ūm 15-kam ša araḥ Tebiti*⁴ *⁴ Nin-si-an-na*

37. *ina šit šamši inappāḥ-ma ebūr māti iššir libbi māti ita-ab*

If on the 3rd of Ayar Venus appeared in the west, there will be hostilities in the land; she will stand in the west until the 6th of Tebit; on the 7th of Tebit she will disappear, and, having remained absent 7 days in the sky, on the 15th of Tebit Venus will shine forth in the east; the harvest of the land will be successful; the heart of the land will be happy.

38. [*šumma ina araḥ*] *Simāni ūm [4-]kam*⁴ *⁴ Nin-si-an-na ina šit šamši innamir miḫitti*⁶ *umman ma-at-ti*

39. [*adi*] *ūm 8-kam*⁷ [*ša araḥ šabati*] *ina šit šamši izza-az ūm 8-kam*⁷ *⁴ ša araḥ šabati i-tab-bal-ma*

40. [*3*] *arḥē ina šamē iḥ-ḥa-ram-ma ūm 9-kam ša araḥ Aḫari*⁴ *⁴ Nin-si-an-na*

41. [*ina*] *erīb šamši inappāḥ-ma nukrāti ina māti ibaššā*

If on the [4th] of Sivan Venus appeared in the east, there will be a catastrophe of the army of the (home)-land. Until the 8th of Šabat she will stand in the east; on the 8th of Šabat she will disappear,⁸ and, having remained absent [3] months in the sky, on the 9th of Ayar Venus will shine forth in the west; there will be hostilities in the land.

¹ Only the figure 10 is certain here. The stroke for the unit 1 is very doubtful. Only 10 or 11 is possible.

² WEIDNER, *Handbuch*, 174, suggested that *KI-A = eburu*; he compared *KI-A iššir*, THOMPSON, *Reports*, 253 A 2, with *eburu iššir* in 253, 2, &c. See K. 2321, R. 27.

³ These signs are all uncertain.

⁴ KUGLER corrects this figure to 7.

⁵ This figure is on a new join or flake, now added to the tablet.

⁶ *RI-RI-GA*. Cf. VIROLLEAUD, *Ištār*, XX 85, with THUR-
EAU-DANGIN, URUK. 30, 9.

⁷ The figure 8 is certain in both places in line 39.

⁸ 'Be taken away'.

42. [*šumma ina araḥ*] *Du'uzi ūm 5-kam* ⁴*Nin-sī-an-na ina erīb šamši innamir nukrāti ina māti ibaššā ebūr māti iššir*
43. *adi ūm 9-kam ša araḥ Adari ina erīb šamši izza-az ūm 10-kam ša araḥ Adari ittabbal-ma*
44. *ūmī 7(?) -kam ina šamē iḥ-ḥa-ram-ma ūm 17-kam ša araḥ Adari* ⁴*Nin-sī-an-na*
45. *ina šit šamši inappaḥ-ma šarru ana šarri nukurta išappa-ār*

If on the 5th of Tammuz Venus appeared in the west, there will be hostilities in the land; the harvest of the land will be successful. Until the 9th of Adar she will stand in the west and on the 10th of Adar she will disappear, and, having remained absent in the sky 7 days, on the 17th of Adar Venus will shine forth in the east; king will declare hostility against king.

K. 160, Reverse. ¹

1. *šumma ina araḥ Abi ūm-6-kam* ⁴*Nin-sī-an-na ina šit šamši innamir zunnē ina šamē ibbaššū ār-bu-tu ibašši*
2. *adi ūm 10-kam ša araḥ Nisanni ina šit šamši izza-az ūm 11-kam ša araḥ Nisanni i-tab-bal-ma*
3. *3 arḥē ina šamē iḥ-ḥa-ram-ma ūm 11-kam ša araḥ Du'uzi* ⁴*Nin-sī-an-na ina erīb šamši inappaḥ-ma*
4. *nukrāti ina māti ibaššā ebūr māti iššir*

If on the 6th of Ab Venus appeared in the east, there will be rains in heaven; there will be disaster. Until the 10th of Nisan she will stand in the east; on the 11th of Nisan she will disappear, and, having remained absent 3 months in the sky, on the 11th of Tammuz Venus will shine forth in the west; hostilities will be in the land; the harvest of the land will be successful.

5. *šumma ina araḥ Ululi ūm 7-kam* ⁴*Nin-sī-an-na ina erīb šamši innamir* ²*ebūr māti iššir libbi māti iḥ-ab*
6. *adi ūm 11-kam ša araḥ Aḫari ina erīb šamši izza-az ūm 12-kam ša araḥ Aḫari i-tab-bal-ma*
7. *7 ū-mi ina šamē iḥ-ḥa-ram-ma ūm 19-kam ša araḥ Aḫari* ⁴*Nin-sī-an-na*
8. *ina šit šamši inappaḥ-ma nukrati ina māti ibaššā*

If on the 7th of Ulul Venus appeared in the west, the harvest of the land will be successful; the heart of the land will be happy. Until the 11th of Ayar she will stand in the west and on the 12th of Ayar she will disappear, and, having remained absent 7 days in the sky, Venus will shine forth in the east on the 19th of Ayar; hostilities will be in the land.

9. *šumma ina araḥ Tešriti ūm 8-kam* ⁴*Nin-sī-an-na ina šit šamši innamir nukrāti ina mātāti ibaššā ebūr māti iššir*
10. *adi ūm 12-kam ša araḥ Simāni ina šit šamši izza-az ūm 13-kam ša araḥ Simāni i-tab-bal-ma*
11. *3 arḥē ina šamē iḥ-ḥa-ram-ma ūm 13-kam ša araḥ Ululi* ⁴*Nin-sī-an-na*
12. *ina erīb šamši inappaḥ-ma ebūr māti iššir libbi māti iḥ-ab*

If on the 8th of Tešrit Venus appeared in the east, hostilities will be in the land; the harvest of the land will be successful. Until the 12th of Sivan she will stand in the east and on the 13th of Sivan she will disappear, and, having remained absent 3 months in the sky, Venus will shine forth in the west on the 13th of Ulul; the harvest of the land will be successful; the heart of the land will be happy.

¹ III Raw. 63 Rev. 1 = VIROLLEAUD, *Ištār*, XIII 16.

² Written *IGI*; *GAB* omitted. Also in lines 13, 17, 21, 25, 29.

13. *šumma ina araḥ Araḥsamna ūm 9-kam* ^a*Nin-si-an-na ina erīb šamši innamir māta*¹ *dannatu iṣabbat*

14. *adi [ūm 13-]kam šá araḥ Du'uzi ina erīb šamši izza-az ūm 14-kam ša araḥ Du'uzi i-tab-bal-ma*

15. *ūmī 7-kam ina šamē iḥ-ḥa-ram-ma ūm 21*²*-kam šá araḥ Du'uzi* ^a*Nin-si-an-na*

16. *ina šit šamši inappaḥ-ma nukrāti ina māti ibaššá ebūr māti iššir*

If on the 9th of Araḥsamna Venus appeared in the west, disaster will seize the land. Until the 13th of Tammuz she will stand in the west; on the 14th of Tammuz she will disappear, and, having remained absent 7 days in the sky, Venus will shine forth on the 21st of Tammuz (in the east); hostilities will be in the land; the harvest of the land will be successful.

17. *šumma ina araḥ Kislimi ūm 10-kam* ^a*Nin-si-an-na ina šit šamši innamir ḥušaḥḥi š'eim u tibni ina māti ibaš-ši*

18. *adi ūm 14-kam šá araḥ Abi ina šit šamši izza-az ūm 15-kam ša araḥ Abi i-tab-bal-ma*

19. *arḥé 3 ina šamē iḥ-ḥa-ram-ma ūm 15-kam šá araḥ Araḥsamna* ^a*Nin-si-an-na*

20. *ina erīb šamši inappaḥ-ma ebūr māti iššir*

If on the 10th of Kislev Venus appeared in the east there will be hunger for grain and straw in the land. Until the 14th of Ab she will stand in the east; on the 15th of Ab she will disappear, and, having remained absent 3 months in the sky, Venus will shine forth in the west on the 15th of Araḥsamna; the harvest of the land will be successful.

21. *šumma ina araḥ Tebiti ūm 11-kam* ^a*Nin-si-an-na ina erīb šamši innamir ebūr māti iššir*

22. *adi ūm 15-kam ša araḥ Ululi ina erīb šamši izza-az ūm 16-kam šá araḥ Ululi i-tab-bal-ma*

23. *ūmī 7-kam ina šamē iḥ-ḥa-ram-ma ūm 23-kam ša araḥ Ululi* ^a*Nin-si-an-na*

24. *ina šit šamši inappaḥ*³*-ma ebūr māti iššir libbi māti itāb*

If on the 11th of Tebit Venus appeared in the west, the harvest of the land will be successful. Until the 15th of Ulul she will stand in the west; on the 16th of Ulul she will disappear, and, having remained absent 7 days in the sky, Venus will shine forth in the east on the 23rd of Ulul; the harvest of the land will be successful; the heart of the land will be happy.

25. *šumma ina araḥ Šabati ūm 12-kam* ^a*Nin-si-an-na ina šit šamši innamir ebūr māti iššir*

26. *adi ūm 16-kam šá araḥ Tešriti ina šit šamši izza-az ūm 17-kam šá araḥ Tešriti [i-tab-bal-ma]*

27. *3 arḥé ina šamē iḥ-ḥa-ram-ma ūm 17-kam ša araḥ Tebiti* ^a*Nin-si-an-na*

28. *ina erīb šamši inappaḥ-ma [ebur mati iššir]*

If on the 12th of Šabat Venus appeared in the east, the harvest of the land will be successful. Until the 16th of Tešrit she will stand in the east; on the 17th of Tešrit she will disappear, and, having remained absent 3 months in the sky, Venus will shine forth in the west on the 17th of Tebit; [the harvest of the land will be successful].

29. *šumma ina araḥ Adari ūm 13-kam* ^a*Nin-si-an-na ina erīb šamši innamir šarru [ana šarri nukurta iṣappa-ár]*

30. *adi ūm 16-kam*⁴ *šá araḥ Araḥsamna ina erīb šamši izza-az ūm 17-kam šá araḥ Araḥsamna i-tab-bal-ma*

31. *ūmī 7-kam ina šamē iḥ-ḥa-ram-ma ūm 25-kam šá araḥ Araḥsamna* ^a*Nin-si-an-na*

32. *ina šit šamši inappaḥ-ma māta dannatu iṣabbat*

¹ Cf. KING, *Magic*, 31, 6.

² VIROLLEAUD has 11 here, but III R. 63 correctly 21.

³ Sign *KUR*.

⁴ This figure is clearly written and may be seen on the photograph.

If on the 13th of Adar Venus appeared in the west, king shall send challenge of war to king. Until the 16th of Araḥsamna she will stand in the west; on the 17th of Araḥsamna she will disappear, and, having remained absent 7 days in the sky, Venus will shine forth in the east on the 25th of Araḥsamna; calamity will seize the land.

33. 12 *ki-iṣ-ru-ta MU-ra-tum*¹ šá^a *Nin-sī-an-na gab-ri Bāb-ili-(ki)*

Twelve corresponding groups (of the motions) of Venus. A copy from Babylon.

34. *šumma ina araḥ Ululi šanī-kam ūm 1-kam*^a *Nin-sī-an-na ina erīb šamši it-bal*

35. *ūm 15-kam ina šamē iḥḥaram-ma ina araḥ Ululi šanī-kam ūm 17-kam*^a *Nin-sī-an-na*

36. *ina šit šamši innamir*² *taḫdū*² *ina māti ruḫ-ti ibašši: ina ekalli amtu*

If on the 1st of intercalary Ulul Venus disappeared in the west, remaining absent 15 days in the sky, and on the 17th of intercalary Ulul Venus appeared in the east, there will be a defeat in a distant land; in the palace a female servant will . . . [19th year]

37. *šumma ina araḥ Simāni ūm 25-kam*^a *Nin-sī-an-na ina šit šamši it-bal*

38. 2 *arḫē ūmī 6-kam ina šamē iḥḥaram-ma ina araḥ Ululi ūm 24-kam*³

39. *Nin-sī-an-na ina erīb šamši innamir libbi māti iṭa-ab*

If on the 25th of Sivan Venus disappeared in the east, remaining absent 2 months and 6 days in the sky, and on the 24th of Ulul Venus appeared in the west, the heart of the land will be happy. [20th year]

40. *šumma ina araḥ Nisanni ūm 27-kam*⁴ *Nin-sī-an-na ina erīb šamši it-bal*

41. *ūmī 7-kam ina šamē iḥ-ḥa-ram-ma ina araḥ Aḫari ūm 3-kam*^a *Nin-sī-an-na*

42. *ina šit šamši innamir nukrāti ina māti ibaššā ebūr māti iššir.*

If on the 27th of Nisan Venus disappeared in the west, remaining absent in the sky 7 days, and on the 3rd of Ayar Venus appeared in the east, there will be hostilities in the land; the harvest of the land will be successful. [21st year]

43. [*šumma ina araḥ Tebiti ūm 28-kam*] *Nin-sī-an-na ina šit šamši it-bal*

44. [2 *arḫē ina šamē iḥḥaramma ina*] *araḥ Adari ūm 28-kam*^a *Nin-sī-an-na*

45. [*ina erīb šamši innamir*] *šarru ana šarri ṣalta išappa-ar*

If on the 28th of Tebit Venus disappeared in the east, remaining absent 2 months in the sky, and on the 28th of Adar Venus appeared in the west, king will send a challenge of war to king. [Restored from K. 2321, R. 20-1.] [21st year]

46. [. *gab-ri* (?)] *ki* (?) *ki-i pī labiri-šu*⁵

¹ *Kiṣrātu* is clearly a singular fem. as the adjective *MU-ra-tum* proves. KUGLER, *Sternkunde*, 262, reads *gabratum*, but there is no adjective *gabru*. Apparently only *māḥiratum* or *paṣratum* are possible, and no adjective *paṣru* or *paṣiru*, *paṣiratum*, exists. VIROLLEAUD also transcribes *gab-ra-tum*. KUGLER rendered the phrase by '12 corresponding groups', which makes good sense. If *kiṣrātu* means 'problem', and *paṣratum* be assumed as the correct reading, the sense may be '12 problems solved'. But I cannot see the sign *GAB* on the tablet. See also the photograph. Read *šaratum*?

² This source, Obv. 1-30 + Rev. 34-46, employs *IGI-GAB* for *namāru* in Obv. 1-30, but *IGI* only in Rev. 34-46,

unless line 36 be an exception, as is supposed by my rendering. I take *ŠI* for *taḫdū*, and cf. RA. 12, 7 n. 1. VIROLLEAUD transcribed *gab-lim*, by which he probably means *ḫablu*. I cannot see *GAB* on the tablet; *MU* seems to be clearly written. What then is *MU-ši*? *GAB* would be the better reading. ³ Sic: read 1 for 24.

⁴ K. 7072 + Rm. 134, 4, has 26 here. Rm. 134 has 6-day interval.

⁵ Text has *ki-i KA Ū-RA-šu*, like the original (it has been written and collated). Space for about 20 lines is broken away here. The colophon occupied a few lines, and the remainder was probably unincised.

