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Cécile Michel

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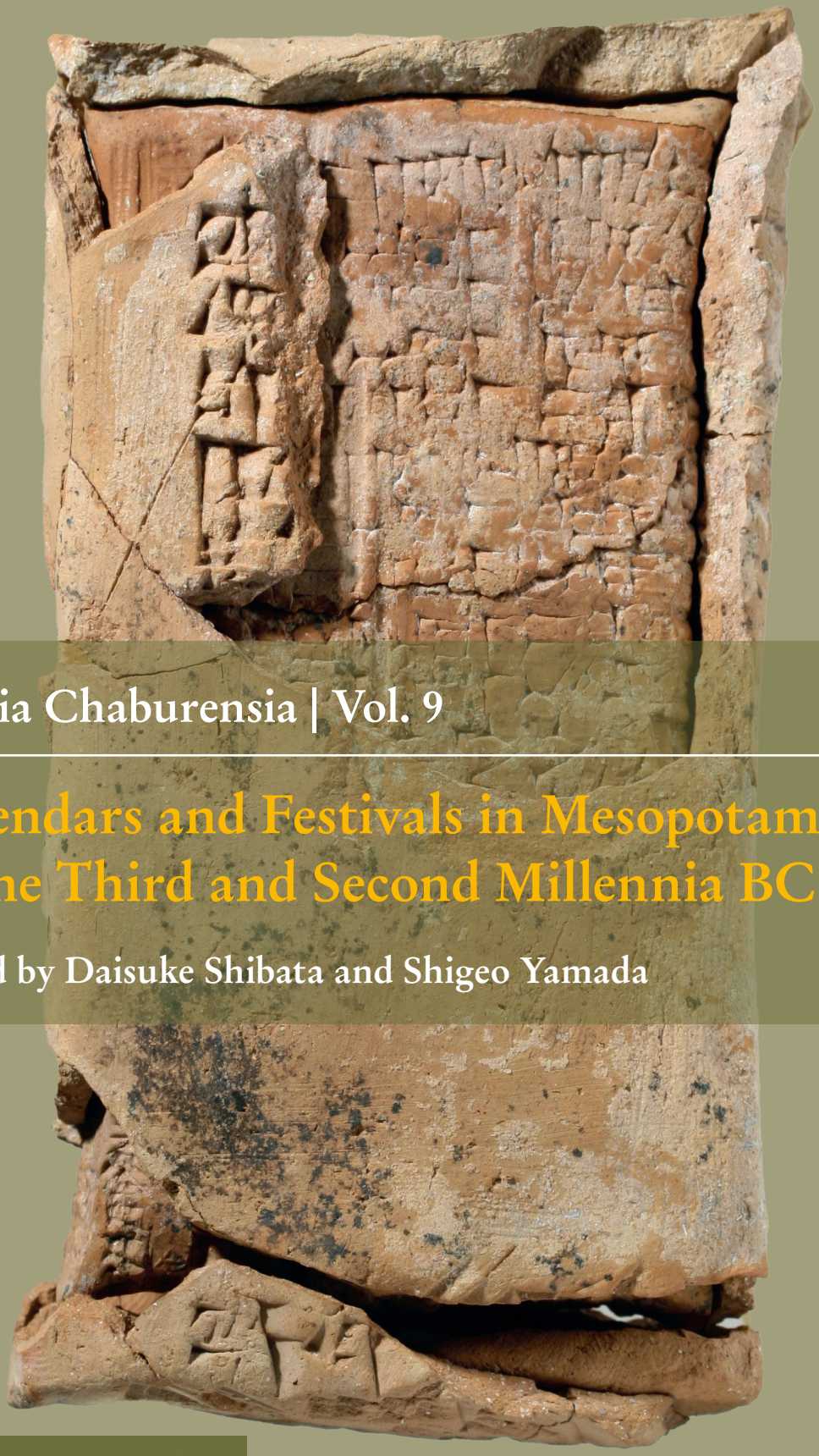

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Calendars and Festivals in Mesopotamia in the Third and Second Millennia BC

Edited by Daisuke Shibata and Shigeo Yamada

Harrassowitz Verlag

Studia Chaburensia

(StCh)

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Volume 9

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Cover illustration: An Old Babylonian clay tablet (Tab T06-4) wrapped in a clay envelope (Tab T06-5) from Tell Taban; @Tell Taban Archaeological Project.

Layout and design: Nobumasa Iwamura.

Studia Chaburensia (StCh)

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Preface

From the latter half of the third millennium to the end of the second millennium BC, various calendar systems emerged and were used in the cities of Mesopotamia and the surrounding regions. A variety of calendars were utilized at different cities until the so-called "Nippur calendar" or "Babylonian calendar" became predominant and was adapted broadly throughout the entirety of Mesopotamia towards the end of the second millennium BC. In order to compare the sources concerning calendars as practiced in different cities in various periods during the second millennium BC and earlier, a conference was held at the University of Tsukuba on March 23–24, 2016, with an international group of experts on the third and second millennia BC in attendance.

The program of the conference in 2016 was as follows:

March 23 (Wed.)
University of Tsukuba, Labo. of Advanced Research B 108
13:00–17:00
W. Sallaberger "Calendars in the third millennium BC: seasons, festivals and social identities"
L. Colonna d'Istria "Calendars and rituals at Mari during the *šakkanakkū* period (end of the 3rd — beginning of the 2nd millennia B.C)"
K. Maekawa "Seasonality of collective labor in third millennium southern Babylonia"
M.-G. Masetti-Rouault "Qasr Shemamok/Kilizu: how a Northern Mesopotamian city became Assyrian. Results of the first five years of studies on the site (2011–2015)"

March 24 (Thu.)
University of Tsukuba, Labo. of Advanced Research B 108
9:00–12:15
D. Charpin "'Nippur Calendar' and other calendars in the Old Babylonian period"
A. Jacquet "Calendar and festivals in Mari according to the royal archives"
N. Ziegler, "The Upper-Mesopotamian calendar (so-called 'Samsi-Addu calendar')"
C. Michel "Calendars in the Old Assyrian sources"
13:30–16:45
O. Rouault "Calendars, month names and local traditions in Terqa in the second millennium BCE"
D. Shibata and S. Yamada, "Calendars and festivals of Ṭabatum/Ṭabetu and its surroundings in the second millennium BC"
D. Fleming "The loss of the local calendar at Emar"
M. Yamada "The *zukru* cycle in Emar in the light of the agricultural rites performed in the firstmonth"

The conference was held as one of a series of study meetings aiming to clarify the scribal culture, society, and history of the Middle Euphrates and Habur areas and their relations to their surroundings during the second millennium BC. The results of the previous meetings, particularly the one held on December 5–6, 2013, has been published as the fifth volume of

DOI: 10.13173/97833471595.VII

Studia Chaburensia: S. Yamada and D. Shibata (eds.), *Cultures and Societies in the Middle Euphrates and Habur Areas in the Second Millennium BC – I: Scribal Education and Scribal Traditions* (2016). The present volume had initially been planned to continue the series with the title: *Cultures and Societies in the Middle Euphrates and Habur Areas in the Second Millennium BC – II: Calendars and Festivals*. However, because this volume deals with a broader geographical area in Mesopotamia and its surroundings while covering a more extended time period in the third and second millennia BC, its title was eventually modified to *Calendars and Festivals in Mesopotamia in the Third and Second Millennia BC*.

This volume includes ten papers from those contributed by the participants of the conference. Through a fresh review of available sources as well as the publication of new texts and documentary and archaeological data, it presents a useful set of studies on calendars employed in upper and lower Mesopotamia and its surroundings. It analyzes the ones used at Ĝirsu, Ebla, Nabada, Ur, Nippur, Mari, Aššur, Kaneš, Terqa, Ṭabatum/Ṭabetu, and Emar from the pre-Sargonic period to the end of the second millennium BC.

W. Sallaberger opens the volume with an article investigating the earliest calendrical systems in Syro-Mesopotamia in the third millennium BC. He scrutinizes various methods of month counting, month names, and seasonal festivals attested in the administrative and legal documents from Ĝirsu, Ebla, and Nabada (Tell Beydar). Furthermore, he analyzes the Early Semitic calendar and the Nippur calendar until the end of the Third Dynasty of Ur. The next article contributed by L. Colonna d'Istria deals with the calendars and festivals attested from Mari during the so-called *šakkanakku* period from the 23rd to the late 19th centuries BC. It traces the transition of the month and festival names and calendrical recording methods from its earlier phase to the later ones and also publishes several new administrative documents from Mari originating from the late *šakkanakku* period.

C. Michel's article provides an up-to-date synthesis of the calendar attested in Old Assyrian sources. It presents the Assyrian lunisolar calendar, which was composed of solar years named by eponyms and lunar months called by a distinct set of month names, both of which were adjusted together. The article also discusses seasonal events and terminology related to time units. D. Charpin's article focuses on the "Nippur calendar" commonly used in southern and central Mesopotamia during the four centuries of the Old Babylonian period. It discusses a variety of questions, such as how exactly the month names were read, how kings interfered with the reckoning of time, and the parallel use of the "Nippur calendar" with other local calendars.

The following two contributions concern the different sets of calendars best attested in the texts from Old Babylonian Mari. The article by N. Ziegler deals with the so-called "Šamšī-Adad Calendar," which was adopted within Šamšī-Adad's kingdom of Upper-Mesopotamia. It analyses the historical process of the imposition and endurance of the calendar in the region, the month names, and their seasonality and relations with other local calendars. This is followed by A. Jacquet's article, which focuses on the calendar used in Mari during the reign of Zimri-Lim. It reveals close interrelations between the intercalated lunisolar calendar and the seasonal and annual festivals practiced at Mari at that time.

The next two articles focus on the middle Euphrates and lower Habur in the post-Mari period. The contribution by O. Rouault discusses the calendars used in Terqa, presenting material from his excavations at the site, including valuable data from the unpublished archive found during the 12th season in 1989. By comparing Rouault's data with the material from the excavations at Ṭabatum/Ṭabetu (Tell Taban) and other sources, the article by D.

Shibata and S. Yamada examines the transition and characteristics of the various calendars used at Terqa and Ṭabatu during the second millennium BC.

The last two papers deal with the calendars of Emar, a city-state that flourished in the great bend of the Euphrates during the late second millennium BC. The article by D. Fleming attempts to locate the evidence for calendars attested in the Emar texts in historical context. The report by M. Yamada studies the cycle of the *zukru* festival that repeated every six or seven years, arguing that this festival functioned as an instrument for timekeeping in Emar.

The volume is equipped at the end with indices of the names of months and festivals, which will hopefully assist readers using the volume in future studies on the calendric traditions in Syro-Mesopotamia during and beyond the periods that this volume covers.

In conclusion, we would like to thank Harrassowitz Verlag and Hartmut Kühne for having accepted this volume in the series Studia Chaburensia and patiently waited during the delay in its completion. Our gratitude also goes to Gina Konstantopoulos and Timothy Hogue, who helped us edit the English text of this volume, and Sanae Ito and Yasuyuki Mitsuma, who assisted us in compiling indices and abbreviation lists. We also appreciate the assistance of the staff of the Research Center of West Asian Civilization (University of Tsukuba) in organizing the conference and coping with countless problems. Above all, we would like to thank all the participants of the conference and the contributors to this volume for sharing their knowledge and ideas with enthusiasm and commitment. The following grants were received from the Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT) and the Japan Society for the Promotion of Science (JSPS) for the organization of the conference and the publication of this volume: MEXT 24101007, 24101009, and 18H05445; JSPS 16H01948, 16KK0022, and 20H01321.

Daisuke Shibata and Shigeo Yamada
Tsukuba, July 2021

Abbreviations

Bibliographical Abbreviations

AAA	*Annals of Archaeology and Anthropology*
AAASyr.	*Annales Archéologiques Arabes Syriennes: Revue d'archéologie et d'histoire*
AbB	Altbabylonische Briefe in Umschrift und Übersetzung
AfO	*Archiv für Orientforschung*
AHw.	W. von Soden, *Akkadisches Handwörterbuch*
AKT	(*Ankara*) *Kültepe Tabletleri* / *Ankaraner Kültepe-Texte*
AMD	Ancient Magic and Divination
ANES	*Ancient Near Eastern Studies*
AnOr.	Analecta Orientalia
AOAT	Alter Orient und Altes Testament
AoF	*Altorientalische Forschungen*
APHAO	Association pour la Promotion de l'Histoire et de l'Archéologie Orientales: Publications de la Mission archéologique de l'Université de Liège en Syrie
ARET	Archivi Reali di Ebla. Testi: Missione archeologica italiana in Siria a cura dell'Università (degli studi) di Roma "La Sapienza"
ARM	Archives Royales de Mari
ARMT	Archives Royales de Mari. Traduction
ArOr.	*Archív Orientální: Quarterly Journal of African and Asian Studies*
AS	Assyriological Studies
ASJ	*Acta Sumerologica*
ASJ ss	Acta Sumerologica Supplementary Series
ATHE	B. Kienast, *Die altassyrischen Texte des Orientalischen Seminars der Universität Heidelberg und der Sammlung Erlenmeyer-Basel*, UAVA 1
AulaOr.	*Aula Orientalis*
AulaOr. Supp.	Aula Orientalis Supplements
BAH	Bibliothèque archéologique et historique
BASOR	*Bulletin of the American Schools of Oriental Research*
BATSH	Berichte der Ausgrabung Tall Šēḫ Ḥamad/Dūr-Katlimmu
BBVO	Berliner Beiträge zum Vorderen Orient
BBVOT	Berliner Beiträge zum Vorderen Orient – Texte
BiMes.	Bibliotheca Mesopotamica
BIN	Babylonian Inscriptions in the Collection of James B. Nies, Yale University
BiOr.	*Bibliotheca Orientalis, uitgegeven vanwege het Nederlands instituut voor het Nabije Oosten te Leiden*
CAD	A. L. Oppenheim et al., *The Assyrian Dictionary of the University of Chicago*

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CB III	Siglum for inventory number of texts in: Ö. Tunca and A. Baghdo (eds.), *Chagar Bazar (Syrie)* III: *Les trouvailles épigraphiques et sigillographiques du chantier I (2000–2002)*
CBCY	P.-A. Beaulieu et al., *Catalogue of the Babylonian Collections at Yale*
CCT	S. Smith et al., *Cuneiform Texts from Cappadocian Tablets in the British Museum*
CDLI	Cuneiform Digital Library Initiative (http://cdli.ucla.edu)
CDOG	Colloquien der Deutschen Orient-Gesellschaft
CHANE	Culture and History of the Ancient Near East
CT	Cuneiform Texts from Babylonian Tablets in the British Museum
CunMon.	Cuneiform Monographs
CUSAS	Cornell University Studies in Assyriology and Sumerology
DP	F. M. Allotte de la Fuÿe, *Documents présargoniques*
ECTJ	A. Westenholz, *Early Cuneiform Texts in Jena*
EDATŠ	F. Pomponio and G. Visicato, *Early Dynastic Administrative Tablets of Šuruppak*
Emar 6	D. Arnaud, *Recherches au pays d'Aštata: Emar* VI/1–4
FAOS	Freiburger Altorientalische Studien
FM	Florilegium marianum
GAG	W. von Soden, *Grundriß der akkadischen Grammatik*, AnOr. 33
GBAO	Göttinger Beiträge zum Alten Orient
GC1	G. Buccellati et al., *Terqa Data Bases* 1, *Graphemic Categorization* 1
HANEM	History of the Ancient Near East. Monographs
HANES	History of the Ancient Near East. Studies
HdOr.	Handbuch der Orientalistik. 1. Abteilung, Der Nahe und der Mittlere Osten
HEO	Hautes Études Orientales
HSS	Harvard Semitic Series
HUCA	*Hebrew Union College Annual*
IAS	R. D. Biggs and D. P. Hansen, *Inscriptions from Tell Abū Ṣalābīkh*, OIP 99
ICK	B. Hrozný, L. Matouš, and M. Matoušovà, *Inscriptions cunéiformes du Kultépé*
ITT	F. Thureau-Dangin et al., *Inventaire des tablettes de Tello: conservées au Musée Impérial Ottoman*
JAOS	*Journal of the American Oriental Society*
JCS	*Journal of Cuneiform Studies*
JEOL	*Jaarbericht van het Voor-Aziatisch-Egyptisch-Gezelschap "Ex Oriente Lux"*
JESHO	*Journal of the Economic and Social History of the Orient*
JNES	*Journal of Near Eastern Studies*
KAM 11	V. Donbaz, *Middle Assyrian Texts from Assur at the Eski Şark Eserleri Müzesi in Istanbul*, WVDOG 146
Kaskal	*Kaskal: Rivista di storia, ambiente e culture del Vicino Oriente antico*
KAV	O. Schroeder, *Keilschrifttexte aus Assur verschiedenen Inhalts*, WVDOG 35

KBo.	Keilschrifttexte aus Boghazköi
KKS	L. Matouš and M. Matoušová-Rajmová, *Kappadokische Keilschrifttafeln mit Siegeln aus den Sammlungen der Karlsuniversität in Prag*
KTP	F. J. Stephens, "The Cappadocian Tablets in the University of Pennsylvania Museum," *Journal of the Society of Oriental Research* 11, 101–136
KTS 1	J. Lewy, *Keilschrifttexte in den Antiken-Museen zu Stambul: Die altassyrischen Texte vom Kültepe bei Kaisarīje*
KTT	Siglum for inventory number of texts in: M. Krebernik, *Tall Biʿa/Tuttul–II: Die altorientalischen Schriftfunde*, WVDOG 100
KTU	M. Dietrich, O. Loretz, and J. Sanmartín, *Die keilalphabetischen Texte aus Ugarit, Ras Ibn Hani und anderen Orten*, Dritte erweiterte Auflage, AOAT 360/1
KUG	K. Hecker and J. Lewy, *Die Keilschrifttexte der Universitätsbibliothek Giessen: unter Benutzung nachgelassener Vorarbeiten von Julius Lewy*
LAK	A. Deimel, *Liste der archaischen Keilschriftzeichen*, WVDOG 40
LAOS	Leipziger Altorientalistische Studien
LAPO	Littératures Anciennes du Proche-Orient
LH	A. H. Podany, *The Land of Hana: Kings, Chronology, and Scribal Tradition*
MAD	I. J. Gelb, *Materials for the Assyrian Dictionary*
MARI	*MARI. Annales de recherches interdisciplinaires*
MARV	H. Freydank et al. (eds.), *Mittelassyrische Rechtsurkunden und Verwaltungstexte*
MCS	Manchester Cuneiform Studies
MDP	Mémoires de la Délégation en Perse
MEE	Materiali epigrafici di Ebla
MesCiv.	Mesopotamian Civilizations
MHEM	Mesopotamian History and Environment. Memoirs
MSL	B. Landsberger et al., *Materialien zum sumerischen Lexikon* / *Materials for the Sumerian Lexicon*
MTT	Matériaux pour l'étude de la toponymie et de la topographie
NABU	*Nouvelles Assyriologiques Brèves et Utilitaires*
NATN	D. I. Owen, *Neo-Sumerian Archival Texts Primarily from Nippur*
OBGT	R. Hallock and B. Landsberger, "Old Babylonian Grammatical Texts," *MSL* 4, 45–128
OBO	Orbis Biblicus et Orientalis
OBO SA	Orbis Biblicus et Orientalis. Series Archaeologica
OBTCB	Ph. Talon and H. Hammade, *Old Babylonian Texts from Chagar Bazar*, Akkadica Supplementum 10
OBTIV	S. Greengus, *Old Babylonian Tablets from Ishchali and Vicinity*
OBTR	S. Dalley, C. B. F. Walker, and J. D. Hawkins, *The Old Babylonian Tablets from Tell al Rimah*
OIP	Oriental Institute Publications
OLA	Orientalia Lovaniensia Analecta
Or.	*Orientalia*, Nova Series

OrAnt.	*Oriens Antiquus*: *Rivista del Centro per le antichità e la storia dell'arte del Vicino Oriente*
Orient	*Orient: Report/Journal of the Society for Near Eastern Studies in Japan*
OrS	*Orientalia Suecana*
OSP	A. Westenholz, *Old Sumerian and Old Akkadian Texts in Philadelphia, Chiefly from Nippur*
PIHANS	Publications de l'Institut historique et archéologique néerlandais de Stamboul
PIPOAC	Publications de l'Institut du Proche-Orient ancien
Prag I	K. Hecker, G. Kryszat, and L. Matouš, *Kappadokische Keilschrifttafeln aus den Sammlungen der Karlsuniversität Prag*
PSBA	Proceedings of the Society of Biblical Archaeology
PSD	Å. W. Sjöberg et al., *The Sumerian Dictionary of the University Museum of the University of Pennsylvania*
RA	*Revue d'assyriologie et d'archéologie orientale*
RE	Siglum for inventory number of texts in: G. Beckman, *Texts from the Vicinity of Emar in the Collection of Jonathan Rosen*
RGTC	Répertoire géographique des textes cuneiforms, Beihefte zum Tübinger Atlas des Vorderen Orients, Reihe B 7
RIMA	The Royal Inscriptions of Mesopotamia, Assyrian Periods
RIMB	The Royal Inscriptions of Mesopotamia, Babylonian Periods
RIME	The Royal Inscriptions of Mesopotamia, Early Periods
RlA	*Reallexikon der Assyriologie (und Vorderasiatischen Archäologie)*
RTC	F. Thureau-Dangin, *Recueil de tablettes chaldéennes*
SAAB	*State Archives of Assyria. Bulletin*
SANER	Studies in Ancient Near Eastern Records
Santag	SANTAG: Arbeiten und Untersuchungen zur Keilschriftkunde
SBL WAW	Society of Biblical Literature, Writings from the Ancient World Series
SET	T. B. Jones and J. W. Snyder, *Sumerian Economic Texts from the Third Ur Dynasty*
SGKAO	Schriften zur Geschichte und Kultur des Alten Orients
SJAC	Supplement to Journal of Ancient Civilizations
SMEA	*Studi Micenei ed Egeo-Anatolici*
StCh.	Studia Chaburensia
STH	M. I. Hussey, *Sumerian Tablets in the Harvard Semitic Museum*
STT	O. R. Gurney, J. J. Finkelstein, and P. Hulin, *The Sultantepe Tablets*
SVJAD	A. P. Riftin, *Staro-vavilonskie juridičeskie i administrativnye documcnty v sobranijach SSSR*
Syria	*Syria: Revue d'art oriental et d'archéologie*
TC	G. Contenau, F. Thureau-Dangin, and J. Lewy, *Tablettes cappadociennes*, TCL 4, 14, and 19–21
TCBI	F. Pomponio et al., *Tavolette cuneiformi di Adab delle collezioni della Banca d'Italia*
TCL	Textes Cunéiformes. Musée du Louvre, Département des antiquités orientales
TFR	O. Rouault, *Terqa Final Reports*, BiMes. 16 and 29

TPAK	C. Michel and P. Garelli, *Tablettes paléo-assyriennes de Kültepe* 1 (Kt 90/k)
TPR 7	O. Rouault, "Terqa Preliminary Reports No. 7: Les documents épigraphiques de la troiseème saison," *Syro-Mesopotamian Studies* 2/7, 165–180
TSA	H. de Genouillac, *Tablettes sumériennes archaïques: matériaux pour servir à l'histoire de la société sumérienne*
TSBR	D. Arnaud, *Textes syriens de l'age du Bronze récent*, AulaOr. Supp. 1
TSŠ	R. Jestin, *Tablettes sumériennes de Šuruppak conservées au Musée de Stamboul*
UAVA	Untersuchungen zur Assyriologie und Vorderasiatischen Archäologie
UET	Ur Excavations. Texts
UF	*Ugarit-Forschungen: Internationales Jahrbuch für die Altertumskunde Syrien-Palästinas*
VS	Vorderasiatische Schriftdenkmäler der Königlichen/Staatlichen Museen zu Berlin
WO	*Die Welt des Orients: Wissenschaftliche Beiträge zur Kunde des Morgenlandes*
WVDOG	Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft
WZKM	*Wiener Zeitschrift für die Kunde des Morgenlandes*
YOS	Yale Oriental Series. Babylonian Texts
ZA	*Zeitschrift für Assyriologie und Vorderasiatische Archäologie*
ZAW Beih.	*Zeitschrift für die Alttestamentliche Wissenschaft*, Beiheft

Sigla for Inventory Numbers

A.	1. Inventory number of texts from Tell Hariri/Mari 2. Museum number of objects in the Assur Collection, İstanbul Arkeoloji Müzeleri (Istanbul)
AO	Museum number of objects in the Antiquités Orientales, Musée du Louvre (Paris)
Ass.	Inventory number of objects excavated at Qalat Sherqaṭ/Aššur
IM	Museum number of objects in the Iraqi Museum (Baghdad)
Kt	Inventory number of objects excavated at Kültepe
L.	Inventory number of objects excavated at Tell Leilan
M.	Inventory number of texts from Tell Hariri/Mari
Msk	Inventory number of objects excavated at Meskene/Emar
NBC	Museum number of objects in the Nies Babylonian Collection, Yale University (New Haven)
Schaeffer	Inventory number of objects in the Cl. F.-A. Schaeffer Collection
Sem	Museum number of objects in the Kunsthistorisches Museum Wien
T.	Inventory number of texts from Tell Hariri/Mari
TA	Inventory number of objects excavated at Tell Taya
Tab T	Inventory number of objects excavated at Tell Taban
TH	Inventory number of objects excavated at Tell Hariri/Mari

TM.	Inventory number of objects excavated at Tell Mardikh/Ebla
TMH	Museum number of objects in the Frau Professor Hilprecht Collection of Babylonian Antiquities, Universität Jena (Leipzig)
TQ	Inventory number of objects excavated at Tell Ashera/Terqa
VAT	Museum number of objects in the Vorderasiatisches Museum (Berlin)
YBC	Museum number of objects in the Babylonian Collection, Yale University (New Haven)

Others

AKL	Assyrian King List
DN	Divine name
ED	Early Dynastic
KEL	Kültepe Eponym List
MEC	Mari Eponym Chronicle
MN	Month name
PN	Personal name
REL	Revised Eponym List
ZL	Zimri-Lim

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Calendars in Old Assyrian Sources*

The private archives excavated in the lower town at Kültepe, ancient Kaneš, attest to two different ways of measuring time. The Old Assyrian calendar, based on a solar year and lunar months, is already well known, but it is only quite recently that the beginning of the year has been fixed.[1] In Aššur, years were named after eponyms (*limum*). Over the last fifteen years, seven tablets containing lists of Aššur eponyms have been identified and published as Kültepe Eponym Lists (KEL). They give a long sequence of the succession of the eponyms — except for two gaps —, covering the period from the end of the 20th to the end of the 18th century BC. An intercalary month was added in some years to adjust the calendar to the agricultural cycle and solar year. A recent work suggests a possible reconstruction of the years that contained an additional month.[2] The Old Assyrian calendar has the peculiarity of using the word *ḫamuštum*, which is usually translated as "week," even though the number of days included in a *ḫamuštum* is still debated.

In Anatolia, loan contracts are not always dated according to the Old Assyrian calendar but can use as dates important events linked to the local ruler or his family, religious festivals or agricultural activities.

This contribution proposes an up-to-date synthesis of the calendars used during the Old Assyrian period and suggests that the Assyrians relied on the phases of the moon. All the dates given in the following pages are based on the traditional middle chronology, which places the death of Šamšī-Adad in 1776 BC, because there is no consensus yet on an absolute chronology for the first half of the second millennium BC.[3]

* My warmest thanks go to Benjamin Foster who kindly corrected the English of this article. This contribution was submitted on 9 April 2017, and was communicated to several colleagues. Since this date about a thousand of new Old Assyrian texts have been published which could not be used for this contribution.

1 See Dercksen 2011a. The most recent works concerning the Old Assyrian calendar are Michel 2010; Barjamovic, Hertel and Larsen 2012; Cohen 2015: 305–314.

2 Stratford 2015.

3 The ultra-low chronology proposed in the late 1990s (Gasche et al. 1998) seems to have been abandoned. Since the discovery of the possible mention of a solar eclipse in the Mari Eponym Chronicle, which was proposed to match with the 1833 BC total solar eclipse (Michel and Rocher 1997–2000; Michel 2002), more and more scholars are now focusing on time comprised between an upper middle chronology, which places Hammurabi's reign between 1792–1750, and a lower middle chronology, for which Hammurabi would have reigned between 1784 and 1742 (Barjamovic, Hertel and Larsen 2012; Roaf 2012; Nahm 2013; De Jong 2013; Manning et al. 2016; Veenhof 2017). See the forthcoming proceedings of a conference that took place in Lille in September 8–9, 2015: *New Perspectives on the Chronology of the Early Second Millennium BC in the Near East and Egypt*.

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1. Sources for the Old Assyrian and Old Anatolian calendars

About 22,500 cuneiform tablets written in the Old Assyrian dialect have been unearthed in the city of Kültepe, ancient Kaneš, in Central Anatolia. Of these, 22,000 tablets come from the houses of merchants, mainly Assyrians, located in the lower town and dated predominantly to the first half of the 19th century BCE.[4]

1.1. Texts with and without references to time

Only a small proportion of these written sources mentions a date. Indeed, almost 40 % of the Old Assyrian texts are letters sent from Aššur, from various Anatolian towns, or copies of letters written in Kaneš and sent elsewhere. Letters usually do not contain any date. But a few of them may record time elapsed since the receipt of a letter, a visit or a transaction; they can also announce an action to take place in the future. In the following letter, for example, Ṣillalabum and Elālī recall to their correspondents how patient they already have been: "Even though you left the City (of Aššur) thirty years ago, you have never made any deposit, and we did not take even a shekel of your silver. We have never blamed you! From caravan to caravan, our tablets have reached you, but never a message from you has come back here."[5] Such a span of time probably expresses a very long period and cannot be taken as precise. The same is true in the following text, even though the time elapsed is only one year: "Why are you lying here, where there is no father and no mother, making the disease worse? Instead of going down to the temple here, asking mercy from the god, praying constantly before your god so that brother and friend could give you encouragement, you have been sitting there for a year like a man with nothing to do, without purpose or desires."[6]

A letter could recall a debt and its term, specifying the time elapsed since its due date. In some cases, the term might have been accurate. The following example mentions a debt of 10 minas of silver: "From the eponym Ṣillulu, he will produce (it) within one year."[7] In other cases, it is clearly a relative interval of time: "Instead of 2 years, your term has exceeded 11 years!"[8]

Letters often make use of an expression in which the word *šattum* "year" appears at the same time as subject and predicate: *šattum šanat* "it is the right time/season to act" (literally "the year is the year"). It is often linked to the harvest time, corresponding to the period to

4 For a *catalogue raisonné* of the Old Assyrian written sources, see Michel 2003, 2005–06, 2011a and 2015; all references to tablets preserved in Ankara may be found in this Old Assyrian Bibliography and its supplements.

5 TC 3 1: 6–15 (Michel 2001: no. 211). See also Kt 88/k 507b: 11–12, *iš-tù mu-ta-ni*, 10 *ša-na-tim* : *a-bi* : *ib-lá-aṭ*, "After the epidemic, my father survived for ten years."

6 AKT 6a 287: 4–18, *mì-šu*, *ša a-ma-kam a-šar lá a-bi-im*, *ù um-mì-im na-lá-tí-ni-ma*, *ù mu-ur-ṣa-am a-na mu-ur-ṣí-/im*, *tù-ra-du-ú ki-ma a-na-kam*, *a-na* É DINGIR : *tù-ru-du-ma*, *iš-tí* DINGIR : *e-na-na-tim*, *té-ta-ri-šu ù* IGI *i-li-kà*, *tù-ta-na-nu-nu ù a-ḫu-um*, *ù eb-ru-um li-ba-am*, *i-da-na-ku-nu a-ta a-ma-kam*, *ki-ma a-wi-lim ra-qí-im*, *ša-na-at ta-ta-ša-áb*, *ša té-er-tám ù ḫu-ša-ḫa-am*, *lá tí-šu-ú*. For other examples, see AKT 3 25: 8–10 *iš-tù*, 3 *ša-na-at a-šu-mì-kà*, *ra-qá-a-ku*; CCT 3 3b: 6–7, *iš-tù* 2 *ša-na-at*, *ma-ar-ṣú-ma*; ICK 1 63: 27–28, *iš-tù* 3 *ša-na-at ma-tí-ma*, *ṭup-pá-kà* : *ša-num*, *ú-lá i-li-kam*.

7 BIN 4 42: 10–12, *iš-tù li-mì-im*, *Ṣí-lu-lu a-na ša-na-at*, *i-pu-uš*. See also BIN 6 51: 3–5, *a-ḫa-ma* 1 *ma-na* KÙ.BABBAR, *a-na* DAM.<GÀR> *a-dí-in-ma*, *a-na ša-na-at i-ša-qal*. "In addition, I gave 1 mina of silver to the *tamkārum* and he will pay it (back) within one year." See also ICK 1 187: 7, *u₄-mu-šu ša-na-at e-ta-at-qú*, "His term has expired."

8 KUG 35: 30–32, *a-pu-ùḫ*[!], 2 *ša-na-at* 11 *ša-na-tum*, *u₄-mu-kà e-tí-qú*.

renew cereal stocks: "The (harvest) season is now! Be sure to send me the silver you have in exchange for my textiles, so that I can buy barley, about ten *ṣimdu* measures (ca. 255 l.)."[9]

Months are often mentioned in letters without specification: "instead of ten days, two or three months have elapsed,"[10] or "a two or three months," meaning "a few months."[11] On some occasions, the number of months elapsed since an event is given: "On the order of Anuma, I have been in jail since ten months (waiting) to die there."[12] And, more rarely, month names could be specified, as in this letter sent to Aššur-taklāku by his mother Abšalim, while he was in jail: "Here, we heard that since the month Maḫḫur-ilī (iv), they have detained you."[13]

The day unit is very common in the Old Assyrian letters and has already been the subject of a study (Michel 2010). The current expression *ina šamši*, "on the very day," often refers to the moment when the addressee read the letter containing this expression.[14]

The second large category of texts preserved in the Old Assyrian archives includes contracts and judicial records. The contracts concern family law, loans and receipts, caravan services and transports, investments, deposits, partnerships, deeds of purchase, etc. (Hertel 2013: 137). Family contracts could occasionally mention an interval of time during which something should happen, as for example in this marriage contract: "If, within three years, Ištar-lamassī does not see a baby, he may buy a female slave and take her (for procreation)."[15] Labor contracts could stipulate a specified number of years during which someone was employed: "from the moment he loads up (i.e. starts his work as a donkey driver), he will remain in Puzur-Ana's service for five years."[16] But only loan contracts regularly contain a date.

The judicial records are witnessed depositions, records of private arbitration, binding orders, verdicts, etc. These texts exceptionally have a date.

Other tablets found in the archives, such as lists, private accounts, memoranda, and rare non-commercial texts, never contain a date.

1.2. Sources concerning the Old Assyrian calendar

The main sources to reconstruct the Old Assyrian calendar are loan contracts (Michel in press). These documents may specify the date object was given by the creditor to the

9 CCT 3 24: 33–38, *ša-tum* : *ša-na-at*, *i-ḫi-id-ma* : *me-eḫ-ra-at*, [TÚG] *ṣú-ba-tí-a* : KÙ.BABBAR : *i-na*, [*ša*] *i-qá-tí-kà-ma* : *i-ba-ší-ú*, *šé-bi₄-lam-ma* : *še-am* 10 ÁŠ, *lá-áš-am*. See also AKT 2 31: 26–27; AKT 2 42: 8; AKT 2 46: 8; AKT 6c 597: 29–30; ATHE 65: 15; BIN 6 118: 11–12; CCT 3 25: 12–13; CCT 3 34a: 3, etc.

10 KTS 1 1a: 8–10, *a-pu-ùḫ* 10 *u₄-me*, 2 ITI.KAM *ù* 3 ITI.KAM, *i-li-ik*.

11 TC 3 46: 13′–14′, ITI.KAM 2$^{šé-na}$, *ú ša-la-ša-at*. See also TC 2 15: 10–13 *ù šu-ma* : KÙ.BABBAR : *a-ma-kam*, *lá i-šu-ma* : *ma i-na ra-mì-ni-ka*, *ta-áš-ta-qal-ma* ITI.KAM : *iš-té-en₆*, *ù šé-na i-ta-ab-e-el-kà*, "and if I had not silver there, well, you could have paid it from your own (silver), and it would have been unavailable to you for one or two months (only)."

12 Kt 87/k 249b: 27–30, *i-pì-i*, *A-nu-ma iš-tu* 10 ITI.KAM *a-na*, *mu-a-tim* : *i-na ki-šé-er-ší-im*, *na-ad-a-ku* (Hecker 1996: 156–157).

13 Kt 93/k 296: 2–4, *a-na-kam*, *iš-tù* ITI.KAM : *ša Ma-ḫu-ur*-DINGIR, *ki-ma ú-kà-lu-kà-ni* : *ni-iš-me-ma*. My warmest thanks go to Fikri Kulakoğlu who allowed me to work on and publish Kültepe texts found in 1993.

14 It is also used in other contexts with the same meaning, as for example in *i-na* ^{d}UTU-*ši wa-ṣa-i-kà* 'on the day of your departure' (AKT 1 24: 18–19).

15 Prag I 490: 18–22, *šu-ma*, *Ištar-lá-ma-sí a-dí* 3 *ša-/na-at*, *šé-ra-am lá e-mar*, GEMÉ *i-ša-a-ma*, *e-ḫa-az* (Michel 2020: no. 23).

16 AAA 1 14: tab. 7–11, *iš-tu*, *wa-dí i-sà-ri-*[*d*]*u-ni*, *a-dí* 5 *ša-na-at*, *iš-tí Puzur₄-A-na*, *ú-ša-áb*.

debtor; this date is usually expressed as follows: "Month MN, eponym PN." However, some loan contracts do not necessarily indicate the date at which it took effect.

Old Assyrian loans were usually for less than a year. When specified, the term of the loan is often expressed in *ḫamuštum* (pl. *ḫamšātum*), a term translated by "week" but whose length is still debated. The contracts bear the name(s) — one or two merchants' names — given to the *ḫamuštum* during which the loan took effect, then the number of *ḫamuštum* to elapse before the loan expires. In rare cases, the length of the loan is computed in months.

Other formulae may be used to fix the term of the loan which do not refer to the calendar. These suggest sometimes an oral agreement between the parties. Thus, the debtor may be asked to pay "on demand" (*ana ettišu*). Some commercial loans suggest that the debtor is travelling with the loaned merchandise, since the reimbursement of the loan may take place at his return (*ina tuwār ḫarrānim*), or when debtor and creditor will meet again, either in Aššur or in Anatolia (*lu ina ālim lu ina eqlim ali inammurūni*). It was also possible that no date was written in the contract; it was then implicit or fixed orally.

1.3. Sources concerning the Anatolian system of computation of time

Among the archives discovered in the houses of Kültepe lower town, there are small groups of tablets which involve mainly Anatolians and may have belonged to Anatolian families (Michel 2011b). These archives, which contain usually a few dozen texts, do not include letters, but mainly contracts. The terms of the loan contracts found in these archives may be fixed after important events linked to the local ruler or his family, but also after religious festivals in honour of an Anatolian god or goddess or seasonal agricultural activities. This dating system could be used alone, or combined with Assyrian dates.

2. The Old Assyrian calendar

The Old Assyrian calendar was based on a solar year and lunar months. Contrary to the Old Babylonian system, in which years were named after an important event which took place the previous year, in Aššur, years were given the name of an eponym, *limum*.

2.1. Solar years named by eponyms

Old Assyrian eponyms are known from the date formulae written in loan contracts, as well as from several eponym lists unearthed in the houses of Kaneš lower town. Over the past fifteen years, seven tablets containing lists of Aššur eponyms have been identified and published under the name "Kültepe Eponym List (KEL)." Six of these eponym lists are dated to Kültepe lower town level II and cover the 20th century and a large first half of the 19th century BCE. The last eponym list is dated to Kültepe lower town level Ib, and it covers the end of the 19th century and the whole 18th century BCE. In all, these seven Kültepe Eponym Lists cover more than 250 years, with two gaps occurring during the 18th century BCE. A detailed analysis of these lists was published by G. Barjamovic, T. K. Hertel and M. T. Larsen (2012), and they proposed a reassessment of the succession of eponyms (Revised Eponym List), especially during the 18th century. In the Table 1 presented hereafter, numbers are given to eponyms according to the Revised Eponym List (REL).

Table 1: Eponyms (nos.) included in the different Kültepe Eponym List manuscripts dated to Kültepe lower town level II (ca. 1945–1835) and Ib (ca. 1832–1700)
* Dates of reigns according to the middle chronology.

KEL manuscripts	KEL A[17]	KEL B[18]	KEL C[19]	KEL D[20]	KEL E[21]	KEL F[22]	KEL G[23]
Kings of Aššur (years of reign) dates of reigns	nos.	nos.	nos.	nos.	nos.	nos.	nos.
Erīšum I (40) 1972–1933	1–40	1–40	1–20	1–40	1–40	1–7	
Ikūnum (15) 1932–1918	41–55	41–55		41–55	41–55		
Šarru-kēn (40) 1917–1878	56–95	56–95		56–95	56–95		
Puzur-Aššur II (8) 1877–1870	96–103	96–103		96–103	96		
Narām-Suen (34+0 to 20) 1869– ?	104–130	104–106		104			111– ?
Erīšum II (7+0 to 20) ? –1809							? –164
Šamšī-Adad I (33) 1808–1776							165–197
Išmē-Dagan (40?) 1775–1736?							198–237
1735–1718							238–255

17 KEL A = Kt 92/k 193 = AKT 5 73 (list of the first 129 eponyms). See Veenhof 2003: 6–10; Veenhof 2007; Günbattı 2008a: 123–126; Günbattı 2008b: 127–130; Barjamovic, Hertel and Larsen 2012: 3–5, 55–67, 91–94, 97–98; Kryszat 2015.

18 KEL B = Kt 91/k 555 (list of the first 106 eponyms). See Veenhof 2003: 3–5, 10–11; Veenhof 2007; Günbattı 2008b: 127–130; Barjamovic, Hertel and Larsen 2012: 5.

19 KEL C = ICK 2 345 (list of the first 20 eponyms). See Veenhof 2003: 3–5, 10–11; Günbattı 2008a: 104.

20 KEL D = Kt n/k 517+1571 (list of the first 104 eponyms). See Veenhof 2003: 3–5, 10–11; Veenhof 2007; Günbattı 2008b: 125–135; Barjamovic, Hertel and Larsen 2012: 5. A photo of this tablet is published by Kulakoğlu and Kangal 2010: no. 407.

21 KEL E = Kt 94/k 836 (list of the first 96 eponyms). See Veenhof 2007; Günbattı 2008a: 104; Günbattı 2008b: 125; Barjamovic, Hertel and Larsen 2012: 5.

22 KEL F = Kt p/k 9 (list of the first 7 eponyms). See Günbattı 2008b: 125 n. 4, 133; Günbattı 2008a: 104.

The "Mari Eponym Chronicle (MEC)," also called "Mari Assyrian Chronicle," known by several fragments discovered in the Mari palace and dated to the reign of Šamšī-Adad (king of Upper Mesopotamia, 18th century BC), helps to fill gaps of the Kültepe Eponym List. It summarizes, after the name of each eponym, an important event of the year.[24] Note that Aššur eponyms were also used in the dates of texts from Ašnakkum (Chagar Bazar), Šubat-Enlil, Amkuwa, and Hattuš(a).

The eponym played an important role in the city administration the *bēt limim* or *bēt ālim*; there he was involved in the long distance trade, collected taxes and levied fines (Larsen 1976: 192–217; Dercksen 2004: 52–61; Kryszat 2004). The new eponym was chosen in Aššur, presumably by lot, among the elite families of the city. It took a little time before the name of the new eponym became known in Anatolia, where the loan contracts containing dates were found. Since it was impossible to know in advance the name of the new eponym at Kaneš, during the first months of the year, when the roads were closed between Aššur and Anatolia during the winter months, dates in Kaneš used the name of the previous eponym, *limum ša qāti* PN, "the eponym following PN" (hereafter expressed by REL n+1).[25] We usually find mentions of *ša qāti* eponyms during the first four months of the year (but not only, see below).[26]

2.2. Lunar month and half month

2.2.1. Old Assyrian months

The Old Assyrian luni-solar calendar consisted of 12 months (iti, *warḫum*), of 29 or 30 days, with the insertion of intercalary months some years. Month names are attested in the date formulae of the loan contracts. In some instances, the term of the loan is computed in months: *ištu* (SAG) ITI.KAM MN *ana* ITI.X.KAM *išaqqal* "from the (beginning of) month MN in x months he will pay."

23 KEL G = Kt 01/k 287. See Veenhof 2007; Günbattı 2008a; Günbattı 2008b: 125–126; Kryszat 2008: 211–217; Dercksen 2008 (Colophon); Lacambre 2009; Barjamovic, Hertel and Larsen 2012: 6–26, 94–102, 109–114; Liebig 2012; Bloch 2014; Charpin 2014; Lacambre and Nahm 2015: 20.

24 The Mari Eponym Chronicle (MEC) is presented here according to Editions I–III, see Veenhof in press, and to letters A–G, see Birot 1985. Edition I: M. 7481+11250 obverse (A), S. 24-1, 2 and A. 1614b obverse (B). S. 24-3 (D). S. 24-1, 2 and A. 1614b reverse (E). M. 7481+11250 reverse (G), S. 24-3 and A. 1614a (F). See Birot 1985: 238–239 and 241–242; Charpin and Ziegler 2003: 72, 83–84, 86, 90, 97, 100 and 112. Edition II: A. 1288 (C). See Birot 1985: 237 and 241; Charpin and Ziegler 2003: 82; Durand 1990: 274–275. Edition III: S. 115-26 (B), perhaps same edition as M. 5911 and M. 8566. See Birot 1985: 240 and 242; Charpin and Ziegler 2003: 34, 84 and 212; Charpin 2014.

25 Larsen 1976: 19.

26 Kryszat 2004 has collected all the references to *limum ša qāti*. See also Veenhof 2000: 145; Stratford 2015.

The Old Assyrian months are named after cultic and seasonal events (Table 2):[27]

Table 2: Old Assyrian months

i	Bēlet-ekallim	vii	Ṣipʾum
ii	(Narmak Aššur) ša Sarrātim	viii	Qarrātum
iii	(Narmak Aššur) ša Kēnātim	ix	Kanwarta
iv	Maḫḫur ilī	x	Teʾinātum/Suen
v	Ab šarrāni	xi	Kuzallu
vi	Ḫubur	xii	Allānātum

The name of month x changed: during Kültepe lower town level II, it was "the month of figs," while during level Ib it was named after the Moon God, Suen.[28]

2.2.2. The beginning of the Old Assyrian year

Months x and xii were linked to agricultural products, respectively the "figs" and the "hazelnuts."[29] The late fig harvest took place in September/October, and the hazelnut harvest in November. This observation suggests, as proposed by M. T. Larsen (1976: 193), that the Old Assyrian year began with the winter solstice.

This hypothesis was confirmed by J. G. Dercksen who mentioned an unpublished tablet, Kt c/k 568, giving a synchronization between the harvest (*ṣibat niggallim*) and month Ṣipʾum (vii).[30] It was thus different from the calendar of the Upper Mesopotamian kingdom of Šamšī-Adad, which started at the autumn equinox.[31] During the winter months, between December and beginning of April, communication between Aššur and Anatolia was almost impossible.[32]

2.2.3. Intercalary months

K. R. Veenhof has suggested that an intercalary month could be added at the end of some years.[33] This intercalary month was sometimes called Zibibirum, attested in years REL 81+1 and 85. Month Zibibirum may also be attested during the middle *šakkanakku* period at Mari under the form *zi-bi-ra*.[34]

A second solution was to duplicate the last month of the year, *Allānātum*. The existence of a *ša qāti* eponym (REL n+1) during month xii would suggest the addition of a supplementary

27 Donbaz 1971; Donbaz 1984; Cohen 2015.

28 TPAK 1 121: 6, ITI.KAM : *Sú-en*$_6$.

29 Sturm 2008.

30 Dercksen 2011a: 238. Previous studies suggested a beginning of the Old Assyrian year the day of the autumnal equinox (September 22) (Veenhof 2008a: 243; Michel 2010: 222).

31 See Charpin and Ziegler 2013: 64–65. Later on, during Zimrī-Lîm's reign, the beginning of the year was fixed in spring.

32 Michel 2008; Veenhof 2008b; Barjamovic 2011.

33 Veenhof 1995–96: 13–15, who quotes texts BIN 4 207: 10 (ITI *Zi-bi-bi-ri-im*, in REL 81+1), Kt k/k 71: 18–19 (ITI.KAM *Zi-bi-bi*$_4$*-ri-im*, REL 85, courtesy K. Hecker) and Kt 89/k 428 (SAG ITI *Zi-bi-ba-ri-im*), and Veenhof 2000.

34 See L. Colonna d'Istria in this volume, and text TH 07-T1. Note that this month is not attested during later periods at Mari. O. Rouault has identified under the late Hana kings Išar-Lim and Hammurabi a month Biriṣṣaru (TQ 12-03-47, GC1-02-29), which resembles to the Old Assyrian month.

month; this happened during REL 81+1 (Kt k/k 65), 88+1 (Kt 87/k 284), 92+1 (Kt 87/k 299), 98+1 (Kt 87/k 330), 100+1 (Kt a/k 435) and 108+1 (CCT 1 2).[35] The year REL 82 would have added an additional month, named sometimes Zibibirum and sometimes Allānātum II.[36] The status of this supplementary month is ambiguous: it comes after the twelfth month of the year, as a thirteenth month, but is considered as part of the following year. Indeed, the year in which it appears is indicated with the *ša qāti* formula (except for REL 85), as for months i, ii and iii of the year, suggesting that people of Kaneš did not know yet the name of the new eponym chosen in Aššur.[37] Thus, there would have been intercalary months at the beginning of years 82 – 85 – 89 – 93 – 99 – 102 – 109, which would have been considered the thirteenth month of the previous year. Taking into account that we no doubt miss some data, this would mean that there were months added every three to five years.

Such an addition of intercalary months allowed adjusting the calendar to the solar year and agricultural cycle, but it was not consistent. Other years with intercalary months are attested in sources from Mari, Chagar Bazar, Tell Leilan and Tell al-Rimah, using the Aššur eponym system; they correspond to years REL 191 – 207 – 215 – 224 – 226 – 243 (Dercksen 2011a: 238). E. Stratford tried to implement other intercalary months by constructing a model inspired by the Julio-Gregorian calendar for the period between REL 81 and 110, assuming that the lunar months alternated between 29 and 30 days. He tried to match his model with the astronomical calendar and obtained a chart with a relative stability of the intercalation sequence. Such a model involves too many hypotheses, among these a regularity of the intercalary months already at the beginning of the second millennium BC (Stratford 2015).[38]

2.2.4. Half month and phases of the moon

The Old Assyrian loan contracts involving Assyrians sometimes make use of dates based on the observation of the moon. The month (*warḫum*) was made of 29 or 30 days,[39] and the first day of the month corresponded presumably to the first visibility of the new moon.[40] According to K. R. Veenhof, datings by month would implicitly refer to the first day of the month (Veenhof 1995–96: 19).

35 See Veenhof 2000: 144–147. These years differ slightly from those given by Stratford 2015: 312: REL 82, 88, 92, 98, 101, 109. He gives the following two years for the appearance of month Zibibirum: REL 82, 84.

36 Kt k/k 65: 8–11, ITI.1.KAM *A-lá-na-tim*, *li-mu-um ša i-qá-tí*, *Id-na-A-šur dumu Ku-bi*$_4$*-dí*, *i-lá-qé-ú*, "month Allānātum, eponym who will take over from Iddin-Aššur, son of Kubidi." See Veenhof 2000: 143.

37 Stratford 2015: 303 notes that "In years with an intercalation, the end of Month XII would give way to another (intercalary) Month XII, falling in the current eponym year."

38 In Mari, for example, month intercalation was very irregular, see Charpin and Ziegler 2013: 60 n. 14.

39 According to Dercksen 2011a: 238 n. 22: "to facilitate trade, interest was expressed per month (sometimes per year), one month was put at 30 days." We suggest that this theoretical count was limited only to the computation of debts' interest in the following configuration: "1 ½ shekels per mina per month (of 30 days)." The mention of an interest paid "from this full moon" (KTP 45: 7′–9′ cited, below in note 45), or the use of the word *šapattum*, "full moon," indicates that theoretical month fixed at 30 days was not used regularly in connection with interest. The possible existence of such a fixed calendrical month length of thirty days independent of the lunar observations, each month divided in three parts of ten days each, has already been suggested by M. Tanret for the Old Babylonian period (Tanret 2004), proposal rejected by Steele 2011.

40 For a general introduction to the luni-solar system, see Steele 2011: 479. There are more than twenty references to "SAG ITI.KAM," which could refer to the beginning of the month, or to the transition from a month to the next one. Such a system was in use during the Ur III period, see W. Sallaberger in this volume. At Mari, according to A. Jacquet (in this volume), the first day of the month was marked by the disappearance of the moon (*biblum*) and the appearance of the new moon (*namurtum*) corresponded to the second day of the month.

Besides numerals referring to specific days (Michel 2010: 219–220), there could be, within a month, mention of days corresponding to the phases of the moon (Veenhof 1995–96):

- First day of the month: "From the *ḫamuštum* of Aḫ-šalim, at the appearance of the (Moon) God" (*nāmarti ilim*).[41]
- End of the month: "From the *ḫamuštum* of Aḫ-šalim, the (Moon) God having disappeared" (*ilum ūbilma*).[42]
- Specific date: "Month iv, (when) the (Moon) God was standing (in the sky) for five days," REL 133 (*ilum* 5 *ūmim izzaz*).[43]
- Specific date: "In four days the (Moon) God will rise and it is/will be the *ḫamuštum* of Adad-ṣulūli [x x (x)]," xi/REL 99 (*ilum išaḫḫiṭ*).[44]

The Assyrians also used a time unit, the *šapattum*, which, in some texts, corresponds to the day of the full moon: "From this full moon, we took as interest."[45] This word is often used in the following expression: *ilum šapattam illik-ma*, literally: "the (moon)god having reached the full moon stage:"[46]

a) "Month v, the (moon)god having reached the full moon stage, (PN) will pay within two monthes (…)" REL 103.[47]
b) "Month v, the (moon)god having reached the full moon stage, from the *ḫamuštum* of Ahu-waqar, son of Zurzur, (they received the silver)," REL 106.[48]
c) "From the *ḫamuštum* of Aššur-mūtappil, month vi, the (moon)god having reached the full moon stage," (they will deposit copper: verdict) REL 103.[49]
d) "From the *ḫamuštum* of Kudātum, the (moon)god having reached the full moon stage," x/REL 105.[50]
e) "From the *ḫamuštum* of the son of Suʾetata, the (moon)god having reached the full moon stage he took the silver," iii/REL 97+1.[51]

41 ICK 2 45a: 6–8, *iš-tù ḫa-mu-*[*uš-tim*], *ša Aḫ-ša-lim*, *i-na na-*[*ma-ar-tí* DINGIR …].

42 ICK 2 196 (envelope): 3′–5′, *iš-tù ḫa-mu-uš-tim*, *ša Aḫ-ša-lim* DINGIR$^{lu\text{-}um}$, *ú-bi$_4$-il$_5$-ma* […].

43 AKT 1 35: 9–12, ITI.KAM *Ma-ḫu-ur-i-lí*, DINGIR 5 *u$_4$-mì-im*, *i-za-az li-mu-um*, *Sí-in-iš-me-a-ni*.

44 AKT 6b 351: 22–26, *a-na* 4 *u$_4$-*[*me*], DINGIR : *i-š*[*a-ḫ*]*i-iṭ-ma* [*ḫa-muš*]*-tum*, *ša* ^{d}IM-*ṣu-lu-li* x x (x)], ITI.KAM *Ku-zal-li* [*li-mu-um*], *Ṣi-lu-lu*.

45 KTP 45: 7′–9′, *iš-tù ša-pá-tim*, *a-ni-tim a-ṣí-ib-tim*, *ni-il$_5$-qé-ma*. Note that this word is always used in texts involving Assyrians, except on the partly broken envelope Kt 93/k 206: 5′–6′, DINGIR *ša-pá-tám*, *i-li-ik-ma*; in what is preserved of it, only Anatolian names are mentioned.

46 Some of these examples were already given by Veenhof 1995–96: 17.

47 Kt 87/k 290: 11–13, 18–20 (courtesy K. Hecker), ITI.KAM *Áb ša-ra-ni*, DINGIR *ša-pá-tám i-li-ik-ma*, *a-na* 2 ITI.KAM *i-ša-qal* (…) *li-mu-um*, (sealing), *I-na-a* DUMU *A-mu-ra-a*.

48 OIP 27 56: 22–25, ITI.KAM *Áb ša-ra-nim* DINGIR : *ša-pá-tám i-lik-ma*, *iš-tù ḫa-muš-tim ša A-ḫu-wa-qar*, DUMU *Zur-zur* : *li-mu-um A-šur-i-mì-tí*, *ma-lá-ḫu-um*.

49 Kt a/k 497b: 3–9, *iš-tù*, *ḫa-mu-uš-tim ša*, *A-šùr-mu-ta-pí-il$_5$*, [ITI].KAM : *Ḫu-bu-ur* : DINGIR, *ša-pá-tám* : *i-li-ik*, *li-mu-um I-na-a*, DUMU [*A*]*-mu-ra-a*.

50 Kt 93/k 531: 37–39, *iš-tù ḫa-muš-tim ša Ku-da-tim*, DINGIR *ša-pá-tám i-li-ik* ITI.KAM *Té-i-na-tim*, *li-mu-um A-šùr-ma-lik* DUMU *A-lá-ḫi-im*.

51 Kt a/k 459: 10–16, *iš-tù ḫa-muš-tim*, *ša* DUMU *Sú-e-ta-ta*, DINGIR *ša-pá-tám*, *i-li-ik-ma* KÙ.BABBAR, *il$_5$-qé* ITI.1.KAM *ša*, *Ke-na-tim li-mu-um*, *ša qá-tí Ku-bi$_4$-a*.

f) "From his (debtor's) *ḫamuštum*, the (moon)god having reached the full moon stage, (…) from the *ḫamuštum* of Uṣur-ša-Ištar, the (moon)god having reached the full moon stage."[52]
g) "From the *ḫamuštum* of Enna-Aššur, the (moon)god having reached the full moon stage, he will pay within five *ḫamšātum* (…)," ii/REL 95+1.[53]
h) "From the *ḫamuštum* of Aššur-malik, the (moon)god having reached the full moon stage," v/REL 101.[54]
i) "From the *ḫamuštum* of Puzur-Aššur, month xi, the (moon)god having reached the full moon stage," REL 106.[55]
j) "From the *ḫamuštum* of Kudātum, x/REL 105, the (moon)god having reached the full moon stage, he will pay the silver two months after his arrival in Kaneš."[56]
k) "From the *ḫamuštum* of the *kaššum* following the one of Iddin-Kūbum, the (moon) god having reached the full moon stage, and he took the silver; month vii/REL 103."[57]

In example a) the loan is computed from the middle of month v until the middle of month vii. All the other examples express a date at the middle of a month, in connection with a specific *ḫamuštum* (see below). The *kaššum* was an Anatolian official (Kryszat 2004: 162–164). According to K. R. Veenhof the term seems to be used as a "general designation that substitutes for a specific title or function" (Veenhof 2008a: 226–227).

In other texts, the *šapattum* corresponds to half a month, the month being divided in two by the *šapattum* day: the *šapattum* here would refer to the first fourteen or fifteen days of the month ending with the *šapattum* day:

l) "Your due date is exceeded by two months, he (said) as follows: 'I will take interest for two and half months.'"[58]
m) "So he took interest for two and a half months: 17 ½ shekels of silver."[59]
n) "For seven years, one month and a half month, I sat in darkness together with my troops" (Sargon Legend).[60]

52 Kt n/k 220: 4–6, 13–15, *iš-tù ḫa-muš-tí-šu*, DINGIR : *ša-pá-tám*, *i-li-ik-ma* (…) *iš-tù ḫa-muš-tim*, *ša Ú-ṣur-ša-Ištar* DINGIR, *ša-pá-tám i-li-ik-ma*.

53 Kt m/k 147: 66–68, 69–70, *iš-tù ḫa-m*[*uš-tim*], [*ša*] *E-na-A-šur* DINGIR *ša-pá-tám i-li-ik-ma a-na* 5 *ḫa*-[*am-ša-tim*], [*i-ša*]-*qal* (…) ITI.KAM *ša Sà-ra-tim* [*li-mu-um*], [*ša*] *qá-tí* [*A*]-[*šur*]-*i-dí*.

54 Kt c/k 384: 18–22, *iš-tù*, *ḫa-mu-uš-tim* : *ša A-šur-ma-lik*, *i-lu-um* : *ša-pá-tám*, *i-li-ik* : ITI.1.KAM *Áb ša-ra-ni*, *li-mu-um I-ku-pì-Ištar*.

55 Kt k/k 82: 12–16 (courtesy K. Hecker), *iš-tù ḫa-muš-tim*, *ša Puzur*$_4$*-A-šur*, ITI.KAM *Ku-zal-li* DINGIR *ša-pá-tám i-li-ik*, *li-mu-um A-šur-i-mì-tí*, *ma-lá-ḫu-um*.

56 AKT 6b 411: 6–10, *iš-tù ḫ*[*a-muš-tim*], *ša Ku-da-tim* ITI.KAM *Té-i*-[*na-tim*], *li-mu-um A-šur-ma-lik* DUMU *A*-[*lá-ḫi-im*], DINGIR *ša-pá-tám i-li-ik-ma*, *i-e*-[*r*]*a-bi*$_4$*-/šu-ma*, *i-Kà-né-eš* ITI.2.KAM *i-lá-ak-ma*. Even if the date is exactly the same, the persons involved are different from those concerned with Kt 93/k 531 quoted above note 50.

57 Kt a/k 1055b: 5–11, *iš-tù ḫa-muš-tim*, *ša kà-ší-im*, *ša qá-tí I-dí-Ku-bi-im*, DINGIR *ša-pá-tám*, *i-li-ik-ma* KÙ.BABBAR, *il*$_5$*-qé* ITI.KAM *Ṣí-ip-im*, *li-mu-um I-na-a* DUMU *A-mu-ra-a*. Note that we find also the expression *warki šapattim*, "after the full moon" in Kt 89/k 294: 5.

58 KKS 12a: 5–8, *ú-mu-kà* ITI.2.KAM, *e-tí-qú um-ma šu-ut-ma*, *ša* ITI.2.KAM *ù ša-pá-tim*, *ṣí-ib-tám a-lá-qé*.

59 AKT 6c 671: 11–13, *ša* 2 ITI.KAM, *ú ša-pá-tim* 17 ½ GÍN KÙ.BABBAR *ṣí-bi-/tim*, *il*$_5$*-qé*.

60 Kt j/k 97: 11–13, MU.7.ŠÈ ITI.1.KAM, *ù ša-pá-tám i-na i-ki-il*$_5$*-tim*, *qá-du-um um-me-a-ni-a lu ú-ší-ib*.

o) "I have taken 2/3 shekel and 15 grains (of silver) as interest on five minas of silver for (a loan for) eight *ḫamuštum* and the first half of a month."[61]

In some few cases, the *šapattum* half-month period is named after merchants, as in the *ḫamuštum*-system (see below):

p) "From the *šapattum* of Šarra-Suen and Kurub-Ištar."[62]
q) "From the *šapattum* of Šalim-Aššur and Ennānum."[63]
r) "From the *šapattum* of Ḫannānum and Narām-Suen."[64]
s) "From the *šapattum* of the *kaššum*."[65]

The pair Šalim-Aššur and Ennānum is also attested as the name of a *ḫamuštum*-period, as well as Narām-Suen and Ḫannānum (in reverse order).[66] Either the word *šapattum* would correspond here to a *ḫamuštum*, or this could suggest some relationship between the two-time frames *ḫamuštum* and *šapattum*.

2.3. How many days in a *ḫamuštum*-week?

Loan contracts from Kaneš often include dates expressed in *ḫamuštum* (pl. *ḫamšātum*). These *ḫamuštum*, which correspond to a fixed number of days, take the name of two merchants, or of one merchant after REL 98 (Kryszat 2004: 157–198). It is most of the time attested in the following expression: *ištu ḫamuštim ša* PN_1 (+PN_2) *ana* x *ḫamšātim išaqqal*, "From the *ḫamuštum* of PN_1 (+PN_2), within x *ḫamšātum* he will pay." The number of *ḫamuštum* varies between several units and fifty, rarely more, up to one hundred (Veenhof 1995–96: 21; Dercksen 2011a: 241–242).

The numerical value of this unit of time is still debated. This word could be derived from the Semitic root "five," HMŠ, and G. Kryszat suggested that the pair of *ḫamuštum* would correspond to one fifth of a committee of ten persons holding an administrative duty (Kryszat 2004: 159–164). Most authors agree on the ascending sequence: *ḫamuštum – warḫum – limum* in loan contract dates. This means that the *ḫamuštum* consisted of fewer than 30 days.

Veenhof (1995–96: 21) presented a chart of the frequency of *ḫamuštum*-periods as terms of payment. An updated table is given by Dercksen (2011a: 241–242). The most frequent numbers of *ḫamuštum* attested are 20 (44 times) – 13 (40 times) – 10 (34 times) – 3 (27 times) – 4 (23 times) – 5, 6, 12 (19 times) – 30 (17 times) – 40 (16 times).[67]

61 Kt b/k 651: 1–6, *ša* 5 *ma-na* KÙ.BABBAR, *ša* 8 *ḫa-am-ša-tim*, *ú ša-pá-tim*, 2/3 GÍN 15 ŠE, *ṣí-ib-tám*, *al-qé*. In this example, according to J. G. Dercksen, the word *ḫamuštum* is used to express a month (2011a: 240).

62 AKT 7a 217: 45′, [*iš-tù*] *ša-pá-tim*, [*ša* LUGAL]-*sú-en*$_6$, *ù Kur*-[*ub-Ištar*]; restitutions according to AKT 7a 221: 26–27.

63 AKT 7a 125: 7–10, *iš-tù*, *ša-pá-tim ša*, *Ša-lim-A-šur ù*, *En-na-nim*.

64 AKT 7a 222: 25–26, *iš-tù ša-pá-tim*, [*ša*] *Ḫa-na*-[*n*]*im ù Na-ra-am*-ZU.

65 AKT 7a 223: a3, b3, *iš-tù ša-pá-tim ša kà-ší-im*. See also Kt n/k 1647: 6–7, *iš-tù ša-pá-tim*, *ša ká-ší-im*.

66 See AKT 7a 213: 51–52; AKT 7a 226: 10, and in the reverse order, Ennānum and Šalim-Aššur, it is attested in xi/REL 78 (AKT 3 11: 13) and in xi or xii/REL 81 (Kt c/k 41: 13). Narām-Suen and Hannānum are holding a *ḫamuštum* in REL 75 (Kt b/k 196: 6–8). Note that both these pairs (in the reverse order) are attested in the ḫamuštum almanac Kt g/k 118: 11′, 13′.

67 J. G. Dercksen noticed that the number of attestations of *ḫamuštum* is important for numbers ending by 0 and 5.

The various hypotheses for the length of a *ḫamuštum* are summarized in the following table (Table 3):[68]

Table 3: Hypotheses for the length of the Old Assyrian *ḫamuštum*.

Number of days in a *ḫamuštum*	**Authors and summary of their explanations**
5	From the Semitic root HMŠ, it might be equal to five days. Then, we have six *ḫamuštum* which equal to a month of 30 days; such an explanation fits the Mesopotamian sexagesimal system (Landsberger 1925; Gelb 1935; Balkan 1965; CAD H 74–75).
6	Also linked to the Semitic root HMŠ, it might be equal to 1/5 of a month of 30 days (Jankowska 1967; AHw. 319b). According to Dercksen 2011a, the number of *ḫamuštum* in the so-called almanac g/k 118 could be reconstituted up to 60 *ḫamuštum* of six days. However, the high frequency of the mention of three *ḫamuštum*, thus 18 days, makes this option unlikely.
7	The original meaning is a "committee of five," but the length of a *ḫamuštum* should have nothing to do with the number five. One of the most frequent numbers of *ḫamuštum* attested in loan contracts is 13 (40 times). 13 × 7 days corresponds to three months of 30 days (+ 1 day). 12 *ḫamuštum* is also often mentioned (three months of 28 days). Four *ḫamuštum* are attested in month ix of REL 90, which would make a month (CCT 4 29b; AnOr. 6 19 and BIN 4 4). Also, the *ḫamuštum* almanac Kt g/k 118, could give a complete list of 52 *ḫamuštum* corresponding to a single year (Veenhof 1995–96; Kryszat 2004; Michel 2010).
10	The original meaning is a "committee of five," but the length of a *ḫamuštum* should have nothing to do with the number five. Calculations are based on mathematical data given in the texts (Brinkman 1963). Considering that a month is theoretically fixed at 30 days, it could be easily divided into three parts of ten days each. A *ḫamuštum* should start at the beginning of a month and another one should end with the month. The most frequent numbers of *ḫamuštum* used as a term in loan contracts are multiples of five, so they are unrelated to round numbers of months (Dercksen 2011a).

K. R. Veenhof noted that when it is used to express a term, the word *ḫamuštum* could exceptionally equal a month, and supposed that, in these texts, a kind of shorthand expression was used for "(the first) *ḫamuštum* (of the month)."[69] This would also be the case for *ḫamuštum ša Teʾinātim* (TC 1 3: 20) to be understood as "(the first) *ḫamuštum* (of the month) Teʾinātum." However, J. G. Dercksen quotes more examples in which the word *ḫamuštum*

68 For older references not quoted in the table, see Lewy 1939; H. and J. Lewy 1943; Tur-Sinai 1951.
69 Veenhof 1995–96: 7–8 and textes KTS 1a, TC 3 40 and AnOr. 6 17.

clearly refers to a month length.[70] When followed by personal names, the word *ḫamuštum* corresponds to a "week" made up of an unknown number of days. Such a mention would refer to the first day of the *ḫamuštum*-period.

K. R. Veenhof correlated the frequency of the mention of 12 and 13 *ḫamuštum* to a three-month period and so suggested that the *ḫamuštum* would be equal to a week of seven days. He made a parallel observation about the frequency of number of months in payment terms and noticing that, when expressed in months, a large majority of loans covered a period up to three months. In favour of his hypothesis, he mentioned three letters addressed to Puzur-Aššur and dealing with a debt of 25 minas of silver owed by Šumma-libbi-Aššur, the interpreter, son of Ia-šarrum, to the addressee of the letter, and for which the debtor had provided a pledge in the form of ten minas of gold. In two of these letters, the payment is supposed to take place within four *ḫamuštum*, while in the third one, it is indicated "within one month."[71]

J. G. Dercksen objected that a seven-day week is not a natural division for a 30-day month, based on a hypothesis that months were theoretically fixed at 30 days. Thus, he favoured a ten-day week for the *ḫamuštum*, which would mean 36 *ḫamuštum* pairs per year.

There is so far only one *ḫamuštum* almanac identified (Kt g/k 118); each *ḫamuštum* of this list, occupying one line, is named after two merchants.[72] K. R. Veenhof suggested that about one-third of the tablet is missing (Veenhof 1995–96), observation confirmed by J. G. Dercksen, who collated the text (Dercksen 2011b). This means that the tablet would have had about 48 lines (contra 60 lines previously suggested).[73] As noted by J. G. Dercksen, there is no reference to the period of time within which these pair of *ḫamuštum* should be placed, but it has been previously suggested that this tablet could cover one year. Such a reconstruction of the so-called *ḫamuštum*-almanac would not match with a *ḫamuštum* corresponding to ten days, but it would nicely fit a time-period equal to one-fourth of a month.

Most of the examples using the full-moon day (*šapattum*) to date a transaction make also use of the *ḫamuštum* in the following order:

b) month – full moon day – from the *ḫamuštum*
c, i–j) from the *ḫamuštum* – month – full moon day
d–h, k) from the *ḫamuštum* – full moon day

70 Dercksen 2011a: 240 gives several examples identified through the computation of the interest. See also Dercksen 2015: 55, for the alternative notations in the recapitulative text Kt c/k 839 for which we have also the original documents. A term of five months in Kt c/k 426 appears as five *ḫamuštum* in Kt c/k 839. As well, a term of 12 *ḫamuštum* in Kt c/k 650 appears as one year in Kt c/k 839. According to J. G. Dercksen 2011a: 240–241, the use of the word *ḫamuštum* to express a month-period would be more widespread than previously thought.

71 AnOr. 6 19: 10; BIN 4 4: 10; CCT 4 29b: 9.

72 Balkan 1965; Veenhof 1995–96; Dercksen 2011a and 2011b.

73 There are 13 lines remaining on the obverse and 14 on the reverse. The lower edge is lost and the upper edge contains two lines. Thus, presumably nine to 11 lines are missing on the obverse and reverse and two lines on the lower edge. We obtain 38 to 40 lines, not taking into account the left edge. According to J. G. Dercksen (2011b), "the text on the left edge is arranged in two columns of four lines each, the first three lines being separated by a continuous vertical line." He supposed that the text ends there. Thus, the text would have, according to this computation between 46 and 48 lines.

If dates were usually given according to the first day of the *ḫamuštum* or the first day of the month, in these cases, the specification of the full moon would indicate that it occurred during or on the last day of the current *ḫamuštum*. Exemple k) could suggest that two *ḫamuštum* occurred within a month before the full moon: "Since the *ḫamuštum* of the *kaššum* following the one of Iddin-Kūbum, the (moon)god having reached the full moon stage (vii/REL 103)." And a *ḫamuštum* would start with the beginning of the month marked by the appearance of the moon: "In four days the (Moon)God will rise and it will be the *ḫamuštum* of Adad-ṣulūli (xi/REL 99)" (see above note 44).

The use, in these examples, of two periods of time inspired by the phases of the moon, i.e. the month and the full moon, to provide a date could perhaps suggest that the *ḫamuštum* was linked to a period determined by a phase of the moon, as for example the first and the third quarter, each of these intermediate lunar phases — easy to observe in the sky — being roughly equivalent to seven days. This would match the equivalence of four *ḫamuštum* with a month and 48 *ḫamuštum* with a year.

Whatever the length of the *ḫamuštum* was, between seven and ten days, the system was very complicated in that every such week was named after two persons. This implied that, to be able to date a document, one had to have at his disposal, at least at the *bēt kārim*, a "*ḫamuštum* almanac," equivalent to the Kültepe Eponym List for years.[74]

3. The Old Anatolian calendar

The reconstruction of the Old Anatolian date system is based on a smaller corpus. Compared to the bulk of the Kültepe tablets belonging to Assyrians, more than 20,000, the tablets written by Anatolians in the Old Assyrian dialect and Old Assyrian script are very few, and most of them are still unpublished (Michel 2011b).

The dating system used among Anatolians is based on different phenomena. A contract may take effect from the day it has been written down, as in the following case: "We have bought Kikaršan this day. We gave him our house. He accepted the *arḫālum-corvée* of the king and accepted the house of the king."[75] But more often, dates are given according to events associated with the royal family, festivals or agricultural activities.

3.1. Royal family

Several events pertaining to the Anatolian royal family could be used to date a contract. The death of the local ruler was one of these:

1) "When Asu, king of Luḫusaddia had died."[76]
   The accession to the throne by the new ruler was an important event for the country:
2) "When Labarša became king."[77]

74 If there were three or four *ḫamuštum* in a month (thus respectivement a *ḫamuštum* of ten days or a *ḫamuštum* corresponding to the phases of the moon), it would have been much easier to count them, i.e. "the third *ḫamuštum* of month MN."

75 Kt 87/k 39: 1–6, *Ki-kà-ar-ša-an* u_4*-ma-am*, *a-nàm* : *ni-iš-am-šu*, É$^{bé-<et>}$*-ni ni-dí-šu*, *ša ru-ba-im ar-ḫa-lá-am*, *il*$_5$*-qé* é *bé-tám*, *ša ru-ba-im* : *il*$_5$*-qé*, see Donbaz 1993: 146–147.

76 Kt n/k 716: 12–13, unpublished tablet cited by Veenhof 2008a: 234.

77 ICK 1 178: 2′–4′, *i-nu-mì Lá-ba-ar-ša*, *ru-ba-ú-tám*, *iṣ-bu-tù-ni*.

A happy event, like a birth in the royal family, was certainly celebrated and is mentioned as a date:

3) "When the Lady-of-the-House (presumably the queen of Kaneš) gave birth."[78]

Religious performances of the king could be used as dates, especially when these took place every year at the same period, as entering or coming out of the god's temple:

4) "When the king enters the temple of Nipas."[79]
5) "When the king comes out of the temple of Nipas."[80]

Other specific actions of the king are found as date markers, as the levying of taxes:

6) "When the king will enter to harvest the *tuzinnum*-field."[81]

If some of these texts involved only Anatolians (3), the great majority concerns both Assyrians and Anatolians. In three of these loan contracts, the creditor is Assyrian and the debtors are Anatolians (2, 5, 6). The two complete texts mention also the *ḫamuštum*-week named after two Assyrians (5, 6), and one even quotes the Assyrian month name Maḫḫur-ilī (iv) and the eponym Ilī-dān (REL 98). In the last text, the creditor is the well-known Anatolian Peruwa who lent silver to a mixed couple — Assyrian husband and Anatolian wife (4); the loan is dated to the month Ḫubur (v) and eponym Inna-Suen. Thus, loan contracts involving members of both communities could use a mixed dating system including both elements of the Assyrian calendar and events associated with the local royal family.

3.2. Cultic activities

More often, the dates found in the loan contracts involving Anatolians refer to cultic festivals. These took place at a specific period of the year and so were used as date markers. Only ten among the many Anatolian deities mentioned in Old Assyrian texts appear in dates on the occasion of their main festival (Table 4).[82] In some cases, these festivals are combined with another type of dating, which allowed K. R. Veenhof to give the seasonal dating of some of these festivals within the year (Veenhof 2008a: 235–237):

3.3. Agricultural references

The other recurring events that marked the life of the people were seasonal agricultural activities (Table 5). Loan contracts using the agricultural calendar mostly deal with wheat, which was sown in autumn, and barley in the spring. They follow the many agricultural events from ploughing and seeding to the time of the threshing floor and refer to seasons (Veenhof 2008a: 238–245).

In several of the loans involving both Anatolian and Assyrian merchants and mentioning dates referring to agricultural activities, we find as well elements of the Assyrian calendar, often the *ḫamuštum*-period.

78 Kt a/k 851: 8–9, *i-nu-mì be-lá-at*, É^be-tim^ *tù-ul*-[*du*].

79 Kt d/k 17: 10–12, *i-nu-mì ru-ba-um*, *a-na* É *Ni-pá-as*, *e-ru*-[*bu*].

80 Kt n/k 1716a: 14–15, 1716b: 9–11, *i-nu-mì ru-ba-um i-na* É *Ni-pá-as ú-ṣí-a-ni*.

81 Kt 88/k 90: 10, *i-nu-mì ru-ba-um a-na tù-zi-nim e-ṣa-dim e-ru-bu*.

82 For Anatolian deities, see Kryszat 2006, with previous bibliography. For the goddess Anna, see Michel 2016: 325.

Table 4: Anatolian festivals

Festival	**Corresponding season**
ša Nipas	Beginning of spring
ša Parka	Summer (grain harvest)
ša Anna (Main goddess of Kaneš)	Late autumn
ša Tuḫutānim	autumn
ša Bēlim (Lord)	?
ša Bēl qablim (Lord of the Battle)	?
ša Ḫariḫari	?
ša Usumū	?
ša ^{d}UTU	?

Table 5: Agricultural activities mentioned as dates

Seasons	**Tasks**	**Translation (corresponding months)**
Autumn	*qitip kerānim*	picking of the grapes (Sept.)
	erāšum	ploughing (and seeding wheat, Oct.–Nov.)
	serdum	(time of) the olives (Oct.–Dec.)
	eršum waṣāʾum	coming up of the sown (late fall)
	buqlātum	sprouting (of the barley seeds, late fall)
Spring	*dašʾū*	spring (Apr.–June)
	buqūnum	plucking (of the wool, May–June)
Summer	*ḫarpū*	summer (Jul.–Sept.)
	kubur uṭṭitim	ripening of the grain (Jul.–Oct.)
	ṣibit niggalim	taking up the sickle (Jul.)
	eṣādum	harvesting (Jul.–Aug.)
	ebūrum	harvest, crop (Jul.–Aug.)
	adrum	threshing floor (Aug.–Sept.)

*

This survey of dating in Old Assyrian texts has shown that there are still some uncertainties in the reconstruction of the calendar used by the Assyrians at the beginning of the second millennium BC. This might be explained by the fact that this calendar is documented only indirectly from Kaneš archives, in a place where another way of measuring time was in use. Links between the two calendars can be occasionally made, thanks to loan contracts involving both Assyrians and Anatolians that sometimes mix the two systems.

The luni-solar calendar used by the Assyrians included specific divisions of the month. The *šapattum*, when it was not used to express the full moon, corresponded to the first half

of the month, and thus not to a fixed number of days, but varied between 14 and 15 days. By analogy, we are tempted to equate the *ḫamuštum* period, not to a fixed number of days, but to the phases of the moon — first quarter, full moon, third quarter — which are easily visible in the sky; the new moon is less visible. Indeed, we know that a *ḫamuštum* began the month, and we suppose that another *ḫamuštum* ended the month. Then, when a *šapattum* was named after two merchants, it could suggest that this pair of merchants gave their name to two *ḫamuštum* in sequence.

According to the hypothesis reconstructing four *ḫamuštum* in a month, the year then contained 48 *ḫamuštum*, a number which matches the number of lines of the so-called *ḫamuštum*-almanac Kt g/k 118. In such a system, loan interest could be computed by month, half-month, or quarter of a month, loans usually starting with the beginning of one of these periods. This would explain why Old Assyrian loans almost never mention day numbers within a month, contrary to most of the Old Babylonian examples.

The ongoing decipherment and publication of Old Assyrian Kültepe tablets will, we hope, allow a more complete understanding of the calendar used by the Assyrians in their loan contracts.

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